The Role of Identity Horizons in Education-to-Work Transitions: A Cross-Cultural Validation Study in Japan and the United States

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This article reports on the development and construct validation of the Identity Horizons Scales, an instrument based on the identity horizons model. Participants were postsecondary students aged 18–24 years from Japan (N = 505) and the United States (N = 546). Following exploratory factor analysis and confirmatory factor analysis, a three-factor scale had adequate configural, metric, and partial scalar invariance. Evidence for construct validity was also found. Cross-cultural validity assessments suggest that the new measure can be used in both cultural contexts, and for men and women in both contexts, but that the Japanese configuration of identity horizons is more nuanced than the U.S. pattern. Implications, limitations, and future directions for research using the Identity Horizons Scales in different cultural settings are discussed.

Social scientists in various countries have been struggling to understand the prolonged transition to adulthood, especially education-to-work transitions (e.g., Brinton, 2011; Bynner, 2010; 2012; Helve & Evans, 2013; Mizokami & Matsushita, 2014; Smith, 2011). Entry into, and advancements through, postindustrial labor markets increasingly require at least some postsecondary education, including undergraduate and postgraduate training. Although some of this increase in the demand for credentials does not match the skills required for many jobs (e.g., Collins,
there is clear evidence that a number of additional financial and personal benefits accrue to those who participate in forms of postsecondary education (e.g., Côté & Allahar, 2007, 2011; Côté, Skinkle, & Motte, 2008; Montgomery & Côté, 2003). A question arises, then, concerning why many young people limit their future prospects by choosing not to pursue a postsecondary education, especially when they have the financial and intellectual means to do so.

Research into individual perceptions of the benefits of forms of postsecondary education indicates that, even when some young people believe these benefits can outweigh the financial and opportunity costs in terms of their future prospects, they may be hesitant to undertake a postsecondary education for a variety of personal reasons (Acumen Research Group, 2008). However, we know little about these personal reasons. This study builds on an earlier attempt (Côté et al., 2008) to understand perceptions of nonmonetary benefits and costs of postsecondary education among high school students in terms of the concept of identity horizons, and the related concept of identity anxiety, as they pertain to education-to-work transitions.

To address this deficit in our understanding of why a number of young people do not pursue forms of higher education, even when they have the abilities and grades to do so and are aware of the potential monetary benefits, Côté et al. (2008) initially invoked two theoretical models for guidance: one that categorizes the various motivations for attending postsecondary institutions (Côté & Levine, 1997, 2000) and another that posits the role of higher education within the larger developmental-contextual task of identity formation (Côté, 1997, 2002; Erikson, 1968; Lerner & Kauffman, 1985). The former theory proposes that a goodness of fit between the person and learning environment predicts positive postsecondary education outcomes. The latter theory adds the notion of individual differences in identity-based agency to account for how people influence this goodness of fit by engaging in proactive identity formation. This form of agency involves efforts that individuals make to be in control of their lives by setting and pursuing goals in a manner that is beneficial in relation to their personal strengths and abilities. For example, attending a university based on the goal of personal-intellectual development provides a better goodness of fit in the university context in terms of acquiring human capital skills and attaining higher grades than do other less academically oriented goals such as attending merely because of parental expectations (Côté & Levine, 1997). Additionally, Côté et al. (2008) integrated the notions of “horizons for action” from Hodkinson, Sparkes, and Hodkinson (1996) with the two models mentioned above to develop the identity horizons model.

The identity horizons model predicts that prior experiences affect future educational and work horizons that people perceive to be suitable for themselves—the type of person they see themselves to be. This type of person self-perception thus appears to be anchored in the realm of identity, serving to broaden or narrow perceptions of future possible identities and roles. The breadth of educational- and work-identity horizons is postulated to be affected by feedback received from the social realm, such as encouragement from significant others to think in wide-ranging terms beyond current comfort zones, as well as educational reinforcements regarding ability levels compatible with wider horizons (cf. Oyserman’s work on “identity-based motivation”; Oyserman & Destin, 2010; Oyserman & James, 2011).

Those who develop broader horizons should provide more positive assessments of the potential returns on their personal investments in future educational and work opportunities. That is, people with broader educational- and work-identity horizons would be expected to anticipate a greater payoff from postsecondary education. An important source of these perceptions and
expectations is parental influences: parents with broader educational and work experiences should promote more far-reaching horizons in their children as they grow up. Conversely, some parents with lower levels of educational and occupational attainment may discourage their children in various ways from developing positive assessments of unfamiliar educational and work settings that they sense as foreign. In addition to having less of a basis from role models for estimating costs and benefits for their own futures, young people raised by such parents may be particularly prone to identity anxiety in relation to education-to-work transitions, because they do not perceive a goodness of fit for themselves in current and future educational settings and because they lack the level of identity-based agency necessary to rectify these problems themselves.

For secondary school students, an important operational indicator of educational-identity anxiety would include deep-seated apprehensions about pursuing a postsecondary education. These apprehensions could involve potential tensions with parents and peers based on anticipated identity changes associated with forms of education that are perceived as inappropriate to these significant others. These apprehensions could involve the fear of being perceived as pretentious or presumptuous in the eyes of family members and peers. An additional operational indicator of narrow educational and work horizons would include local goals being preferred to global goals. Thus, those with narrower horizons would not want to study or work away from where they grew up, even if there are perceived monetary and job satisfaction benefits for doing so, whereas those with broader horizons may have goals that take them away from their local comfort zones into the world at large, perceiving personal and monetary benefits for doing so.

In their evaluation of the identity horizons model, Côté et al. (2008) found that secondary school students with higher levels of educational-identity anxiety were not only less likely to pursue a postsecondary education, but were also less accurate in terms of their estimates of the monetary costs and potential benefits of a postsecondary education as well as less cognitively complex in making these cost-benefit appraisals. The latter finding was explained in terms of those with higher levels of educational-identity anxiety being less likely to seek knowledge that would broaden educational and work horizons such as opportunities to apply for and receive student aid. Higher levels of this form of identity anxiety were also found among men and potential first-generation students, with the follow-up finding that both groups had a lower likelihood of attending a university. In the case of potential first-generation students, the results supported the identity horizon hypothesis, whereby those from backgrounds where a university education was not role-modeled as they grew up (e.g., in terms of parental influence and encouragement) reported more restricted perceptions of future educational and work horizons. In the case of gender differences, men’s narrower horizons were associated with lower levels of academic achievement and engagement (cf. Frenette & Zeman, 2007).

DEVELOPING A MEASURE OF IDENTITY HORIZONS

Current formulations of self and identity development are vulnerable to being criticized as ethnocentric—in that such are based on Western contexts characterized by high degrees of individualism (e.g., Markus & Kitayama, 1991). This study addressed these concerns by studying Japanese and U.S. students, a cross-cultural comparison currently receiving considerable attention in the literature (e.g., Sugimura & Mizokami, 2012). At the same time, we also shifted
the focus from high school students to college and university students’ perceptions of their future educational and work prospects. We anticipated that the same principles underlying the identity horizons model would apply to college or university students, with the modification that work horizons would take on a greater importance for college or university students at the same time that educational horizons become relatively less important, because access to postgraduate studies is more restricted than is the case for undergraduate studies. These differences necessitated the development of entirely new items to measure identity horizons and anxiety.

With respect to cross-cultural differences, we expected that the same identity formation processes detected in Canada would apply in the United States and, to some extent, in Japan. Previous identity research in Japan has suggested that Erikson’s perspective on identity is applicable to Japanese adolescents and young adults (Sugimura & Mizokami, 2012). We therefore anticipated an equivalent factor structure for the identity horizons measure across the Japanese and U.S. samples. However, in developing a new scale appropriate for college and university students, it was also necessary to develop item content and wording that is relevant and understandable in both cultures. For example, it is not as common for people to attend graduate schools in Japan as it is in Canada and the United States, so in Japan an undergraduate education can be more important for future work roles. Accordingly, items referring specifically to postgraduate education were omitted from the new measure we created. Instead, reference was made to deeper levels of engagement in current programs and, more generally, further education beyond their current program. This new scale is referred to as the Identity Horizons Scales.

At the same time, we anticipated that mean differences would be found in terms of education-to-work identity anxiety, with higher levels among the Japanese sample than the U.S. sample. This prediction corresponds with evidence of greater levels of collectivism in Japan (cf. the interdependent self; Markus & Kitayama, 1991), coupled with lower preferences for making one’s own choices (Iyenger & Lepper, 1999), weaker internal attribution of success in Japan (Yamaguchi, 1988), and a greater importance of interpersonal relations for the sense of identity (Sugimura & Mizokami, 2012). In addition, we expected that educational horizons among Japanese college and university students would not be as broad because, as noted above, it is not as common for people to attend graduate schools in Japan as it is in North America. Moreover, work opportunities have been relatively poor in Japan since the early 1990s, including a decline in the tradition of life-long employment with a single firm. In support of these predictions about narrower horizons, there is evidence of an “inward tendency” among Japanese youth (Fujita, 2014; Nikkei, 2013) wherein their outlook tends to be more local or domestic than global or international, including a reluctance to move abroad. We thus expected that work-related horizons would be more restricted in the Japanese sample (e.g., Brinton, 2011; Sugimura & Mizokami, 2012).

**THIS STUDY**

**Research Objectives**

Several objectives guided this study.

First, we set out to evaluate the items generated for the Identity Horizons Scales, which were designed to operationalize education/work identity horizons/anxieties among college and
university students, in terms of factorial validity (exploratory factor analysis [EFA] and confirmatory factor analysis [CFA]). This psychometric analysis included assessments of the cross-cultural validity of this measure in terms of configural, metric, and scalar invariance, along with assessments of the scale’s gender invariance, among independently drawn samples of postsecondary students from Japan and the United States. These psychometric analyses provide indices of the soundness of cultural and gender-based comparisons of mean scores and structural relationships among the subscales of the new measure.

The second objective was to investigate cross-cultural and gender correlational differences among identity horizons/anxiety subscales by separately examining associations among the newly developed identity horizons/anxiety subscales for men and women within the two cultural samples. In the absence of a previous literature on this topic, we selected a null hypothesis that the identity horizons model applies equally to men and women in both cultures in terms of the strength of the structural relationships among variables. This objective was to advance the identity horizons model by better understanding relationships among educational/work identity anxieties and identity horizons overall and within these cultural and gender subgroups.

Third, we assessed a form of construct validity of this new measure based on the premise of the identity horizons model that the horizon effect for future educational and work roles is rooted in the realm of identity formation and is affected by variations in personal agency. Accordingly, we anticipated that the new identity horizons measures would be correlated with existing measures of information processing concerning identity-related material, along with a measure of the extent to which individuals make efforts to be in control of the their lives. The measure of identity formation selected was Berzonsky’s well-validated Identity Style Inventory, which operationalizes three identity styles (5th version; Berzonsky et al., 2013). We predicted that broader horizons and lower anxiety would be associated with the informational style (a tendency to seek information when making decisions) whereas narrow horizons and greater anxiety would be related to the diffuse-avoidant style (a tendency to procrastinate when facing life choices) and the normative style (a tendency to rely on the opinions of others). The measure of personal agency selected was the Proactive Personality Scale (Crant & Kraimer, 1999). This scale produces a single summated score representing the extent to which people actively attempt to control their lives through problem solving and goal setting. We predicted that this score would be associated with broader education/work horizons and lower education/work anxiety. Part of this objective was to explore potential cultural and gender associations between the Identity Horizons Scales and the existing measures of identity formation and personal agency, with the expectation of no gender or culture differences.

And, fourth, we extended the evaluation of construct validity of the Identity Horizons Scales to comparisons of observed scores across criterion groups of participants (i.e., culture, gender, first-generation graduate student status, and aspirations for graduate school), with differences expected in accordance with previous research on which the identity horizons model is based (especially, gender differences) and the hypotheses developed above concerning cultural differences; namely, that Japanese respondents would have higher mean scores for identity anxiety and lower mean scores for identity horizons. In the analyses of first-generation graduate student status and aspirations for graduate school, we expected that in both cultural groups men and those whose parents did not attend graduate or professional school would have more restricted educational horizons and greater educational-identity anxiety. In addition, we anticipated that those without aspirations for graduate school would have more restricted educational horizons.
and greater educational-identity anxiety. This objective also involved assessments of possible gender differences among these relationships.

METHOD

Sample and Participant Selection

Japanese Sample

In Japan, the data were collected online using MACROMILL, a survey research company. Using this method 505 college and university students, 18–24 years old ($M_{\text{age}} = 20.39; SD = 1.43$), were recruited (with men and women equally represented; 50.7% women). All except three respondents (99.4%) chose Japanese as their race. It was not necessary to drop any cases or impute values because there were no missing responses in this sample on the Identity Horizons Scales items.

United States Sample

In the United States, data were collected online at approximately the same time, via Mechanical Turk/Crowdflower. The survey was identical to the Japanese version with the exception of some demographic questions. This sample comprised 546 college and university students, 18–24 years old ($M_{\text{age}} = 21.21; SD = 1.90$; men and women almost equally represented, with 54% and 46%, respectively). Ethnic breakdown for the U.S. sample was: White = 67.2%, Black = 7.0%, Hispanic = 7.5%, Asian = 9.7%, and other = 8.6%.

For the factor analyses, missing cases were handled through Mplus’s full information maximum likelihood (FIML). For other analyses, listwise deletion was used among each set of variables under consideration, with a minimum of 520 complete cases for the items operationalizing identity horizons/anxiety among U.S. respondents. Because of the large sample size, no value imputation was undertaken to recover the small percentage of missing cases.

Measures

Identity Horizons

The Identity Horizons Scales items were developed with specific reference to the conditions affecting postsecondary (undergraduate and community college) students. We generated and brainstormed a large pool of English-language items, based on items used by Côté et al. (2008), and modified them to be specifically suited to 18- to 24-year-old postsecondary students. Those items that we independently judged to have the best face validity were selected for further scrutiny and wording adjustments. After the English wording was finalized, the items were then translated into Japanese and assessed in terms of their relevance to Japanese students, with respect to meaning and relevance to their specific conditions (e.g., as noted above, there are fewer opportunities and pressures to attend graduate school in Japan, so items did not refer to
this level of education). Items were then back-translated into English for verification. Twenty items were included in the online surveys, with five items designated for each of the four subscales: Work-Identity Horizons, Educational-Identity Horizons, Work-Identity Anxiety, and Educational-Identity Anxiety.

Identity Style

The ISI5 is the most recent version of Berzonsky’s well-established Identity Styles Inventory (ISI; Berzonsky et al., 2013), designed to provide a generic measure of identity styles that is more suitable than earlier versions for cross-cultural research. The ISI5 is a 27-item, 5-point Likert-type scale with 9 items representing each of the three styles: diffuse-avoidant (e.g., “When personal problems arise, I try to delay acting as long as possible”), informational (e.g., “When making important decisions, I like to spend time thinking about my options”), and normative (e.g., “I automatically adopt and follow the values I was brought up with”). In terms of pure types, a diffuse-avoidant person procrastinates, avoids decision making, and is highly influenced by immediate situational factors; an informational person is reflexive, knowledge seeking, and problem solving; and a normative individual is conscientious and self-disciplined, but is highly influenced by his or her significant others in making decisions and solving problems. In terms of their agentic approach to identity formation, a diffuse-avoidant individual tends to be inactive, an informational person is more proactive, and a normative one is inclined to be passive. The Cronbach’s alphas were .85 for the informational style (.85 U.S.; .82 Japanese), .87 for the diffuse-avoidant style (.87 U.S., .78 Japanese), and .85 for the normative style (.87 U.S., .69 Japanese).

Personal Agency

The Proactive Personality Scale (PPS) is a 10-item, 7-point scale developed to measure the extent to which people proactively attempt to change their environments by way of problem-solving behaviors (Crant & Kraimer, 1999), making this a useful general measure of personal agency. Personal agency involves monitoring opportunities, taking initiative and goal-oriented actions, and persisting until goals are obtained (e.g., “Nothing is more exciting than seeing my ideas turn into reality”). The Cronbach’s alpha was .91 (.90 U.S., .87 Japanese).

First-Generation Graduate Student Status

For both samples, this variable was calculated by assigning a value of 1 if either parent had a master’s degree or above and a 0 if not. Only 5% of Japanese sample had one or both parents with a graduate or professional education. The remainder of the sample was therefore made up of potential first-generation graduate students. Far more U.S. participants reported that one or both parents had attained a graduate or professional education (28%). The small percentage in the Japanese sample poses challenges for statistical analyses, but reflects the fact that in Japan only about 2% of the working population has a postgraduate degree (Japanese Government Statistics, 2010) whereas in the United States the percentage is about 11% (U.S. Census Bureau, 2012, p. 152). Additionally, there were some missing values for first-generation graduate student status.
for the U.S. (6.8% of cases did not provide data) and Japanese (14.1%) samples. Because we had no ancillary information with which to calculate values for missing cases, we elected not to use imputation.

Aspirations for Graduate School

This variable was calculated by assigning a value of 1 if the participant reported aspiring to a master’s degree or above, and a 0 if not. Only 11% of Japanese participants reported aspirations for a postgraduate education, compared to 67% of U.S. participants. This discrepancy mirrors the differing levels of educational attainment between the two countries, as described above. There were few missing cases for this computed variable (three for the U.S. sample and none for the Japanese sample), so no value imputation was undertaken.

RESULTS

Objective 1: Validating the Identity Horizons Scales

The first step was to develop a general factor model for the measure. To do this, the full sample (including U.S. and Japanese samples) was randomly divided in half. An EFA was conducted on the first half of the sample using maximum likelihood (ML) and varimax rotation to determine what factor solution might work best. Using Mplus, a CFA was conducted with the second half of the sample using a robust maximum likelihood procedure. According to values suggested by Little (2013), good model fit for a CFA is represented as SRMR ≤ .05, RMSEA ≤ .05, and CFI ≥ .95; and acceptable fit is represented as SRMR = .06 to .08, RMSEA = .06 to .08, and CFI = .90 to .94.

Exploratory Factor Analysis

The EFA indicated that a three-factor solution was most viable (53% of variance explained). In this three-factor solution, all 20 items loaded at greater than .40 on their respective hypothesized factors but two items (items WH5 and EIA4) cross-loaded (see Table 1 for item wording, scaling, and loadings). These two items were excluded from further analyses. Nine of the 10 work- and educational-identity anxiety items loaded on Factor 1, all 5 educational horizons made up Factor 2, and 4 of the 5 work horizons items constituted Factor 3.

Confirmatory Factor Analysis

The 18 items emerging from the EFA were then subjected to a CFA using the second half of the sample. First, the three-factor model from the EFA was compared to a two-factor model (identity anxiety vs. identity horizons) and to a one-factor model. Results indicated that the three-factor model provided a far better fit than either the two-factor or one-factor model (see Table 2). A further adjustment was made based on these CFA results. Although the three-factor model provided the best fit, it was still not associated with an acceptable or good fit. Modification
TABLE 1
Factor Loadings for the Identity Horizons Scales Based on Varimax Rotation with Kaiser Normalization

<table>
<thead>
<tr>
<th>Code</th>
<th>Item</th>
<th>Education respondent</th>
<th>Work identity anxiety</th>
<th>Educational horizons</th>
<th>Work horizons</th>
</tr>
</thead>
<tbody>
<tr>
<td>WH1</td>
<td>I wouldn’t mind changing my life for a career to achieve my dreams and goals that really interests me.</td>
<td>.484</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH2</td>
<td>I would take a job that really interests me even if my parents did not support me in that choice.</td>
<td>.572</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH3</td>
<td>I would take a really good job far from where I grew up.</td>
<td>.751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH4*</td>
<td>I would be uncomfortable about working in a place far away from where I grew up. (R)</td>
<td>.637</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH5*</td>
<td>I would not want to travel too far to look for a job even if I would like it. (R)</td>
<td>−.436</td>
<td>.574</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIA1</td>
<td>If I pursued a high-level career, some of my friends might think that I am trying to be better than them.</td>
<td>.589</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIA2</td>
<td>Pursuing a high-level job might confuse me about “who I am.”</td>
<td>.666</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIA3</td>
<td>Pursuing a high-level career might create tensions between my parents and me.</td>
<td>.713</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIA4</td>
<td>I would not take a job that interests me if those around me thought I was trying to show them up.</td>
<td>.686</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIA5</td>
<td>Launching a career worries me because it may affect the personal relationships in my present life.</td>
<td>.524</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH1</td>
<td>I need to study hard in school to achieve my dreams and goals.</td>
<td>.590</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH2</td>
<td>More education beyond my current program would help expand my understanding of the world.</td>
<td>.716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH3</td>
<td>Studying at school is useful for my personal development.</td>
<td>.680</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH4*</td>
<td>More higher education beyond my current program would lead to more opportunities to expand my horizons.</td>
<td>.743</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH5*</td>
<td>If necessary to achieve my dreams and goals, I would pursue more higher education even if I would have to significantly change my present life.</td>
<td>.582</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Educational-Identity Anxiety**

| EIA1 | Pursuing a higher level of education beyond my current program might confuse me about “who I am.” | .624     |                       |                      |              |
| EIA2*| Pursuing more education beyond my current program might make me lose some important personal relationships in my life. | .516     |                       |                      |              |
| EIA3 | My parents would disagree with me pursuing more education beyond my current program.               | .533     |                       |                      |              |
| EIA4*| It would not be beneficial to me personally to pursue more education beyond my current program.    | .503     | −.493                 |                      |              |
| EIA5*| Studying hard at school will make little difference for the job I will likely get after leaving school. | .467     |                       |                      |              |

Note. Measured on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). n = 525.

*Items dropped on the basis of the exploratory factor analysis (EFA).

*Items dropped on the basis of the first confirmatory factor analysis (CFA).

*Items dropped to establish configural invariance.

*Items dropped to establish (partial) scalar invariance.
indices suggested that several residual correlations involving item WH4 would need to be added for model fit to be acceptable. We therefore dropped this item from the scale, under the assumption that the subscale did not adequately capture the correlations between this item and the other items. Dropping item WH4 resulted in acceptable model fit for a 17-item scale (SRMR = .054, RMSEA = .053, CFI = .928).

**Measurement Invariance**

Using the 17-item model emerging from the CFA, we sought to assess measurement invariance across the English and Japanese versions of the Identity Horizons Scales and, thus, cross-cultural validity of the construct and measure. Per recommendations by Brown (2006) and Little (2013), three forms of invariance were examined using the full sample: configural, metric, and scalar. *Configural invariance* (equal form) indicates that there are equal numbers of factors, and that each factor is associated with the same items across groups. *Metric invariance* (equal loadings) examines whether the units of measurement have the same meaning. This is assessed in terms of equivalence of the factor loadings of the items across samples. Finally, *scalar invariance* (equal intercepts) pertains to whether scores on the items have equivalent meanings in the two samples. This is assessed in terms of the item intercepts.

All analyses began with the least restrictive solution and progressed toward increasingly restrictive constraints. The $\Delta_{\text{CFI}} (.> .010)$ and the $\Delta_{\text{RMSEA}} (.> .010)$ criteria were primarily used to evaluate significant differences across models (Little, 2013). Beginning with configural invariance, the 17-item models were evaluated first separately within each cultural sample (Table 3). Within the U.S. sample, this model was found to provide an acceptable fit. With regard to the Japanese sample, a series of modifications was needed to arrive at an acceptable model. Specifically, and following modification indices, items EH5 and EIA5 were dropped from the model for both samples because of their cross-loadings. In each circumstance, removal of these items resulted in significant increase in model fit, with the final model indicating an acceptable fit for the Japanese sample (SRMR = .054; RMSEA = .049; CFI = .904). The removal of these items was then repeated for the U.S. sample. Removing item EIA5 resulted in a significant increase in fit. Removal of item EH5 had no significant impact. We therefore carried a 15-item version of the Identity Horizons Scales forward into subsequent CFA multigroup analyses in which both samples were simultaneously compared in the same procedure.

**TABLE 2**

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA (90% CI)</th>
<th>$\Delta_{\text{RMSEA}}$</th>
<th>CFI</th>
<th>$\Delta_{\text{CFI}}$</th>
<th>$\chi^2$ (df)</th>
<th>$\Delta_{\text{CFI}}$ (df)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Factor</td>
<td>.100</td>
<td>.116 (.109–.122)</td>
<td>.647</td>
<td>1081.32 (135)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Factor</td>
<td>.078</td>
<td>.084 (.078–.091)</td>
<td>.032</td>
<td>.814</td>
<td>.167</td>
<td>632.06 (134)</td>
<td>449.26 (1)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>3-Factor</td>
<td>.066</td>
<td>.074 (.067–.080)</td>
<td>.008</td>
<td>.860</td>
<td>.046</td>
<td>505.71 (132)</td>
<td>126.93 (2)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Modification 1</td>
<td>.061</td>
<td>.060 (.053–.067)</td>
<td>.014</td>
<td>.908</td>
<td>.048</td>
<td>377.47 (131)</td>
<td>128.23 (1)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Modification 2</td>
<td>.054</td>
<td>.053 (.046–.061)</td>
<td>.007</td>
<td>.928</td>
<td>.020</td>
<td>288.44 (116)</td>
<td>89.02 (15)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Note.* In Modification 1, items WH3 and WH4 were allowed to covary. In Modification 2, item WH4 was dropped. $n = 526.$
Table 4 presents the results for these tests of full configural, metric, and scalar invariance across the two cultural samples for this 15-item version within a multigroup model. Results indicated reasonable evidence for configural invariance for the 15-item version. Building on the configural model, we constrained factor loadings to be equal across cultural groups; there was no significant decline in model fit ($\Delta$RMSEA = .003, $\Delta$CFI = .002). The scalar invariance constraints, however, were associated with a significant decline in model fit ($\Delta$RMSEA = .014, $\Delta$CFI = .060). Separate examinations of each intercept revealed that the intercepts for items EH4 and EIA2 were not equivalent across samples ($\Delta$RMSEA > .01, $\Delta$CFI > .01). Configural, metric, and scalar invariance was retested after eliminating these items, with the results reported in the bottom half of Table 4. The 13-item version of the scale was associated with configural, metric, and partial scalar invariance. With respect to scalar equivalence, although the model fit substantially declined for the 13-item version after the constraint for equal intercepts were added ($\Delta$RMSEA = .006, $\Delta$CFI = .022), no specific intercept was found to be responsible for this decline, so we reached a conclusion of partial scalar invariance.

### Table 3

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA (90% CI)</th>
<th>$\Delta$RMSEA</th>
<th>$\Delta$CFI</th>
<th>$\chi^2$</th>
<th>$\chi^2$ (df)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese ($n = 505$)</td>
<td>.052</td>
<td>.052 (.050–.062)</td>
<td>.000</td>
<td>.909</td>
<td>458.95 (174)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modification 1</td>
<td>.055</td>
<td>.055 (.049–.061)</td>
<td>.000</td>
<td>.915</td>
<td>476.86 (186)</td>
<td>.110</td>
<td></td>
</tr>
<tr>
<td>Modification 2</td>
<td>.052</td>
<td>.052 (.049–.056)</td>
<td>.000</td>
<td>.915</td>
<td>485.87 (186)</td>
<td>.110</td>
<td></td>
</tr>
<tr>
<td>Modification 3</td>
<td>.055</td>
<td>.055 (.049–.061)</td>
<td>.000</td>
<td>.915</td>
<td>476.86 (186)</td>
<td>.110</td>
<td></td>
</tr>
<tr>
<td>Modification 4</td>
<td>.056</td>
<td>.056 (.050–.062)</td>
<td>.010</td>
<td>.864</td>
<td>616.78 (198)</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>U.S. ($n = 546$)</td>
<td>.052</td>
<td>.052 (.050–.062)</td>
<td>.000</td>
<td>.909</td>
<td>485.87 (186)</td>
<td>.110</td>
<td></td>
</tr>
<tr>
<td>Modification 1</td>
<td>.055</td>
<td>.055 (.049–.061)</td>
<td>.000</td>
<td>.915</td>
<td>476.86 (186)</td>
<td>.110</td>
<td></td>
</tr>
<tr>
<td>Modification 2</td>
<td>.055</td>
<td>.055 (.049–.061)</td>
<td>.000</td>
<td>.915</td>
<td>476.86 (186)</td>
<td>.110</td>
<td></td>
</tr>
</tbody>
</table>

Note. Items EH5 and EIA5 were removed from the sample, resulting in a 15-item model.

Table 4 presents the results for these tests of full configural, metric, and scalar invariance across the two cultural samples for this 15-item version within a multigroup model. Results indicated reasonable evidence for configural invariance for the 15-item version. Building on the configural model, we constrained factor loadings to be equal across cultural groups; there was no significant decline in model fit ($\Delta$RMSEA = .003, $\Delta$CFI = .002). The scalar invariance constraints, however, were associated with a significant decline in model fit ($\Delta$RMSEA = .014, $\Delta$CFI = .060). Separate examinations of each intercept revealed that the intercepts for items EH4 and EIA2 were not equivalent across samples ($\Delta$RMSEA > .01, $\Delta$CFI > .01). Configural, metric, and scalar invariance was retested after eliminating these items, with the results reported in the bottom half of Table 4. The 13-item version of the scale was associated with configural, metric, and partial scalar invariance. With respect to scalar equivalence, although the model fit substantially declined for the 13-item version after the constraint for equal intercepts were added ($\Delta$RMSEA = .006, $\Delta$CFI = .022), no specific intercept was found to be responsible for this decline, so we reached a conclusion of partial scalar invariance.

### Table 4

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA (90% CI)</th>
<th>$\Delta$RMSEA</th>
<th>$\Delta$CFI</th>
<th>$\chi^2$</th>
<th>$\chi^2$ (df)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-Item version</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configural</td>
<td>.047</td>
<td>.047 (.044–.050)</td>
<td>.000</td>
<td>.939</td>
<td>294.59 (134)</td>
<td>.100</td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>.053</td>
<td>.053 (.041–.055)</td>
<td>.000</td>
<td>.939</td>
<td>294.59 (134)</td>
<td>.100</td>
<td></td>
</tr>
<tr>
<td>Scalar</td>
<td>.054</td>
<td>.054 (.047–.061)</td>
<td>.000</td>
<td>.939</td>
<td>294.59 (134)</td>
<td>.100</td>
<td></td>
</tr>
</tbody>
</table>

Note. $N = 1,051$.  

Invariance of the 13-item version was also examined for gender, comparing women and men within each cultural sample. The results (see Table 5) indicate adequate fits within both samples for the configural model. Moreover, within both samples, there was no significant decline in model fit associated with imposing metric invariance constraints (JP-ΔRMSEA = .0046, ΔCFI = .008; US-ΔRMSEA = .001, ΔCFI = .001). Finally, although there was no decrease in model fit associated with the scalar invariance model for the US sample (ΔRMSEA < .001, ΔCFI = .004) there was a significant decline for the JP sample (ΔRMSEA = .001, ΔCFI = .010). However, closer inspection of each item revealed that no specific intercept was found to be responsible for this decline, so we reached a conclusion of partial scalar invariance for gender.

The subscales used going forward were: Education-to-Work Identity Anxiety (7 items), Educational Horizons (3 items), and Work Horizons (3 items). Cronbach’s alphas for the scales were .85 for the 7-item Education-to-Work Identity Anxiety subscale, .81 for the 3-item Educational Horizons subscale, and .67 for the 3-item Work Horizons subscale. The shortened subscales were highly correlated with the original scales using all 20 items (Education-to-Work Anxiety = .88, Educational Horizons = .93, Work Horizons = .90), suggesting that there was no important loss of information with the fine-tuning accomplished by the CFAs.

Objective 2: Cross-Cultural and Gender Associational Differences

The correlation matrix among the three subscales of the Identity Horizons Scales is presented in Table 6, broken down by culture and gender. The correlational pattern clearly suggests that cultural differences trump gender differences: Japanese women seem to have more in common with Japanese men than with U.S. women in terms of the magnitude of the relationships among the three subscales. The main exception to this pattern can be seen in the correlations between the Educational Horizons and Work Horizons scales, with a moderate correlation for Japanese men (.34) and an insignificant one for Japanese women (.05). The difference in magnitude of these correlations is significant (z = −3.4, p < .001). An equivalent gender difference can be seen between the same subscale correlations in the U.S. sample (.47 vs. .18; z = −3.7, p < .001).

### TABLE 5

<table>
<thead>
<tr>
<th>Model</th>
<th>SRMR</th>
<th>RMSEA (90% CI)</th>
<th>ΔRMSEA</th>
<th>CFI</th>
<th>ΔCFI</th>
<th>χ² (df)</th>
<th>Δχ² (Δdf)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese (n = 505)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configural</td>
<td>.063</td>
<td>.050 (.037−.062)</td>
<td>.908</td>
<td></td>
<td>201.18 (124)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>.065</td>
<td>.046 (.032−.058)</td>
<td>.916</td>
<td>.004</td>
<td>204.27 (134)</td>
<td>3.08 (10)</td>
<td>.979</td>
<td></td>
</tr>
<tr>
<td>Scalar</td>
<td>.067</td>
<td>.047 (.034−.058)</td>
<td>.906</td>
<td>.001</td>
<td>223.15 (144)</td>
<td>18.88 (10)</td>
<td>.041</td>
<td></td>
</tr>
<tr>
<td>U.S. (n = 546)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configural</td>
<td>.053</td>
<td>.058 (.047−.070)</td>
<td>.939</td>
<td></td>
<td>236.26 (124)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>.058</td>
<td>.057 (.046−.068)</td>
<td>.937</td>
<td>.001</td>
<td>250.69 (134)</td>
<td>14.43 (10)</td>
<td>.154</td>
<td></td>
</tr>
<tr>
<td>Scalar</td>
<td>.060</td>
<td>.057 (.046−.067)</td>
<td>.933</td>
<td>.001</td>
<td>267.30 (144)</td>
<td>16.60 (10)</td>
<td>.083</td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 1051.*
Thus, although educational and work horizons are unrelated for Japanese women, they show a small effect size for U.S. women, but a moderate effect size for men from both cultures.

Several other cultural differences are evident in the subscale intercorrelations. The correlations among the subscales for the U.S. sample all have small to moderate effect sizes whereas the effect sizes are smaller for the Japanese sample, with two at the trivial level (Cohen, 1988; \( p < .10 \)). With subsamples of this size (\( n \sim 250 \)), differences between correlations greater than .17 are statistically significant (\( z = .05, p < .05 \)). Accordingly, it can be seen that all of the subscale intercorrelations for U.S. men are greater than those for Japanese women and two of the three correlations are greater than those for Japanese men. It appears, then, that this structural aspect of the identity horizons model applies best to U.S. men, and next best to U.S. women. Its application to the Japanese sample is more muted, especially for Japanese women. For Japanese men and women, the association between education-to-work identity anxiety and educational horizons is small, and there are no meaningful relationships between education-to-work identity anxiety and work horizons. However, there is a moderate relationship between the two forms of horizons for Japanese men.

### Objective 3: Correlations With Existing Measures

In this next set of analyses, we examined the extent to which established identity formation measures and agency-related measures were correlated with the subscales of the Identity Horizons Scales. Table 7 presents four sets of correlations for each subscale, reporting separately...
TABLE 7
Correlations Among the Identity Horizons Scales, 13-item Version, Subscales of the Identity Styles Inventory (ISI5),
and the Proactive Personality Scale (PPS10) by Culture and Gender

<table>
<thead>
<tr>
<th>Measure</th>
<th>Education-to-Work Identity Anxiety</th>
<th>Educational Horizons</th>
<th>Work Horizons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Japan Female</td>
<td>Male</td>
<td>United States Female</td>
</tr>
<tr>
<td>Diffuse-avoidant identity style</td>
<td>.34***</td>
<td>.43***</td>
<td>.57***</td>
</tr>
<tr>
<td>Informational identity style</td>
<td>.05</td>
<td>-.03</td>
<td>-.25***</td>
</tr>
<tr>
<td>Normative identity style</td>
<td>.45***</td>
<td>.45***</td>
<td>.47***</td>
</tr>
<tr>
<td>Proactive Personality Scale</td>
<td>.09</td>
<td>.18**</td>
<td>-.26***</td>
</tr>
</tbody>
</table>

Note. JP females, n = 256; JP males, n = 249; US females, n = 228; US males, n = 268; listwise deletion.
*p < .05. **p < .01. ***p < .001.
correlations for men and women in each country. The correlation pattern suggests that within-
culture gender differences are minimal. For example, Japanese women seem to have more in
common with Japanese men than with U.S. women. However, several cultural differences are
evident.

Because the diffuse-avoidant individual is inactive in relation to identity formation, we
expected positive correlations with education-to-work identity anxiety and negative correlations
with educational and work horizons. We anticipated the same correlational pattern for the
normative style because it is passive in relation to identity formation. Conversely, because the
informational person is proactive, we expected negative correlations with education-to-work
identity anxiety and positive correlations with educational and work horizons. Similarly, per-
sonal agency should be negatively associated with education-to-work identity anxiety and
positively with both forms of horizons.

Predictions were uniformly supported for men and women in the U.S. sample, with all
correlations significant and in the predicted direction. However, as shown in Table 7, a different
pattern of correlations was found for the Japanese sample. In that cultural sample, there is
evidence of weaker and nonsignificant relationships among several variables and, in one case,
a correlation is in the opposite direction. With respect the relationship between the diffuse-
avoidant identity style and the three identity horizon subscales, for the Japanese sample, only
the relationship with education-to-work identity anxiety was significant for men and women.
A similar pattern was also found for the normative identity style, where only the relationship
between education-to-work identity anxiety and normative identity style was significant. In con-
trast, a different pattern emerged for the informational identity style, which was unrelated to
education-to-work identity anxiety for the Japanese sample, but of equal magnitude for edu-
cational and work horizons within and between samples. These different correlational patterns
were not anticipated.

Table 7 also shows the different correlational patterns between the two samples for the
Proactive Personality Scale, a measure of a general form of agency. The pattern was consistent
only for educational and work horizons, hovering between small and moderate effect sizes for
men and women in both samples (Cohen, 1988; small = .10 to .29, moderate = .30 to .50).
What is striking, however, is that although the correlation between education-to-work identity
anxiety and proactivity was negative as expected for the U.S. sample, it was positive for men
and women in the Japanese sample, and significant for Japanese men. The difference between
these correlations for Japanese men and U.S. men is significant (.18 vs. −.17; z = 3.99,
*p < .001), as is the difference between U.S. women and Japanese women (.09 vs. −.26;
*z = 3.89, p < .001). We recomputed these correlations as Spearman rank-order correlations to
ensure that the directionality would be replicated and, indeed, it was.

Objective 4: Differentiations Among Criterion Groups

The next set of analyses examined whether the Identity Horizons Scales could differentiate
criterion groups in ways compatible with the identity horizons model and previous research.
The group variables were gender, culture, first-generation graduate student status, and aspira-
tions for graduate school. Of the four group variables, only gender and culture could be analyzed
using two-way ANOVAs because the proportions of those who were potential first-generation
graduate students or who had aspirations for graduate school among the Japanese sample were too small, as noted above (5% and 11% of the sample, respectively). Thus, due to these skewed distributions, the first-generation graduate student status and aspirations for graduate school variables were analyzed using Mann–Whitney U tests. In addition, because of the small ns in the Japanese sample on the key category for first-generation graduate student status and aspirations for graduate school, these two variables were analyzed using crosstabs when examining cultural and gender differences in distributions.

Table 6 presents the Identity Horizons Scales means and standard deviations for the both cultural samples, broken down by gender. Two-way ANOVAs were performed on the Education-to-Work Identity Anxiety, Educational Horizons, and Work Horizons subscales as dependent variables, respectively, with cultural sample and gender as fixed effects. Significant gender effects were found for two of the three subscales. Men reported higher levels of education-to-work identity anxiety, $F(1, 1024) = 15.1, p < .000$, partial $\eta^2 = .015$, and narrower educational horizons, $F(1, 1032) = 7.78, p < .01$, partial $\eta^2 = .007$. No gender differences emerged for Work Horizons. Main effects for cultural sample were found for all three subscales. Japanese students exhibit higher levels of education-to-work identity anxiety, $F(1, 1024) = 229.2, p < .000$, partial $\eta^2 = .183$; narrower educational-identity horizons, $F(1, 1032) = 59.45, p < .000$, partial $\eta^2 = .055$; and narrower work-identity horizons, $F(1, 1030) = 168.84, p < .000$, partial $\eta^2 = .141$. Interaction effects were found only for work-related horizons, $F(1, 1030) = 17.84, p < .000$, partial $\eta^2 = .017$. Of the four groups compared in the interaction term, Japanese women had the narrowest work horizons ($M = 7.02$) whereas U.S. women had the broadest horizons ($M = 9.43$). Although the interaction term is not significant for education-to-work identity anxiety, the mean difference between U.S. men and women is significant ($t = 3.26, p = .001$), and appears to be largely responsible for the main gender effect on this subscale.

The Mann–Whitney U tests revealed that for first-generation graduate student status, in the overall sample where 153 of 920 cases had at least one parent with a graduate education, there were significant differences on all three subscales: Work Horizons, $z = 4.409, p < .001$; Educational Horizons, $z = 2.884, p < .01$; and Education-to-Work Identity Anxiety, $z = 4.910, p < .001$. Thus, those without a parent with a graduate education—potential first-generation graduate students—had narrower work and educational horizons and higher education-to-work identity anxiety. As expected, the Japanese sample had far fewer participants with a parent holding a graduate degree (adj. std. residual $= -9.3, p < .001$) (only 21 of 434 reporting cases reported having at least one parent with a graduate education). Among the Japanese sample, a trend toward significance was found for educational horizons at the .10 level: Educational Horizons $z = 1.81, p < .10$. No differences reached this level of significance for any of the identity horizons subscales for the U.S. sample, where 27% reported at least one parent with a graduate education. No gender differences were found in the distribution of this variable for the overall sample, or within either cultural sample.

Turning to aspirations for graduate school, in the overall sample, 408 students had aspirations to go to a graduate or professional school. Significant differences were found between aspirants

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1These mean differences were confirmed with an analysis of latent means (corrected for factor loadings and intercepts) in the structural equation measurement model. Constraining the means for all three factors to be equal between the two cultural groups resulted in a significant decline in fit ($\Delta$CFI > .01). Additionally, constraining each subscale mean one at a time indicated that all means are significantly different in terms of the decline in fit.
and nonaspirants on all three subscales: Identity Anxiety, $z = -9.995, p < .001$; Educational Horizons, $z = 9.305, p < .001$; and Work Horizons, $z = 7.360, p < .001$. Thus, those who expressed aspirations to attend a graduate or professional school had broader work and educational horizons, and lower education-to-work identity anxiety. Among the Japanese sample, where 55 of 505 respondents had aspirations to continue their education in graduate or professional school (far fewer than in the U.S. sample; adj. std. residual $= 19.0, p < .001$), differences emerged for all three subscales: Education-to-Work Identity Anxiety, $z = 1.975, p < .05$; Educational Horizons, $z = 2.216, p < .05$; and Work Horizons, $z = 1.726, p < .10$. Surprisingly, among the U.S. sample, where 353 of 517 respondents had aspirations to go to graduate or professional school, differences were found only for Educational Horizons: $z = 4.444, p < .001$. Gender differences were found in the overall sample, with more men having aspirations to go to graduate or professional school (adj. std. residual $= 2.1, p < .05$). When the overall sample was broken down by cultural sample, the gender difference in the U.S. sample washed out, but that difference in the Japanese sample became more evident, with Japanese men more likely than their female counterparts to have these aspirations (16% of Japanese men vs. 6% of Japanese women; adj. std. residual $= 3.4, p < .001$).

### DISCUSSION

The results of this study contribute to our understanding of factors associated with the education-to-work transitions that require a postsecondary education. To arrive at this understanding, we developed and evaluated a measure that helps to assess some of the identity horizons based in identity formation and personal agency that might be affecting the decisions that college and university students make with respect to their future educational and work prospects. These results support and extend earlier research on Canadian high school students (Côté et al., 2008) into perceptions of the benefits of a postsecondary education. In extending this research, we pursued four research objectives based on comparable samples of U.S. and Japanese college or university students.

The first objective was to assess operationalizations of educational/work identity horizons and identity anxiety. The Identity Horizons Scales were developed specifically for postsecondary students aged 18–24. Based on the generation and evaluation of a large number of possible items, a 20-item scale representing the four underlying constructs was administered in English and Japanese versions. Based on exploratory and confirmatory factor analyses, as well as some SEM model fitting, a 17-item, three-factor scale was found to have an acceptable fit, but for purposes of comparing the two cultural samples, a subset of 13 items was found to provide scores with adequate factorial validity overall and invariance between the cultural samples. CFAs supported this factor structure for both cultural samples (configural, metric, and partial scalar invariance), as well as for men and women within each sample (configural, metric, and partial scalar invariance). Although it was anticipated that a four-factor solution would have been found, with work-identity anxiety and educational-identity anxiety loading separately, the items tapping both forms of identity anxiety loaded together, suggesting a more global trait of education-to-work identity anxiety about possible identity changes that might result for some respondents if their educational experiences were extended beyond the undergraduate level and work opportunities were broadened beyond current comfort zones.
The second objective was to evaluate cross-cultural comparisons in identity horizons/anxiety by examining results from the equivalent Japanese and U.S. samples, broken down by gender. The results suggest that culture has a much stronger effect on identity horizons/anxiety than does gender, although some unexpected gender differences emerged. Based on the effect sizes of the subscale intercorrelations, the Identity Horizons Model appears to apply best to U.S. men, and next best to U.S. women. At the same time, the relationship between the two horizons subscales is stronger for men from both cultures, suggesting that the key to broadening young men’s work-identity horizons lies with broadening their educational-identity horizons. This relationship appears to be much less important for U.S. women, even though U.S. women scored higher on the Educational- and Work-Identity Horizons subscales. There is no significant relationship between these subscales for Japanese women, suggesting that their education is not as determinant of their occupational destinations.

The application of the structural aspect of the identity horizons model to the Japanese sample is not as strong as in the U.S. sample, especially for Japanese women, even though the results of mean differences suggest that Japanese men and women experience much higher levels of education-to-work identity anxiety and have lower education and work horizons. The only consistent association for Japanese men and women is between the Education-to-Work Identity Anxiety and Educational Horizon subscales, as hypothesized, but the effect size is small. Among the U.S. sample, for both genders, education-to-work identity anxiety shows a moderate negative relationship with both types of identity horizons, suggesting that identity anxiety, as measured by the Identity Horizons Scales, plays a greater role in the education-to-work transition for U.S. students than for Japanese students. As noted above, U.S. students may face a more individualized education-to-work transition, with more perceived options making it feel more precarious, whereas for the Japanese students there is apparently less need and pressure to seek postgraduate education as part of this transition. One explanation for differences in the structural relevance of the model is that, because advanced educational opportunities are less available for social-structural reasons, there may be fewer onuses on people to have them on their radar, and therefore these issues would be less likely to become part of their experiences of potential identity horizons. In contrast, educational and work horizons are more interrelated in terms of effect size for both genders in the U.S. sample. Thus, these differences in correlations could be related to the lower importance of advanced education for the Japanese students and different motivations for seeking work (e.g., the inward tendency about work prospects discussed in the introduction; Fujita, 2014).

With adequate evidence of factorial validity found in terms of the first objective, the third objective of assessing construct validity was pursued through an examination of correlations with established measures of identity formation (ISI; Berzonsky et al., 2013) and agency (PPS; Crant & Kraimer, 1999). Support for this form of construct validity was found consistently for men and women in the U.S. sample, with broader horizons and lower anxiety associated with the informational identity style and higher levels of proactivity, whereas narrower horizons and greater anxiety were related to the diffuse-avoidant and normative identity styles and lower levels of proactivity. These findings support the underlying premise of the Identity Horizons Model that the choices some students make can be based on more than simple monetary cost-benefit analyses of the prospects of pursuing a postsecondary education (Côté et al., 2008). Some students are apparently influenced by identity-based factors that can inhibit or stimulate forms of agency that would take them into educational and work contexts that seem
foreign to them. For some, certain anxieties associated with stepping out of familial and peer-based comfort zones may be holding them back when they otherwise have the intellectual and financial means of pursuing higher forms of education. These findings help to explain why some government-based student loan and scholarship programs are insufficient for motivating such young people to reach their educational and occupational potentials (e.g., Finnie, Lascelles, & Sweetman, 2005). To the extent that identity issues play a role in such cost-benefit decisions, rather than providing eleventh-hour financial incentives, policy efforts need to be devoted to psychosocial interventions as early as primary school (Côté et al., 2008).

However, the pattern of results suggest that not all aspects of identity horizons are rooted in identity formation for Japanese youth in the same ways they are for U.S. youth. Identity anxiety and identity horizons appear to have somewhat different relationships with the underlying processes of identity and agency for the Japanese students (gender differences in the correlational pattern in the JP sample were minimal). For education-to-work identity anxiety, although the hypothesized pattern of correlations held for the diffused and normative identity styles for the Japanese sample, it showed no relationship with the informational identity style (whereas it had a moderate negative effect for the U.S. sample) and actually showed a small positive relationship with proactivity (the opposite direction of that found for the U.S. sample). Similarly, for both horizons subscales, the correlational pattern for the overall sample held for only the diffuse-avoidant and normative styles in the Japanese sample. Thus, although the informational identity style and proactivity are viewed as developmentally advanced in Western contexts, and they do indeed appear to buffer the person from education-to-work identity anxiety for the U.S. sample, they do not seem to do so for the Japanese sample. In fact, proactivity is associated with greater education-to-work identity anxiety for the Japanese students. Correspondingly, although the diffuse-avoidance style and the conformity-based normative style seem to undermine broader educational and work horizons for the U.S. sample (where they are viewed as more developmentally arresting), they have no discernible influence on these horizons for the Japanese sample. Yet, the (developmentally advanced) informational identity style and proactivity had an equivalent positive association with identity horizons for both cultural samples.

One explanation for these findings is, as noted in the Introduction, the greater level of collectivism and less weight placed on internal-agentic attributions, coupled with the importance of honoring interpersonal relations, in Japan compared to the United States. Japan has been described as a society that is making certain transitions from collectivism to individualism, producing unique effects on those making the transition to adulthood in the current historical period (Sugimura & Mizokami, 2012). The more circumscribed educational paths in Japan may raise identity anxieties among those who try to exercise greater proactivity, to the extent that this proactivity involves acting in ways unsupported by collective norms and interpersonal relationships. Similarly, collective norms and interpersonal relationships may make work-identity horizons less problematic for those who are less developmentally advanced (in Western terms) in their identity formation, even though informational styles and proactive personalities are consistent with broader horizons and are more developmentally advanced in Western contexts (cf. Brinton, 2011).

To put this explanation another way, more Japanese young people may be more fatalistic, feeling that their future is less under their control than do U.S. young people who experience more individualized developmental trajectories (cf. Côté & Schwartz, 2002; Sugimura & Mizokami, 2012). The lives of many Japanese youth may thus still be more structured by
societal practices (e.g., more restricted educational pathways), cultural norms (more collectivist than individualistic), and interpersonal bonds (e.g., individuation from parents is less important to them), rendering the experience of education-to-work identity anxiety as less likely to be buffered for those who are proactive in their identity formation. In contrast, identity horizons may not be as undermined for those who are less proactive (diffuse-avoidant and normative) in their identity formation in Japan.

Finally, the fourth objective was to further evaluate the construct validity of the Identity Horizons Scales by examining mean differences of its subscales between four criterion groups: (a) men and women, (b) Japanese and U.S. students, (c) those with and without parents who had achieved higher levels of education beyond college or undergraduate, and (d) those with and without aspirations for graduate school.

Consistent with the previous examination of identity horizons or anxiety among high school students (Côté et al., 2008), the male students exhibited higher levels of anxiety and narrower educational horizons in both cultures than their female counterparts. And, as hypothesized, mean differences between the two cultural groups were found in the predicted directions on all three subscales, with the Japanese sample reporting lower identity horizons and higher identity anxiety scores. In addition, an examination of gender-by-culture differences found an unexpected interaction effect for work horizons: U.S. women reported the broadest work horizons and Japanese women reporting the lowest. This finding may underscore differences in gender roles in the two countries, with U.S. women apparently making more gains in educational systems and the workplace. U.S. women now represent about 60% of university students (National Center for Education Statistics, 2013). In Japan, the situation is reversed, with women comprising roughly 40% of the student body (Statistics Japan, 2014, Table 16.2, p. 172), with far fewer at elite universities (e.g., University of Tokyo, 2014). Our findings also suggest that only a small percentage of Japanese women aspire to attend graduate school, fewer than Japanese men and far fewer than U.S. women.

At the same time, the gender differences in the U.S. sample with respect to education-to-work identity anxiety are important to note because there is great concern in countries like the United States that men are underperforming educationally. The identity horizons model suggests that U.S. men are hampered in the education-to-work transition for identity-based reasons in terms of problems projecting their future identities out of their comfort zones. However, this gender disparity does not appear to the case within Japan, suggesting that higher educational sorting may be more of a culturally specific problem than a global gender-based problem. An examination of the specific education-to-work opportunities in individual countries is thus called for.

Also consistent with previous findings, in the overall sample in which a sufficient number of cases were observed to draw conclusions, those without parents possessing higher-level credentials reported lower educational/work horizons and higher education-to-work identity anxiety. Similarly, those with aspirations to advance to higher levels of postsecondary education reported lower levels of education-to-work identity anxiety and broader education/work horizons. An important policy implication derives from these findings: the increased demand for higher educational credentials in current labor markets may be disadvantaging those from backgrounds where a postsecondary education is not role-modeled for them, especially men (Acumen Research Group, 2008), pointing to one of the deep-seated ways in which social class might be reproduced intergenerationally (e.g., Bourdieu & Passerson, 1977).
In terms of cultural differences, the examination of mean differences in the validating measures revealed a surprise in that the Identity Horizons Scales seemed to have more predictive power among the Japanese sample in terms of graduate aspirations and potential first-generation graduate students. The lower predictive power among the U.S. sample is perhaps due to the large proportion of the sample with graduate aspirations (68%), which seems out of proportion with the reality of how many will actually undertake postgraduate studies. In contrast, the aspirations among the Japanese sample may be more reality based. It may be the case that the U.S. respondents were more likely to have a sense of progressing to graduate or professional studies as more matter of course, just as was their progression from secondary to tertiary education. If this is the case, the identity anxieties/horizons of the U.S. students may not have been as activated as they were for the Japanese respondents, for whom such a progression might have been a less common event in relation to Japanese societal practices.

Overall, our results support the hypothesis, based on the identity horizons model, that identity horizons have a basis in identity formation and personal agency. However, although the other hypotheses hold consistently for the U.S. sample, they do not hold consistently for the Japanese sample, suggesting that a more nuanced model may apply there. It may be the case that agency-based constructs (e.g., personal agency and identity horizons) are in some ways more applicable to individualistic cultural contexts than to collectivistic ones, perhaps because more collectivist contexts are traditionally more rooted in filial piety and interpersonal obligations (cf. Markus & Kitayama, 1991). At the same time, the similarities of experiences with some aspects of identity anxiety/horizons is consistent with recent research suggesting that the Japanese cultural context is changing on a generational basis, with unique blends of individualism and collectivism among younger cohorts (Sugimura & Mizokami, 2012).

Limitations and Future Directions

Although a 17-item version of the Identity Horizons Scale had adequate factorial validity independent of culture, to establish the three forms of invariance for cultural comparisons, it was necessary to drop 7 of the original 20 items. It is possible that some of the content of these items was geared too much to the U.S. situation where postgraduate studies are more common. Consequently, in developing the items, despite our efforts to create culturally neutral items, we may have overlooked features of educational horizons that are more specifically relevant to Japanese students. Still, the scales using all of the original items are highly correlated with the shortened scales derived from the CFA, so the use of shorter scales is not of great concern with respect to a loss of information in terms of the nomological net represented by the subscales. At the same time, it is possible that the original 20 items will perform better in CFAs with other samples when replication studies are undertaken, so the original items could be retained in future studies at the same time that new items are tested to replace the eliminated items. Because the two reverse-worded items did not perform well, this type of item should be avoided in further scale development.

Our ability to assess different possible explanations for variations in identity horizons and anxieties was hampered somewhat in the limitations on the number of variables that can be put into online surveys and by our need to focus on validating the new measure. In addition, the distribution of responses varied considerably between the two samples with respect to parental postgraduate education, so it was not feasible to develop more sophisticated multivariate
path models of the combined factors affecting identity horizons/anxiety. Future studies may need to oversample students whose parents have a postgraduate education, especially in Japan.

With the identity horizons model more clearly validated for the U.S. sample, future research can more deliberately include other variables. Such future research can delve further into the extent to which identity issues may override students’ abilities or financial opportunities, deterring them from furthering their education or looking to expand their work opportunities. Focusing on their identity horizons may be especially important for individuals from lower-income families who aspire to upward mobility. For example, Oyserman and Destin (2010) demonstrated that aiding low-income middle and high school students to believe that college is a realistic goal helped them to improve their academic grades. Accordingly, Oyserman’s identity-based motivations model should be examined alongside the Identity Horizons Scales in future studies, as could constructs such as possible selves and future orientation, which will also provide evidence concerning construct validity (Oyserman & Destin, 2010; Oyserman & James, 2011). Further research on identity horizons among low-income individuals and those whose parents are not highly educated would be well advised to include measures of school grades and other proxies of academic ability along with parents’ education, occupation, and income. Such studies might also assess the extent to which greater levels of anxiety and narrower identity horizons are associated with similar deficits in knowledge of various opportunities for further study, such as bursaries and scholarships, as found by Côté et al. (2008) in their study of Canadian high school students.

Finally, a robust finding and replication in this study involved gender differences, with men experiencing greater education-to-work identity anxiety and narrower education/work horizons. The contrast is especially striking within the U.S. sample, with the results suggesting that U.S. men were not as comfortable in moving out of the comfort zones of their youth. This appears to be a reversal of long-term trends where women of past generations might not have anticipated a goodness of fit at the higher educational and professional levels (cf. Frenette & Zeman, 2007). In light of these findings, future research can examine the extent to which U.S. men might actually have more local opportunities that require lower levels of education, especially men from lower-income backgrounds (e.g., in blue-collar occupations), leading to a narrowing of horizons. In contrast, it may be the case that U.S. women must broaden their horizons as a form of adaption to find secure employment (especially those from lower-income backgrounds) or to maintain or improve their social class situation (e.g., attaining white-collar occupations). This research could attempt to sort out the degree to which decisions made during the education-to-work transition are rooted in identity formation (agency) or differential work opportunities (structure).

Overall, this line of research opens up academic discussions of cross-cultural differences in the role played by identity formation in the education-to-work transitions as well as policy discussions of the variations in occupational attainment related to factors such as gender, social class, and culture. These are important issues affecting the prospects of future generations in modern democracies and, as such, deserve the attention of researchers who can shed light on these complex issues.

REFERENCES

Acumen Research Group. (2008). Do perceptions matter regarding the costs and benefits of a post-secondary education? A summary report of the research program development of measures of perceived returns on investment from


