International Journal of Training and Development 14:2
ISSN 1360-3736

A validation study of the Cross-Cultural Adaptability Inventory*

Nhung T. Nguyen, Michael D. Biderman and Lisa D. McNary

Despite the claims made about the effectiveness of cross-cultural training programs, few studies have examined the reliability and validity of the instruments used in these training programs. In this study, the authors examine the factor structure of the Cross-Cultural Adaptability Inventory (CCAI) via a confirmatory factor analytic approach. A series of confirmatory factor analysis (CFA) models was tested and applied at the item level to both the CCAI and Goldberg's Big Five Inventory. A CFA model in which a method factor was estimated fits the data significantly better than a model without such a method effect. Further, the method factor suppressed substantive relationships such that the two CCAI factors of emotional resilience and personal autonomy became significant correlates with self-reported number of international job assignments after accounting for method variance. Implications for research and practice are discussed.

Introduction

According to an American Society for Training and Development (ASTD) estimate, American companies spend an average of $109.25 billion on employee training per year (ASTD Policy Brief, 2007). Training expatriate employees for global assignments remains a challenge in part because of the high costs associated with international assignments – three to five times on average an assignee's home salary (Selmer, 2001). The failure rate of expatriate employees, defined as those who repatriate early or those who stay in their assignments but are less productive, increases these costs considerably. In an extensive review of cross-cultural training research, Littrell and colleagues

❒ Nhung T. Nguyen, ••. Department of Management, Towson University, 8000 York Road, Towson, MD 21252, USA. Email: nnguyen@towson.edu. Michael D. Biderman, ••, Department of Psychology, University of Tennessee at Chattanooga, 615 McCallie Ave., Chattanooga, TN 34017, USA. Email: ••. Lisa D. McNary, ••, Department of Management, Innovation, and Entrepreneurship, North Carolina State University, P.O. Box 7229, Raleigh, NC 27695, USA. Email: ••.
*An earlier version of this article was presented at the 2008 Annual Conference of the Southern Management Association – St. Pete Beach, Florida, USA.

reported that the percentage of companies investing in expatriate training would increase if the effectiveness of such training programs could be better documented. They went on to suggest that linking expatriate acculturation profiles with specific training techniques (e.g. role plays, scenario based) would improve the effectiveness of cross-cultural training programs (Littrell *et al*., 2006). The question that remains unaddressed, however, is how to obtain measures of expatriate acculturation profiles that are reliable and valid.

There has been a general consensus in the training and development literature regarding the effectiveness of pre-departure cross-cultural training programs. For example, Morris and Robie's (2001) meta-analysis reported a positive impact cross-cultural training had on both expatriate adjustment ($r = 0.13$, $k = 16$, $N = 2270$) and performance ($r = 0.26$, $k = 25$, $N = 2490$). However, the confidence intervals of most meta-analytic estimates were large, including zero, suggesting that some cross-cultural training might have led to no better adjustment than before training or that moderating variables might exist. Various moderators have been suggested in Morris and Robie's (2001) meta-analysis on the effectiveness of cross-cultural training programs (e.g. type of training, type of predictors and type of criteria).

One way to improve the effectiveness of cross-cultural training programs is to focus on the predictor side of such programs, i.e. acculturation profile of the expatriate or trainee (Littrell *et al*., 2006). We think that it is critical to have a reliable and valid tool that assesses trainees' potential cross-cultural adaptability on which an acculturation profile is built.

There are now many instruments on the market that are either self-report measures, for example, the Intercultural Adjustment Potential Scale (Matsumoto *et al*., 2001), the Intercultural Sensitivity Inventory (ISI) (Bhawuk & Brislin, 1992), the Intercultural Development Inventory (Hammer *et al*., 2003), the Cross-Cultural Adaptability Inventory (CCAI) (Kelley & Meyers, 1995) or observer-based measures such as the behavioral description interview (e.g. Lievens *et al*., 2003). Most of these instruments are proprietary, expensive and require various levels of training for administration. Despite the claim that these cross-cultural instruments should predict expatriate employee success, there is limited evidence demonstrating their sound psychometric properties because of very few validation studies conducted by independent researchers. One instrument in particular, the CCAI, has received a great deal of attention. The CCAI is now a widely used assessment tool in cross-cultural training for global assignments (Davis & Finney, 2006). Thus, the purpose of this study is to examine the psychometric properties of the CCAI as a self-awareness tool to build an expatriate acculturation profile for global assignment training.

The CCAI development

Kelley, a Human Resource Professional, and Meyers, a clinical psychologist, developed the CCAI based on the assumption that cross-cultural adaptability is a psychological skill that is amenable to training. According to the CCAI manual (Kelley & Meyers, 1995), cross-cultural adaptability is defined as one's readiness to interact with people who are different from oneself or adapt to living in another culture. The CCAI was first developed in 1987 with 50 items, 10 items each representing each of five subscales labeled emotional resilience, flexibility/openness, perceptual acuity, personal autonomy, and positive regard for others. Positive regard was eliminated during a later validation study (Kelley & Meyers, 1995).

The CCAI measures four subdimensions of adaptability – emotional resilience, flexibility, perceptual acuity and personal autonomy. According to the CCAI manual, emotional resilience refers to 'the ability to deal with stressful feelings in a constructive way and to bounce back from them'; flexibility/openness refers to the extent to which people are 'open and flexible' as well as 'tolerant and non-judgmental'; perceptual acuity refers to 'verbal and nonverbal behavior, to the context of communication, and to interpersonal relations'; and personal autonomy refers to one's sense of identity without being overly reliant on environmental cues (Kelley & Meyers, 1995, p. 14).

The final CCAI instrument consists of 50 items designed to reflect the above four dimensions or subscales of cultural adaptability, with *emotional resilience* measured by 18 items, *flexibility/openness* by 15 items, *perceptual acuity* by 10 items and *personal autonomy* by 7 items).

Because by definition, the CCAI is not tied to a specific culture, it is potentially useful for multicultural adjustment. CCAI scale scores and subscale scores can be used to build an acculturation profile, which can then be paired with specific cross-cultural training techniques (e.g. role-plays, scenarios) for improved effectiveness as proposed in Littrell *et al*. 's (2006) review on cross-cultural training. A Google search on 9 December 2009 using the key words 'cross-cultural adaptability training' returned 107,000 hits, some of which showing the instrument being used in both public and private institutions for both self-development and global assignment training purposes.

Despite the popularity of the CCAI in global assignment training (e.g. Goldstein & Smith, 1999; Majumdar *et al*., 1999), validation studies of the instrument are scarce. The one validation study conducted by the scale developers was based on an exploratory factor analysis (EFA). An EFA of the CCAI was also conducted in another unpublished study (Gelles, 1996). Other empirical investigations of the CCAI relied on statistical procedures such as simple *t*-tests and correlations (e.g. Elmuti *et al*., 2008; Kraemer, 2003) that failed to take into consideration measurement errors. In a recent study, the first one to examine the psychometric properties of the CCAI via a series of confirmatory factor analyses (CFAs), Davis and Finney (2006), found weak support for the four originally proposed CCAI factors. However, it is not possible to discern in their study whether or not the lack of model fit was due to uninvestigated factor dimensionality or uninvestigated item covariance due to factors such as common method variance. Thus, the purpose of this study is to examine the reliability and construct validity of the CCAI with a focus on examining the potential influence of common method variance on the scale's psychometric properties.

Common method variance

A major concern in studies with self-report methodologies is the possibility of common method variance being responsible for substantive relationships when variables representing multiple dimensions are collected from the same source (Podsakoff *et al*., 2003). Specifically, the issue is that the observed covariance between variables of interest could be inflated or deflated by variance because of the method rather than the underlying constructs or variables of interest.

The potential for the CCAI to be influenced by common method variance may have both substantive and practical ramifications. Because the CCAI is a self-report measure, a substantive implication of examining common method variance is that a more accurate assessment of the construct validity of the CCAI's subscales and of the criterion-related validity of the CCAI itself may be uncovered. There are two ways that the presence of common method variance can distort validity estimates of multidimensional questionnaires such as the CCAI. First, method variance common to multiple subscales of a predictor, such as the four of the CCAI, may cause them to be more highly correlated with each other than they would be were the method variance not present. For example, Nguyen *et al*. (2008) found that correlations among the Big Five latent variables in CFAs of seven datasets were substantially reduced when method variance was estimated in the CFA models. Thus, common variance may lead to the conclusion that scales that appear to have low discriminant validity, i.e. have high intercorrelations, may actually be measuring different dimensions. Second, the method variance common to predictors may act as noise or contamination that suppresses the relationships between those predictors and whatever criteria are to be predicted. For example, Biderman *et al*. (2008) found that the correlation between conscientiousness, a Big Five personality trait and an objective measure of academic performance increased from 0.09 ($p > 0.05$) when the measure of conscientiousness was contaminated by common method variance to 0.20 ($p < 0.05$) after method variance was accounted for.

In another study examining the relationship between impression management and cross-cultural adaptation, both impression management and self-deceptive enhancement subscales of social desirability from the balanced inventory of desirable responding (Paulhus, 1984) were found to predict scores on the CCAI ($r = 0.21$ and $r = 0.29$, respectively, $p < 0.05$) (Montagliani & Giacalone, 1998). Given the fact that common method variance may represent impression management, it may be that the CCAI items are contaminated by common method variance. In terms of practical implication, common method variance is important to understand if global assignment training is expected to deliver desired results. Failure to take such variance into account will bias the relationships between CCAI subscales and whatever criteria are to be predicted, perhaps leading to incorrect conclusions concerning the usefulness of the training.

The current research

The present study addresses two important gaps in the literature. First, we wanted to heed Littrell *et al*.'s (2006) call for improving the effectiveness of cross-cultural training by linking expatriate acculturation profiles to cross-cultural training such as cultural awareness training (Fiedler *et al*., 1971) by conducting a construct validation study of the CCAI, a measure used to build expatriate acculturation profiles used in cross-cultural training programs (e.g. Goldstein & Smith, 1999; Majumdar *et al*., 1999). To this end, we wanted to replicate and extend Davis and Finney's (2006) factor analytic study of the CCAI by comparing a one-factor solution with the four-factor solution examined by Davis and Finney and then by exploring the effects of introducing a common method factor to account for across-item correlations. Given the substantial evidence of the importance of method variance in a variety of studies involving self-report questionnaires, we expect that it also plays a role in responses to the CCAI. Thus,

Hypothesis 1a: Estimating a method effect in addition to the four *a priori* constructs will significantly improve the CFA model fit when modeled at the individual-item level.

Hypothesis 1b: The correlations among the CCAI subscales will be closer to zero when controlling for common method variance.

Second, we wanted to extend Davis and Finney's (2006) factor analytic study of the CCAI by providing some construct validity evidence of the scale, specifically the relationships of the CCAI dimensions to other well-known personality dimensions. In this study, we included Goldberg's Big Five questionnaire (available to the public on the web at http://ipip.ori.org/ipip/) to examine the CCAI's convergent and discriminant validity via the CFA approach.

As presented, cross-cultural adaptability by definition refers to one's readiness to interact with and/or adapt to different cultures (Kelley & Meyers, 1995). This means that cultural adaptability is a combination of social skills and personality. Thus, if one's readiness to adjust or adapt to a different culture is partly guided by one's natural behavioral tendencies, i.e. personality, it is reasonable to expect one's personality to share common variance with cultural adaptability. However, research results have been mixed. For example, whereas some research reported zero correlations between personality and cross-cultural adjustment (e.g. Matsumoto *et al*., 2004), other studies reported weak positive associations (e.g. Mak & Tran, 2001).

The Five Factor model of personality is the most well-known taxonomy of personality, consisting of five factors namely Extraversion, Agreeableness, Conscientiousness, Neuroticism (often measured as Emotional Stability), and Openness to Experiences (sometimes called Intellect) (Saucier & Goldber, 2003). Extraversion is defined as the extent to which one is outgoing and sociable. Agreeableness refers to one's tendency to be good-natured, warm and cooperative. Conscientiousness is defined as the extent to which an individual is hardworking, organized, reliable and strong-willed. Emotional stability refers to the extent to which an individual is calm, collected and good-tempered. Openness to experience is defined as the degree to which one is both aesthetically and emotionally aware of feelings and ideas (Saucier & Goldber, 2003).

Considering the overlap in definitions of both the CCAI and the Big Five, we expect various CCAI subscale scores to be positively related to three measures of the Big Five personality, i.e. extraversion, emotional stability, and openness to experience, which will demonstrate convergence validity (Campbell & Fiske, 1959). For example, one CCAI subscale, perceptual acuity, considerably overlaps with extraversion by definition. Extraversion measured by the NEO-FFI (Costa & McCrae, 1989) was found to have positive relationships with intercultural social self-efficacy and co-ethnic social self-efficacy, a proxy of cross-cultural adaptability, among a sample of Vietnamese Australian students (Mak & Tran, 2001). Thus, we hypothesize:

Hypothesis 2a: When controlling for common method variance, the CCAI subscale of perceptual acuity will be positively related to the Big Five personality trait of extraversion.

Emotional resilience, a CCAI subscale, shares a thematic overlap with emotional stability. In fact, emotional stability, a subscale of the multicultural personality questionnaire, was found to negatively correlate with depression, which is an indication of poor socio-cultural and psychological adjustment in a longitudinal study comparing the cultural adjustment of international and domestic students in Singapore (Leong, 2007). Therefore, we propose:

Hypothesis 2b: When controlling for method variance, the CCAI subscale of emotional resilience will be positively related to the Big Five personality trait of emotional stability.

In addition, we also expect openness to experience to be positively correlated with flexibility/*openness*, a subscale of the CCAI, because of the definitional overlap of these two constructs. Furthermore, openness to experience has been consistently shown to be a valid predictor of training performance (e.g. Dean *et al*., 2006; Gully *et al*., 2002). Because of the CCAI's popularity in global assignment training (Davis & Finney, 2006), it is expected that its scale scores to correlate with openness to experience. Thus,

Hypothesis 2c: When controlling for common method variance, the CCAI subscale of flexibility/openness will be positively related to the Big Five personality trait of openness to experience.

Finally, to examine the criterion-related validity of the CCAI, we included a dependent variable of self-reported international trips taken as job assignment. Because higher CCAI scores indicate better cultural adaptability, it is reasonable to expect that a high degree of cultural adaptability will lead to repeated job assignments. In fact, one study found a positive correlation between prior international experience and better subsequent adjustment to international assignment (Huang *et al*., 2005). Thus,

Hypothesis 3: CCAI scores, when controlling for method variance, will be positively related to the number of international job assignments.

Method

Participants

Two hundred and one undergraduate and MBA students from a south central university in the United States participated in the study in exchange for partial course credit. No student names were collected. Because of missing data, the final sample was 175. Of these 175 students, 84 (48 percent) were male with an average age of 24.5 (SD = 6.35; minimum = 19; maximum = 53). The sample was predominantly White (134 or 76.6 percent) with 11.4 percent Black, 6.3 percent Asian and 5.7 percent Hispanic.

Procedure

Data were collected during class time to maximize response rate. All participants were given the CCAI followed by Goldberg's IPIP questionnaire, followed by questions

asking respondent to report the number of international trips taken over the past year as well as demographic questions. The original administration instructions for both the CCAI and IPIP were used. For the CCAI, scale anchors ranged from 1 'definitely true' to 6 'definitely not true'. For the IPIP, scale anchors ranged from 1 'very inaccurate' to 5 'very accurate'. Participants were asked to respond honestly to all measures.

Measures

Independent variables

Emotional resilience. Eighteen items from the CCAI represent this dimension. Sample items include 'I have ways to deal with the stresses of new situations'; 'I feel confident in my ability to cope with life, no matter where I am'. Cronbach's alpha for this measure was 0.81.

Flexibility/openness. This variable was measured with 15 items from the CCAI. Sample items include 'I like being with all kinds of people'; 'When I meet people who are different from me, I am interested in learning more about them'. Cronbach's alpha was 0.67.

Perceptual acuity. This dimension was measured using 10 items from the CCAI. Sample items include 'I try to understand people's thoughts and feelings when I talk to them'. 'I can perceive how people are feeling, even if they are different from me'. Cronbach's alpha was 0.81 for this variable.

Personal autonomy. The remaining seven items of the CCAI were used to measure this dimension. Sample items include 'I believe that all people, of whatever race, are equally valuable'; 'My personal value system is based on my own beliefs, not on conforming to other people's standards'. Cronbach's alpha was 0.63 for this variable. The reliability estimates for all CCAI subscales were comparable with those reported in Davis and Finney (2006).

Personality. We used the 50-item version of the IPIP scales recently validated and shown to have good reliability and validity compared with other established Five Factor measures of personality such as the NEO-FFI (Lim & Ployhart, 2006). Five factors of personality that the IPIP is purported to measure include extraversion, agreeableness, conscientiousness, emotional stability and openness to experience, with each factor measured by 10 IPIP items. The reliability estimates for the five above-mentioned factors were 0.89, 0.83, 0.77, 0.85 and 0.77, respectively.

Dependent variable

International job assignments taken. One item was used to ask participants to report the number of international trips they had taken in the past as part of their job assignment. On average, students took 2.24 trips (SD = 4.3). Because it was a one-item measure, no reliability estimates were available for this variable. This variable was highly skewed (min = 0, max = 30); thus, transformation using logarithm to base 10 was taken to partially normalize the variable.

Analyses

All CFA models were estimated using Mplus V5.2 (Muthén & Muthén, 1998–2007). Model 1 contained one latent variable representing an overall cross-cultural adaptability factor indicated by all 50 CCAI items. Model 2 contained four latent variables representing four originally proposed factors or subscales of the CCAI, i.e. ER = emotional resilience; FO = Flexibility/Openness; PAC = personal acuity; and PAU = personal autonomy. Thus, Model 2 was a standard CFA model of the CCAI items with 18 items loading on ER, 15 items loading on FO, 10 items loading on PAC and 7 items loading on PAU factors, respectively. Figure 1 shows this Model. Model 2 is a

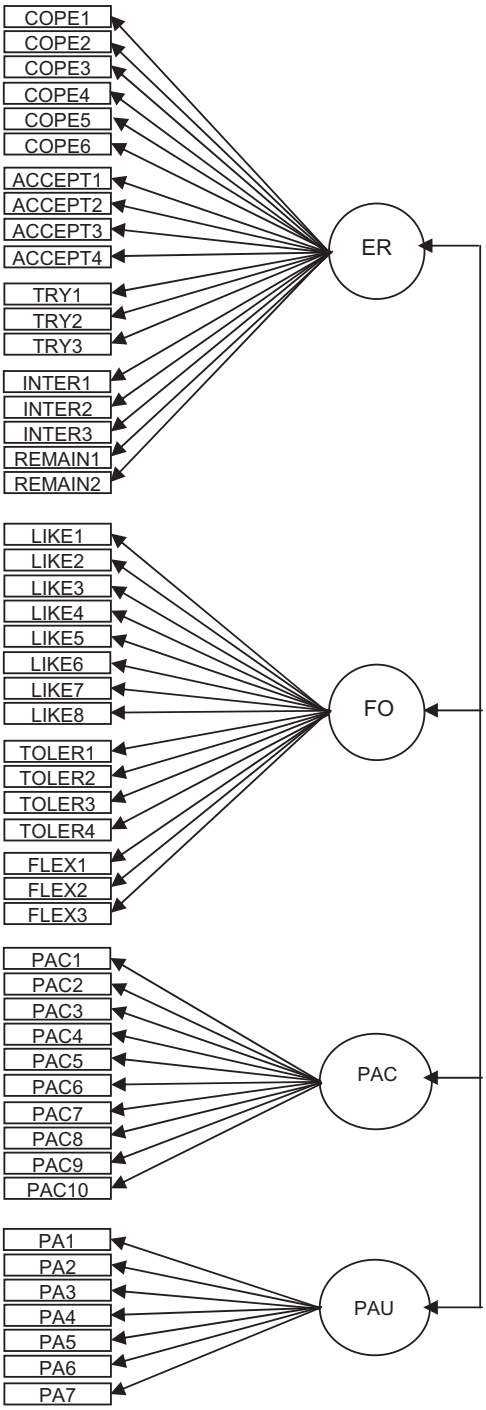

Figure 1: Model 2 with individual CCAI items as indicators of four latent variables: ER = Emotional Resilience; FO = Flexibility/Openness; PAC = Perceptual Acuity; and PAU = Personal Autonomy. To simplify the figure, residual latent variables are not shown.

generalization of Model 1 and thus the fit of the two models can be tested using chi-square difference test. If Model 2 shows a better fit than Model 1, there is evidence supporting the four proposed factors by the CCAI developers.

To explore the extent to which a method factor might influence responses to the CCAI items, it was our intent to create a third model by simply adding a method factor to Model 2. Unfortunately, we were unable to obtain convergence of this method factor model when applied to the CCAI items only.[1] Thus, we decided to incorporate the investigation of the efficacy of the method factor using the models designed to test subsequent hypotheses. To this end, an augmented dataset was created including both the CCAI items and the IPIP Big Five items. Four CFA models were applied to this augmented dataset. Model 1A included one overall CCAI latent variable and five latent variables representing the Big Five factors of extraversion, agreeableness, conscientiousness, emotional stability and openness/intellect, respectively. All 50 CCAI items were allowed to load on the overall CCAI factor, whereas 10 Big Five items each were allowed to load on the appropriate Big Five latent variable. Correlations among the latent variables were estimated. Model 2A generalized Model 1A by requiring the CCAI items to load on four factors, replicating Model 2 with the augmented dataset. This model contained nine latent variables, i.e. four CCAI factors and five Big Five factors. Correlations between all factors were estimated. Comparison of the fit of Model 2A with the fit of Model 1A replicated the comparison between Models 1 and 2 in a model including the Big Five items.

Model 3A was a generalization of Model 2A in which a tenth latent variable, labeled M to indicate method variance, was included. All 100 items were required to load on M (see Figure 2). For purposes of model identification M was constrained so that it was orthogonal to all of the Big Five and CCAI factors (Williams *et al*., 2002). The fourth model, called Model 3A', was a restricted version of Model 3A in which only Big Five items loaded on the method factor. Comparison of Model 3A with Model 3A' allowed a direct test of Hypothesis 1a that estimating the fit of the models would improve when method variance influencing the CCAI items was estimated albeit in the context of a model including the Big Five items.

We used various goodness-of-fit statistics for model evaluation. We reported the chi-square statistic, the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). As noted in prior research, whereas the RMSEA has been found to be most sensitive to misspecified factor loadings (a measurement model misspecification), the SRMR has been found to be most sensitive to misspecified factor covariances (a structural model misspecification) (Hu & Bentler, 1999). Later studies replicating Hu and Bentler's seminal work confirmed that SRMR and RMSEA values were found to perform better than other fit indexes at both retaining a correctly specified (i.e. true) model and rejecting a misspecified model (Sivo *et al*., 2006). Thus, both values are reported in this study. Whereas models with CFI values close to 0.95 are reported as having a good fit to the data, RMSEA values less than 0.06 and SRMR values less than 0.08 are considered acceptable fit (Hu & Bentler, 1999).

Results

Table 1 presents the above-mentioned fit statistics of Models 1 and 2, those applied to CCAI data only. As shown in the Table, both Model 1 and Model 2 fit the data poorly based on all measures. For Model 1 in which the CCAI was assumed to be a unidimensional factor, the CFI was 0.579. The RMSEA and the SRMR were closer to acceptable standards. They were 0.074 and 0.083, respectively, for Model 1. Model 2 in which

[1] We suspect that the convergence failure was due to the high interfactor correlations of the CCAI. High interfactor correlations lead to high interitem correlations across dimensions, which are the same interitem correlations that a method factor would account for. It appears that the covariances among the CCAI items due to the method factor, if any, were not separable from the covariances because of the high interfactor correlations.

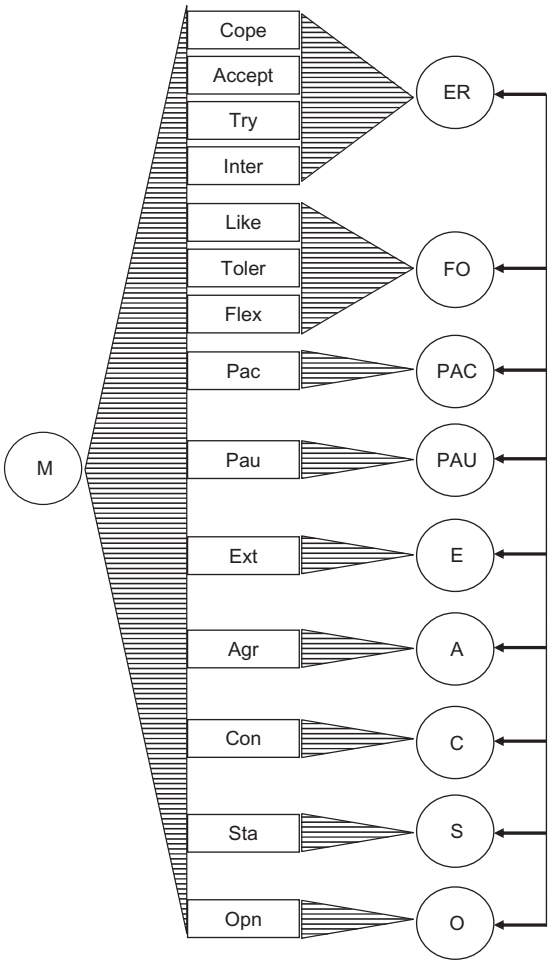

Figure 2: Measurement Model 3. Each rectangle represents a collection of items. Fan shapes between latent variables and rectangles represent the fact that individual items, not scale scores, were indicators of all latent variables. Latent variables are ER = Emotional Resilience; FO = Flexibility/Openness; PAC = Perceptual Acuity; PAU = Personal Autonomy; E = Extraversion; A = Agreeableness; C = Conscientiousness; S = Stability; and O = Openness/Intellect.

Table 1: Fit statistics of alternative CFA models

Model	d.f.	$\chi 2$	Δd.f.[a]	CFI	RMSEA	SRMR
1	1175	2308.494		0.579	0.074	0.083
2	1169	2240.838	6	0.602	0.072	0.084
1A	4835	9051.507		0.481	0.071	0.094
2A	4814	8925.228	21	0.494	0.070	0.093
3A	4714	8407.979	100	0.545	0.067	0.078
3A′	4764	8682.306	50	0.517	0.069	0.098

[a] Δd.f. values are compared to the immediately preceding model in the table.
CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

CCAI was assumed to include four intercorrelated subscales or factors as originally proposed by Kelley and Meyers (1995) fit significantly better than Model 1 ($\Delta\chi^2_{(6)} = 67.66$, $p < 0.01$). Although the CFI was much lower than traditional 'acceptability' cutoffs in Model 2, the SRMR of 0.084 indicates that a four-factor model was a close fit to the data based on Hu and Bentler's (1999) recommended cutoff of 0.08.

In spite of the generally poor fit of Model 2, it was clear that the four-factor solution provided a better fit than a one-factor solution, and we proceeded to models of the augmented data for the following reasons. First, we note that poor fit is generally characteristic of models in which items serve as indicators (e.g. Kenny & McCoach, 2003; Kim & Ployhart, 2006; Thompson & Melancon, 1996). Second, the CFI and the RMSEA are very sensitive to complex model misspecification (Hu & Bentler, 1999); thus, their values not meeting traditional cutoffs may signal the existence of other uninvestigated item covariance such as that shared with a common method factor. Third and lastly, although fit indices such as the CFI and the RMSEA can be significantly improved by grouping individual items into parcels (e.g. Lim & Ployhart, 2006; McMahon & Harvey, 2007), we decided against this practice because doing so would obscure the contribution of individual items into the shared variance with the common method factor.[2]

Because common method variance is assumed to affect all responses to the CCAI items regardless of the subscale to which they belong, as mentioned above we decided it was appropriate to investigate the effects of common method variance with a series of CFAs using an augmented data set in which both CCAI and IPIP items were included. We performed the second set of analyses applying Models 1A, 2A, 3A and 3A' to the augmented dataset consisting of both the CCAI items and the IPIP items. To ensure that addition of the IPIP items did not alter our conclusions regarding the factor structure of the CCAI items, we first replicated the comparison of a one-factor CCAI model with a four-factor CCAI model using the augmented dataset, comparing the fit of Models 1A and 2A, models corresponding to Models 1 and 2 but applied to the augmented dataset. Table 1 presents the results of this comparison. As can be seen by an inspection of Table 1, Model 2A fits significantly better than Model 1A ($\Delta\chi^2_{(21)} = 126.28$, $p < 0.01$), replicating the comparison of Models 1 and 2, suggesting again that a four-factor structure of the CCAI items fits better than a one-factor structure.

On the expectation that adding a method factor to the CFA of the augmented dataset would yield convergence when its addition to the CCAI items did not, Model 3A was applied. In this model, the CCAI items and the IPIP items were all assumed to be influenced by a single method factor, labeled M in Figure 2. Our expectation was confirmed in that the CFA model with a method factor converged.

Hypothesis 1 states that estimating a method effect in addition to the four *a priori* constructs will significantly improve the CFA model fit when modeled at the individual-item level. To test this hypothesis, we used the chi-square difference test comparing Model 3A, in which all items were influenced by method variance, with Model 3A', in which only Big Five items were influenced by the latent method factor M, whereas CCAI items were assumed to be independent of M. The chi-square reduction from Model 3A to Model 3A' was statistically significant, indicating that Model 3A in which method variance explained both Big Five and CCAI items fit the data better than Model 3A' in which M influenced only the Big Five items ($\Delta\chi^2_{(50)} = 274.33$, $p < 0.001$). The CFI was higher in Model 3A compared with Model3A', and both the RMSEA and the SRME were smaller. Thus, Hypothesis 1a was supported. Although not specifically hypothesized, we found that Model 3A, in which all items were influenced by M, fit significantly better than Model 2A, in which no items were influenced by M ($\Delta\chi^2_{(100)} = 517.25$, $p < 0.01$). Thus, it appears that items on both questionnaires were influenced by the common method variance latent variable.

[2] The application of Models 1 and 2 served two purposes. First, they provided evidence that the CCAI items are not merely indicators of one factor. Second, they confirmed the relatively poor fit of the four-factor solution originally investigated by Davis and Finney (2006), although the extent to which the fit appears poor because of absence of a method factor from the model remains to be seen.

Hypothesis 1b was tested by comparing mean correlations between the CCAI latent variables from Model 3A with those from Model 3A'. As expected, the mean of the CCAI latent variables from Model 3A', in which no CCAI items were allowed to be influenced by M, was 0.848, whereas the corresponding mean from Model 3A was 0.739. For each of the possible correlations between a pair of CCAI latent variables, the correlation was closer to zero when method variance was estimated to influence CCAI items. Thus, partially accounting for the covariance between items from different dimensions with a single method factor improved the discriminant validity of the CCAI subscales, although the mean correlation of 0.739 was still substantially larger than zero.

The creation of an augmented dataset not only solved the convergence problem of the method variance model but also served as a proper way to test the remaining hypotheses. Hypothesis 2a states that the CCAI subscale score of perceptual acuity (PAC) will be positively related to extraversion. Hypothesis 2b states that the CCAI subscale score of emotional resilience (ER) will be positively related to emotional stability. Hypothesis 2c states that the CCAI subscale score of flexibility/openness (FO) will be positively related to openness to experience. To test these hypotheses, latent correlations between the CCAI scores, its subscales and the Big Five factors from the IPIP data were computed. The correlations from the applications of Models 1A, 2A and 3A are shown in Table 2. As shown in the table, based on Model 3A the CCAI subscale of perceptual acuity (PAC) was not significantly related to extraversion ($r = -0.195$, $p > 0.05$). Also, the direction of the relationship, albeit nonsignificant, was opposite our expectation. Thus, Hypothesis 2a was not supported. Emotional resilience (ER) was positively correlated with emotional stability ($r = 0.35$, $p < 0.01$), supporting Hypothesis 2b. Finally, also shown in Table 2 is the positive correlation between flexibility/openness (FO) and Openness to experience ($r = 0.22$, $p < 0.05$). Thus, Hypothesis 2c was supported.

Hypothesis 3 states that CCAI scores will be positively related to the number of international job assignments. To test this hypothesis, correlations between CCAI and Big Five dimensions as well as the logarithm of number of trips taken were estimated. These correlations were obtained by adding the logarithmic number of international job assignment (LGTRIPS) variable to Models 1A, 2A and 3A and by estimating correlations between it and the latent variables in the model. Recall that Model 1A was a six-latent variable model with one CCAI and five Big Five variables; Model 2A was a nine-latent variable model without a method factor. Model 3A was a 10-latent variable model with a method factor.

Table 3 presents the correlations of LGTRIPS with the latent variables from each model. As can be seen from an inspection of the table, LGTRIPS was not correlated with the single CCAI latent variable from Model 1A ($r = 0.081$, $p = 0.296$). LGTRIPS was also not related to any latent CCAI subscales from Model 2A in which no method variance was estimated. On the other hand, it was correlated significantly with both emotional resilience (ER) and personal autonomy (PAU) from Model 3A ($rs = 0.202$ and 0.289, respectively), the model accounting for the influence of method variance on all items. None of the Big Five dimensions were significantly related to LGTRIPS in Models 1A, 2A and 3A.

We attribute the difference between the correlations of LGTRIPS to CCAI factors in Models 1A and 2A versus those of Model 3A to the noisy presence of common method variance in estimates of the latent variables of Models 1A and 2A. In Model 3A, this method variance was removed from the estimates of the CCAI and Big Five latent variables, revealing the relationships between ER, PAU, and LGTRIPS. However, although the correlations of the two remaining CCAI subscales of flexibility/openness (FO) and personal acuity (PAC) with LGTRIPS were both more positive in Model 3A, neither was related to the number of international assignments. Thus, Hypothesis 3 was partially supported.

We point out the decreases in correlations among the CCAI subscales and among the Big Five latent variables when moving from Model 2A to Model 3A (see Tables 2 and 3). As was the case when the correlations of Models 3A and 3A' were compared, those

Table 2: CCAI Factor and Big Five correlations of alternative CFA models

Factor	ER	FO	PAC	PAU	E	A	C	S	O
Model 1A									
CCAI					0.433**	0.419**	0.278**	0.449**	0.484**
E						0.223*	0.174	0.316**	0.466**
A							0.412**	0.035	0.306**
C								0.011	0.201*
S									0.256**
O									
Model 2A									
1. ER									
2. FO	0.787**								
3. PAC	0.861**	0.939**							
4. PAU	0.926**	0.761**	0.814**						
5. E	0.433**	0.426**	0.346**	0.411**					
6. A	0.227**	0.528**	0.548**	0.394**	0.223*				
7. C	0.242**	0.182	0.332**	0.389**	0.177	0.416**			
8. S	0.517**	0.426**	0.314**	0.350**	0.315**	0.036	0.010		
9. O	0.460**	0.427**	0.440**	0.532**	0.465**	0.304**	0.215*	0.256**	
Model 3A									
1. ER									
2. FO	0.702**								
3. PAC	0.837**	0.913**							
4. PAU	0.829**	0.541**	0.612**						
5. E	0.089	0.016	−0.207	0.067					
6. A	−0.198*	0.125	0.088	0.030	−0.246**				
7. C	0.061	−0.009	0.124	0.279**	−0.010	0.308**			
8. S	0.347**	0.103	−0.024	0.000	0.033	−0.386**	−0.180		
9. O	0.261**	0.213*	0.208	0.386**	0.270**	0.056	0.073	0.026	

* Significant at $p < 0.05$.
** Significant at $p < 0.01$.
ER = Emotional Resilience; FO = Flexibility/Openness; PAC = Perceptual Acuity; PAU = Personal Autonomy; E = Extroversion; A = Agreeableness; C = Conscientiousness; S = Emotional Stability; O = Openness to experience.

Table 3: Structural model correlations of prediction of international assignment

	ER	FO	PAC	PAU	Log (trip)
Model 1A					
CCAI					0.081
E					0.106
A					–0.020
C					0.006
S					0.020
O					0.077
Model 2A					
ER		0.788	0.861	0.926	0.149
FO			0.939	0.761	0.026
PAC				0.814	–0.019
PAU					0.099
E					0.106
A					–0.019
C					0.005
S					0.021
O					0.077
Model 3A					
ER		0.705	0.837	0.827	0.202*
FO			0.914	0.541	0.076
PAC				0.610	0.019
PAU					0.189*
E					0.147
A					–0.017
C					0.016
S					0.043
O					0.100

* Significant at $p < 0.05$.
ER = Emotional Resilience; FO = Flexibility/Openness; PAC = Perceptual Acuity; PAU = Personal Autonomy.

changes are substantial, suggesting that the estimation of method variance has a large effect on the estimated factor structure of the CCAI as well as that of the Big Five questionnaire, which is consistent with previous method variance research (e.g. Nguyen *et al*., 2008).

The large correlations between CCAI latent variables shown in Table 2 are evidence of the poor discriminant validity of the CCAI subscales. The four CCAI subscales were highly correlated with one another even after controlling for common method variance. Specifically, when common method variance was not estimated (Model 2A), the range of intercorrelations among the four CCAI subscales was 0.761–0.939 with a mean of 0.848. After a common method factor was introduced and estimated, these correlations decreased to ranging from 0.541 to 0.913 with a mean of 0.739 (Model 3A). These high correlations among the CCAI subscales demonstrate the lack of differentiation among the subscales and thus poor discriminant validity of the individual CCAI subscales. However, as stated above, the CCAI subscales demonstrate discriminant validity with *other* measures from which they are supposed to differ because of the low correlations with the Big Five personality measures. Furthermore, two CCAI subscales of emotional resilience (ER) and personal autonomy (PAU) were significantly related to international job assignments, whereas none of the Big Five measures were.

We report the factor determinacies to represent latent variable reliabilities as opposed to scale reliabilities (Raykov, 2001) for the following reasons. First, when each item indicates only one latent variable, then it makes sense to compute scale reliabilities by

summing the loadings of the indicators using Raykov's (2001) formula. In the case of Model 3A, however, each item indicates two latent variables – a dimension latent variable and the method factor. Because it was not possible to compute the substantive variable scale by adding items because of the contamination of the common method factor, scale score estimates of latent variables uncontaminated by common method variance only exist as factor scores from the CFA estimates of Model 3A. This justifies the use of factor score determinacies as the reliabilities of the measurements of those dimensions. Factor determinacies of CCAI subscales for Model 3A were 0.926, 0.875, 0.939 and 0.883 for ER, PO, PAC and PAU, respectively. These reliability estimates were all above the recommended 0.7 cutoff (Cohen & Cohen, 1983), suggesting that the CCAI and its subscales are reliable after taking into account the effect of common method variance.

Discussion

In this study, we found that the CCAI, if analysed appropriately such that common method variance is taken into account, demonstrates some construct and criterion-related validity. In terms of construct validity, the CCAI demonstrated discriminant validity with a well-established measure of personality, i.e. IPIP. The results of Hypotheses 2b and 2c show that the CCAI and the Big Five measure IPIP exhibit more differences than similarities. Specifically, the Big Five dimension of Extraversion was not significantly correlated with any of the CCAI dimensions, three of the Big Five had only one significant correlate among the CCAI dimensions and only openness to experience was related to multiple CCAI dimensions. This is evidence of general discriminant validity of the two measures (Campbell & Fiske, 1959).

Our study provides support for the CCAI's criterion-related validity. Specifically, controlling for common method variance, two CCAI subscales of emotional resilience and personal autonomy were found to predict the number of international assignments. The contamination of CCAI scales by common method variance may explain why lack of validity was reported in some previous studies. For example, Jensma (1996), using correlation analysis, failed to find support for the predictive validity of the CCAI in cultural adaptation among a sample of 37 missionaries. It is possible that common method variance might have suppressed the true substantive relationship of the CCAI and its criterion.

In this study, we provided another example in which common method variance had a profound effect, distorting substantive conclusions; in this case it suppressed the correlations of emotional resilience (ER) and personal autonomy (PAU) with international job assignments (LGTRIPS), which were not significant in Model 2A but significant in Model 3A. Our findings were consistent with previous research (e.g. Biderman *et al*., 2008) that adding a latent method factor improved the model fit of self-reported data in a CFA model. Moreover, we provided evidence that failing to account for common method variance results in upwardly biased estimates of correlations between latent variables from the same questionnaire – the Model 2A latent variables were much more positively correlated than the Model 3A latent variables, consistent with Nguyen *et al*.'s (2008) findings that correlations among the Big Five latent variables were closer to zero when common method variance was taken into account. These findings help explain why some cross-cultural training might not have registered an effect on subsequent improvement in expatriate adjustment, especially when self-reported data are used in such training (e.g. Morris & Robie, 2001).

It is important to note that two CCAI subscales, i.e. personal acuity (PAC) and flexibility/openness (FO), were not significantly related to international job assignments. This finding is tantalizing because in a previous study, openness to experience as a Big Five personality trait was found to be positively associated to both prior international experience and cultural adjustment (Huang *et al*., 2005). It is our conjecture that although the correlation between FO and openness to experience in this study was positive and significant ($r = 0.215$ in Model 3A), it may be the unique variance in openness unshared with FO that is related to prior international experience and

cultural adjustment. Personal acuity, on the other hand, was not significantly related to openness to experience in Model 3A (see Table 2). By definition, personal acuity (PAC) refers to one's ability to be 'attentive to verbal and non-verbal behavior' as well as to be 'sensitive to the feelings of others and to the effect they have on others' (Kelley & Meyers, 1995). As the definition reveals, this dimension contains aspects of both extraversion and openness to experience – a Big Five personality trait. Whereas extraversion was found to be positively related to both prior international experience and subsequent cultural adjustment (Huang *et al*., 2005), it is our conjecture that the shared variance in PAC with extraversion might be too small to register an association with self-reported number of international assignments. Finally, we also replicated Davis and Finney's (2006) result that the CCAI dimensions are quite highly correlated, with little discriminant validity, thus suggesting that a refinement of the instrument might be needed.

Contributions to research and practice

In this study, we added to the body of method variance research yet another example showing how common method variance can serve as a suppressant of substantive relationships in relating cultural adaptation to its outcomes. This has substantial implications for research and practice. In terms of research implications, this study should be replicated in larger samples and with expatriates and their spouses. Because of the low discriminant validity of the CCAI subscales, the items may need to be revised. Special attention should be paid to items measuring personal acuity (PAC) and flexibility/openness (FO) because of their lack of significance in predicting the number of international job assignments.

In terms of practical implications, given the widespread use of the CCAI in global assignment training (Davis & Finney, 2006), this study was the first to show that the CCAI, if analysed properly, may be a valid instrument for selection and training purposes. We note that the CCAI may not be useful as a stand-alone instrument for selecting expatriates pending further research to refine the psychometric properties of its subscales (personal acuity and flexibility/openness). However, the CCAI can be used to increase the effectiveness of expatriate training on expatriate adjustment. For example, the CCAI can be used to build expatriate acculturation profiles to be included in cultural awareness training programs similar to those proposed by Fiedler *et al*. (1971).

The fact that none of the Big Five personality dimensions were significantly related to number of international job assignments spoke a great deal to the unique explanatory power of the CCAI. The methodology employed here could be built into the test scoring system to derive a method factor score for individual test takers. A by-product of the methodology would be estimates of scores on CCAI dimensions uncontaminated by the common method factor, thus enhancing the validity and utility of the expatriate acculturation profile as well as pre-departure training program for global assignment. The added value of our technique to cross-cultural training programs will hopefully increase the confidence of multinational corporations in preparing for their expatriate assignments because the effectiveness of such training programs will be improved with the improvement of predictor reliability and validity per the recommendation by Littrell *et al*. (2006).

In this study, we demonstrated that model fit for the CCAI could be improved substantially with the addition of a common method factor. Even with this improvement, however, the fit was only considered acceptable based on SRMR and RMSEA values. The CFI still has room for improvement based on conventional cutoff of 0.95 recommended in previous studies (e.g. Hu & Bentler, 1999). We offer two potential reasons for this continued lack of fit indicated by the CFI. First, an examination of the factor loadings revealed that some items on both FO and PAC scales had nonsignificant loadings. We ran a separate CFA in which items with nonsignificant loadings on the factor they were supposed to represent were removed and found an improvement in model fit. Second, some items in those two subscales are worded in a double-barreled

fashion. For example, in the FO item 'When I meet people who are different from me, I expect to like them', there are two phrases that may or may not be responded consistently and/or independently from each other. One may respond negatively to the first phrase (I don't usually meet people who are different from me) but positively to the second phrase (but I like those who I happen to meet). The complexity of item wording may have caused the lack of clear loading pattern on the factor the items are supposed to represent. In a recent study that quantitatively reviewed the literature of item generation in scale development, poor item wording was found to be a threat to the construct validity of the scale (Ford & Scandura, 2007). This is certainly an area for future CCAI research.

Limitations of the study

Several limitations of the study should be noted. First, the student sample limits the generalization of the finding to an expatriate population. Although 61 percent of the sample reported having some global assignment experience, this limitation could attenuate findings of future research using active expatriates. Second, the use of the same sample in modeling both the measurement and then validating the confirmed model in a structural model may have capitalized the findings here on chance. Future research should replicate this study using a longitudinal research design to have more conclusive findings. Specifically, longitudinal data need to be collected to increase the confidence of causal inference concerning the relationship of cross-cultural adaptability measured at Time 1 and global assignment training measured at Time 2. This way, the internal validity of the CCAI measure can be strengthened. Third, the use of self-reported number of international job assignments might not be a perfect outcome in global assignment training. One may desire repeated international assignments but may not perform well in such assignments. Thus, other outcomes such as expatriate performance and/or adjustment should be examined in future research. Lastly, other measures of cross-cultural adaptability (e.g. ISI, Bhawuk & Brislin, 1992) should be tested together with the CCAI in future research to have a comprehensive validation study of the CCAI.

References

ASTD Policy Brief (2007), ••. Available at http://www.astd.org/NR/rdonlyres/8C6FDB15-3861-4C27-86DF-7F35917E4A57/12977/January2007APB.pdf (accessed 17 March 2008). 17

Bhawuk, D. P. S. and Brislin, R. (1992), 'The measurement of intercultural sensitivity using the concepts of individualism and collectivism', *International Journal of Intercultural Relations*, **16**, 413–36.

Biderman, M. D., Nguyen, N. T. and Sebren, J. (2008), 'Time on task mediates the conscientiousness-performance relationship', *Personality and Individual Differences*, **44**, 887–97.

Campbell, D. T. and Fiske, D. W. (1959), 'Convergent and discriminant validation by the multitrait-multimethod matrix', *Psychological Bulletin*, **56**, 81–105.

Collings, D. G., Scullion, H. and Morley, M. J. (2007), 'Changing patterns of global staffing in the multinational enterprise: challenges to the conventional expatriate assignment and emerging alternatives', *Journal of World Business*, **42**, 198–213. 18

Costa, P. T. and McCrae, R. R. (1989), *The NEO PI/FFI Manual Supplement* (Odessa, FL: Psychological Assessment Resources).

Davis, S. L. and Finney, S. J. (2006), 'A factor analytic study of the cross-cultural adaptability inventory', *Educational and Psychological Measurement*, **66**, 318–30.

Dean, M. A., Conte, J. M. and Blankenhorn, T. R. (2006), 'Examination of the predictive validity of Big Five personality dimensions across training performance criteria', *Personality and Individual Differences*, **41**, 229–1239.

Elmuti, D., Tück, B. and Kemper, F. (2008), 'Analyzing cross-cultural adaptability among business students: an empirical investigation', *International Journal of Management*, **25**, 551–69.

Fiedler, F. E., Mitchell, T. R. and Triandis, H. C. (1971), 'The culture assimilator: an approach to cross-cultural training', *Journal of Applied Psychology*, **55**, 95–102.

Ford, L. R. and Scandura, T. A. (2007), *Item generation: a review of commonly-used measures and recommendations for future practice*. Paper presented at the 2007 Annual Meeting of the Southern Management Association: Nashville, TN.

Gelles, R. S. (1996), *Expatriate adjustment and performance, and spouse adjustment*. Dissertation Abstracts International: Section B: The Sciences and Engineering, 57(2-B), pp. 1483.
Goldstein, D. and Smith, D. (1999), 'The analysis of the effects of experiential training on sojourners' cross-cultural adaptability', *International Journal of Intercultural Relations,* **23**, 157–73.
Gully, S. M., Payne, S. C., Koles and Whiteman, K. L. (2002), 'The impact of error training and individual differences on training outcomes: an attribute-treatment interaction perspective', *Journal of Applied Psychology,* **87**, 143–55.
Hu, L. and Bentler, P. M. (1999), 'Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives', *Structural Equation Modeling,* **6**, 1–55.
Huang, T. J., Chi, S. C. and Lawler, J. J. (2005), 'The relationship between expatriates' personality traits and their adjustment to international assignments', *International Journal of Human Resource Management,* **16**, 1656–70.
Jensma, J. L. (1996), *A pilot study examining the predictive validity of the Cross-Cultural Adaptability Inventory among first-term missionaries*. Dissertation Abstracts International: Section B: The Sciences and Engineering, Vol 56(10-B), Apr 1996. pp. 5835.
Kelley, C. and Meyers, J. (1995), *The Cross-Cultural Adaptability Inventory* (Minneapolis, MN: National Computer System).
Kenny, D. A. and McCoach, D. B. (2003), 'Effect of number of variables on measures of fit in structural equation modeling', *Structural Equation Modeling,* **10**, 333–51.
Kim, B. and Ployhart, R. E. (2006), 'Assessing the convergent and discriminant validity of Goldberg's International Personality Item Pool', *Organizational Research Methods,* **9**, 29–54.
Kraemer, T. L. (2003), 'Establishing the reliability of using the Cross Cultural Adaptability Inventory with physical therapist students', *Journal of Physical Therapy Education,* **17**, 27–32.
Leong, C. H. (2007), 'Predictive validity of the Multicultural Personality Questionnaire: a longitudinal study on the socio-psychological adaptation of Asian undergraduates who took part in a study-abroad program', *International Journal of Intercultural Relations,* **31**, 545–59.
Lievens, F., Harris, M. M., Van Keer, E. and Bisqueret, C. (2003), 'Predicting cross-cultural training performance: the validity of personality, cognitive ability, and dimensions measured by an assessment center and a behavior description interview', *Journal of Applied Psychology,* **88**, 476–89.
Lim, B.-C. and Ployhart, R. E. (2006), 'Assessing the convergent and discriminant validity of goldberg's international personality item pool: a multitrait-multimethod examination', *Organizational Research Methods,* **9**, 29–54.
Littrell, L. N., Salas, E., Hess, K. P., Paley, M. and Riedel, S. (2006), 'Expatriate preparation: a critical analysis of 25 years of cross-cultural training research', *Human Resource Development Review,* **5**, 355–88.
Majumdar, B., Keystone, J. and Cuttress, L. (1999), 'Cultural sensitivity training among foreign medical graduates', *Medical Education,* **33**, 177–84.
Mak, A. and Tran, C. (2001), 'Big Five personality and cultural relocation in Vietnamese Australian students' intercultural self-efficacy', *International Journal of Intercultural Relations,* **25**, 181–201.
Matsumoto, D., LeRoux, J. A., Bernhard, R. and Gray, H. (2004), 'Personality and behavioral correlates of intercultural adjustment potential', *International Journal of Intercultural Relations,* **28**, 281–309.
Matsumoto, D., LeRoux, J. A., Ratzlaff, C., Tatani, H., Uchida, H., Kim, C. *et al*. (2001), 'Development and validation of a measure of intercultural adjustment potential in Japanese sojourners: the Intercultural Adjustment Potential Scale (ICAPS)', *International Journal of Intercultural Relations,* **25**, 483–510.
McMahon, J. M. and Harvey, R. J. (2007), 'The psychometric properties of the Reidenbach-Robin Multidimensional Ethics scale', *Journal of Business Ethics,* **72**, 27–39.
Montagliani, A. and Giacalone, R. A. (1998), 'Impression management and cross-cultural adaptation', *Journal of Social Psychology,* **138**, 598–608.
Morris, M. A. and Robie, C. (2001), 'A meta-analysis of the effects of cross-cultural training on expatriate performance and adjustment', *International Journal of Training and Development,* **5**, 112–25.
Muthén, L. K. and Muthén, B. O. (1998–2007), *Mplus User's Guide*, 4th edn (Los Angeles, CA: Muthén & Muthén).
Nguyen, N. T., Biderman, M. D., Cunningham, C. J. and Ghobarni, N. (2008), *A multi-sample re-examination of the factor structure of Goldberg's IPIP 50-item Big Five Questionnaire*. Paper presented at the Academy of Management Meeting, Anaheim, CA.
Paulhus, D. L. (1984), 'Two-component models of social desirable responding', *Journal of Personality and Social Psychology,* **46**, 598–609.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. and Podsakoff, N. P. (2003), 'Common method biases in behavioral research: a critical review of the literature and recommended remedies', *Journal of Applied Psychology*, **88**, 879–903.

Raykov, T. (2001), 'Estimation of congeneric scale reliability using covariance structure analysis with nonlinear constraintys', *British Journal of Mathematical and Statistical Psychology*, **54**, 315–53.

Saucier, G. and Goldber, L. R. (2003), 'The Structure of Personality Attributes', in M. R. Barrick and A. M. Ryan (eds), *Personality and Work*, 1st edn (San Francisco, CA. Jossey-Bass), pp. ••–••.

Selmer, J. (2001), 'Expatriate selection: back to basics?' *International Journal of Human Resource Management*, **12**, 1219–33.

Sivo, S. A., Fan, X., Witta, E. L. and Willse, J. T. (2006), 'The search for "optional" cutoff properties: fit index criteria in structural equation modeling', *Journal of Experimental Education*, **74**, 267–88.

Thompson, B. and Melancon, J. G. (1996), *Using item 'testlets'/'parcels' in confirmatory factor analysis: an example using the PPSDQ-78*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Tuscaloosa, AL: November.

Williams, L. J., Ford, L. R. and Nguyen, N. T. (2002), 'Basic and Advanced Measurement Models for Confirmatory Factor Analysis', in S. Rogelberg (ed.), *Handbook of Research Methods in Industrial and Organizational Psychology*, (Oxford: Blackwell).pp. 366–89.

JOBNAME: No Job Name PAGE: 19 SESS: 9 OUTPUT: Tue Mar 9 18:01:50 2010 SUM: 3BC949A0
/v2503/blackwell/journals/ijtd_v14_i2/ijtd_345

SNP Best-set Typesetter Ltd.	
Journal Code: IJTD	Proofreader: Elsie
Article No: 345	Delivery date: 9 March 2010
Page Extent: 18	Copyeditor: Angela

AUTHOR QUERY FORM

Dear Author,

During the preparation of your manuscript for publication, the questions listed below have arisen. Please attend to these matters and return this form with your proof.

Many thanks for your assistance.

Query References	Query	Remark
q1	AUTHOR: Is the short title okay? If not, please provide another one not exceeding eight words.	
q2	AUTHOR: Please provide the job titles of the authors.	
q3	AUTHOR: Please note that as per journal style, the full forms of terms should be used at the first mention in the abstract and in the text (with the short form immediately after the full form in parentheses), and only the short form should be used thereafter. However, the authors' use of short forms and full forms of the CCAI subscales has been retained as it has been assumed that this was intentional and also to maintain the readability of the text. Is this correct, or should the journal style be applied?	
q4	AUTHOR: ASTD has been used as the short form of American Society for Training and Development. Is this correct?	
q5	AUTHOR: Matsumuto *et al*., 2001 has been changed to Matsumoto *et al*., 2001 so that it matches the entry in the reference list. Is this correct?	
q6	AUTHOR: Hammer, Bennett, & Wiseman, 2003 has not been included in the reference list. Please provide complete publication details for this reference.	
q7	AUTHOR: Kelley & Myers, 1992 has been changed to Kelley & Meyers, 1995 so that it matches the entry in the reference list. Is this correct?	

q8	AUTHOR: The capitalization of the CCAI subscales seems to be inconsistent (e.g. flexibility/openness versus Flexibility/ Openness). Please indicate which format should be used throughout the article for consistency.	
q9	AUTHOR: Please indicate whether or not the Big Five personalities should have initial capitals (e.g. Extraversion or extraversion).	
q10	AUTHOR: Saucier & Goldberg, 2003 has been changed to Saucier & Goldber, 2003 so that it matches the entry in the reference list. Is this correct?	
q11	AUTHOR: Should NEO-FFI be defined? If so, please provide its full form.	
q12	AUTHOR: Gully, Payne, Koles, & Whiteman, 2002 has been changed to Gully *et al*., 2002 so that it matches the Reference list; please confirm that it is OK.	
q13	AUTHOR: Should IPIP be defined? If so, please provide its full form.	
q14	AUTHOR: Both personal acuity and perceptual acuity have been used as full forms of PAC. Please clarify.	
q15	AUTHOR: Both Model 3A′ and Model 3A′ have been used in the article. Please indicate which format should be used for consistency.	
q16	AUTHOR: Cohen & Cohen, 1983 has not been included in the reference list. Please provide complete publication details for this reference.	
q17	AUTHOR: Please provide the document title for ASTD Policy Brief (2007).	
q18	AUTHOR: Collings, Scullion, and Morley (2007) has not been cited in the text. Please indicate where it should be cited.	
q19	AUTHOR: Please provide the first-name initial(s) of Koles in Gully *et al*. (2002).	

q20	AUTHOR: Please provide the page range for Saucier and Goldber (2003).	