A Confirmatory Factor Analysis of the School Counseling Program Implementation Survey

Heather J. Fye
The University of Alabama

Riza Memis, Ilker Soyturk, Rebecca Myer, Aryn C. Karpinski, and J. Steve Rainey
Kent State University

Abstract

The three-factor model structure of the School Counseling Program Implementation Survey was tested with a national sample (*N* = 275) of school counselors. Confirmatory factor analysis (CFA) suggested a modified two-factor model was the most appropriate fit. Implications and future research for the school counseling profession are discussed.

Keywords: ASCA National Model, school counselor, confirmatory factor analysis

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School counselors provide a variety of services to students and stakeholders within the school setting. These professionals deliver services through a comprehensive school counseling program (CSCP) framework (American School Counselor Association [ASCA], 2019; Gysbers & Henderson, 2012) that focuses on students' academic, career, and social/emotional development (ASCA, 2014). To align school counselor practices within the CSCP framework, the ASCA National Model was developed and introduced in 2003. The ASCA National Model, which is now in the 4th edition (ASCA, 2019), provides a structure for school counselor practices and educates stakeholders on how these professionals can make a difference for students in the school setting. In response to the adoption of CSCPs and the ASCA National Model, several instruments were developed to measure various aspects of school counselors' beliefs and practices (Barna, Wilkerson, & Morgan, 2015). Despite the surgency in measurements constructed to aid in CSCP research, few have been empirically validated (Barna et al., 2015). The School Counseling Program Implementation Survey (SCPIS) was developed to measure school counselors' ASCA National Model program implementation (Clemens, Carey, & Harrington, 2010). Despite recommendations by Pyne (2011) for its application in school counseling research, we were unable to locate a study that provided empirical validation for this population. Therefore, our purpose was to test the factor structure (investigate the psychometric properties) of the SCPIS using confirmatory factor analysis (CFA).

The ASCA National Model

The ASCA National Model is a framework for school counseling programs (ASCA, 2019) that contains a principal goal to improve student outcomes through the design and delivery of a school counseling program. An executive summary (ASCA, 2019) includes a description of the components of a school counseling program. The ASCA National Model (2019) is based on academic, career, and social/emotional standards (ASCA, 2014) that are essential to the school's academic mission, and were created to have a significant positive impact on student achievement, attendance, and discipline (ASCA, 2019). The ASCA National Model guides school counselors as they design counseling programs that are based on data-informed decision making, delivered systemically with a curriculum that is developmentally appropriate and focuses on the mindsets and behaviors for postsecondary readiness and success. It also attempts to improve student outcomes and to close the achievement and opportunity gaps among students (ASCA, 2019). The ASCA National Model contains four components, specifically (a) define, (b) manage, (c) deliver, and (d) assess.

CSCPs, such as the ASCA National Model, are a primary element of a school counselor's role and practice. Therefore, studying CSCP and ASCA National Model implementation is beneficial to understanding school counselors' practices and the future needs of the school counseling profession (Pyne, 2011). However, instruments have varied across studies when measuring school counselors' practices and implementation results (Clemens et al., 2010). Researchers have constructed a variety of instruments to measure aspects of school counselor practices and CSCPs. For a comprehensive review of these instruments, please see Barna et al. (2015).

SCPIS

The SCPIS was developed to empirically measure school counseling program implementation characteristics based upon the ASCA National Model. The initial scale was originally developed by Elsner and Carey (2005) at the Center for School Counseling Outcome Research at the University of Massachusetts Amherst (Clemens et al., 2010). Twenty-five items were developed to identify which aspects of the ASCA National Model were in practice. Sixty school counselors completed the original SCPIS. Internal consistency reliability was examined using classical test theory and five items were deleted. The 20-item SCPIS was administered to two samples, with a total of 341 school counselors completing the measure. Results from the exploratory factor analysis (EFA) supported a two- and three- factor model with 17 items. The SCPIS contained three factors: (a) programmatic orientation (Factor 1), (b) school counselors' use of computer software (Factor 2), and (c) school counseling services delivery (Factor 3) (Clemens et al., 2010). In 2012, the *Professional School Counseling* journal commissioned a special issue on CSCPs. Within this issue, various measures were used across studies to measure CSCP implementation. However, two studies used the SCPIS based upon the unpublished instrument by Elsner and Carey (2005) (i.e., Carey, Harrington, Martin, & Hoffman, 2012; Carey, Harrington, Martin, & Stevenson, 2012). The SCPIS has been utilized in research but yet to be empirically validated. Therefore, by studying the psychometric properties of the SCPIS, school counselors may be able to make an informed decision about its use in quantitative research.

Purpose of the Study

There is evidence to support the use of the SCPIS in school counselor implementation levels of the ASCA National Model (Carey, Harrington, Martin, & Hoffman, 2012; Carey, Harrington, Martin, & Stevenson, 2012; Pyne, 2011). Despite the fact that several instruments have been developed to measure ASCA National Model implementation, CSCPs, and school counselors' practices, there is limited research on the psychometric properties of these instruments (Barna et al. 2015). Therefore, this study examined the psychometric properties of the SCPIS, an instrument developed to measure ASCA National Model implementation. Specifically, our purpose was to determine whether the 17-item, three-factor structure (i.e., programmatic orientation, school counselors' use of computer software, and school counseling services delivery) of the SCPIS (Clemens et al., 2010) fit the data using a national sample of ASCA school counselors. The three-factor model was selected based on previous EFA study results from Clemens and colleagues (2010).

Method

Sample

A total of 275 ASCA professional members from across the United States completed the survey (response rate was 6.9%). Participants' ages ranged from 26 to 69 (M = 46.06, SD = 10.18). Their years of experience as a school counselor ranged from two to 41 years (M = 13.36, SD = 7.41). Seventy-four participants (26.9%) identified as male and 201 identified as female (73.1%). Most participants (n = 219; 79.6%) identified as Caucasian, followed by African American (n = 25; 9.1%), Hispanic (n = 10; 3.6%), multi-racial (n = 8; 2.9%), Asian/Pacific Islander

(*n* = 3; 1.1%), American Indian/Alaskan Native American (*n* = 1; 0.4%), and nine (3.3%) declined to answer. Two-hundred twelve respondents (77.1%) completed a master's degree in school counseling, 23 completed either a master's degree in another human service or counseling specialty (8.3%), and 40 completed a doctoral degree (14.5%). Participants worked on multiple grade levels (*n* = 86, 31.3%), K-6 elementary school (*n* = 97, 35.3%), 7-8 middle school (*n* = 16, 5.8%), 9-12 high school (*n* = 71, 25.8%), and 3 (1.1%) declined to answer. Participants worked in a rural (94; 34.2%), suburban (113; 41.1%), or urban (68; 24.7%) setting. Percentage of time providing counseling-related services weekly ranged from 20%-100% (*M* = 72.04, *SD* = 19.74) and non-counseling related services ranged from 0-80% (*M* = 25.00, *SD* = 18.31).

Procedures

Following institutional review board approval, ASCA members from each state (50 states total) and the District of Columbia, were randomly chosen from the online membership database to participate in the study. Approximately, 4,000 professional school counselors, who were ASCA members, were sent an initial email invitation to participate in the study. Two follow-up requests were sent to the potential participants who had not yet completed the survey at two week intervals. The emails contained a link to the online survey in Qualtrics (2013). The Qualtrics survey portal first asked potential participants to review and provide consent before beginning the study. Once participants provided consent to the study, they completed the demographic form and the SCPIS (Clemens et al., 2010) online. This study was part of a larger research study conducted by the first author. For a full description of the procedures, please refer to Fye (2016).

Instruments

A demographics questionnaire was created by the first author. The following demographic information was included in the present study: (a) age, (b) years of experience as a school counselor, (c) sex, (d) race and ethnicity, (e) type of degree, (f) level of practice, (g) type of school district, and (h) estimated percentage of time (i.e., totaling 100%) spent in counseling and non-counseling related duties each week.

The SCPIS is a 17-item inventory designed to measure the extent to which the ASCA National Model was implemented. The SCPIS has three subscales using a 4-point Likert-type scale (1 = *not present*, 2 = *development in progress*, 3 = *partly implemented*, and 4 = *fully implemented*) to determine the degree to which the ASCA National Model was currently implemented in the school's counseling program. Scores on the SCPIS range from 17 (i.e., the model was not present) to 68 (i.e., the model was fully implemented). The SCPIS was normed on two samples of school counselors. The first sample included 201 school counselors and the second sample included 136 school counselors (Clemens et al., 2010).

An EFA was conducted (Clemens et al., 2010) with the two samples. A four-factor model emerged with 20 items. After deleting three items (i.e., Items 6, 7, and 8), the two- and three-factor models were compared and the three-factor model was found to allow researchers to capture more precise aspects of the ASCA National Model program implementation and explained more variance. The three-factor model accounted for 54% of the variance (Clemens et al., 2010).

The first factor is programmatic orientation. A sample question on the SCPIS to measure subscale one, programmatic orientation, is "A written mission statement exists

and is used as a foundation by all counselors." Factor one is determined by summing items 1, 3, 4, 5, 9, 10, and 14. Factor two is comprised of items focused on school counselors' use of software to manage student data and use for school improvement. A sample question on the SCPIS to measure subscale two is "School counselors use computer software to analyze student data." Factor two is determined by summing items 15, 16, and 17. Factor three is school counseling services delivery. A sample question on the SCPIS to measure subscale three is "Services are organized so that all students are well served and have access to them." Factor three is determined by summing items 2, 11, 12, 13, 18, 19, and 20 (Clemens et al., 2010). Cronbach's Alpha (internal consistency reliability) estimates for factors one, two, and three were .79, .83, and .81, respectively (Clemens et al., 2010).

Validity of the SCPIS was evidenced by correlating participant scores with the School Counseling Activity Rating Scale (SCARS) scores, a 40 item instrument developed by Scarborough (2005). The SCARS yielded four factors with 47% of the variance explained; therefore, Clemens and colleagues (2010) determined that the initial steps in SCPIS development indicated preliminary evidence of reliability and validity. The SCPIS and SCARS both measure school counselors' activities but the SCPIS additionally allows researchers a way to measure characteristics of school counseling programs according to the ASCA National Model (Clemens et al., 2010).

Data Analysis

In this study, confirmatory factor analysis (CFA) was used to provide confirmatory evidence of the factor structure of the SCPIS. CFA and not EFA was selected because prior evidence supports the factor structure of the SCPIS (Clemens et al., 2010). CFA is

used if the hypothesized model of factors is related to a set of observed variables whether or not the sample data confirm the model (Schumacker & Lomax, 2010). When the data structure is ordinal, two common estimation methods are recommended: unweighted least square (ULS), and diagonally weighted least square (DWLS). The ULS method provides a more accurate estimation of factor loadings, factor relationships, and standard errors of parameter estimates than the DWLS method. (Forero, Maydeu-Olivares, & Gallardo-Pujol, 2009; Kogar & Yilmaz Kogar, 2015). Additionally, Kogar and Yilmaz Kogar (2015) found the ULS method performs better than the DWLS method with a smaller sample size (i.e., N = 250). Based on this information, this study used the ULS estimation method.

The model was tested using linear structural relations software (LISREL 8.80; Jöreskog & Sörbom, 2006). Five fit indices were used to evaluate the modeling process because there is no consensus regarding the best measure of fit (Bollen, 1990). One index of model fit used was the χ^2 (Chi-square) test. Chi-square is an inferential test examining the differences between the observed (i.e., the current study data) and implied (i.e., existing SCPIS structure) variance–covariance matrices (Schumacker & Lomax, 2010). A nonsignificant χ^2 indicating the sample data and the theoretical model are similar is desired (Schumacker & Lomax, 2010). However, χ^2 is affected by many factors, especially sample size (Bentler & Bonnet, 1980; Jöreskog & Sörbom, 1993; Tanaka, 1993). Larger samples produce inflated χ^2 values which are significant, and smaller samples may be susceptible to a Type II error (Marsh, Balla, & McDonald, 1988; Tanaka, 1993). As a result, a number of researchers have suggested using multiple

measures of model fit (Jackson, Gillaspy, & Purc-Stephenson, 2009; Schumacker & Lomax, 2010; Tanaka, 1993).

The root mean square error of approximation (RMSEA) is another measure of fit commonly used as an index of model fit (Steiger & Lind, 1980). RMSEA incorporates a penalty for poor model parsimony (Brown, 2006; Hu & Bentler, 1999; Steiger, 1990). The RMSEA index should be .05 or lower indicating the sample data fit the model well (Schumacker & Lomax, 2010). The goodness-of-fit index (GFI) measures the amount of variance and covariance in the observed data matrix predicted by the theoretical model matrix (Jöreskog, & Sörbom, 1986; Schumacker & Lomax, 2010). Values for the index range from 0 to 1 with values around .90 or .95 (or greater) indicating a good fit (Jöreskog, & Sörbom, 1986; Schumacker & Lomax, 2010).

The standardized root mean square residual (SRMR) index is the average difference between the predicted and observed variances and covariances in the model based on standardized residuals (i.e., those from the observed data in this study and the estimated population values—the theoretical model). The SRMR has a range from 0 to 1, and values of less than .05 are desired (Hu & Bentler, 1999; Schumacker & Lomax, 2010). However, Hu and Bentler (1999) stated values less than .08 are acceptable. Finally, an index of model comparison was included. The comparative fit index (CFI) compares the current model fit (i.e., whichever model is being examined at the moment) with a null model assuming the latent variables (i.e., programmatic orientation, school counselors' use of computer software, and school counseling services delivery) in the model are uncorrelated (Bentler, 1990). The CFI varies from

0 to 1, with values around .90 or .95 or greater considered a good fit (Bentler, 1990; Schumacker & Lomax, 2010).

Results

Confirmatory Factor Analysis

Before conducting the CFA, investigators examined the distribution of the items. Table A1 shows the descriptive statistics for the initial 17 items. Investigation of item means, standard deviations, and Spearman correlations showed there were some items (i.e., Item 2, 13, 15, 16, 17, 18, and 19) with participants more frequently endorsing the higher categories (e.g., partly implemented, fully Implemented) compared to the lower categories. However, the ULS estimation method does not require any distributional assumptions. Among these items, the Spearman Correlation between Item 16 and Item 17 was .746 and was the highest correlation in this matrix. Therefore, Item 17 was excluded from the CFA in order to avoid the Heywood Case which may occur due to high correlation (Kolenikov & Bollen, 2012). After eliminating Item 17, Items 15 and 16 were the only items that loaded on Factor 2 (school counselors' use of computer software). A factor should have at least three items (Osborne & Costello, 2005; Raubenheimer, 2004). Therefore, these items were also excluded from the analysis. As a result, the CFA was conducted using the remaining 14 items on two factors solution. The asymptotic covariance matrix was used in this study.

Model identification is an important step in CFA. Model identification involves determining if there is enough information to estimate values for the unknown parameters (Schumacker & Lomax, 2010). In this study, the number of distinct values in the matrix *S* was 105. There were 27 free parameters in the matrix *S*, including 12

factor loadings, 14 measurement error variances, 1 correlations among the latent variables and zero measurement error covariance terms. Thus, there was more than enough information in the matrix *S* to estimate parameters (i.e., 27 < 105). Therefore, the number of free parameters to be estimated is less than or equal to the number of distinct values in the matrix *S*, which indicated the model was over-identified (Schumacker & Lomax, 2010).

Initial Model

CFA was performed on the asymptotic covariance matrix of the items in the current data set. The model parameters were estimated using ULS estimation. The initial model included each item loading on only one of two latent factors corresponding to its dimension (i.e., there were no cross-loadings). Items 1, 3, 4, 5, 9, 10, and 14 loaded on the factor “programmatic orientation”, and Items 2, 11, 12, 13, 18, 19, and 20 loaded on the factor “service delivery” (see Figure B1). The hypothesized two-factor model did not fit the data well. The Satorra-Bentler Scaled χ^2 test was significant (χ^2_{sb} = 230.89, *df* = 76, *p* < .001) indicating the specified CFA model was not supported by data. Additionally, model fit indices showed the RMSEA and SRMR were not at an acceptable level of model fit while the GFI and CFI were above the suggested .95 thresholds of good model fit (GFI = .97, CFI = .98, RMSEA = .087, and SRMR = .069). A comparison of all the model fit indices is presented in Table A2.

The standardized loadings represent the correlation between each observed variable and the corresponding factor (Schumacker & Lomax, 2010). All standardized factor loadings were large for all factors and statistically significant (see Table A3 for a summary of all factor loadings observed in various models). Programmatic orientation

values ranged from .63 to .83 and service delivery values ranged from .59 to .85. The inter-factor correlation was also large and statistically significant between programmatic orientation and service delivery (r = .82, p < .001). The amount of the variance accounted for each observed variable ranged from 35% to 72%. The modification indices suggested by the LISREL software recommended adding an error covariance. An error covariance was added between Item 11 and Item 12 for the greatest decrease in χ^2 (i.e., 56.6). After further examining these two items, Item 11 (i.e., “School counselor job descriptions match actual duties.”) and Item 12 (i.e., “School counselors spend at least 80% of their time in activities that directly benefit students.”), it was determined they measured similar constructs (i.e., both items were associated with the same latent variable), service delivery. Therefore, this error covariance was added and tested within the second model.

Second Model–Fifth Model

After adding error covariance between Item 11 and Item 12, the model improved significantly ($\Delta\chi^2$ =29.29, df = 1, p < .001). However, the second model still did not fit the data well (χ^2_{sb} = 201.60, df = 75, p < .001; GFI = .99, CFI = .98, RMSEA = .079, and SRMR = .062). Although the second model had significant improvement, the modification indices suggested adding an error covariance between Item 12 (i.e., “School counselors spend at least 80% of their time in activities that directly benefit students.”) and Item 13 (i.e., “The school counseling program includes interventions designed to improve the school’s ability to educate all students to high standards.”). Adding an error covariance between Item 12 and Item 13 was suggested with the potential outcome of decreasing χ^2 by 44.0. This error covariance was added since the

items were associated with the same latent variable and the CFA was rerun within the third model. After adding an error covariance between Item 12 and Item 13, the model improved significantly ($\Delta\chi^2$=24.89, *df* = 1, *p* < .001) compared to the second model, however, the third model still did not fit the data well (χ_{sb}^2 = 176.71, *df* = 74, *p* < .001; GFI = .99, CFI = .98, RMSEA = .072, and SRMR = .059). After the above second modification and re-running the model, MIs were consulted for additional improvement. The modification indices suggested adding an error covariance between Item 3 (i.e., “The program operates from a plan for closing the achievement gap for minority and lower income students.”) and Item 10 (i.e., “School counselors analyze student data by ethnicity, gender, and socioeconomic level to identify interventions to close achievement gaps.”) with a decrease in χ^2 by 26.9. These two items were associated with the same latent construct, programmatic delivery. This error covariance was added and tested within the fourth model. After adding error covariance between Item 3 and Item 10, the model improved significantly ($\Delta\chi^2$=26.25, *df* = 1, *p* < .001) compared to the third model, however, the fourth model did not fit the data well (χ_{sb}^2 = 150.46, *df* = 73, *p* < .001; GFI = .99, CFI = .99, RMSEA = .063, and SRMR = .056). After re-running the model with the abovementioned modifications, MIs were once again consulted. Another reduction in χ^2 of 24.4 was possible by inserting an error covariance between Item 9 (i.e., “School counselors use student performance data to decide how to meet student needs.”) and Item 10 (i.e., “School counselors analyze student data by ethnicity, gender, and socioeconomic level to identify interventions to close achievement gaps.”). These two items measured latent variable, programmatic orientation. This error covariance was added and tested within the fifth model. After adding error covariance between Item

9 and Item 10, the model improved significantly ($\Delta\chi^2$ = 21.223, *df* = 1, *p* < .001) compared to the fourth model. However, the fifth model still did not fit the data well (χ^2_{sb} = 129.23, *df* = 72, *p* < .001; GFI = .99, CFI = .99, RMSEA = .054, and SRMR = .052). For this model, the RMSEA and SRMR were slightly above the acceptable level of model fit.

Final Model

Another model was run adding error covariance between Item 18 (i.e., “The school counseling program has the resources to allow counselors to complete appropriate professional development activities.”) and Item 19 (i.e., “School counseling priorities are represented on curriculum and education committees.”) for comparison purposes. These two items measured the service delivery construct. The results indicated the model with this final modification had an improved fit ($\Delta\chi^2$ (1) = 10.08, *p* < .01). Even though the hypothesized final model did not fit the data well based on χ^2 (χ^2_{sb} = 119.15, *df* = 71, *p* < .001), which is sensitive to sample size, the fit indices were in the acceptable range. The RMSEA and SRMR decreased to .50, and GFI and CFI were above the acceptable range of .95 (GFI = .99, CFI = .99). In this final model, all standardized factor loadings were large and statistically significant (*p* < .05) for both factors (see Figure B2). Programmatic orientation values ranged from .64 to .83 and services delivery values ranged from .52 to .83. The inter-factor correlation was also large and statistically significant between programmatic orientation and services delivery (*r* = .87, *p* < .001). The amount of variance accounted for in each observed variable ranged from 39% to 70%, although there were several additional modification recommendations. For example, the modification indices suggested adding another

error covariance between Item 5 and Item 9. However, the model did not improve significantly ($\Delta\chi^2 = 1.29$, $df = 1$, $p = .27$) after adding covariance between these two items. Therefore, no additional modification was made in order to keep the more parsimonious model. The internal consistency reliabilities were calculated for the total and subscale scores. All were found to be high and similar to previous findings, with total SCPIS $\alpha = .90$, programmatic orientation $\alpha = .86$, and services delivery $\alpha = .83$.

Discussion

We investigated the factor structure of the SCPIS in a national sample of school counselors. Our results were intended to extend the initial instrument development and EFA conducted on the SCPIS by Clemens and colleagues (2010). Our results found evidence that the original three-factor model of the SCPIS was not an appropriate fit due to the strong relationship between items 16 and 17 on Factor 2. To avoid the Heywood Case, Item 17 was eliminated. Therefore, there were only two items remaining in Factor 2 (school counselors' use of computer software). According to Osborne and Costello (2005) and Raubenheimer (2004), there should be three or more items in a factor. As a result, Factor 2 was not included in the CFA.

Data use is an integral component of the ASCA National Model (2019) and school counselor practices (Young & Kaffenberger, 2011). Although Factor 2 did not fit the current model, new measures can be constructed (with more items) to allow this important dimension more attention than the original three items. Preliminarily, we conducted a post-hoc internal consistency reliability analysis and found the Coefficient Alpha for the three items to be .83. Meaning, separately it has high internal consistency

reliability for the three items and provides evidence that it can be a separate scale in future studies.

Our results found evidence that a modified, two-factor model of the SCPIS was an appropriate fit based on four of the five indices (i.e., RMSEA, SRMR, GFI, and CFI) within the acceptable ranges. We conducted five modifications of the SCPIS to significantly improve the fit. As a result, we added error covariances between several pairs of items (i.e., 11 and 12, 12 and 13, 3 and 10, 9 and 10, and 18 and 19). All of the error covariances modifications were within-factor. Therefore, with the addition of error covariances between items, our results suggest the two-factor structure of the SCPIS is a good model for school counselors measuring ASCA National Model implementation. The two-factor structure included programmatic orientation and school counseling services delivery. The programmatic orientation factor refers to school counselors' activities when administering a proactive program. The school counseling services delivery factor refers to how school counselors provide services to students within the comprehensive school counseling program (Clemens et al., 2010).

Our results slightly varied from the Clemens et al. study (2010), which conducted an EFA of the SCPIS. In the current study, we confirmed a (modified) two-factor structure. Within the two-factor model, we also found that error covariances between several items were required to improve its fit. The first error covariance added was between Item 11 (i.e., "School counselor job descriptions match actual duties.") and Item 12 (i.e., "School counselors tend at least 80% of their time in activities that directly benefit students."). These items were contained in the school counseling services delivery factor and may be related because they are describing similar outcomes. For

example, if school counselors job descriptions match the actual duties, the outcome would naturally be that school counselors will spend a large portion of their time in direct student activities, according to the ASCA National Model (ASCA, 2019).

The second error covariance added was between Item 12 (i.e., “School counselors spend at least 80% of their time in activities that directly benefit students.”) and Item 13 (i.e., “The school counseling program includes interventions designed to improve the schools’ ability to educate all students to high standards.”). The items were contained in Factor 3 (school counseling services delivery). This finding may highlight that a school counseling program is designed to educate all students and implies the time required to meet this goal is spent in appropriate ways. This does not allow for school counselors to spend time on activities that do not meet these goals.

The third error covariance added was between Item 3 (i.e., “The program operates from a plan for closing the achievement gap for minority and lower income students.”) and Item 10 (i.e., School counselors analyze student data by ethnicity, gender, and socioeconomic level to identify interventions to close achievement gaps.”). These items were contained in Factor 1 (programmatic orientation). These results may be correlated because the activities requires school counselors to understand and intervene in closing the achievement gap via data-informed decision making (ASCA, 2019).

The fourth error covariance added was between Item 9 (i.e., “School counselors use student performance data to decide how to meet student needs.”) and Item 10 (i.e., “School counselors analyze student data by ethnicity, gender, and socioeconomic level to identify interventions to close achievement gaps.”). These items were contained in

Factor 1 (programmatic orientation). This finding may describe that using and analyzing data are similar activities. Data cannot be used without analyzing it when determining student needs.

The final error covariance added was between Item 18 (i.e., “The school counseling program has the resources to allow counselors to complete appropriate professional development activities.”) and Item 19 (i.e., “School counseling priorities are represented on curriculum and education committees.”). These items were contained within Factor 3 (school counseling services delivery). When school counselors make it into the curriculum and education committees, this may show they are increasingly valued by administrators. Additionally, these outcomes would be valuable for continuing professional development opportunities for the school counselors.

It is interesting to note that two items (i.e., 10 and 12) were included in error covariances on two separate occasions. Item 10 (“School counselors analyze student data by ethnicity, gender, and socioeconomic level to identify interventions to close achievement gaps.”) loads on programmatic orientation, and Item 12 loads on school counseling services delivery (i.e., “School counselors spend at least 80% of their time in activities that directly benefit students.”). First, Item 10 is describing a school counselor’s use of data to identify interventions and close achievement gaps, which is part of the deliver component (ASCA, 2019). Item 12 is a broad statement about how school counselors spend their time and may encompass many actions within the ASCA National Model (2019). These items may be reiterating important actions of school counselors within the ASCA National Model, where other items may have provided specific action outcomes.

Implications for the School Counseling Profession

Our CFA results provides school counseling practitioners, supervisors, and researchers with an empirically validated instrument (i.e., SCPIS) to measure implementation levels of the ASCA National Model. For example, the SCPIS can be used when supervising school counselors. Supervisees can inventory their current implementation levels, and identify areas to increase ASCA National Model implementation. School counselors in practice can complete the SCPIS to evaluate their current school counseling practices according to the ASCA National Model, and identify areas to increase implementation. These results may additionally provide data that school counselors can show to administrators to advocate for increasing their practices within the ASCA National Model (2019) framework. When school counselors use data to inform practices, it may be helpful to include pro-social and meaningful outcomes (i.e., decrease in bullying, decrease in suicide threats, etc.) as a result of the school counselor's interventions (i.e., SCPIS).

There were benefits to students when schools increased their levels of ASCA National Model implementation. For example, students who attended schools with highly implemented school counseling programs had better outcomes (Lapan, 2012) and increased student achievement (Wilkerson, Perusse, & Hughes, 2012). It would be advantageous for principals and other administrators to understand the ASCA National Model (2019) and how to increase its implementation in schools. Together, school counselors and principals can work towards increasing implementation, which may in turn, increasingly serve the needs of students. School counselors assess their program

to determine effectiveness, inform improvements to program design and delivery, and show how students are positively impacted by implementation (ASCA, 2019).

Measures should not be used unless they are fully validated using not just EFA, but also CFA. It is important to examine an instrument with a different sample to provide evidence of its validity. Therefore, our results provide evidence of the psychometric properties and construct validity of the SCPIS. This, in turn, provides context to school counselors' practices of ASCA National Model implementation and how researchers can use the SCPIS to measure the construct. For example, researchers can use the SCPIS (Clemens et al., 2010) in quantitative studies with large samples of school counselors. Results can then be compared across studies and time (i.e., longitudinal studies).

Limitations and Future Research

It is important to note the limitations to this study. The sample consisted of ASCA members and a large majority of participants identified as Caucasian and female. Our participant sample appears to be similar to the demographic makeup of ASCA members (ASCA, 2020); however, caution should be given when generalizing results to non-ASCA school counselors. In future studies, it may be helpful to include a more diverse sample of participants, including school counselors of color, males, and non-ASCA members. It is unknown whether ASCA membership affected school counselors' ASCA National Model implementation levels. Overall, researchers may find it helpful to expand avenues for recruiting school counselor participants.

The participants' ages ranged from 26 to 69. The age range may be expected due to surveying a large number of school counselors. However, this outcome may have affected the factor structure, especially when interpreting the results related to

school counselors' use of computer software for data analysis. As technology becomes more popular and accessible, it is unknown whether younger school counselors may have increased technology skills, and whether the age range of participants impacted Factor 2 (school counselors' use of software). Additionally, school counselors may not have access to data analysis software, based on budgets or district (lack of) resources. Future research may investigate the SCPIS with different age groups, or resources available within a school district, using measurement invariance. This procedure allows researchers to determine whether the same model works equally across different groups. It may be helpful to investigate the SCPIS with another diverse sample of school counselors. Comparing results may help to establish cutoff (or application) scores and determine whether to revise redundant items or add items to increase its validity or alignment with the current edition of the ASCA National Model (ASCA, 2019).

In future studies, it may be helpful to consider expanding questions on data-informed and assessment of school counseling practices (ASCA, 2019). Factor 2 implies that school counselors have computer software to access, analyze, and use the data for school improvement (Clemens et al., 2010). Despite an increase in technology-related services, computer technology may not be equally distributed. School counselors may not have access to these resources, especially in a school district with low budgets, or school counselors who may not have training, interest, or ability to utilize software in their school counseling practices. School counselors may have limited training in using data, research, and program evaluation. For example, Scarborough and Luke (2008) found that school counselors were often engaging in informal evaluations of their practices. It may be helpful to expand upon the three items of Factor

2 to include items that account for these potential variations and inclusions across school counselors' data-informed decision making practices.

Conclusion

In the present study, we tested the factor structure of the SCPIS using CFA. A modified, two-factor model was the most appropriate fit (i.e., Factor 1 and Factor 3). It may be beneficial for researchers to expand upon Factor 2 and create a measure focused on data-informed school counseling practices, according to the ASCA National Model (2019). Overall, our results provide construct validity for the SCPIS, implications for the school counseling profession, and a discussion regarding the use of SCPIS in future research to measure ASCA National Model program implementation.

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Appendix A

Table 1

Spearman Correlations between the Items, Means, and Standard Deviations of the School Counseling Program Implementation Survey (N = 275)

Item	1	2	3	4	5	9	10	11	12	13	14	15	16	17	18	19	20
1	-																
2	.326*	-															
3	.322*	.360*	-														
4	.512*	.447*	.517*	-													
5	.378*	.317*	.391*	.527*	-												
9	.311*	.336*	.531*	.504*	.559*	-											
10	.337*	.299*	.652*	.462*	.464*	.624*	-										
11	.333*	.459*	.335*	.345*	.307*	.263*	.296*	-									
12	.272*	.370*	.240*	.260*	.225*	.238*	.162*	.575*	-								
13	.372*	.418*	.476*	.489*	.389*	.526*	.409*	.469*	.536*	-							
14	.473*	.376*	.435*	.552*	.542*	.471*	.462*	.419*	.312*	.496*	-						
15	.182*	.225*	.230*	.181*	.300*	.358*	.256*	.144**	.179*	.267*	.229*	-					
16	.277*	.237*	.423*	.317*	.351*	.407*	.442*	.215*	.173*	.368*	.332*	.597*	-				
17	.333*	.239*	.438*	.435*	.425*	.490*	.551*	.280*	.206*	.464*	.417*	.518*	.746*	-			
18	.350*	.359*	.313*	.276*	.265*	.341*	.344*	.466*	.309*	.458*	.433*	.246*	.319*	.381*	-		
19	.361*	.378*	.416*	.463*	.342*	.372*	.412*	.459*	.321*	.450*	.481*	.131**	.281*	.390*	.543*	-	
20	.295*	.321*	.400*	.450*	.389*	.401*	.368*	.292*	.258*	.447*	.463*	.212*	.304*	.393*	.332*	.463*	-
M	2.98	3.39	2.81	2.76	2.66	3.05	2.52	2.71	3.10	3.14	2.72	3.62	3.15	3.03	2.96	2.50	3.14
SD	1.08	.75	.94	.97	1.02	.83	1.01	.98	1.0	.84	1.11	.68	.95	.96	.99	1.0	.85

Note. M = Mean; *SD* = Standard Deviation.
* $p < .01$, ** $p < .05$.

Table 2

Summary of the Model Fit Indices for All Confirmatory Factor Analysis (CFA) Models

Model	χ^2_{sb}	*df*	RMSEA	SRMR	GFI	CFI
Initial Model	230.89*	76	.087	.069	.97	.98
Model 2 (Error Covariance 11-12)	201.60*	75	.079	.062	.99	.98
Model 3 (Error Covariance 12-13)	176.71*	74	.072	.059	.99	.98
Model 4 (Error Covariance 3-10)	150.46*	73	.063	.056	.99	.99
Model 5 (Error Covariance 9-10)	129.23*	72	.054	.052	.99	.99
Model 6 (Error Covariance 18-19)	119.15*	71	.050	.050	.99	.99

Note. χ^2 = Chi-Square Test (i.e., Minimum Fit Function); RMSEA = root mean square error of approximation; SRMR = standardized root-mean-square residual index; GFI = goodness-of-fit index; CFI = comparative fit index; Error Covariances = error covariance terms were freed sequentially until model fit was achieved.
*p < .001.

Table 3

Standardized Factor Loadings for the School Counseling Program Implementation Survey

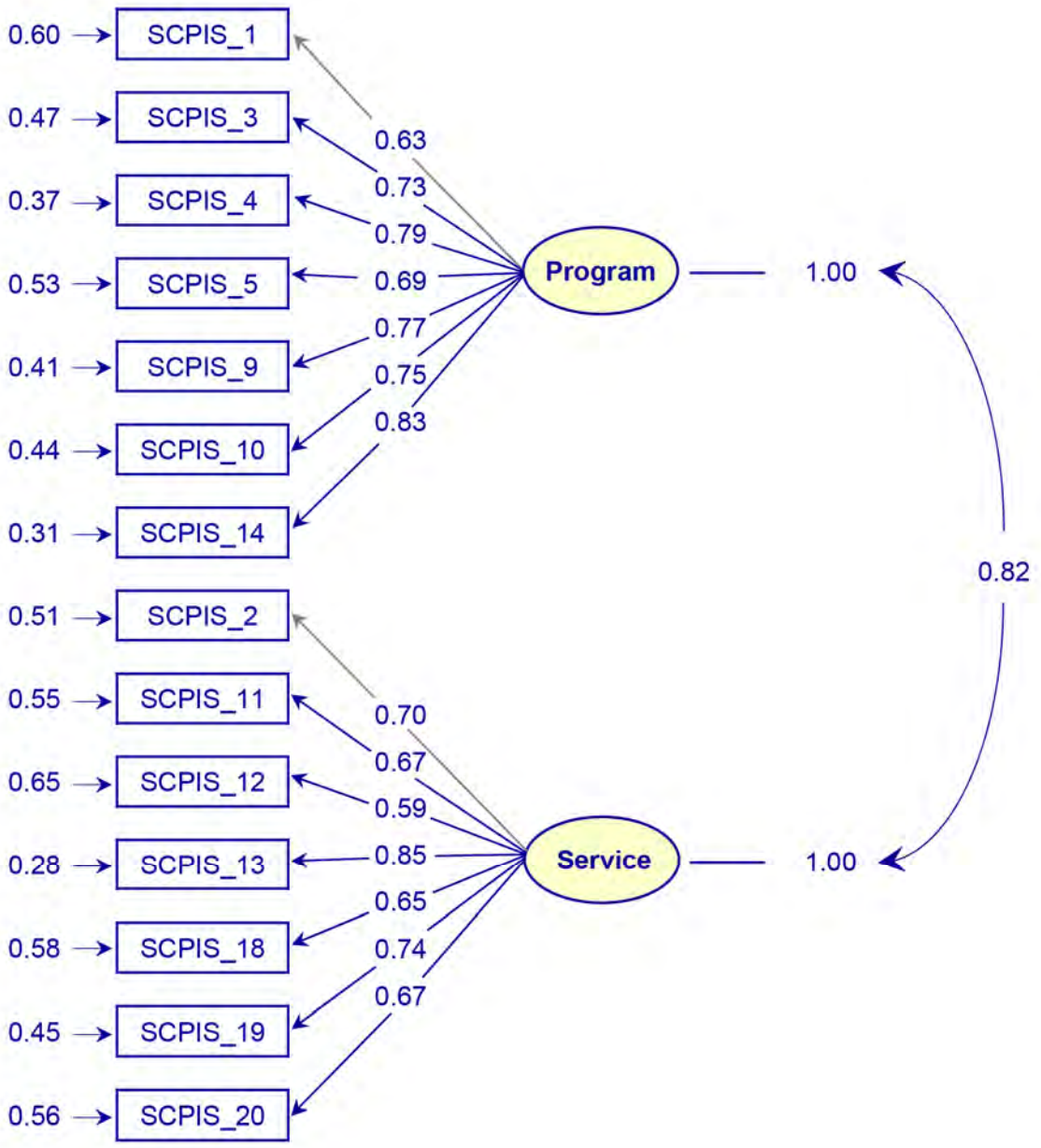
	Original Model		1st Modification		2nd Modification		3rd Modification		4th Modification		5th Modification	
Item	**LV**	**β**	**LV**	**β**	**LV**	**β**	**LV**	**β**	**LV**	**β**	**LV**	**β**
1	Prog	.63	Prog	.63	Prog	.63	Prog	.64	Prog	.64	Prog	.64
2	Serv	.70	Serv	.70	Serv	.70	Serv	.70	Serv	.70	Serv	.70
3	Prog	.73	Prog	.73	Prog	.73	Prog	.70	Prog	.70	Prog	.70
4	Prog	.79	Prog	.79	Prog	.79	Prog	.79	Prog	.80	Prog	.80
5	Prog	.69	Prog	.69	Prog	.69	Prog	.69	Prog	.69	Prog	.69
9	Prog	.77	Prog	.77	Prog	.77	Prog	.77	Prog	.74	Prog	.74
10	Prog	.75	Prog	.75	Prog	.75	Prog	.72	Prog	.68	Prog	.68
11	Serv	.67	Serv	.63	Serv	.63	Serv	.63	Serv	.63	Serv	.63
12	Serv	.59	Serv	.55	Serv	.52	Serv	.52	Serv	.52	Serv	.52
13	Serv	.85	Serv	.85	Serv	.83	Serv	.83	Serv	.82	Serv	.83
14	Prog	.83	Prog	.83	Prog	.83	Prog	.83	Prog	.83	Prog	.83
18	Serv	.65	Serv	.65	Serv	.65	Serv	.65	Serv	.65	Serv	.63
19	Serv	.74	Serv	.75	Serv	.75	Serv	.75	Serv	.75	Serv	.73
20	Serv	.67	Serv	.67	Serv	.67	Serv	.67	Serv	.67	Serv	.67

Note. LV = Two latent variables (i.e., Prog = Programmatic Orientation, Serv = School Counseling Services Delivery). β = standardized factor loadings. Original Model = Hypothesized Two-Factor Model; 1st Modification = Error Covariance between Items 11 and 12; 2nd Modification = Error Covariance added between Items 12 and 13; 3rd Modification = Error Covariance added between Items 3 and 10; 4th Modification = Error Covariance added between Items 9 and 10; 5th Modification = Error Covariance added between Items 18 and 19.

Appendix B

Figure 1

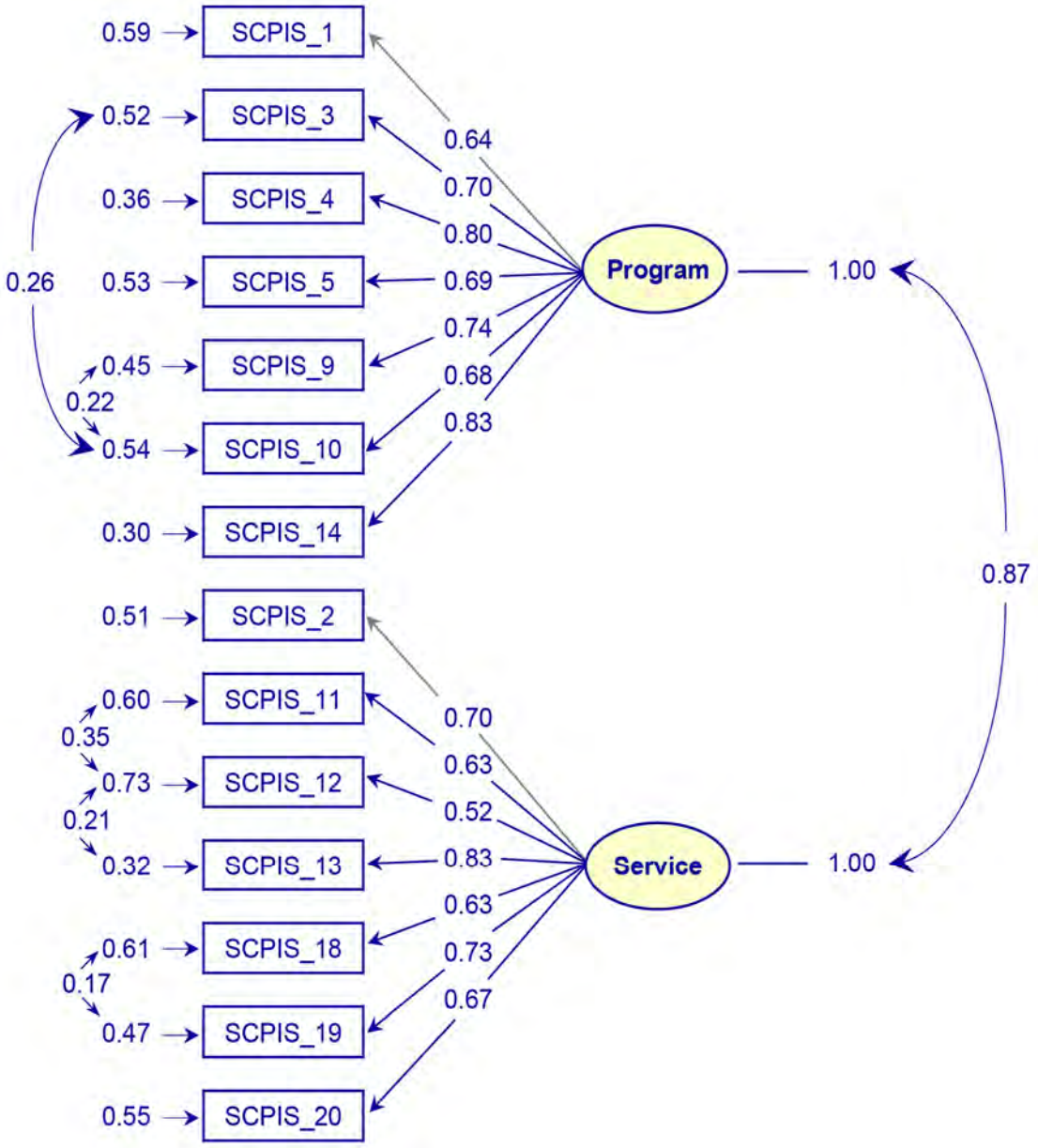
Initial Model Tested for the School Counseling Program Implementation Survey



Note. This figure is the initial model tested with every item loading on only one of two latent factors for the School Counseling Program Implementation Survey (SCPIS). Items 1, 3, 4, 5, 9, 10, and 14 loaded on the factor "programmatic orientation," and Items 2, 11, 12, 13, 18, 19, and 20 loaded on the factor "school counseling services delivery." The standardized parameter estimates for the factor structure of the SCPIS are listed in Figure 1. Rectangles indicate the 14 items on the SCPIS and ovals represent the two latent factors associated with the subscales.

Figure 2

Sixth Model Tested for the School Counseling Program Implementation Survey



Note. This figure is the sixth model tested with every item loading on only one of two latent factors for the School Counseling Program Implementation Survey (SCPIS). Items 1, 3, 4, 5, 9, 10, and 14 loaded on the factor "programmatic orientation," and Items 2, 11, 12, 13, 18, 19, and 20 loaded on the factor "school counseling services delivery." Five error covariances were estimated. The standardized parameter estimates for the factor structure of the SCPIS are listed in Figure 2.

Biographical Statements

Heather J. Fye, Ph.D., LPC, NCC, is an assistant professor in the counseling program in the College of Education at the University of Alabama in Tuscaloosa, Alabama. Heather is a certified K-12 school counselor in Pennsylvania. Her interests include ASCA National Model implementation and factors related to school counselor burnout.

Correspondence concerning this article should be addressed to Heather J. Fye, Department of Educational Studies in Psychology, Research Methodology, and Counseling, The University of Alabama, 315B Graves Hall, Box 870231, Tuscaloosa, AL 35487. Email: hjfye@ua.edu

Riza Memis, is a doctoral student in the Evaluation and Measurement program in the College of Education, Health, and Human Services at Kent State University in Kent, Ohio.

Ilker Soyturk, is a doctoral student in the Evaluation and Measurement program in the College of Education, Health, and Human Services at Kent State University in Kent, Ohio.

Rebecca Myer, is a doctoral student in the Evaluation and Measurement program in the College of Education, Health, and Human Services at Kent State University in Kent, Ohio.

Aryn C. Karpinski, Ph.D., is an associate professor in the Evaluation and Measurement program in the College of Education, Health, and Human Services at Kent State University in Kent, Ohio. Aryn specializes in quantitative research, applied statistics, measurement, and evaluation.

J. Steve Rainey, Ph.D., is an assistant professor in the Counselor Education and Supervision program in the College of Education, Health, and Human Services at Kent State University in Kent, Ohio. Steve has been a school counselor educator for 17 years and his research interests include ASCA National Model implementation.