International students’ academic satisfaction and turnover intentions
Testing a model of arrival, adjustment, and adaptation variables

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Abstract

Purpose – This study aims to investigate international students’ cultural adjustment, academic satisfaction and turnover intentions using ecological systems perspective and explores factors that affect academic success and turnover by exploring three stages: arrival, adjustment and adaptation.

Design/methodology/approach – The sample consists of 208 international students enrolled at a mid-Western university in the USA. Confirmatory factor analysis, structural equation modeling and mediational analyses were used to test hypotheses.

Findings – Findings indicate that self-efficacy, as a pre-sojourn characteristic, affects adjustment variables inclusive of cultural adjustment, affecting academic satisfaction and turnover intentions. Adjustment variables (coping, cultural adjustment and organizational support) mediated relationships between self-efficacy and turnover intentions.

Research limitations/implications – The proposed model moves the research forward by examining an ecological systems framework describing how individual, social, academic, cultural and institutional factors function in supporting international students’ transitions. Results may be generalizable to other large US universities with varying dynamics and resources available (or not) for international students.

Originality/value – Given the challenges international students face in the USA in adapting to both new culture and academic setting, it is imperative to identify what elements of their transition and academic environment predict academic success. This is one of the first studies testing the propositions derived from Schartner and Young’s (2016) model.

Keywords Self-efficacy, Turnover intentions, International students, Academic satisfaction, Cultural adjustment

Paper type Research paper

According to the Institute of International Education (IIE), the number of international students attending college in the USA is growing steadily, making the USA a leader in international education (IIE, 2016). International students in the USA are full-time students admitted by American academic institutions with an F-1 visa [US Citizenship and Immigration Services, USCIS (2017)]. Through their attendance, international students
enhance host country students’ and faculty’s mindfulness of other cultures and cultural differences (Lee and Rice, 2007).

The number of international students enrolled at US universities has increased from 567,039 in 2007-2008 to 903,127 in 2016-2017 (IIE, 2018). In 2016-2017 alone, nearly 115,841 international students enrolled for different undergraduate programs, while another 124,888 enrolled in the US institutions for graduate degrees. Nearly, 12 per cent of international students receive some form of funding from their home country (Farrugia and Bhandari, 2016). In general, undergraduate students are likely to pay for their tuition from family resources (Fischer, 2015), whereas international graduate students tend to receive some form of assistantship in their departments that involve teaching or research duties (Redden, 2013).

Despite this growth in number of international students, the nature of their transition and challenges they face in studying internationally are not fully understood (Ragab et al., 2017). Often, when international students arrive, they live alone initially, leaving them to adapt to the new culture on their own. They become a new individual either through getting a degree or through engagement in a newer culture (Marginson, 2013). The challenges faced by international students as related to the foreign academic setting and social–cultural differences can result in acculturation issues leading to physical, academic and social stresses (Lee et al., 2004). Some of the most salient challenges are related to initial stressors, including personal and interpersonal adjustments issues (Gebhard, 2012; Wang et al., 2015) and cultural shock upon arrival. The longer-term acculturation experiences and difficulties in accessing assistance available or underutilizing student counseling services (Hwang et al., 2014), stem from difficulties encountered upon arrival into the USA (Komiya and Eells, 2001). Further, international students were more likely to receive assistance from other international people than Americans (Chavajay, 2013).

Research suggests that these stressors lead to problems involving social and psychological well-being, including lack of knowledge on how to adapt to a new culture (Morrell et al., 2013) financial, academic, personal challenges, lack of adequate participation in social and leisure activities (Glass et al., 2014), difficulties in establishing/maintaining friendships with domestic students (Williams and Johnson, 2011) and anxieties about maintaining one’s status in the country post-graduation (Khoshlessan and Das, 2017). Other contributing factors affecting transitions include [lack of] social support received (Gebhard, 2012), students’ English proficiency, length of residence in the US prior to academic work, acculturation, personality traits, country of origin, gender and physical symptoms (Zhang and Goodson, 2011). These stressors may be attenuated in the absence of social support or when students become homesick, experience emotional or academics issues including listening proficiency required for academic performance (Kuo, 2011), are confronted with racial discrimination (Lowinger et al., 2014) or face academic and financial issues (Mesidor and Sly, 2016).

Given both social and financial cost for the international student and often the host institution, supporting international students’ transition and identifying what specific areas of support place students in the best position to successfully transition to their new academic setting is essential. There is a need for international students to adjust in their new environment, as such adjustment influence their success in studies (Ryder et al., 2013). Thus, host institutions supporting international students’ transitions need to identify specific aspects of personal and institutional support.

Existing research on student characteristics as related to their successful transition to international study lacks adequate focus on personality traits, coping strategies and problem-solving approaches (Zhang and Goodson, 2011). This absence of research results in deficiency of understanding of what may be most supportive for international students in
their trajectory of preparation for travel, adjustment to a new setting and successful adaptation (Schartner and Young, 2016). Without this information institutions are unable to fully support international students in a successful academic experience.

The complexity of international students’ transition necessitates defining the factors that impact success and how these factors moderate or mediate students’ experiences across the different phases of their transition (Zhang and Goodson, 2011). What is needed is examination of mediation and moderation processes incorporated into research designs examining international student success.

[...] mediation and moderation show through what mechanism a predictor influences adjustment outcomes and in what situations or for whom the predictor has the strongest effect. Findings like these suggest more points of intervention and tailored inventions (based on student’s characteristics) to facilitate adjustment (Zhang and Goodson, 2011, p. 149).

Theoretical background
A mediation/moderation approach to examining factors affecting international students in their transition would help clarify the complexity of the transition from the perspective of nested ecological systems by identifying contributing factors of the transition across individual, institution and cultural levels (Bronfenbrenner and Morris, 2006). These nested systems incorporate dyadic relations students may experience either pre-sojourn or on arrival, including family expectations and sense of personal capacity in relation to affecting interaction outcomes. The systems allow examination of individual students’ experiences interaction among new groups of colleagues or institutional groups. As noted from a systems perspective, each of these nested levels of interaction alter the student’s perception and understanding of their interactions in the new environment.

Use of the ecological systems perspective to explore factors that impact academic success has been reported in the literature (Chun and Dickson, 2011). Given the nested nature of the systems, one factor significant to the transition is the nature of supports in various settings and how they impact social-emotional well-being and academic success, and contribute to the outcome of students’ experiences (Chun and Dickson, 2011). The interaction students experience on their arrival incorporates their contact with students and student groups, representing more meso- and exo-system experiences. This is represented in the cultural adjustment elements of the model – where the interaction and support from friendships and from institutions would impact students’ transitions. Experiences revolving around academic work expectations and interaction or experiences of discrimination that may occur would be represented by the macrosystem of this perspective. Our study aims to complete the first empirical examination of a model proposed by Schartner and Young (2016), examining the contribution of factors associated with transition across three phases: pre-sojourn/arrival, adjustment and adaptation.

Model
Schartner and Young’s (2016) model, built on two earlier studies (Young et al., 2013), proposes possible moderators or mediators of international students’ successful transition working from an ecological systems perspective. Young et al.’s (2013) study addressed factors associated with international student adjustment; the second study addressed adjustment and adaptation (Schartner, 2014). The model proposed from these studies outlines a more inclusive framework to systematically examine multiple factors across three phases of an international students’ experiences.
The first phase proposed is *arrival stage*, which identifies potentially important “pre-sojourn” factors. The second phase introduces factors important to *adjustment*, i.e. in-sojourn factors. It is proposed that these factors, that develop during their stay lead to different types of adjustment (including academic, socio-cultural and psychological). The final phase is *adaptation*, that distinguishes psychological and sociocultural adjustment, with the former being the affective responses to the new environment and the latter being the behavioral and cognitive factors associated with efficient performance in the USA.

Academic adjustment is the fine-tuning in the education world, meeting associated demands. Although such adjustments are difficult early in students’ experience in the USA, over time, these factors occur, albeit in different patterns and varying rates for different students. Social support and other coping resources are then important during these life changes (Schartner, 2014). The researchers recommend more replication of their model, so it may be a useful empirical tool to discover and elucidate what international students experience in their transition and, examine experience and potential supports across distinct phases of the academic, socio-cultural and psychological journey.

The model tested in this paper uses Schartner and Young’s (2016) model as a point of departure. Variables included in the model were drawn from an existing data set and represent the broad constructs/factors proposed by Schartner and Young (2016). For example, self-efficacy represents an arrival variable. Based on the variables in the existing data, not all variables recommended by Schartner and Young (2016) are incorporated in the present model.

However, each of the proposed phases of an international student’s transition are examined leading the model to reflect an ecological system examining the nested aspects of the ecological systems theory (Bronfenbrenner, 1977), beginning, with microsystem interaction. In the current project, the microlevel characteristics are represented by the international students’ general sense of self-efficacy. Working from the premise of self-efficacy as a pre-sojourn factor impacting international students’ transition, the model examines how adjustment factors may be related to individuals’ beliefs of their capacity to impact change (Bandura, 1977). Self-efficacy was proposed to impact students’ likelihood to benefit from the arrival factors in the proposed model, i.e. host language ability, cultural empathy, knowledge about host country, etc. Self-efficacy was examined as a marker of international students’ perception of their capacity to impact outcomes in new settings through use of pre-sojourn characteristics, and related to their later adaptation, identified in the model as likelihood to remain at the academic institution (turnover intention) and level of academic satisfaction. Potential moderating variables related to the adjustment phase of the model included students’ task-oriented coping assessed as related to problem-solving and students’ cultural adjustment to the new academic environment as it is related to academic and social factors.

**Hypotheses**

Based on the theoretical model (Figure 1), we propose the following testable hypotheses:

\begin{align*}
\text{H1. Self-efficacy, an arrival variable, will positively predict } & \text{adjustment variables (coping, cultural adjustment and organizational support).} \\
\text{H2. Adjustment variables (coping, cultural adjustment and organizational support) will } & \text{be positively related to academic satisfaction (adaptation variable).}
\end{align*}
Adjustment variables (coping, cultural adjustment and organizational support) will be inversely related to turnover intentions.

H4. Academic satisfaction (adaptation variable) will be inversely related to turnover intentions.

H5. Adjustment variables (coping, cultural adjustment and organizational support) will mediate the relationships between self-efficacy and academic satisfaction.

H6. Adjustment variables (coping, cultural adjustment and organizational support) will mediate the relationships between self-efficacy and turnover intentions.

Method

Participants
Participants were 208 international students enrolled in degree programs at a large, midwestern university in the USA. Sample was evenly split between women and men. Graduate students comprised 75 per cent (n = 156) of the participants with the remainder being undergraduate students (n = 52). Time studying at the university ranged from less than one year (33 per cent) to four years or more (16 per cent).

Measurement model
To test the adequacy of our measures, we examined all scale items in an exploratory factor analysis using principal components extraction with Promax rotation using SPSS 25. The seven extracted factors accounted for 66.46 per cent of the common variance. Only cultural adjustment variable yielded two distinct factors (i.e. all others were unifactorial) that were used in further analyses. All items loaded at least 0.55 on their respective factors without loading on another factor. The pattern matrix from this analysis was used in a confirmatory factor analysis (CFA) using AMOS 25.

The CFA indicated acceptable model fit. The chi-square was significant ($p < 0.001$) which is common in such analyses. Fit measures included GFI = 0.88, AGFI = 0.84, IFI =
0.95, CFI = 0.95, RMSEA = 0.05 and PCLOSE = 0.40. Validity of latent factors were tested to
determine convergent and discriminant validity, reliability and inter-correlations using the
Master Validity Tool (Gaskin and Lim, 2016). See Table I for results. No validity issues were
identified indicating that all measures were reliable and valid. Next, we tested for common
method bias by creating a common factor including all items. The fully constrained model
was compared with the fully unconstrained model. The chi-square difference test was
significant suggesting some degree of common method bias. To control for this, we
constructed common method bias adjusted composite scores to be used in our structural
model.

Measures

Self-Efficacy Self-efficacy was measured using the five-item scale from Schwarzer and
Jerusalem (1995). A sample item was “I can solve most problems if I invest the necessary
effort.” higher scores indicating higher self-efficacy. Reliability of this scale was 0.85.

Perceived organizational support Perceived organizational support (Kurtessis et al., 2017)
was measured using the four-item scale created by Eisenberger et al. (1986). A sample item
was “My university really cares about my wellbeing.” Higher scores indicate higher
organizational support. Reliability of this scale was 0.85.

Cultural adjustment. As noted above, cultural adjustment consisted of two dimensions,
namely, adjusting to people (my neighbors are supportive) and adjusting to the environment
(ease of finding my was around) adapted from Ward and Kennedy (1999). Higher scores for
indicate better adjustment. Reliability of these scales was 0.84 (people) and 0.87
(environment), respectively.

Coping skills. Coping skills was measured using Endler and Parker (1990)
multidimensional coping inventory. Two types of coping, emotion-oriented and task-
oriented, were measured. An example of “emotion-oriented” coping is “tend to blame myself
for procrastinating;” and an example of “task-oriented” is “outline my priorities.” Reliability
of this scale was 0.81.

<table>
<thead>
<tr>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>EFF</th>
<th>ADJA</th>
<th>COPE</th>
<th>ORGS</th>
<th>ADJB</th>
<th>WSAT</th>
<th>TURN</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFF</td>
<td>0.85</td>
<td>0.54</td>
<td>0.42</td>
<td>0.73***</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ADJA</td>
<td>0.84</td>
<td>0.64</td>
<td>0.23</td>
<td>0.21*</td>
<td>0.80</td>
<td></td>
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<td>0.81</td>
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<td>0.25</td>
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<td>0.17*</td>
<td>0.77</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ORGS</td>
<td>0.85</td>
<td>0.59</td>
<td>0.12</td>
<td>0.22*</td>
<td>0.12</td>
<td>0.24</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJB</td>
<td>0.87</td>
<td>0.68</td>
<td>0.23</td>
<td>0.48***</td>
<td>0.48***</td>
<td>0.37***</td>
<td>0.07</td>
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<tr>
<td>WSAT</td>
<td>0.89</td>
<td>0.72</td>
<td>0.42</td>
<td>0.65***</td>
<td>0.29***</td>
<td>0.35***</td>
<td>0.35***</td>
<td>0.28***</td>
<td>0.85</td>
</tr>
<tr>
<td>TURN</td>
<td>0.85</td>
<td>0.68</td>
<td>0.06</td>
<td>−0.13</td>
<td>−0.06</td>
<td>0.00</td>
<td>−0.24***</td>
<td>−0.02</td>
<td>−0.19*</td>
</tr>
</tbody>
</table>

Notes: CR = composite reliability; AVE = average variance extracted; MSV = maximum shared variance;
EFF = self-efficacy; COPE = coping; ADJA = cultural adjustment (people); ADJB = cultural adjustment
(environment); ORGS = perceived organizational support; WSAT = academic satisfaction; TURN =
turnover intentions; *p < 0.05; **p < 0.01; ***p < 0.001; ****p < 0.0001; Italicized numbers on the
diagonal represent the square root of AVE (if the diagonal values are greater than any other correlation,
then this establishes adequate discriminant validity). Based on Gaskin and Lim (2016), no convergent or
discriminant validity issues were identified
Academic satisfaction. Academic satisfaction was assessed using the five-item scale developed by Judge et al. (1998), after necessary rewordings. A sample item was “I feel fairly well satisfied with my present academics.” Reliability of this scale was 0.89.

Turnover intentions. Turnover intentions was measured using a three-item scale developed by O’Driscoll and Beehr (1994). A sample item was “I plan to look for a new school within the next 12 months.” Reliability of this scale was 0.85.

All the above scales were measured on a seven-point Likert scale (1 = strongly disagree and 7 = strongly agree).

Procedure
All necessary Institutional Review Board approvals of the university were obtained before data collection commenced. A survey link was sent out to a listserv, consisting of emails of international students with a message informing student of their rights in this study and request for their participation. The final response rate was around 23 per cent.

Results
The composite variables from our CFA were used to construct our structural model. Figure 1 depicts the overall model that flows from our arrival variable (self-efficacy), to adjustment variables (coping, cultural adjustment and organizational support), to adaptation (academic satisfaction) and turnover intentions (intention to change academic program). Model fit for the structural model was very good: $\chi^2$ was not significant indicating good overall fit; AGFI = 0.96; GFI = 0.99; CFI = 0.99; RF I = 0.99; RMSEA = 0.02; and PCLOSE = 0.60. All hypotheses were tested using standardized regression coefficients from the paths in our structural model.

Hypotheses
Hypothesis one predicted that self-efficacy would positively predict adjustment variables (cultural adjustment, coping and organizational support). As shown in Table II, self-efficacy was positively and significantly related to each of the adjustment variables: coping ($\beta = 0.55, p < 0.001$), cultural adjustment (people) ($\beta = 0.19, p < 0.01$); cultural adjustment (environment) ($\beta = 0.56, p < 0.001$); and organizational support ($\beta = 0.22, p < 0.001$). H1 was strongly supported.

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJB ← EFF</td>
<td>0.56</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>ORGS ← EFF</td>
<td>0.22</td>
<td>$p = 0.001$</td>
</tr>
<tr>
<td>COPE ← EFF</td>
<td>0.55</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>ADJA ← EFF</td>
<td>0.19</td>
<td>$p = 0.004$</td>
</tr>
<tr>
<td>WSAT ← ORGS</td>
<td>0.17</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>WSAT ← EFF</td>
<td>0.73</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>WSAT ← ADJB</td>
<td>0.03</td>
<td>$ns$</td>
</tr>
<tr>
<td>WSAT ← ADJA</td>
<td>0.01</td>
<td>$ns$</td>
</tr>
<tr>
<td>WSAT ← COPE</td>
<td>−0.01</td>
<td>$ns$</td>
</tr>
<tr>
<td>TURN ← WSAT</td>
<td>−0.53</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>TURN ← ORGS</td>
<td>−0.22</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>TURN ← ADJB</td>
<td>0.29</td>
<td>$p &lt; 0.001$</td>
</tr>
<tr>
<td>TURN ← COPE</td>
<td>0.21</td>
<td>$p = 0.002$</td>
</tr>
<tr>
<td>TURN ← ADJA</td>
<td>−0.22</td>
<td>$p &lt; 0.001$</td>
</tr>
</tbody>
</table>

Notes: EFF = self-efficacy; COPE = coping; ADJA = cultural adjustment (people); ADJB = cultural adjustment (environment); ORGS = perceived organizational support; WSAT = academic satisfaction; TURN = turnover intentions
Next, we tested whether adjustment variables (coping, cultural adjustment and organizational support) would be inversely related to turnover intentions (H3). Cultural adjustment (as related to people) ($\beta = -0.22, p < 0.001$) and organizational support ($\beta = -0.22, p < 0.001$) were each negatively related to turnover intentions. Contrary to expectations, cultural adjustment (as related to environment) ($\beta = 0.29, p < 0.001$) and coping ($\beta = 0.21, p < 0.001$) were significantly related but in positive direction. Note that cultural adjustment (people) was inversely related to turnover intentions while cultural adjustment (environment) was positively related to turnover intentions. Thus, H3 was partially supported.

Our H4 predicted academic satisfaction would be inversely related to turnover intentions (H4). A moderately strong inverse relationship ($\beta = -0.53, p < 0.001$) was found, giving strong support for H4.

H5 predicted that adjustment variables (coping, cultural adjustment and organizational support) would mediate between self-efficacy and academic satisfaction (Table III). This was tested using Gaskin and Lim’s (2018) indirect effects plugin for AMOS 25. Only one of the paths revealed significant indirect effects: self-efficacy $\rightarrow$ organizational support $\rightarrow$ academic satisfaction where the standardized estimate of the indirect path was 0.04 ($p < 0.01$). H5 was partially supported.

H6 tested whether adjustment variables (coping, cultural adjustment and organizational support) would mediate between self-efficacy and turnover intentions. All four indirect paths tested attained statistical significance (Table III) with the following indirect (standardized) effects: coping ($0.10, p < 0.01$); cultural adjustment (people) ($-0.04, p < 0.05$); cultural adjustment (environment) ($0.15, p < 0.001$); and organizational support ($-0.05, p < 0.01$). Thus, H6 was supported.

Additional results. The model was tested for differences based on gender and student level (undergraduate versus graduate student). No evidence of differences was found.

<table>
<thead>
<tr>
<th>Indirect path</th>
<th>Unstandardized estimate</th>
<th>Lower</th>
<th>Upper</th>
<th>$p$-value</th>
<th>Standardized estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFF $\rightarrow$ ADJA $\rightarrow$ WSAT</td>
<td>0.003</td>
<td>-0.024</td>
<td>0.043</td>
<td>0.721</td>
<td>0.002</td>
</tr>
<tr>
<td>EFF $\rightarrow$ ADJA $\rightarrow$ TURN</td>
<td>-0.080</td>
<td>-0.181</td>
<td>-0.025</td>
<td>0.016</td>
<td>-0.040**</td>
</tr>
<tr>
<td>EFF $\rightarrow$ COPE $\rightarrow$ WSAT</td>
<td>-0.011</td>
<td>-0.093</td>
<td>0.071</td>
<td>0.783</td>
<td>-0.008</td>
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<tr>
<td>EFF $\rightarrow$ COPE $\rightarrow$ TURN</td>
<td>0.199</td>
<td>0.089</td>
<td>0.352</td>
<td>0.005</td>
<td>0.100**</td>
</tr>
<tr>
<td>EFF $\rightarrow$ ORGS $\rightarrow$ WSAT</td>
<td>0.050</td>
<td>0.017</td>
<td>0.112</td>
<td>0.007</td>
<td>0.036**</td>
</tr>
<tr>
<td>EFF $\rightarrow$ ORGS $\rightarrow$ TURN</td>
<td>-0.094</td>
<td>-0.204</td>
<td>-0.034</td>
<td>0.010</td>
<td>-0.047**</td>
</tr>
<tr>
<td>EFF $\rightarrow$ ADJB $\rightarrow$ WSAT</td>
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<td>-0.064</td>
<td>0.104</td>
<td>0.679</td>
<td>0.015</td>
</tr>
<tr>
<td>EFF $\rightarrow$ ADJB $\rightarrow$ TURN</td>
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<td>0.479</td>
<td>0.003</td>
<td>0.146**</td>
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<tr>
<td>EFF $\rightarrow$ WSAT $\rightarrow$ TURN</td>
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<td>-0.613</td>
<td>0.001</td>
<td>-0.437***</td>
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<td>ADJA $\rightarrow$ WSAT $\rightarrow$ TURN</td>
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<td>-0.121</td>
<td>0.097</td>
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<td>-0.008</td>
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<tr>
<td>COPE $\rightarrow$ WSAT $\rightarrow$ TURN</td>
<td>0.018</td>
<td>-0.102</td>
<td>0.135</td>
<td>0.794</td>
<td>0.009</td>
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<tr>
<td>ORGS $\rightarrow$ WSAT $\rightarrow$ TURN</td>
<td>-0.168</td>
<td>-0.322</td>
<td>-0.059</td>
<td>0.009</td>
<td>-0.099**</td>
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<td>ADJB $\rightarrow$ WSAT $\rightarrow$ TURN</td>
<td>-0.029</td>
<td>-0.149</td>
<td>0.088</td>
<td>0.672</td>
<td>-0.016</td>
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</table>

Notes: EFF = self-efficacy; COPE = coping; ADJA = cultural adjustment (people); ADJB = cultural adjustment (environment); ORGS = perceived organizational support; WSAT = academic satisfaction; TURN = turnover intentions *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
Schartner and Young’s (2016) model examines an ecological systems framework for how individual, social, academic, cultural and institutional factors function in supporting international students’ transitions. Our research contributes to this perspective for understanding international students’ success in transitioning to a new academic setting by testing elements of the proposed model across distinct phases of pre-sojourn, adjustment and adaptation. This extends knowledge by allowing an examination of how factors may combine in supporting students’ success.

The role of self-efficacy (an arrival variable) in predicting adjustment variables (H1) was notable because each of the adjustment variables (i.e. coping, cultural adjustment – people and environmental and perceived organizational support) was significantly and positively related to self-efficacy. This supports previous research where researchers reported the importance of self-efficacy in international student adjustment (Lowinger et al., 2014). In previous research, self-efficacy was positively related to socio-cultural adjustment and academic attainment, while negatively related to uncertainty avoidance for international students (Yusuf, 2011; Zhao, 2010). Our findings extend this research by examining self-efficacy in relation to a broader range of adjustment variables including coping behavior and perceived organizational support in addition to our two adjustment variables. This suggests that self-efficacy beliefs are important in the academic adjustment of international students. Perhaps, those students with greater sense of efficacy to affect their outcomes are those who, at the pre-sojourn period, possess factors likely to contribute to higher motivation and stronger achievement orientation. These factors would be associated not only with the pre-sojourn phase as students prepare for their international academic experience, but also with adjustment characteristics likely to support them during the adjustment phase. Whether dispositional or situation factors are related and how they affect such perceptions awaits further research.

The second hypothesis examined how adjustment phase factors (i.e. coping, cultural adjustment and organizational support) were associated with adaptation factor of academic satisfaction. Only organizational support was found related to academic satisfaction. One would expect that coping in a new, foreign environment might lead to academic satisfaction as much as being culturally adjusted to people from different background and to the foreign environment itself can provide satisfaction in one’s academics. As our results suggest, what seems to matter more for international students’ academic satisfaction, is the support they receive from their educational institution, alluding to the role educational institutions potentially play in ensuring international students’ academic success and satisfaction. Organizational support is important for its members to gain positive outcomes including emotional ones such as satisfaction in their work domain (Rutherford et al., 2012). Similarly, university support for international students (Smith and Khawaja, 2011; Yusoff and Othman, 2011) in gaining academic satisfaction is important. Factors such as support from one’s supervisor, proper advising, receiving feedback for exceling in one’s academics (Keaveney and Young, 1997), or the feeling that the school welcomes/supports international students increases academic satisfaction (Cho and Yu, 2015). For example, international students may feel hesitant to speak up in class or not openly asking for clarifications because of differences in both academic and social experiences (Ashton-Hay et al., 2016). These differences would have the potential to impact international students across ecological systems. For instance, being comfortable sharing their experiences of the academic setting with others who may not share nor understand their academic frame of reference may impede academic interaction and satisfaction with their academic experience (Tan et al., 2018). The nature of student-instructor interactions in the classroom, a more
meso-level systems interaction may be uncomfortable as it differs from the expectations of this microsystem interaction familiar to the international student.

The role of organizational/institutional support may serve to facilitate international students’ cultural adjustment (Smith, 2016), thereby influencing their academic satisfaction. Thus, instructors can use a variety of techniques to facilitate making international students feel not threatened by classroom dynamics. University staff can also assist by being responsive and understanding. Thus, it seems reasonable to conclude while coping and being adjusted culturally can be of help in social or personal life arena, it is the educational organizational support that seems paramount for international students’ academic performance.

H3 predicted that higher reported levels of adjustment (coping, cultural adjustment and organizational support) would be negatively related to turnover intentions. It reflected the expectation that international students who reported higher levels of factors related to academic success would experience more positive adaptation to the academic setting. From a systems perspective, this hypothesis examines whether individual level interactions with social settings and institutions were related to other systems interactions at the institutional and community levels.

Confirming the importance of institutional support (Akanwa, 2015; Cho and Yu, 2015), higher cultural adjustment (related to social interactions) and reports of organizational support were associated with lower turnover intention. From a systems perspective, these associations suggest that the capacity to build micro- and meso-system interactions, that can help to navigate the academic changes, may be essential as adjustment factors leading to a positive experience and view of the academic environment.

The positive association between turnover intention and both coping and cultural adjustment related to the new environment was unanticipated. One possible explanation may be that a stronger sense of adjustment and capacity for coping, may provide international students with the foundation to evaluate their fit between the academic environment and academic goals. Another probable explanation for the association between cultural adjustment and turnover is that coping in this research examined task-oriented coping (Endler and Parker, 1990), which may not be helpful for adjustment related to social issues. Problem-focused coping may not relate to establishing micro-system interactions, and thus may not contribute to adjustment overall. Perhaps it is the importance of believing that the environment is one that can be negotiated and provides supportive resources is paramount to successful adjustment. The adjustment to the nature of the university’s expectations and the capacity to cope with needed task requirements may not, in and of itself, provide a successful foundation for adjustment.

H4 was supported because academic satisfaction (an adaptation variable) was inversely related to turnover intentions. Successful adaptation in one’s academic domain may reduce or eliminate students’ intention to leave the program they are enrolled. Academic satisfaction may represent a broad construct, including factors such as satisfaction with American teaching methods (Simpson, 2016), lack of discrimination and welcoming campus climate to adequately thrive on campus. These factors, recorded as important in predicting retention in student literature (Ota, 2013), represent positive systems interactions across personal, group and academic settings. It is likely that overall academic satisfaction, including not performing poorly in academics (Fass-Holmes, 2016), and academic atmosphere reduces the intention to leave the program or university and enroll elsewhere.

For H5, the model results indicated the importance of support, both organizational support and through cultural adjustment in the social setting. This supports the importance of successful systems interactions between the international student and other students or
people in the institution, and the value of the institution providing a macrolevel support system through helpful policy and procedures. The importance of this feeling of support regarding adjustment and adaptation is evident in the role that organizational support played a mediating role in the relation between pre-sojourn efficacy and later academic satisfaction. One explanation of this mediating role is the importance of feeling efficacious about one’s capacity to affect the environment – both prior to the transition and during the initial phase of transitioning. Further, supporting the importance of feeling efficacious in being able to attain support from the environment – whether related to institutional support or support from social network – is the lack of a mediating role of coping and cultural adjustment. As indicated in the previous results, these aspects of the model represented more problem-focused context that drives adjustment.

The non-significant paths between the remaining adjustment variables of coping and cultural adjustment, either as related to social or academic settings, may be related to the findings of how these variables were associated with turnover intention. For example, coping was associated not only with cultural adjustment in the academic setting, which would suggest a contribution to academic satisfaction, but both coping and cultural adjustment in the academic setting were associated with higher turnover intention. It may be that these adjustment variables contributed to the capacity to evaluate the present situation and identify lack of fit with the current setting.

$H_6$ that tested whether adjustment variables (coping, cultural adjustment and organizational support) would mediate the relationships between self-efficacy and turnover intentions was supported. Though self-efficacy was not identified in Schartner and Young’s (2016) model, results suggest its crucial role in positive adaptation on foreign soil, including the implication of a sense of control of outcomes for success. Given that self-efficacy relates to the transitioning students’ perception of their capacity to successfully complete the tasks associated with study in new academic community, it association with adjustment would be anticipated (Yuisoff, 2012), leading to lower turnover intentions.

We reason that differences in students’ perceptions of their capacity to make decisions and to influence or control their environment would be the foundation for their adjustment. It is possible that this confidence in themselves to fulfill tasks required lead to better coping or adjustment in new culture which in turn leads to less turnover intentions. Studies have found a significant association between self-efficacy and coping among students (Crego et al., 2016; Zhao et al., 2015). As per Bandura’s (2002) definition of self-efficacy, students who have confidence in their capacity tend to direct more energy in gathering information and developing tactics to encounter challenges likely inherent in cross-cultural adaptation. These interactions build supportive interactions across the various ecological systems involved in the transition. Such individuals are more likely to learn from mistakes or observation and regulate their actions to attain positive encounters (Chen et al., 2010). Such positive perception of oneself may lead to better usage of organizational support or to seek out such support when not readily offered. In turn, active coping, better cultural adjustment and proactive usage of organizational support reduces intentions of international students to leave the current university.

Institutions may find it more helpful by not simply providing information or advice about transition or cultural adaptation, but within the framework of “how to” address issues. Thus, focusing on the importance of attributions for success or failure (experienced in new cultural setting) can contribute to students’ task-oriented self-efficacy. Of question is how this stable, pre-sojourn characteristics can help academic institutions in developing programs to support international students. One approach would be to build on the importance of students’ sense of ability to meet the challenges in the setting. If this is
reframed from a generalized, stable sense of efficacy to a more task-specific self-efficacy, then this provides a framework useful to institutions in supporting students.

**Limitations**

One limitation is the lack of data for all variables proposed in the original Schartner and Young (2016) model. Having such data could have provided more comprehensive results than those observed here. Data were not collected on student’s level of English proficiency or if they were from a culture closer to that of the USA, or having a family with them in the USA, etc., that might have influenced their adjustment processes in the USA. Data were collected online and limitations inherent in survey research cannot be ignored. Finally, the research was conducted primarily in the mid-western USA with students from a single university. Results may only be generalizable to other large universities elsewhere in the USA with varying dynamics and resources available (or not) for international students.

**Theoretical and practical contributions of our paper**

Despite the above stated limitations, our study makes significant theoretical and practical contributions. Theoretically, to our knowledge, this is one of the first studies attempting to test the propositions put forward in Schartner and Young’s (2016) model as closely as possible (despite limitations noted above) using data collected from over 200 international students from different parts of the world. Though not all the variables as proposed in the original model were tested, our study did attempt to understand the dynamics as delineated in the model. Further studies could use additional and meaningful variables in the model to understand their role in the adjustment processes of international students.

From a practical standpoint, results from this study help to further understand Schartner and Young’s (2016) model. The proposed model moves the research forward by examining an ecological systems framework describing how individual, social, academic, cultural and institutional factors function in supporting international students’ transitions. Importantly, the proposed model and the adaptation tested here, categorize the transition into distinct phases allowing for the examination of factors that may combine in supporting students’ success. Our study also has administrative implications that it provides useful information on augmenting international student adaptation and academic satisfaction and reduce turnover intentions.

**Future directions**

Ideally, future research should test the propositions put forward in the original Schartner and Young’s (2016) model by incorporating all of their proposed variables. Sophisticated analyses should be done to identify potential moderators and mediators of the relationships between the multitude of variables that could affect international students’ adaptation to the USA. We also encourage results from such studies to be seriously considered by administrators in educational institutions. It would be advisable to conduct studies longitudinally, for example, by following the same cohort of international students from their first year (or six months) in the country through their graduation to assess possible causal relationships.

**Conclusions**

The present study explored a comprehensive model on international students’ arrival, adjustment and adaptation processes in the USA. Findings suggest that confidence in one’s ability to be successful on a foreign culture (self-efficacy) can play a crucial role in
adjustment process in the USA, which can have a positive impact on academic satisfaction, lowering intentions to leave the university. This study highlights the importance of having a supportive educational organization climate for international students that includes support from all involved. Future studies should include additional variables related to international students capturing the complex dynamics of adjustment and adaptation processes.

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Further reading


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