Educational and Psychological Measurement
Volume 66 Number 2
April 2006 318-330

10.1177/0013164405278571
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A Factor Analytic Study of the Cross-Cultural Adaptability Inventory

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The Cross-Cultural Adaptability Inventory (CCAI) was developed as a tool to assess an individual's effectiveness in cross-cultural interaction and communication. Because limited validity evidence had been published regarding the CCAI, the purpose of the current study is to evaluate the psychometric properties of CCAI scores, specifically focusing on the replicability of the proposed four-factor structure. This study is based on responses from a sample of 709, primarily Caucasian, college sophomores at a mid-Atlantic university. Confirmatory factor analysis indicated poor fit of the four-factor structure and follow-up exploratory factor analyses failed to reveal an interpretable structure. Possible explanations of poor fit are discussed, and recommendations for further research are suggested.

Keywords: *Cross-Cultural Adaptability Inventory (CCAI); dimensionality; measurement; factor analysis*

Cross-cultural adaptability can be thought of as one's readiness to interact with members of another culture or even adapt to life in another culture (Erwin & Coleman, 1998; Kelley & Meyers, 1995b; Kitsantas & Meyers, 2001; Montagliani & Giacalone, 1998). This ability is extremely important in many career fields, such as missionary work or the health care profession (Connolly, Darby, Tolle-Watts, & Thomson-Lakey, 2000; Lui, 1999). The ability to assess the level of cross-cultural adaptability is dictated by the availability of instruments created to represent this construct. The Cross-Cultural Adaptability Inventory (CCAI) was developed to serve this purpose—to provide a tool for self-assessment of cross-cultural adaptability. Kelley and Meyers (1995b), the authors of the instrument, stated that the instrument is applicable to all cultures, assuming that anyone who was adapting to a new culture would share the same types of feelings and experiences.

To date, the CCAI has been used in numerous applied studies. Research using the CCAI has focused predominately on measuring the effectiveness of cultural training

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programs with law enforcement officers (Cornett-DeVito & McGlone, 2000), teachers (Remmert, 1993), business professionals (Goldstein & Smith, 1999), graduate students (Fukasawa, 1990), and medical professionals (Majumdar, Keystone, & Cuttress, 1999). In addition, the CCAI has been used to determine the utility of hypothesized predictor variables of cross-cultural adaptability such as second-language proficiency (Erwin & Coleman, 1998), impression management (Montagliani & Giacalone, 1998), and general personality characteristics (e.g., temperament, problem-solving abilities; Lui, 1999).

Despite the use of the CCAI in applied research, there has been minimal study of the psychometric properties of the instrument's scores. Given that numerous studies are necessary to develop an understanding of the instrument's scores (Benson, 1998) and the fact that CCAI scores have been used to assess program effectiveness (e.g., Goldstein & Smith, 1999; Majumdar et al., 1999), we thought it necessary to further examine the instrument.

Development of the CCAI

To begin the study, we examined the CCAI manual (Kelley & Meyers, 1995b). Unfortunately, it presents a limited description of the developmental history of the instrument. Specifically, the instrument's authors first created a Cross-Cultural Readiness checklist that included characteristics cited in the literature as being important for cross-cultural adaptability. A panel of experts then rated the significance of each characteristic on the checklist with respect to adapting to other cultures. The characteristics with the highest ratings were then grouped into four categories: flexibility/openness, emotional resilience, perceptual acuity, and personal autonomy.

The authors defined and described these categories as follows (Kelley & Meyers, 1995b). Flexibility/openness reflects an individual's tendency to be broad-minded and open toward others. The ability to be flexible and possess a nonjudgmental perspective is commonly associated with cross-cultural effectiveness. Emotional resilience is defined as being able to maintain positive emotions while being surrounded by the unfamiliar with respect to cultural cues and environmental influences. Individuals immersed in a new culture often experience negative emotional reactions (i.e., culture shock). The emotional resilience scale was created to represent an individual's ability to cope with these feelings. Perceptual acuity represents how effective and comfortable a person is when communicating with individuals of another culture. The perceptual acuity scale focuses on one's ability to detect both verbal and nonverbal cues from individuals from another culture in addition to general communication skills. Finally, personal autonomy refers to an individual's ability to posses and maintain a strong personal identity in a new culture despite negative reactions to his or her unique identity due to cross-cultural differences. The personal autonomy scale was created to assess how well one will be able to appreciate cultural differences while maintaining his or her personal sense of self. To this list, the authors added a fifth category, positive regard for others, which they deemed important based on information from the cross-

cultural adaptability literature. Ten items were written for each of the five subscales, which represented the proposed five categories of cross-cultural adaptability.

Using cross-cultural experts and members of the general public, feedback pertaining to the CCAI items was collected and used to make revisions. This first version of the instrument (developed in 1987) was then administered to obtain norming data from a sample of 653 individuals representing a variety of different occupations, levels of education, and ages. Detailed statistics about the normative sample are presented in the manual for the CCAI (Kelley & Meyers, 1995b).

Based on analyses from the norming data, the items previously representing the subscale positive regard for others were reassigned to the remaining four subscales to create the 1989 version of the instrument. The authors then stated that in 1991, "new and more sophisticated tests were run" (Kelley & Meyers, 1995b, p. 11), which resulted in more items being transferred from one subscale to another to create the current version of the CCAI. The manual was vague in describing the specific subscale modifications made using the norming sample. It was simply noted that the emotional resilience subscale grew from 10 to 18 items; the flexibility/openness subscale grew from 10 to 15 items; the perceptual acuity subscale continued to be represented by 10 items, although it is unclear if they are the same as the original 10 items; the personal autonomy subscale was reduced from 10 to 7 items; and finally, the positive regard for others subscale was reduced from 10 to 0 items, therefore eliminating it from the instrument. Given the description of this process in the manual, it is assumed that the same data set was analyzed for each revision of the instrument; no cross-validation studies were presented.

The instrument authors proposed that this current version of the CCAI represents the four dimensions underlying the construct of cross-cultural adaptability. The reliabilities of the four subscale scores from the current version of the instrument were reported as ranging from .68 to .90, indicating moderate to high internal consistency. However, limited validity evidence was presented in the manual. Specifically, the development of the CCAI (e.g., use of experts, review of the literature) was presented as content-related validity evidence. The authors then presented a principal components analysis of the items, suggesting that the resulting structure weights provided strong construct-related validity evidence. However, it must be noted that several of the items representing each subscale appeared to be functioning poorly, as they either had low correlations with the component they represented or high correlations with other components. In addition, and most important, at two points during the instrument development process, items that were created to represent one subscale were subsequently reassigned to another subscale. Again, no cross-validation studies supporting these changes were presented. The authors failed to address any of these problems (i.e., cross-loadings, reassignment of items, lack of cross-validation) in the manual. In our opinion, this limited and insufficient validity evidence offers little support that this instrument represents the construct of cross-cultural adaptability as defined by these authors.

After a review of the literature, only one additional study could be found that examined the structure of the CCAI (Gelles, 1996). However, instead of examining the proposed four-factor structure, 37 of the 50 items were used in an exploratory factor analysis from which a three-factor solution emerged. Unfortunately, it was difficult to evaluate the results as the authors did not present all the structure coefficients nor the amount of variability explained by the three factors. Because the analysis did not examine the previously hypothesized four-factor structure or use the entire set of items, it remains unclear whether the dimensionality proposed by Kelley and Meyers (1995b) is actually supported by empirical evidence.

Purpose of the Current Study

With the importance of accountability in regard to training programs, practitioners need quality instruments that can assess the success or development of program participants. Despite the numerous studies that have used the CCAI to determine the effectiveness of programs or experiences on increasing cross-cultural adaptability (e.g., Goldstein & Smith, 1999; Kitsantas & Meyers, 2001), there is minimal construct-related validity evidence gathered for this instrument. Specifically, no studies could be found that clearly supported the hypothesized four-factor structure. Understanding the dimensionality or structure of the item responses is essential to a strong program of construct-related validity (Benson, 1998). Finding evidence of an interpretable structure is a necessary condition for understanding the meaning of the scores. Once the structure is understood, studies examining the relationships between the construct of interest and external criteria can be undertaken. Therefore, the purpose of the present study is to determine if the CCAI, in its current form, represents the hypothesized four-factor structure of cross-cultural adaptability proposed by Kelley and Meyers (1995b).

Method

Participants

The participants for this study consisted of a random sample of 725 sophomores from a midsized, mid-Atlantic university. To comply with university requirements, sophomore-level students participate in an annual assessment program. Prior to the assessment day, students are randomly assigned to a testing room based on the last two digits of their student identification number. The CCAI was administered in a sample of the testing rooms in addition to a series of other assessments. A total of 709 students completed all 50 items on the CCAI and had the following characteristics: 57% female, 83% Caucasian, 4% African American, 4% Asian, 1% Hispanic, 1% Native American (7% ethnicity not available), and an average age of 20 years (SD = 1.4).

Procedure

On average, students spend approximately 2.5 hours completing assessments on the assessment day. The CCAI was administered when students had completed approximately half of their assessments. Trained proctors distributed the instruments and read instructions aloud before the students began responding. Students were instructed to read each item carefully and choose the response that best described them at that point in time. They were allowed 30 minutes to complete the 50 items of the CCAI. This was deemed an appropriate time for administration as the manual recommends 20 to 30 minutes for completion (Kelley & Meyers, 1995b).

Instruments

The current version of the CCAI, which was administered for this study, consists of 50 items (Kelley & Meyers, 1995a). Examinees were asked to indicate the extent to which each item was true of them using a scale ranging from 1 (*definitely true*) to 6 (*definitely not true*). To compute the four subscale scores, 9 of the 50 items on the CCAI were reverse coded. A high score on a particular subscale indicates a high level of the construct.

Data Analysis

A confirmatory factor analysis (CFA) was conducted to determine the plausibility of the four-factor structure proposed by the authors. In this model, the four factors were allowed to correlate and the items/factor relationships were specified as indicated in the manual (Kelley & Meyers, 1995b). Inadequate fit can indicate complex or simple model misspecification. Simple model misspecification occurs when the covariances between the factors are misspecified, whereas complex model misspecification occurs when one has incorrectly represented the relationships between the items and the factors (Hu & Bentler, 1998). The fit of the hypothesized four-factor model was assessed by examining several fit indices including three absolute and one incremental fit index. The minimum fit function chi-square, the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) are absolute fit indices. The chi-square statistic (χ^2) assesses the difference between the sample covariance matrix and the implied covariance matrix from the hypothesized model (Fan, Thompson, & Wang, 1999). A statistically nonsignificant χ^2 indicates adequate model fit. As the sample size increases, the sensitivity of the χ^2 test increases, potentially resulting in small differences being deemed statistically significant (Hu & Bentler, 1995). For this reason, additional absolute fit indices were examined. The RMSEA is moderately sensitive to simple model misspecification and very sensitive to complex model misspecification (Hu & Bentler, 1998). Hu and Bentler (1999) suggested that values of .06 or less indicate a close fit. The SRMR is very sensitive to simple model misspecification and moderately sensitive to complex model misspecification (Hu & Bentler, 1998). Hu and Bentler (1999) suggested that adequate fit is represented by values of .08 or less. In addition, two

incremental fit indices, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) were examined. The CFI and the TLI are moderately sensitive to simple model misspecification and very sensitive to complex model misspecification (Hu & Bentler, 1998). Hu and Bentler (1999) recommended a cutoff of .95 or greater for both the CFI and the TLI.

Results and Discussion

Descriptive Statistics

The means and standard deviations for the four subscales are presented in Table 1. In addition, reliability coefficients (and 95% confidence intervals) for the scores from each of the four subscales are included in the table. The reliability estimates for the emotional resilience and perceptual acuity scales may be deemed acceptable; however, the reliability estimates for the flexibility/openness and personal autonomy scales are below the recommended standards for reliability suggested by Nunnally and Bernstein (1994). Before assessing the factor structure of the responses, the data were examined for normality using PRELIS 2.51 (Jöreskog & Sörbom, 1996). To test the assumption of normality, the univariate skew and kurtosis were examined using Kline's (1998) suggested cutoffs of $|3.0|$ and $|8.0|$, respectively. The skew of the 50 CCAI items ranged from –1.07 to 2.20, and the values for kurtosis ranged from –0.62 to 6.32, indicating that the responses were fairly normally distributed.

Confirmatory Factor Analysis

The raw data were used to create a covariance matrix, which was analyzed using LISREL 8.51 (Jöreskog & Sörbom, 1993). Given the fairly normal distributions of the item responses, maximum likelihood (ML) estimation was used to estimate the model's parameters and fit indices. This estimation method was employed because ML has been found to produce more accurate fit indices and less biased parameters than generalized least squares estimation (Olsson, Foss, Troye, & Howell, 2000; Olsson, Troye, & Howell, 1999).

Overall, the fit of the four-factor model was very poor. Specifically, the chi-square statistic, $\chi^2(1169) = 7182.4$, $p \leq .001$; the RMSEA (.082); the TLI (.65); and the CFI (.70) all indicated model misfit. The SRMR (.068) was below the .08 cutoff, indicating adequate fit. As noted above, the SRMR, although highly sensitive to simple model misspecification, is only moderately sensitive to complex model misspecification. Importantly, the CFI, TLI, and RMSEA are very sensitive to complex model misspecification. Therefore, the lack of fit may be a result of failing to estimate the direct relationships between items and factors that were hypothesized to be nil. Stated another way, the lack of fit may be due to fixing the cross-loadings to a value of zero instead of freely estimating these values. Of course, these cross-loadings were fixed to zero to model the hypothesized four-factor structure specified by the test authors.

Table 1
Descriptive Statistics for the Four Subscales of the Cross-Cultural Adaptability Inventory (N = 709)

	Possible Range	*M*	*SD*	Cronbach's α
Flexibility/openness	15-90	45.95	5.97	.54[a] (.49, .59)
Emotional resilience	18-108	46.51	8.46	.80 (.78, .82)
Perceptual acuity	10-60	23.85	5.39	.78 (.76, .81)
Personal autonomy	7-42	15.23	3.74	.67 (.60, .75)

a. The 95% percent confidence intervals for Cronbach's coefficient alpha were calculated using a method employing the central *F* distribution (see Fan & Thompson, 2001).

Table 2 displays the standardized factor pattern coefficients and structure coefficients for each item. The factor pattern coefficients represent the direct relationship between each item and the item's corresponding factor. Squaring the pattern coefficient indicates the amount of variance in the item that is explained by the corresponding factor. Therefore, a pattern coefficient of .20 would indicate that 4% of the variance in that particular item is explained by its corresponding factor. In this particular analysis, the pattern coefficient values range from .06 to .78, indicating that the amount of variance explained across the items ranged from less than 1% to 61%. Overall, many of the pattern coefficients appear low. Unfortunately, these low pattern coefficients were not isolated to one particular factor; they were found across the four subscales.

Another issue of concern is the high correlations among the four factors. Kelley and Meyers (1995b) found moderate correlations among the computed subscale scores using their norming data (.27 to .57). However, our results indicated that there might be substantial overlap between the factors, as demonstrated by the factor correlations (.87 to .98). These high correlations suggest that there is a considerable problem with discriminant validity between the subscales.

In addition, it is advantageous to examine the structure coefficients, particularly given the strong relationships found among the factors. These coefficients are calculated using information from both the pattern coefficients and the factor correlations to estimate the relationship between each item and each factor (Thompson, 1997). If the factors are uncorrelated, the structure and pattern coefficients are equal. However, if the factors are correlated, items may have indirect relationships with factors for which they do not serve as indictors. As Bentler and Yuan (2000) explained,

> Often, there are many zeros in the factor pattern matrix Λ, and Φ is taken as a correlation matrix with elements free to be estimated. In this situation, even if a factor does not influence a variable, that is, its pattern coefficient or weight is zero, the corresponding structure coefficient, representing the correlation or covariance of the variable with the factor, generally will not be zero. (p. 327)

Table 2
Standardized Factor Pattern and Structure Coefficients From the Confirmatory Factor Analysis of the Four-Factor Model (N = 709)

Item	Emotional Resilience	Flexibility/ Openness	Perceptual Acuity	Personal Autonomy
1	**.50** (.50)	.00 (.44)	.00 (.43)	.00 (.46)
2	.00 (.53)	**.60** (.60)	.00 (.59)	.00 (.53)
3	.00 (.65)	.00 (.68)	**.70** (.70)	.00 (.63)
4	**.68** (.68)	.00 (.59)	.00 (.59)	.00 (.63)
5	.00 (.70)	**.80** (.80)	.00 (.78)	.00 (.70)
6	.00 (.70)	.00 (.66)	.00 (.68)	**.75** (.75)
7	**.61** (.61)	.00 (.54)	.00 (.53)	.00 (.57)
8	.00 (.69)	**.79** (.79)	.00 (.77)	.00 (.69)
9	.00 (.42)	.00 (.47)	**.48** (.48)	.00 (.44)
10	**.33** (.33)	.00 (.29)	.00 (.29)	.00 (.31)
11	.00 (55)	**.62** (.62)	.00 (.61)	.00 (.54)
12	.00 (.59)	.00 (.55)	.00 (.57)	**.63** (.63)
13	**.71** (.71)	.00 (.62)	.00 (.62)	.00 (.66)
14	.00 (–.06)	**–.07** (–.07)	.00 (–.06)	.00 (–.06)
15	.00 (.47)	.00 (.53)	**.54** (.54)	.00 (.49)
16	**.61** (.61)	.00 (.54)	.00 (.53)	.00 (.57)
17	.00 (.06)	.00 (.05)	.00 (.05)	**.06** (.06)
18	**.57** (.57)	.00 (.50)	.00 (.49)	.00 (.53)
19	.00 (–.32)	**–.36** (–.36)	.00 (.35)	.00 (–.32)
20	.00 (.36)	.00 (.41)	**.42** (.42)	.00 (.38)
21	**.52** (.52)	.00 (.46)	.00 (.45)	.00 (.48)
22	.00 (–.33)	**–.38** (–.38)	.00 (–.37)	.00 (–.33)
23	**–.31** (**–**.31)	.00 (**–**.27)	.00 (**–**.27)	.00 (**–**.29)
24	.00 (.59)	.00 (.66)	**.68** (.68)	.00 (.62)
25	.00 (.67)	.00 (.64)	.00 (.66)	**.73** (.73)
26	**.61** (.61)	.00 (.53)	.00 (.53)	.00 (.57)
27	.00 (–.43)	**–.49** (–.49)	.00 (–.48)	.00 (–.43)
28	.00 (.46)	.00 (.52)	**.53** (.53)	.00 (.48)
29	**.77** (.77)	.00 (.68)	.00 (.67)	.00 (.72)
30	.00 (.32)	**.36** (.36)	.00 (.35)	.00 (.32)
31	**.45** (.45)	.00 (.39)	.00 (.39)	.00 (.42)
32	.00 (–.38)	**–.44** (–.44)	.00 (–.43)	.00 (–.39)
33	.00 (.49)	.00 (.56)	**.57** (.57)	.00 (.52)
34	**–.51** (–.51)	.00 (–.44)	.00 (–.44)	.00 (–.47)
35	.00 (.40)	.00 (.38)	.00 (.39)	**.43** (.43)
36	**.69** (.69)	.00 (.61)	.00 (.60)	.00 (.64)
37	.00 (**–**.39)	**–.45** (**–**.45)	.00 (**–**.44)	.00 (**–**.39)
38	.00 (.30)	.00 (.34)	**.35** (.35)	.00 (.32)
39	**.54** (.54)	.00 (.47)	.00 (.47)	.00 (.50)
40	.00 (.67)	**.77** (.77)	.00 (.75)	.00 (.68)
41	.00 (.55)	.00 (.52)	.00 (.54)	**.59** (.59)

(continued)

Table 2 (continued)

Item	Emotional Resilience	Flexibility/ Openness	Perceptual Acuity	Personal Autonomy
42	**.72** (.72)	.00 (.63)	.00 (.62)	.00 (.67)
43	.00 (.63)	. **72** (.72)	.00 (.71)	.00 (.63)
44	.00 (.63)	.00 (.72)	**.73** (.73)	.00 (.66)
45	**.55** (.55)	.00 (.48)	.00 (.48)	.00 (.51)
46	.00 (.51)	**.58** (.58)	.00 (.57)	.00 (.51)
47	.00 (.37)	.00 (.35)	.00 (.36)	**.40** (.40)
48	**.78** (.78)	.00 (.68)	.00 (.68)	.00 (.72)
49	.00 (.44)	**.50** (.50)	.00 (.49)	.00 (.44)
50	.00 (.42)	.00 (.48)	**.49** (.49)	.00 (.45)

Note: The standardized factor pattern coefficients are presented first followed by structure coefficients in parentheses. The pattern coefficients in bold were freed to be estimated, whereas the pattern coefficients equal to .00 were fixed at zero.

These structure coefficients consequently provide additional information for interpretation because a moderate to large relationship could exist between an item and a factor despite the fact that the direct path (pattern coefficient) was fixed to zero. In particular, large structure coefficients that exist between items and factors when the relationship is expected to be nil can provide information about model misspecification (Graham, Guthrie, & Thompson, 2003; Thompson, 1997). As Thompson (1997) stated,

> Examining CFA structure coefficients may also assist in identifying model misspecification. When structure coefficients for "fixed" variables are anomalously large and these variables' pattern modification coefficients are large, such results may suggest that parameters should be freed, if a theoretical rationale for model modification can be identified. (p. 16)

In the current study, the structure coefficients provided further evidence of complex model misspecification. For the sake of brevity, only two examples are detailed below. First, when examining Item 8 in Table 2, notice that the pattern and structure coefficients are equal for the freed path from the flexibility/openness factor. However, even though the pattern coefficients are fixed to zero between the remaining factors and Item 8, the structure coefficients are not zero. In fact, all the structure coefficients are approaching the value of the freely estimated pattern coefficient between Item 8 and the flexibility/openness factor. This indicates that this item is as strongly related to the other three factors as it is to the factor it was written to represent. A second informative way of using structure coefficients involves comparing the pattern and structure coefficients corresponding to a factor to inform interpretation of that factor. For example, one can examine the column of coefficients under the heading "Perceptual Acuity" in Table 2. The highest pattern coefficient between this factor and an item occurs for Item 44 (.73). Yet three items with pattern coefficients fixed to zero have stronger estimated relationships with this factor than the 10 items that were written to represent this factor.

These strong correlations with items written to represent another factor obviously complicate the interpretation of the perceptual acuity factor. These examples serve to demonstrate some of the model misspecification the fit indices were signifying.

In sum, the complex model misspecification suggested by the fit indices, the large structure coefficients, and substantial factor correlations indicates that the four-factor model hypothesized by Kelley and Meyers (1995b) to represent cross-cultural adaptability does not adequately represent the relationships among the 50 items. In addition, the numerous modification indices suggested by LISREL were too extensive to be interpreted. Given that no alternative models were specified a priori, an exploratory approach was employed to investigate whether an interpretable solution would emerge.

Exploratory Factor Analysis

Exploratory analyses were conducted in an attempt to uncover the structure underlying the item responses. Specifically, a principal axis factor analysis was used to assess dimensionality. Although this was not the method that the instrument authors used to assess the structure (principal components was used), it was employed because it takes measurement error of the observed variables into account (Benson & Nasser, 1998). To allow others to compare the results of this study to those reported by Kelley and Meyers (1995b), we also report the results from a principal components analysis (see Table 3). The number of components/factors to extract and rotate was determined both by examining the scree plot and by interpreting the results of a parallel analysis (see Thompson & Daniel, 1996, for a description of parallel analysis). The scree plot indicated that one, possibly two, components/factors should be retained, whereas the results of the parallel analysis suggested that six components be retained. Therefore, we examined several different solutions (i.e., from one to six components/factors) using different methods of extraction (principal components and principal axis) and different methods of rotation (varimax and oblimin). Unfortunately, no analyses resulted in a solution that could be interpreted.

Conclusion

This research was designed to examine the plausibility of the four-factor model of cross-cultural adaptability as measured by the CCAI (Kelley & Meyers, 1995b). Unfortunately, the four-factor model hypothesized to underlie the responses to these items did not fit adequately. The high factor correlations, high structure coefficients, and values of the CFI, TLI, and RMSEA make it clear that this model is misspecified. In addition, exploratory analyses failed to produce a solution that was interpretable.

Despite the problems noted with this particular instrument, the measurement of cross-cultural adaptability is an important endeavor. As noted above, cross-cultural adaptability has been used to determine the effectiveness of cultural training programs with several different populations. In program evaluations such as these, data from instruments such as the CCAI are often used to make important decisions about

Table 3
Results From Principal Components Analysis and Exploratory Factor Analysis With Oblimin Rotation (N = 709)

	Principal Components		Principal Axis	
Factor	Eigenvalue	Units of Variance Explained After Rotation	Eigenvalue	Units of Variance Explained After Rotation
1	13.82	6.04	13.33	6.92
2	2.75	4.45	2.18	4.04
3	2.11	3.71	1.61	4.12
4	1.91	5.92	1.39	4.29
5	1.61	5.94	1.12	6.79
6	1.41	2.79	0.84	3.30
7	1.20	4.50	0.69	5.22
8	1.19	1.68	0.62	1.64
9	1.11	4.45	0.57	4.19
10	1.07	4.86	0.49	6.12
11	1.01	5.06	0.43	3.19

Note: Eleven factors are displayed here because 11 had eigenvalues greater than one in the principal components analysis. Units of variance explained after rotation do not control for the correlations among the factors.

resource allocation. It is important to emphasize that despite the effort that researchers put into the design of a study, if the instrument being used has poor psychometric properties for its scores, the inferences made based on findings from the instrument are ambiguous.

We must note that this is a single study using a homogenous sample and that studies of this nature must be conducted in different contexts with different populations. However, the authors of the instrument do note that the CCAI can be used with any population (Kelley & Meyers, 1995b).

> The CCAI is not targeted to one particular culture; it is designed to be cultural-general. The culture-general approach assumes that individuals adapting to other cultures share common feelings, perceptions, and experiences. This occurs regardless of the cultural background of the person or the characteristics of the target culture. (p. 1)

Given this claim, it was expected that the four-factor structure would replicate using responses from our sample.

Unfortunately, based on the results from the current study, it is our recommendation that the CCAI not be used to assess the cross-cultural adaptability of any population until it has been studied more extensively. Further work at both the construct and item level seems necessary. Subsequent refinement and/or development of this instrument needs to be clearly tied to theory and supported by empirical evidence.

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