

# The role of openness and cultural intelligence in students' intention to study abroad

Openness and  
studying  
abroad

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## Abstract

**Purpose** – Higher education performance is boosted through cross-border cooperation and increased transnational mobility of students. In addition, exchange students have better employability skills after staying abroad compared to the students' peers. A number of studies have investigated factors that determine whether a student studies abroad. In this study, the authors focused on the role of personality trait openness to experience and cultural intelligence (CI) in explaining Croatian students' experience with and/or intention to travel abroad for studying purposes.

**Design/methodology/approach** – The authors analyzed results from 482 students ( $M = 22.61$ , standard deviation (SD) = 2.24, 66% female), of whom 35% reported that they studied abroad or intended to study abroad. They filled in The Cultural Intelligence Scale and openness facets items from the International Personality Item Pool (IPIP-300) questionnaire.

**Findings** – The authors conducted a hierarchical binary logistic regression analysis and found that students who were younger, had higher adventurousness and higher motivational CI were more likely to study abroad. Results of the mediation analysis showed that the association between openness to experience facet adventurousness and intention to study abroad was partially mediated by the motivational aspect of CI.

**Originality/value** – This study contributes to the better understanding of complex interrelations between personality traits and CI in the context of higher education internationalization processes. This study offers unique insight into the mediating role CI has in the association between personality and mobility behavior.

**Keywords** Openness to experience, Cultural intelligence, Studying abroad, Students, Mediation analysis

**Paper type** Research paper

## Introduction

Higher education performance is boosted through cross-border cooperation and increased transnational mobility of students. Experiencing studying abroad improves students' intercultural and language skills, helps them grow both personally and academically and increases their employability. However, free movement of students is still restricted by various obstacles (European Commission, 2014, 2020). In order to enhance and encourage academic mobility, the Council of European Union provided the policy framework for the Mobility Scoreboard, a tool for monitoring the progress made in facilitating learning mobility



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in, among other, higher education within European countries (European Commission, 2020). In the Erasmus Impact Study (European Commission, 2020), it is reported that exchange students have better employability skills after staying abroad than 70% of all students. Even more, exchange students consider the improvement of transversal skills to be greater than they expected, they are in a better position to find their first job and to enhance their career development. Parallel to that, 64% of employers consider an international experience as important for recruitment.

According to Vögtle (2019), promoting mobility of European students is one of the main objectives of the European Higher Education Area. A number of studies have investigated factors that determine whether a student studies abroad, from social, economic and institutional prerequisites, related to family background and/or country of origin to individual characteristics of a student. Personality represents a stable, organized collection of psychological traits and mechanisms in the human being that influences his or her interactions with and modifications to the psychological, social and physical environment surrounding them (Larsen and Buss, 2018). Therefore, it is expectable that personality traits of a student might be individual characteristics influencing their decision to study abroad.

The most frequently applied framework in personality psychology over the last few decades has been the one that operationalizes personality through five broad personality factors: extraversion, neuroticism or emotional stability, agreeableness, conscientiousness and openness or intellect (Costa and McCrae, 1992; Goldberg, 1990). There are only a few studies that have investigated how some of the five broad personality traits are associated with studying abroad. Bakalis and Joiner (2004) examined how openness and tolerance to ambiguity are associated with participation in a study abroad program in Australia. Their analysis showed that students in the exchange program group were more likely to be high in openness and tolerance to ambiguity than the students who did not apply to study abroad. Leong (2007) compared personality traits with the Multicultural Personality Questionnaire of a group of Singaporean students who attended an international exchange program and a group who did not. Results showed that students who attended the exchange program had higher open-mindedness, social initiative, emotional stability and flexibility before attending the exchange program than the other group. Both open-mindedness and flexibility are associated with openness, while social initiative is similar to extraversion and emotional stability an opposite of neuroticism. Schantl (2017) examined the association between all five personality traits and students' motivation to go abroad. Although the association between personality traits and experience of studying abroad was not examined, the findings of this study indicate that students higher in extraversion and openness would be motivated to study abroad to gain new experience, while students higher in neuroticism would be motivated to study abroad because it is important for their study and career. Recently, Vilar *et al.* (2021) investigated differences in personality traits and human values between four groups of Brazilian students: the first group had no interest of studying abroad, the second group was interested in studying abroad, the third were students who were abroad when they completed the survey and fourth group returned to the country after finishing a degree abroad. They found that the students who did not have interest to study abroad scored lower on openness compared to all the other groups, while differences in extraversion and agreeableness were only found between some groups. In the last decade, there have been several longitudinal studies following German students and examining their personality differences prior and after their experience of studying abroad (Niehoff *et al.*, 2017; Richter *et al.*, 2021; Zimmermann and Neyer, 2013). For our study, it is interesting that all of those studies found significant personality differences between the students who studied abroad and those who did not study abroad and that the one personality trait that has been higher in all studies in students who studied abroad was openness. In addition, longitudinal studies have shown that experience of studying abroad has an influence on personality change

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(Niehoff *et al.*, 2017; Richter *et al.*, 2021; Zimmermann and Neyer, 2013). All of the studies reviewed here have measured personality traits only on the factor level. Recently, a group of personality scientists have recommended that lower-level units of personality called facets should be routinely used because it is important to see if a personality–outcome correlation exists at different levels of personality hierarchy and also associations with an outcome at a lower level of personality hierarchy might better indicate the possible causal relationship (Möttus *et al.*, 2020). Therefore, in this study we measured openness at the facet level of personality hierarchy.

Another construct describing individual characteristics of students that was examined both prior and after the experience of studying abroad is cultural intelligence (CI). The construct of CI was developed by Earley and Ang (2003) and it was defined as an individual's capability to function and manage effectively in culturally diverse settings. CI includes four aspects: metacognitive, cognitive, motivational and behavioral CI. Metacognitive CI reflects mental processes that individuals use to acquire and understand cultural knowledge. Cognitive CI reflects knowledge, acquired from education and personal experiences, of the norms, practices and conventions in different cultures. Motivational CI reflects the capability to direct attention and energy toward learning about and functioning in situations. Behavioral CI reflects the capability to exhibit appropriate, both verbal and nonverbal, behaviors when interacting with people from different cultures. Studies examining how studying abroad is associated with CI (Iskhakova *et al.*, 2021; Nguyen *et al.*, 2018; Şevik, 2020) have shown that, at least in some students, short-term studying abroad is associated with increases in CI. Studies examining how CI is associated with the decision to study abroad (Anh *et al.*, 2021; Pasztor, 2021) have indicated that higher CI in students is associated with the intention to study abroad and participation in different mobility programs. Finally, there are studies that have examined the association between both personality and CI with studying abroad. Luchkiw (2013) examined the association of personality and CI with the desire and intent to study abroad, among undergraduate students. Openness was the only personality trait with significant correlations with both desire and intent to study abroad, while all CI dimensions were significantly correlated with the desire to study abroad but not with the intent (all  $p < 0.01$ ). Gökten and Emil (2019) investigated how participation in Erasmus Student Mobility program, controlling for openness to experience, is associated with CI. Results showed that both participation in Erasmus and higher openness are associated with higher CI. Other studies have also shown that higher openness is associated with higher CI in student samples that fully or partially included students (Ang *et al.*, 2006; Depaula *et al.*, 2016; Li *et al.*, 2016; Shu *et al.*, 2017).

Review of the literature has indicated that individual differences in personality trait openness are consistently associated with studying abroad and with CI and that these associations were only examined on the factor level but not on the facet level of personality hierarchy. CI has been investigated both as an antecedent and consequent of studying abroad. As far as we know, there is no study so far that has examined the association between openness facets and CI aspects as antecedents of studying abroad. Better understanding of the individual characteristics of students who intend to study abroad or not is of relevance for tailoring targeted interventions in order to enhance and encourage academic mobility. Therefore, the aim of this study was to examine the association between openness facets and studying abroad and to test if CI aspects are mediating that association.

## Method

### Measures

Openness facets were measured with 60 items from the International Personality Item Pool (IPIP-300) questionnaire (Goldberg *et al.*, 2006), which measures similar constructs as NEO-

PI-R (Costa and McCrae, 1992). Each of the 6 facets was measured with 10 items, with participants indicating how accurately each item describes them on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach alpha reliabilities were 0.89 for imagination facet, 0.78 for artistic interests facet, 0.79 for emotionality facet, 0.82 for adventurousness facet, 0.82 for intellect facet and 0.75 for liberalism facet. These reliabilities are in line with other studies using this questionnaire (e.g. Tonković Grabovac *et al.*, 2012).

CI aspects were measured with The Cultural Intelligence Scale (CQS; Van Dyne *et al.*, 2008). The scale consists of 20 items with four measuring metacognitive aspect, six cognitive aspects, five motivational aspects and five behavioral aspects of CI. Participants have to indicate, for each item, how well it describes their capabilities, i.e. to which extent they agree with the list of statements, on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach alpha reliabilities were 0.81, 0.81, 0.80 and 0.82 for metacognitive, cognitive, motivational and behavioral aspect, respectively. These reliabilities are in line with those obtained in previous studies (e.g. Ang *et al.*, 2007).

Studying abroad was measured with one item asking participants to indicate whether they had the experience of studying abroad with three possible answers: 0 (*No and I have no plans to*), 1 (*No, but I plan to*) and 2 (*Yes, I have*). Due to the small number of participants who have already studied abroad, the sample was divided into two groups coded as 0 (*No and I have no plans to*) and 1 (*I have studied abroad or I plan to*).

#### *Participants and procedure*

Data were collected via online questionnaire distributed in different student Facebook groups in May 2021. The guidelines of research ethics during data collection time at the University of Zagreb were followed. In total, 493 participants filled in the questionnaire, but some were excluded from further analysis, because of their age or because they were not enrolled as students in Croatia. Therefore, the sample analyzed here included 482 participants (320 female, 160 male and 2 other) in the 18 to 31 age range ( $M = 22.61$  and  $SD = 2.24$ ). As for years of studying, 14% were in their first year, 15% in their second year, 25% in their third year, 17% in their fourth year, 14% in their fifth year, 1% in their sixth year and 14% were taking a gap year before graduation. There were 312 participants (65%) who indicated that they have no plans of studying abroad, 147 that they plan to study abroad and 23 that they have studied abroad. The last two groups were combined in one study abroad group ( $n = 170$ , 35%). This percentage is in line with data available in Eurostudent Report (Hauschildt *et al.*, 2021), which found that, on cross-country average, about one-third of students who have not been temporarily enrolled abroad intend to study abroad for a period of time. The data for Croatia suggest that 30% of all students express intention to study abroad.

#### **Results**

We conducted statistical analyses using Statistical Package for the Social Sciences (SPSS) version 28.0.1.0 (IBM Corp, 2021) and the significance level for all analyses was set at  $p \leq 0.001$ . Descriptive statistics and intercorrelations between studied variables are presented in Table 1. Table 1 presents bivariate correlations between facets within personality trait Openness, bivariate correlations between CI aspects and bivariate correlations between all personality facets and CI scales. These coefficients form the basis for further regression analyses. Openness facets were intercorrelated within 0.18–0.51 range, while CI aspects were intercorrelated within 0.41–0.60 range (all significant at  $p < 0.001$ ). Openness facets were significantly correlated with CI aspects in the 0.15–0.49 range (all significant at  $p \leq 0.001$ ), except emotionality with cognitive CI, adventurousness with behavioral CI and liberalism with metacognitive and cognitive CI. Finally, openness facets artistic interests ( $r = 0.16$ ,

Variable	<i>M</i>	<i>SD</i>	O1	O2	O3	O4	O5	O6	MCCI	CCI	MCI	BCI
Imagination (O1)	4.01	0.63										
Artistic interests (O2)	4.22	0.53	<i>0.44</i>									
Emotionality (O3)	3.96	0.56	<i>0.43</i>	<i>0.51</i>								
Adventurousness (O4)	3.48	0.60	<i>0.25</i>	<i>0.44</i>	<i>0.23</i>							
Intellect (O5)	3.87	0.58	<i>0.33</i>	<i>0.43</i>	<i>0.24</i>	<i>0.48</i>						
Liberalism (O6)	3.38	0.59	<i>0.19</i>	<i>0.29</i>	<i>0.18</i>	<i>0.25</i>	<i>0.37</i>					
Metacognitive (MCCI)	5.02	1.07	<i>0.19</i>	<i>0.29</i>	<i>0.21</i>	<i>0.25</i>	<i>0.37</i>	0.12				
Cognitive (CCI)	4.25	1.02	<i>0.19</i>	<i>0.27</i>	0.13	<i>0.20</i>	<i>0.36</i>	0.08	<i>0.59</i>			
Motivational (MCI)	5.21	1.02	<i>0.24</i>	<i>0.36</i>	<i>0.16</i>	<i>0.49</i>	<i>0.43</i>	<i>0.22</i>	<i>0.54</i>	<i>0.43</i>		
Behavioral (BCI)	4.64	1.19	<i>0.15</i>	<i>0.27</i>	<i>0.19</i>	0.13	<i>0.28</i>	<i>0.17</i>	<i>0.60</i>	<i>0.41</i>	<i>0.42</i>	
Study abroad (SA)	0.35	0.48	0.08	<i>0.16</i>	0.06	<i>0.29</i>	<i>0.19</i>	0.10	<i>0.21</i>	0.11	<i>0.33</i>	0.14

**Note(s):** All correlations in italics are significant at  $p \leq 0.001$ ; *M* = arithmetic mean; *SD* = standard deviation

**Table 1.**  
Descriptive statistics  
and correlations  
between study  
variables ( $N = 482$ )

$p = 0.001$ ), adventurousness ( $r = 0.29$ ,  $p < 0.001$ ), intellect ( $r = 0.19$ ,  $p < 0.001$ ) and metacognitive CI ( $r = 0.21$ ,  $p < 0.001$ ) and motivational CI ( $r = 0.33$ ,  $p < 0.001$ ) were significantly positively correlated with studying abroad.

In order to test our hypothesis that openness facets as well as CI are significant predictors of the probability that a student would intend to study abroad or has already studied abroad, we conducted a hierarchical binary logistic regression analysis. Tabachnick and Fidell (2007) recommend  $N \geq 50 + 8m$  as the estimation for minimal sample size for regression analyses with  $m$  independent variables. According to this criterion, our sample size was sufficient. Age, as a control variable and openness facets were entered in the first step, while in the second step CI aspects were added. Age was introduced as a control variable since it was not the focus of our hypotheses, but it must be taken into account based on previous findings that age is relevant individual characteristic determining students' mobility. Personality facets were added in the first step, to establish the base model, compared to which we can better understand the independent role of CI, therefore, added in step two. Results of this analysis are presented in Table 2. Table 2 shows unstandardized regression coefficient for each

	Model 1		Model 2	
	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
Age	-0.263**	0.051	-0.268**	0.052
Imagination (O1)	-0.112	0.196	-0.175	0.207
Artistic interests (O2)	0.214	0.269	0.083	0.281
Emotionality (O3)	-0.169	0.224	-0.141	0.233
Adventurousness (O4)	0.999**	0.220	0.712*	0.238
Intellect (O5)	0.405	0.230	0.145	0.253
Liberalism (O6)	0.079	0.195	0.068	0.204
Metacognitive (MCCI)			0.235	0.152
Cognitive (CCI)			-0.141	0.137
Motivational (MCI)			0.568**	0.151
Behavioral (BCI)			-0.027	0.113
Model $\chi^2$ ( <i>df</i> )	74.488** (7)		101.004** (11)	
Model $\Delta\chi^2$ ( <i>df</i> )			26.514** (4)	
% of correct classification	70.5		72.8	

**Note(s):** \* $p < 0.01$ , \*\* $p < 0.001$ ; *B* = unstandardized regression coefficient; *SE B* = standard error of the unstandardized regression coefficient

**Table 2.**  
Summary of  
hierarchical logistic  
binary regression  
analysis for variables  
predicting probability  
of studying  
abroad ( $N = 482$ )

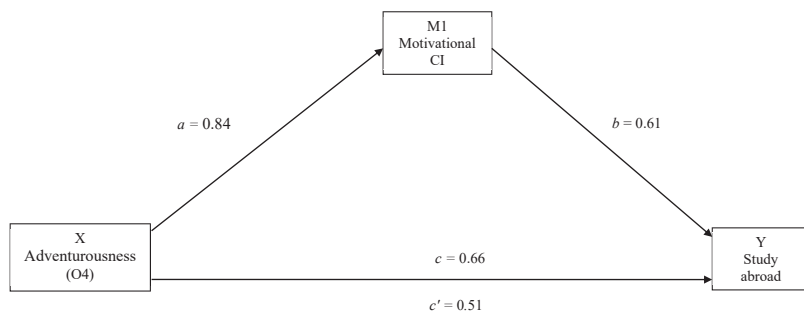
predictor within the first model (without CI) and within the second model after CI is added. Model parameters are presented, as well as their relative change. In line with bivariate correlations, in the first step, lower age and higher adventurousness were significantly related to higher probability of studying abroad. The overall model fit was significant ( $\chi^2_{(7)} = 74.488$  and  $p < 0.001$ ). In the second step, we added four aspects of CI into the model. The model fit increment was significant ( $\Delta\chi^2_{(4)} = 26.514$  and  $p < 0.001$ ), suggesting that CI significantly contributes to the prediction of studying abroad probability. Additionally, Hosmer and Lemeshow test suggested a good overall model fit ( $\chi^2_{(4)} = 4.747$  and  $p = 0.784$ ). In the final model, age and adventurousness remained statistically significant predictors, with addition of motivational CI, as the only significant predictor among aspects of CI. Students who were younger, had higher adventurousness and had higher motivational CI were more likely to study abroad.

Since we wanted to test if CI mediates the association between openness and studying abroad, we formulated, based on the observed bivariate correlations, the possible path model shown in Figure 1. Among all openness facets, adventurousness correlated the strongest with motivational CI and study abroad, while motivational CI, of all CI aspects, correlated the strongest with study abroad (see Table 1). Therefore, we postulated the mediation model showing adventurousness facet influence on study abroad through motivational CI. In order to test the mediation model, we applied PROCESS macro (Hayes, 2013) for testing mediation effects.

The direct effect from adventurousness facet to motivational CI was significant and positive ( $b = 0.84$ ,  $s.e. = 0.07$ ,  $p < 0.001$  and 95% confidence intervals [0.71, 0.97]), indicating that higher adventurousness is related to higher motivational CI. In mediation model, the direct effect from adventurousness facet to studying abroad was also significant and positive ( $b = 0.66$ ,  $s.e. = 0.20$ ,  $p = 0.001$  and 95% confidence intervals [0.26, 1.06]), as well as the direct effect of motivational CI on studying abroad ( $b = 0.61$ ,  $s.e. = 0.1252$  and 95% confidence intervals [0.37, 0.86]). These effects are indicating that students higher on adventurousness facet and students with higher motivational CI are more likely to express intention and/or realize studying abroad. The indirect effect was also statistically significant (IE = 0.51 and 95% confidence intervals [0.30, 0.76]). These results show that motivational CI partially mediates the relationship between adventurousness and studying abroad.

## Discussion

For enhancing and encouraging academic mobility, information about the specific individual characteristics of students who intend to study abroad is needed. After our literature review,



**Figure 1.**  
Diagram representing  
tested mediation model

**Note(s):** *a* Direct effect of O4 on Motivational CI, *b* Direct effect of Motivational CI on Studying abroad, *c* Direct effect of O4 on Studying abroad, *c'* - Effect of O4 on Studying abroad while controlling Motivational CI

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we concluded that, as far as we know, there is no study that has simultaneously examined the association between openness facets and CI aspects as antecedents of studying abroad. In addition, we wanted to test if CI aspects are mediating the association between openness facets and studying abroad. In a collected sample of almost 500 Croatian students of different faculties, two-thirds did not have any plans to study abroad, while one-third had either studied abroad already or had plans to study abroad. Our analyses examined the associations of openness facets and CI aspects with the likelihood of study abroad intention.

Our results add to the literature by showing which specific facets of openness are associated with study abroad intention. Previous studies have indicated that, among different personality factors, openness is the one most consistently associated with studying abroad (Bakalis and Joiner, 2004; Leong, 2007; Luchkiw, 2013; Vilar *et al.*, 2021). Our study shows that individual differences in facet adventurousness are those personality differences that are associated with the likelihood of students studying abroad. People higher in adventurousness are willing to try new experiences and introduce change into their lives so they probably see studying abroad as a possibility to do exactly that.

CI has been examined as both an antecedent and consequent of studying abroad, and in this study, we examined it as an antecedent of the intention to study abroad. In line with previous studies, we found CI to be associated with openness facets (Ang *et al.*, 2006; Depaula *et al.*, 2016; Gökten and Emil, 2019; Li *et al.*, 2016; Shu *et al.*, 2017) and with studying abroad (Anh *et al.*, 2021; Luchkiw, 2013; Pasztor, 2021). Students who score higher on CI are more open to experience and more likely to study abroad. In addition to that we examined if CI mediates the association between openness and study abroad intention. In testing the mediation model, we attempted to predict the likelihood of a student expressing intention and/or realization of studying abroad as a function of adventurousness and motivational CI. Our results indicate that motivational CI partially mediates the association between adventurousness and studying abroad. In other words, individual differences in adventurousness are associated with the likelihood of studying abroad directly as well as through individual differences in motivational CI. Students higher in adventurousness are more likely to study abroad and they also have higher motivational CI which further contributes to larger likelihood of studying abroad. While personality traits are relatively stable characteristics that are not easily available to intervening, CI has been argued to be susceptible to educational efforts. Some results from interventions, mostly conducted within business education (e.g. Erez *et al.*, 2013; Kurpis and Hunter, 2017) showed that students' CI could be improved by targeted educational activities. As our study shows that CI is significant factor in predicting probability of studying abroad, we suggest that university programs, particularly in those professions where studying abroad is most beneficial for competence development, could integrate building students' CI as an integrative part of their programs. Still, as data from Eurostudent Report (Hauschildt *et al.*, 2021) showed, there are other factors influencing the student's intention to study abroad, such as type of study program, field of study, destination countries, personal circumstances, age or working status.

Potential challenge in understanding the link between personality, CI and mobility stems from the way personality trait openness and motivational aspect of CI are measured, as well as their theoretical distinction. While personality refers to stable, basic sources of individual differences, CI is, on another level, encompassing individual differences in functioning within culturally complex environment. Both facial validity, resulting from insight into the content of items measuring these two concepts, as well as empirical evidence, for example visible in Table 1, indicate that these constructs, even though correlated, capture discriminant sources of individual differences and hence should be studied as separate factors in empirical research predicting different outcomes.

Apart from the unique contributions to the understanding of relationship between personality, CI and studying abroad, our study also has some specific limitations. Data were

collected in an online survey during the time of the COVID-19 pandemic which in several ways influenced the students' opportunities and/or plans to study abroad. We believe that this is the reason for a small number of students in the study who were already able to go abroad. For this reason, we analyzed together students who studied abroad as well as those who intend to. Since their percentage of 35% was in line with the data available in Eurostudent Report (Hauschildt *et al.*, 2021) showing that 30% of all Croatian students express intention to study abroad, we believe that our results are reflecting associations between personality, CI and studying abroad not just during the time of the COVID-19 pandemic. However, future studies are needed to examine these associations when students can realize their plans to study abroad and when two groups of students (those who studied abroad and those who intend to) could be investigated separately. Other data collection procedures should also be considered. For example, future studies should involve representative samples of all students studying certain programs, to address issues of non-participation in mobility programs more reliably. Also both qualitative and quantitative data, collected online and in person, that allow for in-depth analyses should be introduced. Targeting samples of students who participate in such programs, e.g. through universities' international offices, would substantially contribute to better understanding of the mobility behavior. In this study, we included a measure of openness facets, but other questionnaires that measure similar but slightly different openness facets are available, e.g. NEO-PI-R (Costa and McCrae, 1992). Therefore, to fully understand the role of personality in studying abroad, future studies should examine if similar findings are obtained with different measures of openness and its facets. All measures used in the study were self-reported questionnaires and data were collected online which has specific biases as data collection methods. In future studies, personality could be measured using peer reports.

## Conclusion

The study presented here addressed the question of the relationship between personality trait openness facets and four aspects of CI with the experience with or intention to study abroad among Croatian students. We found that age, adventurousness facet of openness and motivational aspect of CI have unique contributions in predicting studying abroad. The path from openness to experience facet adventurousness to probability of studying abroad or intending to study abroad was partially mediated by the motivational aspect of CI. Our results suggest that personality and CI, even though correlated, have a unique role in explaining students' behaviors aimed at participating in internationalization attempts.

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