

## **Curiosity and Autonomy as Factors That Promote Personal Growth in the Cross-cultural Transition Process of International Students**

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### **ABSTRACT**

*This study explores measures of curiosity and autonomy as two motivation and personality predictors of personal growth initiative (PGI), an indicator of cross-cultural adjustment. The sample comprised 221 international graduate students. Structural equation modeling was utilized to identify the relations among self-perceived language skills, curiosity, autonomy, and PGI. The results indicate that perceived language skills and autonomy promote curiosity, which in turn facilitates PGI. Implications are suggested to facilitate the adaptation of international students.*

**Keywords:** autonomy, curiosity, international students, personal growth initiative, positive psychology

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International students are students who leave their country and travel to study at educational institutions outside of their national borders and home countries (OECD, 2017). Since the turn of the 21st century, the number of international students has increased exponentially. In 1990, nearly one million students were studying beyond their national borders. By the year of 2025, the total number of international student enrollment worldwide is expected to climb to eight million; that would be an eightfold increase in international student enrollment within less than four decades (OECD, 2016). The U.S. is the most popular country amongst international students, and the number of international students in the U.S. increased by 3.4% and is nearing 1.1 million students during the 2016-2017 academic year (Institute of International Education, 2017).

Given the growth trend of the international student population and the fact that all international students must undergo some form of cross-cultural adaptation that has

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implications for students' academic, psychosocial, and health outcomes, it is imperative to understand factors that promote a smooth cross-cultural transition for international students. While studies have examined international students' transition process, majority of prior studies tended to focus on the stress, coping, or pathological outcomes associated with the cross-cultural transitioning process (Lillyman & Bennett, 2014; Moores & Popadiuk, 2011). Undoubtedly, international students experience adversities and stressful situations that may pose risks for their academic success and well-being (Mesidor & Sly, 2016; Smith & Khawaja, 2011), but studying abroad also provides many opportunities for students to enhance their academic and professional skills, expand international competencies, broaden their perspectives, and develop as persons by stretching and growing beyond their comfort zones (Gill, 2007; Moores & Popadiuk, 2011).

Since majority of prior studies on international students tend to focus on acculturative stress and mental health concerns associated with the cross-cultural transitioning process, research studies are needed to consider the benefits of studying abroad and understand how to support and promote international students' positive adjustment (Lillyman & Bennett, 2014; Moores & Popadiuk, 2011). To address this gap in the literature, the present study aimed to identify intrapersonal characteristics that promote growth in international students during their cross-cultural transitioning process. Specifically, we examined curiosity and autonomy as two intrapersonal characteristics that could contribute to or predict personal growth initiative (PGI) in international students studying in the U.S. Prior research revealed that curiosity and autonomy are two factors that account for a variety of life and personal outcomes, including better adaptation and personal development. Unique to this study is the fact that we investigated relations between curiosity and autonomy and how they uniquely and jointly predict PGI, an indicator of a positive functioning.

## **LITERATURE REVIEW**

To better understand the present study, theoretical and background research for the main study constructs (personal growth initiative, curiosity and autonomy), and the hypothesized relationship among them were explained.

### **Personal Growth Initiative**

Personal Growth Initiative (PGI) refers to active and intentional engagement in the development of one's self, in such a way that individuals may identify or create opportunities for self-growth (Robitschek et al., 2012). According to the PGI theory, the unique characteristics of self-growth are intentionality and awareness toward developing as a person (Robitschek, 1998, 1999). Individuals with higher levels of PGI have intention and awareness and are in possession of the following four skills: they (1) are ready to go through a change process, (2) have successful plans for developing the self, (3) utilize available resources, and (4) intentionally direct behaviors toward the change process (Robitschek et al., 2012).

PGI is found to be an indicator of a positive functioning and healthy personality (Robitschek & Keyes, 2009) associated with the development and maintenance of positive interpersonal relations and with adaptive coping skills to deal with stressors and challenges across the lifespan (Robitschek et al., 2012). Research on PGI amongst international students has found that PGI is a protective factor in the process of moving and adjusting to new environments (Yakunina, Weigold, & Weigold, 2013). Research has also

demonstrated that higher levels of PGI are associated with a greater social self-efficacy and ability to manage stressful and challenging social situations (Çankaya, Dong, & Liew, 2017), which in turn results in less acculturative stress and better cross-cultural adaptation outcomes for international students (Yakunina et al., 2013).

Given that the cross-cultural transition process requires the ability for successful coping and adaptation to the new experiences and environments, which is associated with PGI, it is important to identify individual characteristics and skills that may promote higher levels of PGI. Identifying predictors of PGI can contribute to the development of interventions to boost positive adaptation, diminish levels of acculturative stress, and enhance greater well-being and healthy functioning among the international student population.

### **Curiosity and its Role in Predicting PGI**

*Curiosity* is defined as a critical motive that influences human behavior, particularly for motivating the seeking and the pursuit of novel and growth opportunities (Kashdan, Rose, & Fincham, 2004). Research on curiosity as a positive and favorable human characteristic has drawn keen interest from psychologists for decades. However, the construct of curiosity is fraught with inconsistent operational definitions and plagued with misuses of other psychological concepts that are closely related, such as intrinsic motivation, flow, and openness to experience (Kashdan et al., 2009).

Curiosity differs from other feelings and constructs in that its emphasis is on personal growth and development (Kashdan & Steger, 2007). Based on the most recent reconceptualized theoretical model, curiosity is proposed as an essential facilitator for personal growth (Kashdan et al., 2004). The recent theoretical model of curiosity proposes a two-dimensional structure of the curiosity construct. The first dimension is *stretching*, which implies the desire of seeking out novel experiences and the second dimension is *embracing*, which refers the appreciation of the complex, novel, and unknown nature of daily life (Kashdan et al., 2009).

Individuals who are high on trait curiosity are willing to approach and embrace novel, uncertain, and complex situations and believe in their capabilities to handle such situations successfully. Thus, individuals who are high on trait curiosity will be more likely to engage in novel and challenging situations in daily life, and will encounter and experience more opportunities for growth and desirable outcomes in life (Gallagher & Lopez, 2007; Kashdan et al., 2009). For instance, research shows that people with high trait curiosity report greater psychological, social and emotional well-being (Gallagher & Lopez, 2007), experience greater presence of meaning and satisfaction with life (Kashdan & Steger, 2007), and have lower levels of depression (Kaczmarek, Bączkowski, Enko, Baran, & Theuns, 2014). Also, being curious is related to being self-determined to pursue and engage in pleasurable or challenging activities (Kashdan et al., 2004) and experience higher levels of personal growth (Gallagher & Lopez, 2007; Kashdan et al., 2009; Sharma & Garg, 2016).

The positive link between curiosity and personal growth found in prior studies support the theoretical assumption that curious individuals benefit from growth experiences through exploring, discovering, and enriching their knowledge, skills, and experience (Kashdan et al., 2004). In a similar vein, curiosity leads to individuals to maximize the benefits that could be gained from their environments (Panksepp, 1998). Further, curious individuals may seize opportunities for self-development and growth because they invest more time, energy, and resources in activities devoted to personal growth (Kashdan et al., 2009).

Given the theoretical underpinnings of curiosity and the positive outcomes of being curious (i.e., personal growth), it is reasonable to predict that international students who score high on curiosity are more likely to engage in experiences that will enhance their personal strengths and assets. For example, international students who are highly curious may be open to meeting new people and seeking out new experiences to expand their knowledge and learn about the cultural values and traditions of their new environments. In addition, highly curious individuals may appraise novel, challenging, and ambiguous situations in the new environment as opportunities for personal development and growth, rather than as obstacles and burdens to avoid or to overcome.

### **Autonomy and Its Relation to PGI and Curiosity**

The present study is also guided by self-determination theory (SDT), which postulates that the core elements of self-motivation and greater functioning are related to the fulfillment of three psychological needs: for autonomy, for competence, and for relatedness to others (Ryan & Deci, 2000). According to SDT, these needs are distinct and have unique as well as joint impact on learning, performance, and adjustment (Vansteenkiste, Zhou, Lens, & Soenens, 2005). Autonomy, one of the required basic needs to be met for optimal functioning, is defined as a sense of volition in one's behavior or as the self-ownership of actions, and the need for autonomy is fulfilled when an individual has a sense of choice or control over his or her behaviors and life (Deci & Ryan, 2000).

Within the SDT framework, *autonomous motivation and controlled motivation* are two different types of motivation (Deci & Ryan, 2008a). Individuals who are autonomously motivated when their behavior is relevant to their personal values and beliefs or when they perceive the locus of control as internal. In contrast, behaviors with controlled motivation are a production of either (1) external regulation, by which behaviors are directed by externally forced rewards or punishment, or (2) introjected regulation, when behaviors are driven by internally imposed rewards or penalties (i.e., feelings of shame or guilt).

Research guided by SDT has demonstrated that behaviors directed by autonomous motivation rather than controlled motivation yield many benefits, including higher quality performance, longer perseverance, greater level of psychological health (Deci & Ryan, 2008a), greater adaptive learning, better academic performance for students (León, Núñez, & Liew, 2015; Liew et al., 2014; Vansteenkiste et al., 2005), and greater levels of employee motivation, engagement, and performance in the workplace (Gagné & Bhave, 2011). Higher levels of autonomous motivation are also positively associated with better cross-cultural adjustment outcomes, as well as stronger aspirations for personal growth (Chirkov, Vansteenkiste, Tao, & Lynch, 2007; Williams, Cox, Hedberg, & Deci, 2000).

Moreover, being self-determined is related to a greater curiosity to pursue and enjoy engaging in challenging activities (Kashdan et al., 2009; Kashdan et al., 2004). Specifically, possessing a higher level of autonomy or receiving greater autonomous support facilitates the expression of curious tendencies like the pursuit of novelty, exploration of the environment, the identification of opportunities for learning new skills, and active engagement with self-growth (Deci & Ryan, 2008a); whereas, a lack of autonomous feelings or support suppresses the tendency toward curiosity (Ryan & Deci, 2000). Thus, autonomy is linked to higher levels of curiosity and PGI.

## **The Present Study: Hypotheses and Structural Paths**

While studies have shown that both curiosity and autonomy are predictors of PGI, no published studies to date were found that tested curiosity and autonomy simultaneously in relation to PGI in an international context. This study investigated the joint contributions of curiosity and autonomy on PGI in a diverse sample of international students, using structural equation modeling (SEM) as the analytic approach. Students' perceived linguistic skills were included in the SEM model as a background variable, because prior research has shown that international students' self-perceived language ability is a better predictor of adjustment outcomes than their actual language competency (MacIntyre, Noels, & Clément, 1997). Prior research also found that self-perceived linguistic skills were associated with low acculturative stress and better adjustment outcomes among international students (Andrade, 2006).

In this study, we addressed three primary research questions: (1) Whether the participants' perceived linguistic skills are linked to higher levels of curiosity and autonomy?, (2) whether autonomy is associated with curiosity?, and (3) whether curiosity and autonomous motivation provide additive contributions to PGI? We expect that linguistic skills will be positively related to curiosity and autonomy and that curiosity and autonomy will be positively to each other. Furthermore, we expect that curiosity and autonomous motivation will each provide unique prediction to PGI.

## **RESEARCH METHOD**

This study was approved by the Institutional Review Board at a large public university in southeastern U.S. All participants provided consent to participate and data were collected using a web-based survey.

### **Participants**

Participants in this study consisted of a convenience sample of 221 international graduate students who completed study measures online. The majority of participants was male (55%), single (56%), and Asian (62%); had resided in the U.S. for more than four years (29%); and were pursuing a Ph.D. degree (45%). The mean age of the sample was 27.85 years ( $SD = 5$ ).

### **Measures**

The measures for this study consisted of a demographic questionnaire, the Personal Growth Initiative Scale-II (Robitscheck et al., 2012), the Curiosity and Exploration Inventory (Kashdan et al., 2009), and the Self-Determination Scale (Sheldon, Ryan, & Reis, 1996).

#### ***Demographic Questionnaire***

A demographic questionnaire was developed to gather information about participants' gender, marital status, age, level of study, ethnic background, and length of residency in the U.S. Prior research has shown that international students' self-perceived language ability is a predictor of better adjustment outcomes than their actual language competency (MacIntyre et al., 1997). Participants were also asked to rate their self-perceived English language proficiency on a one-item, Likert-type question scored from 1 (poor) to 5 (excellent). In our sample, 4% of the participants reported their English language proficiency as poor, 16% as fair, 21% as satisfactory, 33% as good, and 26% of the participants rated their English proficiency as excellent.

### ***Personal Growth Initiative Scale-II.***

The Personal Growth Initiative Scale (PGIS-II) has 16 items, with four subscales (Robitscheck et al., 2012). The items are rated on a five-point, Likert-type scale ranging from 1 to 5. Two of the subscales (planfulness and readiness for change) address cognitive aspects of PGI theory, while the remaining two (using resources and intentional behavior) refer to behavioral aspects. A coefficient alpha of .93 was obtained for the scales overall; the alpha coefficients of the individual subscales were .80 for planfulness, .87 for readiness for change, .77 for using resources, and .85 for intentional behavior.

### ***Curiosity and Exploration Inventory-II.***

The Curiosity and Exploration Inventory (CEI-II) is a 10-item scale with two factors (Kashdan et al., 2009). Items are rated on a five-point Likert-type scale ranging from 1 (very slightly or not at all) to 5 (extremely). The first factor, stretching, refers to the motivation to seek out knowledge and new experiences, and the second factor, embracing, means a willingness to embrace the novel, uncertain, and complex nature of everyday life. The alpha coefficient for the scales overall was .89; for stretching the alpha coefficient was .83 and for embracing .81.

### ***Self-Determination Scale***

The Self-Determination Scale (SDS) is a 10-item questionnaire with two subscales. SDS was used to measure trait autonomy (Sheldon, Ryan, & Reis, 1996). Items are rated on a nine-point scale ranging from 1 (only A feels true) to 5 (both feel equally true) to 9 (only B feels true). The awareness of self subscale measures a person's feelings and sense of inner self, the perceived choice subscale assesses a person's choices with regard to his or her actions. The alpha coefficient of the overall scales was .81, with .76 for the awareness-of-self subscale and .83 for the perceived choice subscale.

### **Procedures**

With the help of International Student Services, participants were recruited from among the international graduate students studying at a public university in the U.S. No incentive was offered for taking part in the study. Participants were informed that the survey was anonymous and they had the right to withdraw from the study at any time.

A total of 225 participants completed the first two questionnaires (demographic information and PGIS-II) of the survey, while 176 participants completed the whole survey, consisting of four questionnaires. In a methodological article, Schlomer, Bauman and Card (2010) discussed best research practices for handling missing data in social science research. They argued that missing data should be included in the analysis; otherwise, a dataset from which values are excluded may lead to biased conclusions. Therefore, participants' responses from incomplete surveys were included in study analyses.

SPSS 23 was used to conduct the reliability analysis and a series of one-way analyses of variance (ANOVA); MPLUS 7.3 was used to conduct the descriptive statistics analysis and the structural equation modeling. Full Information Maximum Likelihood (FIML) was chosen as the estimator. FIML is a powerful estimation method for handling missing data, even when the patterns of missing data are non-random and the amounts are at moderate levels (Buhi, Goodson, & Neilands, 2008).

RESULTS

Preliminary analyses were conducted to check for normality of data and for missing data, and whether there were mean-level differences on major study variables based on demographic factors. Then, descriptive statistics including means and standard deviations of study variables as well as zero-order correlations among them were conducted. To address the primary research questions for this study, structural equation modeling was utilized to test the hypothesized relations among the study variables.

**Preliminary Analysis**

Prior to conducting the analysis, the data set was screened for outliers. Based on the boxplots, four extreme cases on the variables of English language proficiency and PGI were identified, and excluded from all subsequent analyses. The final sample consisted of 221 survey responses. Nine percent of the data were missing, which can be considered a reasonable amount (Schlomer et al., 2010). One-way ANOVAs were conducted to determine whether significant differences existed in the latent variables based on participants' demographics. No significant differences were reported for any of the latent variables based on the participants' gender, length of stay in the U.S., or marital status, but statistically significant differences were found for curiosity scores based on study level— $F(1, 173) = 6.629, p < .05, \eta^2 = .04$ —and for self-determination scores based on ethnic background— $F(5, 175) = 2.57, p < .05, \eta^2 = .07$ . Due to their small effect sizes, however (i.e., below .10 in Cohen, 1992), these variables were not controlled for in further analyses.

**Descriptive Statistics**

Zero-order Pearson correlations and descriptive statistics (means and standard deviations) among the study variables are presented in Table 1. As seen in Table 1, there are significant positive correlations among all the study variables, with small to medium sizes of effects.

Table 1. Zero-order correlation and descriptive statistics of the variables

Measures	1	2	3	4	5	6	7	8	9	10	11	12
<b>1. English Proficiency</b>	--											
<b>2. PGIS-II</b>	.17*	--										
3. Readiness for Change	.16*	.86**	--									
4. Planfulness	.14*	.86**	.77**	--								
5. Using Resources	.03	.75**	.49**	.46**	--							
6. Intentional Behavior	.25**	.82**	.61**	.64**	.48**	--						
<b>7. SDS</b>	.15*	.29**	.31**	.33**	.08	.29**	--					
8. Awareness of Self	.12	.26**	.26**	.26**	.09	.29**	.80**	--				
9. Perceived Choice	.13	.22**	.25**	.28**	.05	.19*	.83**	.33**	--			
<b>10. CEI-II</b>	.26**	.48**	.42**	.48**	.19*	.53**	.37**	.38**	.23**	--		
11. Stretching	.24**	.52**	.45**	.51**	.20**	.60**	.38**	.36**	.26**	.92**	--	
12. Embracing	.24**	.36**	.33**	.38**	.14*	.39**	.31**	.33**	.18*	.93**	.70**	--
<i>Mean</i>	3.62	3.67	3.72	3.63	3.37	3.97	3.59	3.80	3.38	3.41	3.70	3.11
<i>SD</i>	1.14	.73	.84	.87	.99	.82	.68	.80	.87	.75	.78	.83

\* $p < .05$ . \*\* $p < .01$ .

## Structural Equation Modeling

Structural equation modeling (SEM) was utilized to assess the hypothesized relations among the study variables. In evaluating the results of the SEM analysis, several goodness-of-fit indices were used. A non-significant chi-square value is an indicator of good fit, but due to its sensitivity to a large sample size, a normed chi-square value was used to evaluate model fit. Moreover, the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square-residual (SRMR) were used. The following criteria were considered in evaluating whether the model provided an adequate fit to the data: a relative chi-square value lower than 3 (Kline, 2005), a CFI value of .95 or higher, a RMSEA value of .08 or less, and a SRMR value of .08 or less (Hu & Bentler, 1999).

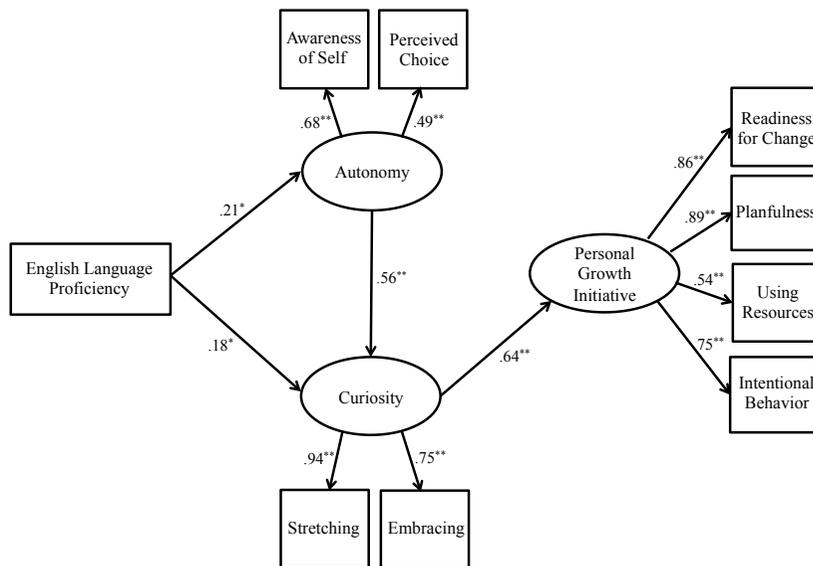


Figure 1. Standardized path coefficients of the structural model inter-relating English language proficiency, autonomy, curiosity, and PGI. Note. \* $p < .05$ . \*\* $p < .01$ .

A two-step procedure was used to test the SEM model. Before analyzing the SEM model, a measurement model was tested, as suggested by Kline (2005). The model consisted of the following three latent and eight observed variables: the PGI latent variable with four dimensions, the curiosity latent variable with two dimensions, and the self-determination latent variable with two dimensions. The subscales were used as observed indicators for the latent constructs. All of the latent variables were allowed to co-vary freely.

The overall measurement model shows an adequate fit to the data:  $\chi^2/df (42.997/17) = 2.53$ , CFI = .96, RMSEA = .08, 90% CI [.05, .12], and SRMR = .05. All the standardized path coefficients are higher than .5 and significant at .001 levels. Having established a good measurement model, the full structural equation modeling was assessed by including an observed predictor (English language proficiency) and specifying the hypothesized paths among the study variables.

The results of the proposed model show a good fit to the data:  $\chi^2/df (52.434/23) = 2.28$ , CFI = .96, RMSEA = .08, 90% CI [.05, .10] and SRMR = .05. An examination of the path coefficients reveals that the path from autonomy to PGI is not significant, while the remaining standardized path coefficients are statistically significant. Thus, after dropping the non-significant path from autonomy to PGI, a second model was tested. The fit indices of the second model are quite similar to those of the initial model, and the overall model fits the data well:  $\chi^2/df (54.861/24) = 2.28$ , CFI = .95, RMSEA = .08, 90% CI [.05, .10] and SRMR = .05. As seen in Figure 1, all the standardized path coefficients in the second model are significant. In addition, a significant indirect effect can be noted on the path from language proficiency to PGI through curiosity. The overall model explains the 41% variance in predicting PGI. Moreover, 38% of the variance in curiosity can be explained by language proficiency and autonomy.

## DISCUSSION AND CONCLUSIONS

The purpose of the study was to examine the role of two motivation and personality characteristics, curiosity and autonomy, in predicting PGI among a sample of international graduate students. We hypothesized that curiosity and autonomy are two related constructs and could uniquely and jointly or additively predict PGI. We also hypothesized that confidence in host language skills promotes the exercise of greater curiosity and autonomy in a new cultural environment.

Proficiency in the language of their host country is crucial to international students' fulfillment of everyday needs and experiences (Yang, Noels, & Saumure, 2006). Language also plays a vital role in the exercise of autonomy as successful execution of autonomous functioning is built upon the utilization and appropriate usage of language-based mental representations (Chirkov, 2011). In a similar vein, proficiency in the use of the host language is essential to the exercise of curiosity, by equipping individuals with important resources to support curiosity-driven explorations. In keeping with our hypothesis, study findings reveal two direct paths from self-perceived language proficiency to autonomy and curiosity, indicating that comfort with or self-efficacy in the host language is linked to self-initiating behaviors and a greater intrinsic drive to seek out and engage with environmental opportunities.

Notably, a statistically significant indirect effect was found on the path from language proficiency to PGI through curiosity. This finding is not unexpected, considering that language proficiency has been consistently reported as one of the determinants of cross-cultural adaptation (Mesidor & Sly, 2016; Yang et al., 2006; Zhang & Goodson, 2011). However, possible mediating and moderating variables in the relation between language proficiency and adjustment outcomes have not been well documented. The statistically significant indirect effect found in the present study indicates that curiosity could serve as one of the mediating mechanisms between language proficiency and PGI, an indicator of cross-cultural adjustment. More specifically, as a personal resource, confidence in linguistic skills may allow students to become more involved in interactions that expand their knowledge about cultural values, to interact with others in the host nation, and to seek out learning opportunities for self-enhancement. Conversely, a lack of comfort with language skills may inhibit curiosity-related tendencies to engage in exploratory behaviors and to consider novelties as opportunities to be taken advantage of, rather than as barriers to be avoided.

Moreover, our hypothesis regarding the predictive relation between autonomy and curiosity was supported. The statistically significant positive path from autonomy to curiosity adds

evidence to prior research and theoretical assumption stating that greater autonomous motivation and support stimulate greater curiosity (Kashdan & Fincham, 2004; Ryan & Deci, 2000). As a result, international students who are able to initiate their own behaviors are more likely to be intentionally driven to explore their new environment for self-development and growth.

Furthermore, curiosity and autonomy were both found to be related to self-determining aspects of human nature (Chirkov, 2011; Kashdan et al., 2004). Thus, they are expected to complement each other in leading to adaptive outcomes and optimal functioning. Our third hypothesis, relating to the role of curiosity and autonomy in jointly predicting PGI, was partly supported. Consistent with theoretical expectations, a greater tendency toward curiosity significantly facilitated higher levels of PGI. It is also worth noting that the stretching component of curiosity (the motivation to enhance skills and knowledge) was more strongly related to PGI ( $r = .52$ ), than the embracing dimension, implying a willingness to appraise the novel, ambiguous aspects of everyday life ( $r = .36$ ). This finding is not surprising, considering the fact that skills and knowledge enhancement ought to result in personal growth. In addition, it is congruent with past research that the stretching component of curiosity is more strongly associated with positive constructs, in contrast to embracing (Kashdan et al., 2009).

According to SDT, autonomy is a universal psychological need and necessary for human development and growth (Deci & Ryan, 2000) and nurturing this need in developmentally appropriate ways promotes many benefits for the functioning of humans regardless of the sociocultural context (Chirkov et al., 2007). Thus, we expected that greater autonomy would significantly predict higher levels of PGI, a predictor of cross-cultural adaptation for international students. Our hypothesis is partially supported. We found that despite being positive, the path from autonomy to PGI did not reach a statistically significant level ( $p = .164$ ). We propose at least two reasons for the lack of relation between autonomy and PGI.

First, according to the PGI theory, growth that occurs as a result of intentional effort is distinct from growth experienced as a consequence of developmental or environmental influences (Robitschek, 1998). This distinction stems from the fact that growth stimulated through intentional effort is positively correlated with psychological well-being, while growth in the absence of awareness and intention is negatively associated with well-being (Robitschek, 1999; Robitschek et al., 2012). Since individuals with greater autonomous motivation and curiosity experienced higher levels of well-being (Deci & Ryan, 2000; Gallagher & Lopez, 2007; Kashdan & Steger, 2007) and both autonomous functioning and curious tendency depend on exercise of awareness (Deci & Ryan, 2008b; Kashdan et al., 2009), it is to be expected that an intentional and awareness growth process would follow from a greater tendency toward autonomy and curiosity. A closer examination of the SDT literature, however, showed that the growth and thriving process emerges as a result of need satisfaction and there are different levels of self-determination that result in different types of motivation (Deci & Ryan, 2000; Ryan, 1995). Thus, the link between autonomy and PGI may be relatively weak if or when autonomy is associated with low levels of self-determination or awareness. Second, a lack of relation between autonomy and PGI may be due to curiosity playing a primary role in personal growth for international students. In other words, our results suggest that curiosity may trump autonomy as the main personality or motivation trait for international students to study beyond their national borders and to seek opportunities for personal growth.

This study contributes to the literature on international students in two ways. First, it stands among the limited number of empirical investigations that focus on positive aspects of the cross-cultural transition process. Unlike the deficit perspective held by the majority of

current research studies on international students and their experiences (Lillyman & Bennett, 2014; Moores & Popadiuk, 2011), this study explored the influence of two favorable human characteristics on predicting a desirable study abroad outcome—PGI—in a diverse sample of graduate students. Second, to our knowledge, this study is the first empirical published study on the relation between curiosity and autonomy and their unique and joint or additive contributions to PGI in the context of studying and living abroad. Of note, this study utilized the most-current validated instruments to investigate the proposed relations among the variables of interests, curiosity (CEI-II), and PGI (PGIS-II).

Study findings should be interpreted in light of several limitations. First, the data relied on self-reports that could be prone to response biases. For instance, participants who detect that surveys assessed their positive characteristics may respond in socially desirable ways. Another limitation relates to the correlational and cross-sectional nature of the study. Thus, the proposed causal direction should be interpreted with caution despite the fact that our results are mostly in line with our theoretical predictions. Moreover, due to the purpose of the study, we explored only the benefits associated with being curious and autonomous. Excessive expression of these two motivation and personality traits, however, may also be associated with undesirable adjustment outcomes. For example, an extreme level of curiosity may be related to maladaptive life outcomes, such as substance use and other risky behaviors related to pleasure seeking (Zuckerman, 2007).

Given these limitations, future research is needed to examine cause-and-effect relations among the study variables, in order to augment the findings of the present study. Prospective studies could increase our understanding of how changes in international students' linguistic skills and tendencies toward curiosity and autonomy may affect their processes of growth and adaptation. Moreover, future research should explore the potential undesirable consequences of higher levels of curiosity and autonomy for international students' adjustment outcomes. In addition, as researchers only recently have begun to notice the focus on negatives in the body of empirical work on international students, more scientific effort is needed to examine desirable aspects of cross-cultural transition, such as the influence of students' strengths and positive traits on desirable adjustment outcomes.

In conclusion, international students choose to study in sociocultural contexts that differ from those of their countries of origin, and this can pose challenges to their healthy functioning but also opportunities for high-impact learning and growth. PGI can be characterized as a set of cognitive and behavioral skills that motivates individuals to engage in an intentional process of personal development (Cankaya et al., 2017; Robitschek et al., 2012). As an indicator of healthy functioning, higher levels of PGI are associated with a greater ability to manage stressful and challenging situations, which may result in positive adaptation in the cross-cultural transition process of international students (Yakunina et al., 2013). Results show that self-perceived language proficiency was associated with the motivation and personality traits of curiosity and autonomy. Language proficiency and autonomy were also associated with PGI through curiosity. While the results revealed no significant direct association between autonomy and PGI, curiosity was found to be a primary facilitator of higher levels of PGI. This finding suggests that curiosity is a primary factor for international students to thrive and flourish from the cross-cultural transition process.

## IMPLICATIONS

The findings of this study have several practical implications for university professionals such as counselors, academic advisors, and professors who work with international students. The findings suggest that curiosity is a primary human asset that enhances the growth experiences of international students. Although intentional growth pertains to everyone (Robitschek et al., 2012), the majority of people with greater curiosity seeks out or generates opportunities for personal growth (Kashdan et al., 2004). Therefore, nurturing the curiosity of international students might maximize the return on investment of these students so that they make the most of the opportunities for personal growth during their time living and studying abroad. As students become more motivated to learn and explore their new environment, they gain new skills, interact with more people, and increase their social self-efficacy and knowledge (Cankaya et al., 2017). Curious international students would also pursue and profit from challenges by viewing these challenges as opportunities to grow, so that they might adjust better to their host country. In addition, helping international students to become more comfortable with their language skills and to develop the confidence to initiate actions and determine the directions or trajectories of their lives would increase curiosity-driven exploration and PGI.

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