A Metric for Predicting Student Motivation to Participate in a Study Abroad Course

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Abstract

This study investigated the factor structure of the Perceived Costs of Studying Abroad Instrument (PCoSAI), as adapted from the expectancy-value-cost model instrument, with exploratory factor analysis (EFA) from 1 independent sample of students enrolled in a College of Agricultural Sciences and Natural Resources (CASNR) at Oklahoma State University (OSU). The EFA sample of 381 students was assessed during an in-class recruitment event for international courses or experiences offered through the CASNR during the 2017 Fall semester. The participants included 113 male and 268 female students; 118 had previously traveled abroad at least once. The mean composite score for the sample varied from average to somewhat below average and evinced substantial differences among scores. A 4-factor solution was considered using principal axis factoring with a Promax rotation. Selected extraction criteria and parameter estimates supported the 4-factor PCoSAI explaining 81% of the variance. Cronbach's alpha scores for the four sub-scales ranged from .90 to .93. The study produced a usable instrument for determining incoming students' motivation to participate in study abroad experiences. Future research should employ a confirmatory factor analysis to confirm the factor structures.

Keywords: expectancy-value-cost; metric; student motivation; study abroad

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Introduction

U.S. institutions of higher learning endeavor to provide educational opportunities for students to learn about complex issues such as identity, power, privilege, human rights, and culture (Doerr, 2013; Kuh, 2008). Modern teaching and learning practices suggest that high-impact experiences are useful for acquiring knowledge and beneficial for college students from diverse backgrounds (Kuh, 2008). As such, high-impact learning practices are fundamental for developing college student attributes that employers' value (Kuh, 2008; Starkey & Osler, 2001), including those interested in agricultural sciences and related sectors (Murphrey, Odom, & Sledd, 2016). Such efforts ultimately prepare students for a globally connected and multicultural society (National Association of Foreign Student Advisers [NAFSA], 2006). To these aims, the goal of the current research is to adapt a general perceived costs scale into the context of high-impact, international agricultural learning experiences for college students and encourage further adaptation of the same into specific domains of the agricultural education sphere.

Nearly 96% of the world population lives outside of the United States. Population projections suggest a majority of future growth also will occur outside the United States (United Nations [UN], 2017). Such growth represents a large potential market for U.S. agricultural products. Growing international markets for U.S. food, fiber, and natural resources exports will require a globally literate citizenry (Commission on the Future of Higher Education [CFHE], 2006). Providing future agricultural leaders, employees, business entrepreneurs, and educators with opportunities and skills with practical significance in the workplace and classroom is an imperative task if the United States is to remain competitive and function across a global economy (CFHE, 2006). These efforts will support and inspire the next generation of agriculturally minded people likely to populate the economic sphere.

The Commission on the Abraham Lincoln Study Abroad Fellowship Program [CALSAFP] (2005) reflected a similar sentiment by stating; "[W]hat nations don't know can hurt them. The stakes involved in study abroad are that simple, that straightforward, and that important. For their own future and that of the nation, college graduates today must be internationally competent" (p. iv). As international markets grow, U.S. agricultural producers will become increasingly reliant on skilled workers with expertise in international trade, cross-cultural communication, cultural competence, and global awareness (NAFSA, 2006). According to Kuh (2008), there exist a number of high-impact learning experiences, such as study abroad, educators can facilitate. In particular, diversity and global learning, including study abroad experiences, offer students opportunities to explore and learn about cultures and worldviews different from their own (Kuh, 2008).

College often is the first time a student experiences the notion of diversity and global learning (American Council on Education [ACE], 2008). Despite the increased emphasis on participation in education abroad, efforts have translated little into growth in participation (Institute of International Education [IIE], 2017). The increased participation patterns that do exist distribute unevenly among differing student populations (IIE, 2017). The documented benefits of study abroad, however, are vast. In fact, a number of U.S. institutions of higher education have adopted international strategic plans with the goal of having one-half of all undergraduate students participate in some type of international learning experience before graduation (Estes, Hansen, & Edgar, 2016). For faculty, administrators, and related agricultural professionals to effectively encourage students to participate in high-impact learning experiences, it is important to use up-to-date psychometric tools to aid in identifying specific types of impediments that might prevent them from participating (Shultz, Whitney, & Zickar, 2014). These tools evolve constantly and are used to collect information regarding factors that may influence students' decisions. For example, recent advances in motivation science offer a firsthand glimpse into the affective domain, an understudied area of psychology (Barron & Hulleman, 2015), and the perceived barriers students face when planning and making decisions (Flake, Barron, Hulleman, McCoach, & Welsh, 2015). To this end, it is important for students to challenge their schemata, or

patterns of thought or behavior, especially if it helps them overcome perceived costs that might preclude their participation in high-impact learning experiences, such as study abroad courses or experiences.

Review of Literature

Researchers have revitalized their efforts to understand the effect of perceived costs in different academic domains and settings (Barron & Hulleman, 2015; Eccles & Wigfield, 2002; Flake et al., 2015; Raczkoski, Robinson, Edwards, & Baker, 2018; Wigfield & Cambria, 2010). Yet in previous research, they often neglected or ignored altogether the costs dimension (Barron & Hulleman, 2015) of the expectancy-value theory (EVT). Recent motivation research into theories integrating expectancy and value, however, has focused on the forgotten or ignored EVT cost component. Barron and Hulleman (2015) suggested that cost is a critical component value and such conceptions include the negative aspect of engaging in a task. Wigfield and Cambria (2010) proposed that researchers should investigate the understudied cost factor more deeply. As a result, a surge in the number of research studies focused on expanding the definition of cost, and developing better ways for its measurement in various academic settings occurred (Barron & Hulleman, 2015; Flake et al., 2015; Raczkoski et al., 2018).

Eccles (2005) defined cost as the amount of effort exerted and what is lost or foregone because of task completion. Researchers initially introduced cost as a mediator and posited that it affected subjective task value. However, their understanding of the notion of cost resulted in a growing body of literature and, over time, conceptions of such changed. The first attempt to measure cost began in a 1980 report produced by Eccles under her family name (see Parsons et al., 1980, as cited in Flake et al., 2015). Eccles et al. (1983) described cost as a factor that might affect individuals' achievement-related choices and performance, i.e., self- and task-perceptions instrument. They concluded that cost demotivates students from participating in certain academic tasks. In other words, researchers conceived that cost subtracted negatively from the overall value a student placed on a task. Moreover, researchers have posited that motivation for academic subjects deteriorates during the course of an academic period (Barron & Hulleman, 2015; Eccles et al., 1983; Wigfield, Tonks, & Klauda, 2009). This highlighted the importance of targeted interventions, such as the application and use of a perceived costs scale to identify barriers that might preclude participation in short-term study abroad courses or experiences.

Later, Eccles and Wigfield (1995) revisited the measurement properties of their self- and task-perceptions instrument. Their work provided psychometric evidence of three task value factors, i.e., interest, attainment, and utility, referred to globally as *subjective task value*, a combined expectancy-ability-related beliefs factor, and task difficulty factors, including difficulty and effort. However, this research involved no direct measure of cost. This deficiency inspired Wigfield and Eccles (2000) to expand their definition of psychological cost to include anxiety and affective perceptions of task engagement. As a result, psychological cost was renamed *emotional cost*. Other researchers have even developed psychometric measures of students' perceptions of cost (Battle & Wigfield, 2003; Conley, 2012; Perez, Cromley, & Kaplan, 2014; Trautwein et al., 2012). Overall, their findings provided empirical evidence that the three sub-dimensions of cost, i.e., loss of valued alternatives cost, task effort cost, and emotional cost, differed from the components of task value. However, no clear consensus emerged regarding how to measure cost (Flake et al., 2015).

Expectancy-Value-Cost Instrument

Flake et al. (2015) expanded on previous measures of cost and developed the most comprehensive measure of cost to date. When developing the expectancy-value-cost instrument, they conducted several focus group interviews with college students to determine the perceived costs related to coursework. Their efforts resulted in the development of a scale that built on previous research

regarding cost. Flake and colleagues (2015) confirmed their cost scale using exploratory and confirmatory factor analyses. The researchers found that cost was separate from expectation for success and subjective task value. In addition, they provided evidence for an additional cost sub-dimension. Their work led to the development of a 19-item cost scale, which included four theorized sub-dimensions of cost. The empirical research supporting the new cost sub-factor, called *outside effort cost*, relates to the amount of time, effort, and resources put forth for tasks other than the task of interest (Flake et al., 2015).

Although a few instruments helpful in identifying students' perceived barriers have been developed recently, these tools do not measure perceived costs in the context of participation in short-term study abroad courses or experiences. Therefore, a need remains for the development of an empirically based instrument that measures students' cost perceptions identified as related to achievement and potential interventions to determine how internal cognitive dynamics influence their choices to study abroad. Data collected with such a measurement tool can support and inform faculty, administrators, and other agricultural professionals to inspire change in students and make meaningful contributions to developing a globally educated citizenry (Goh, 2012). It is likely that high-impact learning experiences for students, such as study abroad, could inspire the next generation of agricultural professionals to explore worldviews different from their own (Kuh, 2008; Murphrey et al., 2016). The cumulative effect would be a globally educated citizenry, a strengthened national security, and an improved society. The present study describes the development of the Perceived Costs of Studying Abroad Instrument (PCoSAI), including item development and an exploratory factor analysis. This study aligns with Research Priority 4: Meaningful, Engaged Learning in All Environments of the American Association of Agricultural Education's (AAAE) national research agenda (Roberts, Harder, & Brashears, 2016).

Purpose and Objectives

This study's purpose was to describe the development of the PCoSAI. The instrument was adapted from its original version to measure perceived costs identified as most critical for long-term achievement-related choices and performance, as experienced typically by college-age students regarding their decisions to enroll in a short-term study abroad course. Four objectives guided the instrument's development process:

1. Examine the fit of a four-factor EVC model;
2. Estimate lower-order factor reliability scores;
3. Describe the descriptive statistics of the set of items that measured perceived costs; and
4. Describe and interpret the correlations between perceived costs.

Population

The population of interest was incoming freshmen students who enrolled in the College of Agricultural Sciences and Natural Resources (CASNR) at Oklahoma State University (OSU). Incoming freshmen in CASNR are required to complete the Freshmen Orientation (AG 1011) course to satisfy their undergraduate degree program requirements (College of Agricultural Sciences and Natural Resources [CASNR], n.d.). Students from all seven sections ($N = 566$) of the AG 1011 course were chosen to acquire a representative sample of students who enroll in the course over time (Oliver & Hinkle, 1982). Four hundred thirty-nine students completed IRB consent forms and participated in the study for a 77.5% response rate. After excluding incomplete instruments, the sample size was reduced to 381 (67.3%).

Participant Description

Descriptive statistics of the sample were obtained through the study's instrument. Freshmen students (113 males; 268 females) were recruited from seven sections of the AG 1011 course offered by CASNR at OSU during the Fall 2017 semester. Table 1 displays gender, first generation status, and previous international experience for freshmen enrolled in the AG 1011 course during the Fall 2017 semester at OSU.

Table 1

*Selected Student Characteristics (*N = 381)*

Characteristic	Category	f	(%)
Gender	Male	113	30.0%
	Female	268	70.0%
Status	First generation college student	87	23.0%
	Not a first generation college student	294	77.0%
Experience abroad	Previous experience abroad	118	31.0%
	No experience abroad	263	69.0%

Method and Procedure

The study began with submitting its application. The Board approved the research protocol. The consent of CASNR international programs coordinator and interim assistant dean of academic programs followed the approved protocol. Their permission was necessary to gain access to and administer the instrument to AG 1011 students willing to participate in the study. Recruitment occurred during an in-class event for international courses or experiences. An informed consent form accompanied each instrument. The form explained the benefits and risks of participating in the research study. Students understood their participation was voluntary and anonymous. Students reported their name and email address separately from the instrument when submitting their assessments, and they received 10 extra credit points in AG 1011 for their participation. Data collection occurred at the beginning of September and lasted approximately one week. The AG 1011 course is an introductory course for all majors in the College of Agricultural Sciences and Natural Resources (CASNR) and is hosted on Oklahoma State University's (OSU) main campus in Stillwater. This course was chosen to assess a representative sample of a typical, incoming freshman class in the CASNR.

Sampling Procedure

To ensure adequate coverage of this *time and place sample* (Oliver & Hinkle, 1982), all students who enrolled in AG 1011 during the Fall 2017 semester were invited to participate in the study. College, classification, and gender data were compared to the preceding 10 years of data (OSU, 2018). Through this comparison, no statistically significant differences ($p < .05$) were detected. Therefore, students who were enrolled in the course were a representative sample of the population of all freshmen students who enroll in AG 1011 over time. According to Oliver and Hinkle (1982), "[s]uch an assumption permits the use of inferential statistics and, if made, must be defended by the researcher as being reasonable" (p. 200). We determined, therefore, that a time and place sample method (Oliver & Hinkle, 1982) was reasonable and appropriate.

Instrumentation

The PCoSAI was used in this study (Flake et al., 2015; Raczkoski et al., 2018). The instrument contained 29 items divided into three sections: Section One assessed students' intent and motivation regarding short-term study abroad courses or experiences (3 items); Section Two assessed students' perceptions about perceived costs, i.e., outside effort, task effort, loss of valued alternatives, and emotional cost, regarding study abroad participation (20 items); and Section Three requested information about students' personal characteristics (6 items). Because motivation implies some future psychological state or idealized self-image or projection, item stems for the cost subscales were written in future tense so that students could account for some future state of perceived cost instead of a real-time appraisal. Motivation is the antecedent or expectation of committing to a future task or behavior; therefore, forecasted perceived cost factors were compared to the future state of being motivated. Both future tense and motivation implied a forthcoming affective state.

Perceived Costs. Raczkoski et al. (2018) PCoSAI measured students' perceived costs factors. The scale adapted items from Flake et al. (2015) EVC measure to the context of short-term study abroad course or experience participation. This part of the instrument included a 5-point, Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The average of the items that clustered together formed composite mean scores for each of the factors. The scale has not been used widely in previous research; however, it followed closely Flake et al. (2015) definition of perceived cost, including its theorized four sub-dimensions. Reliability analysis using Cronbach's alpha correlation coefficient verified the subscales in the modified version by Raczkoski et al. (2018) to be reliable ($a > .70$).

Emotional cost. The 5-item Emotional Cost measure assessed the psychological or emotional facet of participation in short-term study abroad course or experience. Higher scores indicated students' perceptions of more emotional cost. The internal consistency of this measure was .94 on the original Flake et al. (2015) scale and .85 on the modified scale by Raczkoski et al. (2018).

Outside effort cost. The 5-item outside effort cost sub-scale assessed the students' perceptions about the time and effort devoted to tasks other than their participation in a short-term study abroad course or experience. Reliability analysis for this sub-scale yielded a Cronbach's alpha score of .93 on the original Flake et al. (2015) scale and .89 on the modified scale developed by Raczkoski et al. (2018). The higher the score on this 5-item sub-scale, the more apprehension students had about future time and effort devoted to tasks other than studying abroad.

Loss of valued alternatives cost (LOVA). The 5-item LOVA (i.e., opportunity cost) sub-scale was a measure of what is lost, given up, or sacrificed because of short-term study abroad course or experience participation. Reliability analysis for this sub-scale yielded a Cronbach's alpha of .89 on the original Flake et al. (2015) scale and .86 on the modified scale Raczkoski et al. (2018). Higher scores indicated greater perceived LOVA cost.

Task effort cost. The 5-item Task Effort Cost sub-scale assessed students' perceptions about the amount of mental or physical effort they expected to exert as a result of participation. Higher scores indicated the perceived need for additional effort toward participation. The internal consistency of this measure was .95 on the original Flake et al. (2015) scale and .86 on the modified scale by Raczkoski et al. (2018).

Instrument Pilot Study

The pilot study participants reviewed the PCoSAI for face validity during the Fall 2016 semester at Oklahoma State University (OSU). This panel included students enrolled in CASNR at

OSU. Students were asked whether the instrument was easy to answer, meaningful, and understandable. Based on their feedback, an additional item was included bringing the final revised PCoSAI scale to 20 total items. The pilot group found the instrument to be acceptable. In the pilot study, items were presented online in random order, using Qualtrics Survey Software, with a 5-point Likert-type rating scale: 1 = *completely disagree*, 3 = *neither agree nor disagree*, and 5 = *completely agree*. Scaled responses 2 and 4 were blank and had no descriptor. All items were worded in a negative direction, e.g., *I worry about . . .*; therefore, a lower rating corresponds to a student perceiving study abroad to be less costly, and a higher rating corresponds to a student having a more costly perception of studying abroad. The sample included 219 CASNR freshmen students who were 70.3% female (0.9% did not indicate gender). The ethnic breakdown of participants included: White (73.5%), Native American/Alaskan Native (12.8%), International (9.1%), Black (5.5%), Hispanic (5.0%), and Asian American (2.3%). Internal consistency scores, i.e., construct validity, for the pilot group ranged from .75 (task effort cost) to .89 (outside effort cost).

Data Analysis

Data were analyzed using the Statistical Program for Social Sciences (SPSS) Version 21, by which descriptive statistics and exploratory factor analysis procedures were implemented. Principal axis factoring method of extraction and Promax rotation were used to identify the underlying factor structure of the adapted PCoSAI, i.e., the 20 items specifically intended to measure perceived costs of outside effort, task effort, loss of valued alternatives cost, and emotional costs. A Promax rotation was used because in the social sciences a correlation among factors is generally expected (Costello & Osborne, 2005). Kaiser's criteria and a Scree Plot were used to determine the number of factors to extract (Costello & Osborne, 2005).

The factor loadings were used to determine which items to retain or remove from subsequent analyses. Factors with fewer than three strong factor loadings ($\leq$ .50) were considered to be weak or unstable (Costello & Osborne, 2005). The sample size used in this study exceeded the recommend item-to-person ratio of 10:1 for an instrument with 20 items. Internal consistency was established using post hoc Cronbach's alpha coefficients and Pearson's correlations to estimate relationships between the variables based on conventions proposed by Davis (1971). Items were examined conceptually and theoretically to determine suitability and interpretability for inclusion within the underlying factor structure (Beavers et al., 2013; Fabrigar, Wegener, MacCallum, & Strahan, 1999).

Results

This investigation began with an exploratory factor analysis (EFA) for the items using principal axis factoring (PAF) and a Promax, oblique rotation to evaluate the underlying dimensionality of the scale within this population (Shultz et al., 2014). PAF also was used because the data violated the assumption of multivariate normality based on the Shapiro-Wilk test (p < .05). All items in the correlation matrix were moderately correlated ($10 < r < .90$). The determinant for the correlation matrix was $1.49E - 10$, which indicated no multicollinearity, and that EFA of the dataset was feasible. The Kaiser-Meyer-Olkin Test of Sampling Adequacy (KMO) was .973, indicating the sample was large enough for EFA. Bartlett's Test of Sphericity tested the null hypothesis that the correlation matrix was an identity matrix (p < .001). Therefore, it was concluded that EFA was useful for detecting the underlying factor structure of the 20 items of the adapted EVC scale.

Fit of a Four-Factor EVC Model

Before determining the subset of factors to describe the dataset best, SPSS identified 20 factors within the data set. Eigenvalues associated with each factor represented the percentage of variance

explained by each factor. The first few factors explained relatively large amounts of variance. The four factors with eigenvalues greater than 1 were extracted. Before rotation, Factor 1 accounted for considerably more variance than the remaining three factors. According to Field (2013), Kaiser's criterion is accurate when there are fewer than 30 variables, or items, communalities are greater than .70, or when the sample size exceeds 250 and the average communality is greater than .60. For this dataset, all of the communalities exceeded .70. Together, these criteria suggested Kaiser's rule was appropriate for the data.

The scree plot indicated one point of inflection at four factors. Therefore, four factors were extracted. The four extracted factors explained 81% of the variance prior to rotation of the factors: Factor 1 (68.9%), Factor 2 (6.2%), Factor 3 (3.4%), and Factor 4 (2.6%). Factors were obliquely rotated using Promax rotation. Each factor had at least three items with loadings that were .50 or larger (Costello & Osbourne, 2005). Six items had cross-loadings, i.e., factor loadings > .32. Cross-loaded items deemed problematic were removed one at a time. The EFA was re-run after each time an item was removed, and the emergent factor structure was re-examined without the presence of the problematic item. This process was repeated until an approximate simple structure was achieved (Sass & Schmitt, 2010) that met the extraction criteria. A total of six items were removed, and the final scale included 14 items. The factors loaded as anticipated, to a degree. A reduction in the total number of items occurred and the factors were renamed as a result of the analysis. Item loadings are presented in Table 2.

Table 2

*Final Factor Loadings for Exploratory Factor Analysis with Promax Rotation of Perceived Cost Sub-Scales (*N = 381)

Items	Emotional Cost	Outside Effort Cost	Loss of Valued Alternatives Cost	Task Effort Cost
EM1	.874			
EM3	.827			
EM6	.799			
OE5		.870		
OE2		.668		
OE4		.601		
OE3		.597		
LOVA2			.786	
LOVA5			.741	
LOVA4			.733	
LOVA3			.699	
TE2				.744
TE5				.736
TE3				.735

Note. Factor loadings > .32 were suppressed. LOVA = Loss of Valued Alternatives; OE = Outside Effort Cost; EM = Emotional Cost; TE = Task Effort Cost. Principal Axis Factoring w/Promax Rotation and 81% variance explained. Scale: 1 = *Strongly disagree*; 2 = *Somewhat disagree;* 3 = *Neither agree nor disagree*; 4 = *Somewhat agree*; 5 = *Strongly agree.*

Lower Order Factor Reliabilities

Reliability coefficients were computed for items within each factor using Cronbach's alpha (*N* = 381). The four emergent factors had reliability coefficients greater than .70, which were considered acceptable (Nunnally, 1978). The reliability estimate for each cost factor was EM = .91 (three items); OE = .90 (four items); LOVA = .93 (four items); and TE = .93 (three items). Responses from the items within each sub-scale were averaged together to create a mean sub-score for each component of the general Perceived Costs construct.

Descriptive Statistics of the Set of Items that Measured Perceived Costs

With a 5-point response scale, a lower score (closer to 1) corresponds to a perception that studying abroad is not costly; whereas, a higher score (closer to 5) corresponds to a perception that studying abroad is more costly. Item analysis revealed issues with normality. However, the factor analysis method used, PAF, does not rely on normally distributed data (Costello & Osbourne, 2005). Mean sub-scores ranged from 2.18 to 3.00 on a 5-point scale. Students consistently indicated higher agreement with items from OE and LOVA perceived cost sub-scales, implying that these are considered more costly components of studying abroad. They expressed a moderate level of disagreement with most of the EM and TE items, implying that these are less costly components of studying abroad. Items OE5 (*M* = 3.00; *SD* = 1.09) and TE5 (*M* = 2.18; *SD* = 1.05) were the highest and lowest appraisals of perceived costs reported by the students, respectively. Table 3 shows the means and standard deviations among the 14 perceived costs items.

Table 3

Descriptive Statistics for 14 Perceived Costs Related to Students' Motivations to Enroll in a Short-Term Study Abroad Course or Experience before Graduation

Items	Perceived Costs	*M*	*SD*
EM1	I will worry too much about a study abroad course or experience.	2.36	1.16
EM3	A study abroad course or experience will be emotionally draining.	2.33	1.15
EM6	Considering a study abroad course or experience makes me feel too anxious.	2.37	1.17
OE5	I will be so busy with other courses or experiences that I will not have the time for a study abroad course or experience.	3.00	1.09
OE2	Because of all the other demands on my time, I will not be able to enroll in a study abroad course or experience.	2.56	1.15
OE4	Because of other things I do, I will not have time to put into a abroad course or experience.	2.65	1.19
OE3	I will have so many responsibilities that I am unable to put forth the effort that is necessary for a study abroad course or experience.	2.68	1.14
LOVA2	A study abroad course or experience will require me to give up too many other activities I value.	2.55	1.20
LOVA5	A study abroad course or experience will prevent me from spending time doing other things I like.	2.63	1.15

Table 3

Descriptive Statistics for 14 Perceived Costs Related to Students' Motivations to Enroll in a Short-Term Study Abroad Course or Experience before Graduation Continued…

LOVA4	I will not spend as much time doing the other things that I would like because of a study abroad course or experience.	2.54	1.16
LOVA3	Taking a study abroad course will cause me to miss out on too many other things I care about.	2.60	1.16
TE2	I will have to put too much energy into a study abroad course or experience.	2.29	1.10
TE5	A study abroad course or experience will require too much effort.	2.18	1.05
TE3	A study abroad course or experience will be too long.	2.26	1.15

Note. A higher score indicated more agreement to the item and a more costly perception of studying abroad. Scale: 1 = *Strongly disagree*; 2 = *Somewhat disagree;* 3 = *Neither agree nor disagree*; 4 = *Somewhat agree*; 5 = *Strongly agree*. EM = Emotional Cost; OE = Outside Effort Cost; LOVA = Loss of Valued Alternatives; TE = Task Effort Cost

Correlations between Cost Variables

Statistically significant relationships ($p < .01$) were found between the four perceived cost composite scores (see Table 4). For example, statistically significant, very strongly positive correlation coefficients were reported between EM and OE cost ($r = .67$), LOVA cost ($r = .70$), and TE cost measures ($r = .79$). Table 4 displays the correlation coefficients among the sub-dimensions of cost. The four factors had fairly large correlations, which suggested the constructs measured were interrelated (Field, 2013).

Table 4

*Correlation Coefficients among Perceived Cost Sub-Scales (*N = 381)

Cost Sub-Scales	1	2	3	4
1. Emotional cost	-			
2. Outside effort cost	.67**	-		
3. LOVA[a]	.70**	.83**	-	
4. Task effort cost	.79**	.71**	.78**	-

Note. Magnitude: $.01 \geq r \geq .09$ = Negligible, $.10 \geq r \geq .29$ = Low, $.30 \geq r \geq .49$ = Moderate, $.50 \geq r \geq .69$ = Substantial, and $r \geq .70$ = Very Strong (Davis, 1971). LOVA[a] = Loss of Valued Alternatives
**$p > .01$*.

Discussion

The results of this study suggest that the PCoSAI could be a potentially useful self-report tool for measuring students' perceived costs of participation in short-term study abroad courses or experiences. The absence of valid and reliable instruments that measure perceived costs associated with such participation is a limitation in research on short-term study abroad. The PCoSAI has the potential

for use as a rapid assessment tool for identifying students' largest affective barriers to participation and as an evaluation instrument to measure the impact of international experiences on perceived costs. The factor structure of the PCoSAI is consistent with a decade of education research regarding cost (Barron & Hulleman, 2015; Battle & Wigfield, 2003; Conley, 2012; Flake et al., 2015; Perez et al., 2014; Shultz et al., 2014; Trautwein et al., 2012). Four factors explained 81% of the total variation in the items on the original 20-item PCoSAI instrument – the measure of perceived costs prior to rotation of the perceived costs factors. Reliability estimates indicate strong and reliable sub-scales ($a > .70$). Regarding the PCoSAI factors, *Study Abroad Emotional Cost*, relates closely to negative appraisals of a psychological state resulting from exerting effort. *Study Abroad Outside Effort Cost* relates closely to negative appraisals of the amount of time and effort exerted for tasks. *Study Abroad Loss of Valued Alternatives Cost* relates closely to negative appraisals of what is lost or given up. *Study Abroad Task Effort Cost* relates closely to negative appraisals of the amount of effort exerted. The findings of this study are encouraging in that they appear consistent with previous empirical research (Flake et al., 2015).

With additional research, course administrators, faculty, and coordinators/directors of international programs could use the instrument examined in this study as a tool for planning, promoting, and recruiting students for short-term study abroad courses. The tool may help create programs and shape advising efforts in at least two ways: 1) it could provide guidance on how to develop targeted interventions to help students overcome perceived costs so more could participate, assuming they had precluded students from participating, and 2) it could identify students early in their college careers who have a desire to study abroad, so they connect with faculty and begin preparing for the experience. Subsequent research should follow-up with students to determine if they acted on their motivations, or if the cost factors prevented them from participating in short-term study abroad experiences.

The PCoSAI is beneficial because it can be administered during class time, contains only 14 items, and takes students only a few minutes to complete. Data collected with the PCoSAI can help course administrators, faculty, and coordinators/directors of international programs monitor changes in students' affective perceptions of cost following educational interventions, identify specific types of perceived costs influencing academic-related choices and performance, and increase knowledge regarding factors that may affect students' decisions to participate in short-term study abroad courses. The PCoSAI data potentially could identify motivational differences between groups, such as students with and without previous international experience, and identify opportunities to develop educational interventions for each group. Analysis of PCoSAI data may augment the revision of international strategic planning goals and discussions between study abroad recruiters and administrators regarding program improvement. Finally, it might be useful to share with students their results on the PCoSAI to understand the drivers of behavior and perhaps change their attitudes and knowledge regarding such. In addition, the PCoSAI could be used as a pre- and post-test measure in conjunction with short-term study abroad courses to demonstrate how such international learning experiences can impact students' academic achievement-related choices and performance.

To determine the utility of the PCoSAI, a confirmatory factor analysis should be performed with another independent sample from a similar population to test the factor structure. This will be useful for determining whether the instrument performs across different populations and how adapting the scale from its original version affects its psychometric characteristics. Thus, additional study is warranted. It also is possible the current form of the instrument affected readability due to items being worded in future tense. The time lag between intent and action presents a substantial challenge on how to promote study abroad opportunities to college students. Researchers have argued the longer the time lag, the weaker the connection between intent and action becomes (Chintagunta & Lee, 2012; Sheeran & Webb, 2016). We attempted to control for this time lag by asking students about their motivation in

the future tense. Subsequent studies should be mindful of the effect of future tense on students' responses.

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