

Engagement, Flow, Self-Efficacy, and Eustress of University Students: A Cross-National Comparison Between the Philippines and Argentina

BELÉN MESURADO
MARÍA CRISTINA RICHAUD

National Scientific and Technical Research Council (CONICET)

NIÑO JOSÉ MATEO
De La Salle University

ABSTRACT. This study examined how self-efficacy, eustress, and flow interact with academic engagement. First, it aimed to test a theoretical model that proposes that self-efficacy and eustress promote both flow and engagement and that, in turn, the state of flow promotes academic engagement in undergraduate student. We hypothesized that the theoretical model would be invariant for two countries: the Philippines and Argentina. Secondly, this research aimed to compare the levels of self-efficacy, eustress, study-flow and academic engagement experiences in students from both countries. One hundred seventy-six Filipinos and 171 Argentinean students participated in the study by completing inventories using the Utrecht Student Engagement Scale (Schaufeli, Martnez, et al., 2002), Optimal Experience Survey (Mesurado, 2008), Self-efficacy Scale (O’Sullivan, 2011), and Eustress Scale (O’Sullivan, 2011). Results show that the theoretical model fits the data well in both countries and is invariant across the Philippines and Argentina. Self-efficacy has a positive effect on flow and engagement, whereas eustress has a significant positive relationship with flow but is not directly associated with engagement. However, eustress has an indirect effect, through flow, on student engagement. On the other hand, there are different levels of engagement, flow, self-efficacy, and eustress. Argentinean students scored higher on absorption, dedication, self-efficacy, and flow. Filipino students, meanwhile, scored higher on eustress.

Keywords: cross-cultural comparison, engagement, eustress, flow, self-efficacy

THE CONCEPT OF ENGAGEMENT HAS GAINED IMPORTANCE in recent years. Initially, authors conceptualized it as the opposite of experiencing burnout (a state of mental weariness). Engagement is the presence of mental energy and

Address correspondence to Belén Mesurado, Tte. Gral. Perón 2158, CP: 1040, Buenos Aires, Argentina; bmesurado@conicet.gov.ar or mesuradob@gmail.com (e-mail).

effective connection with an activity (Bakker & Leiter, 2010). Maslach (1993) proposed that burnout is a three-dimensional construct that consists of the experience of exhaustion or depletion, cynicism or indifference, and the absence of professional efficacy towards one's occupation. Maslach and Leiter (1997) later suggested that engagement is characterized by energy, involvement, and efficacy as counterparts of the three dimensions of burnout. Several authors deemed it inappropriate to define engagement negatively. Moreover, researchers speculated that people who do not experience exhaustion do not necessarily mean that they feel energized (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Eventually, Schaufeli, Salanova, et al. came to conceptualize job engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (p. 74). This has become the most widely used definition of engagement to date. Vigor consists of having high energy levels and mental resilience during an activity, being open to putting effort into one's work, and persisting even in the face of difficulties. Dedication consists of having a sense of importance, eagerness, inspiration, pride, and challenge toward what one is doing. Absorption is characterized by being fully immersed and involved in one's work, such that one forgets the passage of time and finds it difficult to separate themselves from the activity (Bakker, 2011; Schaufeli & Bakker, 2004).

Initially, engagement was a construct only used in the work setting. Gradually, educational researchers found it applicable to the academic setting as well. They characterized student engagement as a combination of interest, enjoyment, and concentration toward the learning processes. It occurs in classrooms (Shernoff & Hoogstra, 2001) or at any time that students are doing academic tasks such as studying. Student engagement plays a key role in the psychology of education, including with academic performance (Salanova, Schaufeli, Martínez, & Bresó, 2010) and intrinsic motivation (Shernoff & Hoogstra).

Culture appears to influence the relationship between engagement and performance as well. Indeed a previous cross-national study demonstrated that academic performance was positively related with engagement in European undergraduate students (Schaufeli, Martínez, Marques Pinto, Salanova, & Bakker, 2002). However, this relationship appeared to be stronger in some countries than in others.

Some scholars have related the concept of engagement to that of flow or optimal experience. Flow is defined as an "intense experiential involvement in moment-to-moment activity. Attention is fully invested in the task at hand, and the person functions at his or her fullest capacity" (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005, p. 600). Flow is a mental state in which the person is so involved in a given task that nothing else matters at the time. The experience is so enjoyable that the individual wants to engage in it even though it may require the expense of considerable energy or effort (Cuadra & Florenzano, 2003). In the academic setting, evidence exists that if students experience flow when they are involved in academic activities, they will not only keep on learning and improving, but will enjoy doing so. Thus, learning becomes intrinsically rewarding

(Csikszentmihalyi, Rathunde, & Whalen, 1994). The experience of flow is so enjoyable that one wants to repeat it. If one experiences flow through studying or reading literature books, then one will want to read again so as to have a similar experience. If a student reaches a state of flow by solving mathematical problems or chemical equations, then one will keep seeking out more problems to solve (Csikszentmihalyi, Rathunde, & Whalen).

The most important condition for flow to be experienced is that the skills of an individual will match the challenge of the activity. Both the challenge and the skill should be at a level that allows the individual to stretch their skills to the limit in order to achieve the goal (Shernoff & Csikszentmihalyi, 2009). The theory of flow suggests that optimal experience is the result of a combination of high challenge and high skill to perform a specific activity. Negative experiences may be promoted by two possible imbalances between challenges and ability: anxiety, which occurs if challenges overcome skills, and boredom, which occurs if abilities overcome challenges (Nakamura, 1988). When an activity presents clear challenges and it enables the subject to develop the corresponding ability, then people experience a high level of flow (Mesurado, 2007).

A study conducted by Shernoff, Csikszentmihalyi, Schneider, and Shernoff, (2003) on student engagement in high school classrooms showed that students reported the highest level of engagement in the flow condition, while they reported being the least engaged in the apathy condition. Engagement experience seems to be promoted by a moderate difference between the challenge of an academic task and a student's skills. For this reason, Shernoff et al. suggested that "individuals naturally learn by mastering skills one step beyond one's current skills; nevertheless, the challenge for teachers is to provide tasks slightly too difficult to master at one's present skill level, but that can be mastered with the acquisition of new skills" (p. 172).

However engagement and flow are not entirely the same. Researchers propose that the most important difference between them is stability (Bakker, 2011; Schaufeli, Martínez, et al., 2002). Engagement is a more pervasive and persistent state of mind, whereas flow is a fluctuating mental state in which the balance between challenge and skill is intrinsically fragile (Csikszentmihalyi et al., 2005; Bakker, 2011). Consequently, for a student to maintain the flow experience, he or she must look for new challenges, while at the same time developing new abilities to face the activity.

Several scholars have focused on individual variables as predictors of engagement and flow. One of the principal predictors identified in promoting these optimal mental states is self-efficacy (Bassi, Steca, Delle Fave, & Caprara, 2007; Linnenbrink & Pintrich, 2003; Sweetman & Luthans, 2010; Walker, Greene, & Mansell, 2006). Based on Bandura's social cognitive theory, self-efficacy is "an individual's convictions (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998, p. 66).

Self-efficacy represents a positive belief but not necessarily the ability to achieve expected results.

Salanova, Bresó, and Schaufeli (2005) showed that academic efficacy beliefs influence high levels of academic engagement, which in turn influence students' future efficacy beliefs over time. Moreover, Bandura (1997) demonstrated that greater efficacy is associated with absorption experience in the task as well as to expending higher level of energy and effort to complete an activity. Similarly, a study by Rodríguez-Sánchez, Salanova, Cifre, and Schaufeli (2011) provided empirical evidence that self-efficacy is an important antecedent to the state of flow in secondary school teachers. The study suggested that the combination of flow theory and social cognitive theory is "a more complementary and complete model that explains both the flow experience and its antecedents" (p. 437). Another study found that students who scored high on self-efficacy reported higher academic aspirations, spent more time in homework, and primarily associated learning activities with optimal experience than students who scored low on self-efficacy (Bassi, Steca, DelleFave, & Caprara, 2007).

Another important variable to take into account when studying academic aspects of a student's life is stress. Research has consistently shown high levels of stress in university students (Abouserie, 1994; Felsten & Wilcox, 1992; Cotton, Dollard, & Jonge, 2002). Student stress was associated with low level of well-being, satisfaction, and performance in school (Cotton et al.). However, not all forms of stress are bad. Indeed, some scholars have focused on academic eustress. Eustress is known as positive or good stress (Selye, 1980) and involves a positive cognitive appraisal and challenging of the stressor. According to O'Sullivan (2011) eustress is defined and operationalized "as both the process of responding positively to stress as well as the positive outcome of this process. At the academic level, the positive response to stress could include studying and working to complete assignments whereas the outcome of eustress could include productivity and successful completion of assignments and exams" (p. 156). Research has shown that academic eustress is a positive psychological response to academic stressors that is perceived as a challenge. Moreover, high level of challenge and skill characterize the state of flow, which in turn are associated with engagement experiences. Therefore, academic eustress may promote flow and engagement in school settings.

Cultural Differences

Evidence exists about cultural differences in the relationship between academic engagement and other related variables. Salanova et al., (2005), for example, showed that Spanish students reported higher level of self-efficacy and vigor (one dimension of engagement) than Belgian students. Another cross-cultural study among students of Navajo, Uganda, Italy and Nepal found that the four groups differed in the percentage of reporting flow in their studies (Delle Fave, Massimini, & Bassi, 2011), where a higher percentage of Ugandan and Nepalese

teenagers reported experiencing study flow compared to Italian and Navajo students. According to DelleFave et al., these differences can be accounted for by “the interplay between the collective meaning attributed to education, the more or less selective access to school, and the individual process of psychological selection” (p. 140).

Traditionally, cultures are classified as either individualistic or collectivistic. Some societies place an emphasis on the needs, values, goals, and points of view of the group, assigning greater importance to social welfare (collectivism), whereas others societies promote goals, attitudes, and personal values that come before those of the group (individualism). Thus, individualistic societies are distinguished by a focus on the individual and the nuclear family (Levine, Norenzayan, & Philbrick, 2001), whereas collectivistic cultures place a great deal more emphasis on hierarchy. In collectivistic cultures, the father is generally the indisputable head of the family, and males have more power than females. Individualism, conversely, gives priority to a person’s emotional independence with respect to groups and organizations. The absence of individualism corresponds to an emotional dependence and a strong sense of the *we* (Gobernado Arribas, 1999; Hofstede, 1980).

Hofstede (1980) classes the Asian countries and Latin American countries as collectivistic. Research by the Hofstede Center (www.geert-hofstede.com) asserts that with a score of 31 on the scale, the Philippines is considered to be a collectivistic society. Argentina, with a score of 46, sits in the middle of the individualistic–collectivistic ranking, and is ranked as the most individualistic of all Latin American countries. This is further supported by previous studies (Fernández, Paez, & González, 2005; Zubieta, Fernández, Vergara, Martínez, & Cardia, 2008), which showed that scores from Argentina were more similar to those of the United States than to other Latin American and Asian countries.

Markus and Kitayama (1991) proposed in a more recent conceptualization of the differences among cultures that Western cultures are distinguished by a belief in the inherent detachment of individuals: “The normative imperative of this culture is to become independent from others and to discover and express one’s unique attributes” (p. 226). In contrast, several non-Western cultures are characterized by interdependence or connectedness of human beings to one another. The aforementioned cultural characteristics of nations and societies may affect the meaning attributed to education and subjective experience associated with it (DelleFave et al., 2011). Kitayama and Markus (1994) argue that in Asian societies, connection, conformity, and interdependence are highly idealized personal traits, whereas Americans place far greater value on qualities such as independence, individuality, and self-assertion. Although numerous studies have analyzed the differences between individualistic and collectivistic societies as well as independent and interdependence cultures, there is a definite gap in the literature as regards the comparison between Latin American and Asian countries.

Although all Latin American countries are in the area known to be collectivistic, Guatemala, Panama, Ecuador and Venezuela are the countries with the highest collectivistic score while Argentina is the most individualistic. Also, unlike Asia and Africa, Latin American collectivism is less cohesive, with extended family and peers predominating rather than the clan, caste or tribe (Lewis, 1966; Hofstede, 1989).

For individuals espousing individualistic cultures, the most salient aspects of their emotional experiences are the internal reactions such as physical symptoms, hedonic tone, and subjective reactions. Thus, they are motivated to express these feelings and emotions resulting from internal attributes (Zubieta et al., 1998). Given that Argentina is more individualistic than the Philippines, more intense experiences of engagement, flow, and self-efficacy could be expected.

With respect to coping with threats or challenges, those high in individualism will try to protect their autonomy, whereas those high in collectivism will try to protect relationships. In the latter case there are strong emotional rules that allow them to avoid conflict and restore relationships. Therefore, it is assumed that in countries high in collectivism, individuals experience more eustress, because the tension is experienced as more positive.

Present Study

Cultural differences are important to understand subjective experience and mental states. Currently, few studies focus on the comparison between Latin American and Asian countries. The Philippines and Argentina share some common cultural characteristics—both countries were colonized by Spain and share the Catholic cultural tradition. At the same time, both maintain some of their own peculiarities owing to their unique history. After Spanish colonization, Americans colonized the Philippines. As a result, the Filipino population speaks English fluently, abandoned the Spanish language and maintains a relationship with native traditions, as evident in the use of their national language (Filipino). After Spanish colonization, the Argentinian population lost the majority of the original inhabitants and received large flows of European immigration in the nineteenth and twentieth century. At present 86.4% of Argentina's population identify as being of European descent. These features make the comparison between these two countries interesting from a cultural point of view.

After considering the relationship between self-efficacy, eustress, flow, and engagement, the present study aimed to examine how self-efficacy, eustress, and flow interact with engagement in order to better understand how engagement operates in academic settings. Also, this study aimed to test a theoretical model that proposes that self-efficacy and eustress promote both flow and engagement in school, and that in turn the flow state could promote engagement in undergraduate students. Moreover, we hypothesized that the theoretical model proposed in this study would be invariant for the two countries under study.

The second aim of this research is to compare the levels of self-efficacy, eustress, study-flow, and academic engagement experienced by university students from Philippines and Argentina.

Method

Participants: The Philippines Sample

In the Philippines, 176 college students participated (95 males, 53.98% and 81 females, 46.02%) who enrolled in the undergraduate psychology course Introduction to Psychology at a medium-sized Catholic university in the center of Manila, the capital of the Philippines. The mean age was 17.54 with a standard deviation of 1.32. Participants did not receive any compensation to participate in the study.

Participants: Argentinean Sample

In Argentina, 171 college students participated (70 males, 40.94% and 101 females, 59.06%) who enrolled in undergraduate psychology courses at a medium-sized Catholic university in Buenos Aires, the capital of Argentina. The mean age was 20.07 with a standard deviation of 1.05. We recruited participants from the total of students of the first year undergraduate psychology courses and they did not receive any compensation to participate in the study.

In both countries, data collections came from nonprobability samples of volunteer students. Across countries, there was a significant age difference [$F(1, 346) = 248.93, p < .001$], with The Filipino youths being younger than Argentineans. No between-group gender differences were identified.

Ethical Procedures

We obtained consent for this project at multiple levels. First, the researchers informed the heads of the Universities of the project and provided them with a copy of the research proposal and explained the characteristics of the research. The researchers told the heads that participation would be voluntary and anonymous. Once researchers received the permission, they invited students to participate and informed them of the purpose of the study. The researchers reminded the students that participation was voluntary and that they could refuse to take part in the study with no consequence. Students did not receive any compensation to participate in the study.

Instruments

Engagement

We assessed engagement with the 17-item Utrecht Student Engagement Scale (UWES; Schaufeli, Martínez, et al., 2002). The items of the UWES are grouped into three subscales that reflect the underlying dimensions of engagement: Vigor (six items; e.g., “When studying I feel strong and vigorous”); Dedication (five

items; e.g., “I find my studies to be full of meaning and purpose”), and Absorption (six items; e.g., “When I am studying, I forget everything else around me”). All items are scored on a 7-point frequency rating scale ranging from 0 (never) to 6 (always). The authors published the Scale in English and Spanish.

Self-Efficacy

We assessed level of academic self-efficacy using O’Sullivan’s self-efficacy scales (O’Sullivan, 2011). This scale included ten items, with statements such as “Finish my homework assignments by deadlines”, “Organize my schoolwork” and “Take good notes during class instruction”. We instructed the participants to consider their level of confidence in being able to do these aforementioned tasks. The participants rated their confidence on a scale of zero to six, with zero representing “cannot do at all” and six representing “highly certain can do.” Higher scores indicated higher levels of self-efficacy.

A psychologist, who is also a qualified professional English-Spanish translator and has expertise in employing the terminology of the subjects covered by the instruments, translated the Scale. The translator is fluent in English, and is a native speaker of Spanish. We gave instructions to her in the approach to translating, emphasizing conceptual rather than literal translations, as well as the need to use natural and appropriate language for the students. In a second stage, the original translator, one psychologist, as well as an expert with experience in instrument development and translation revised the first translation for semantic and syntactic equivalence. Last, an independent translator, who is a native speaker of English, and has expertise in questionnaire design for the field of psychology translated the scales back into English. As in the initial translation, emphasis on the back-translation was on conceptual and cultural equivalence and not linguistic equivalence. The two translators revised the differences until satisfactory versions were reached.

Eustress

We assessed levels of eustress using O’Sullivan’s Eustress Scales (O’Sullivan, 2011). It has fifteen items of which five were filler questions. Sample items from the scale are: “How often do you effectively cope with stressful changes that occur in your academic life?”, “How often do you deal successfully with irritating academic hassles?”, and “How often do you feel that stress positively contributes to your ability to handle your academic problems?” All items are scored on a 7-point frequency rating scale ranging from 0 (never) to 6 (always), with higher scores indicating higher levels of eustress. We used the same translation procedure described for the self-efficacy scale.

Flow

We used the Optimal Experience Scale (Mesurado, 2008, 2009) to measure flow. This instrument measures the flow associated with different activities. For

this particular research, we replaced the instructions for the participant, and items, by studies or class. The participants rated 26 items about flow experience during his or her study activities (e.g., classes, exams, academic tasks), 13 of which were semantically differential items related to affective (e.g., happy versus sad, excited versus bored) and cognitive states (e.g., alert versus drowsy, clear versus confused). Participants rated each affective and cognitive item on a seven-point scale. The other 13 were Likert items that measure the perceptions of achievement (e.g., “Were you succeeding at what you were studying?”) and ability (e.g., “Do you think that you have the enough capacity to overcome that challenge?”). Participants rated each perception of achievement and ability items on a 5-point scale rating from 1 (*disagree strongly*) to 5 (*agree strongly*). We measured two dimensions of flow experience: one relates to cognitive and affective experience and another relates to achievement and ability perceptions. In this study we used a total flow score (Mesurado, 2008, 2009).

A psychologist, who is also qualified as a professional translator and is familiar with the terminology of the subjects covered by the instrument, translated the text. The translator was a native speaker of English, with professional fluency in Spanish. We gave instructions to him on how to approach the translation, emphasizing conceptual rather than literal translations, as well as the need to use natural and acceptable language for the students. In the second step the original translator, another psychologist, with expertise in developing research instruments as well as translation, revised the first translation for semantic and syntactic equivalence. Last and independent translator, who is a native speaker of Spanish and who had no prior knowledge of the questionnaire, translated it back into Spanish. As in the initial translation, emphasis on the back-translation was on conceptual and cultural equivalence and not linguistic equivalence. The researchers and translators revised differences until a satisfactory version was reached.

Statistical Procedure

We conducted Structural Equation Modeling (SEM) to test the fit of the proposed theoretical model for each country using the AMOS 16.0 program (SPSS Inc., 2007). Because the data were approximately normally distributed, maximum likelihood (ML) estimation we used for both SEM and multiple group analyses. First, we tested the equivalence of measure (or measurement invariance) of each scale included in this study because it is important, especially in cross-cultural research, to verify whether members of different countries ascribe the same meanings to scale items. After that, we conducted a multiple group analysis to test whether the same theoretical model would hold across both the Philippines and Argentina.

A multivariate analysis of variance (MANOVA), followed up by a Roy-Bargmann step-down analysis, provided the tool to test the second objective of the study regarding differences between countries (The Philippines and Argentina) in self-efficacy, eustress, flow, and engagement (vigor, dedication, and

absorption). Roy-Bargmann step down F procedure determines whether groups differ significantly on multiple dependent variables, by accounting for correlations between dependent variables and entering each into the statistical analysis in a sequence that is determined a priori on the basis of the current literature of a field (Stevens, 1996). The step down F is a MANOVA is conceptually similar to a stepwise regression analysis and is operationalized as a series of analyses of covariance. As such, it provides a stringent test of group differences and yields conservative results while controlling for Type I error. Because the step down F procedure can analyze differences in group performance on multiple variables while accounting for overlap among dependent variables, it is preferable to a standard MANOVA.

We calculated eta partial square and Cohen's d . Because partial eta-squared and Cohen's d provide two different types of effect sizes, we reported both of them. Partial eta-squared indicates the % of variance in the DV attributable to a particular IV, and Cohen's d indicates the size of difference between two means in standard deviation units.

Results

Study of Equality of Reliability

To analyze the equality of reliability between the original scales and the versions used in the present study, we studied differences in Cronbach's alpha. We tested these differences by the statistic $(1-\alpha_1)/(1-\alpha_2)$ that follows an F distribution with (N_1-1) and (N_2-1) degrees of freedom (van der Vijver & Leung, 1997). The results have shown no statistically significant differences or a better alpha in our samples (see Table 1).

Study of Model in the Two Countries

Table 2 displays means, standard deviations, skew, kurtosis, and correlations for self-efficacy, eustress, flow, and engagement.

The study hypothesized that self-efficacy and eustress promote both flow and engagement in school, which in turn the flow state would promote engagement in undergraduate students. To test this theoretical model a structural equation modeling was conducted for each country. In assessing model fit, we utilized the indexes of fit suggested by Kline (1998). This included reporting χ^2 , the ratio of the chi-square statistic to degrees of freedom (χ^2/df), root mean square error of approximation (RMSEA), root mean square residual (RMR), and supplementing it with the following indexes: goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and comparative fit index (CFI). For the GFI, AGFI, and CFI, values vary between 0 and 1.0, and values of .95 and above are considered to indicate a good model fit (Hu & Bentler, 1995, 1999). For the RMSEA (Steiger, 1990), values of about .05 are conventionally considered to indicate a close fit, and values up to about .08 are considered reasonable. Hu and Bentler (1999) recommended

TABLE 1. Comparison of Reliability of Original Scales in Argentina and the Philippines

Dimension of Scales	Cronbach's alpha			F		P	
	Original Scale*	Argentina	the Philippines	Original Scale versus Argentina	Original Scale versus the Philippines	Original Scale versus Argentina	Original Scale versus the Philippines
Engagement (total score)	no information	.88	.89				
Vigor	.79	.76	.84	.87	1.31	<i>ns</i>	.01
Dedication	.85	.89	.80	1.36	.75	.01	<i>ns</i>
Absorption	.65	.74	.70	1.34	1.16	.01	<i>ns</i>
Self-efficacy	.84	.81	.87	.84	1.23	<i>ns</i>	<i>ns</i>
Eustress	.81	.76	.72	.79	.67	<i>ns</i>	<i>ns</i>
Flow (total score)	.85	.87	.87	1.15	1.15	<i>ns</i>	<i>ns</i>
Cognitive and affective experience	.80	.83	.86	1.17	1.53	<i>ns</i>	.01
Achievement and ability perceptions	.77	.72	.74	.82	.88	<i>ns</i>	<i>ns</i>
Total flow	.85	.87	.87	1.15	1.15	<i>ns</i>	<i>ns</i>

Note. *This column includes Cronbach's alpha of the original scales reported by authors. Please see Schaufeli, Martínez, Marques Pinto, Salanova, and Bakker (2002); O'Sullivan (2011); and Mesurado (2008).

TABLE 2. Summary of Intercorrelations, Means, Standard Deviations, Skew, and Kurtosis for Scores on Engagement, Self-efficacy, Eustress, and Flow by Country

Variables	Vigor	Dedication	Absorption	Self-efficacy	Eustress	Flow	M	SD	Skew	Kurtosis
Engagement	—									
Vigor		.51**	.62**	.54**	.15*	.55**	3.41	1.02	−0.09	−0.21
Dedication	.65**	—	.48**	.41**	.16*	.51**	4.65	1.04	−0.97	0.97
Absorption	.58**	.56**	—	.45**	.15*	.45**	3.39	1.31	−0.21	−0.36
Self-efficacy	.56**	.55**	.47**	—	.15*	.50**	4.21	.83	−0.45	−0.11
Eustress	.32**	.33**	.33**	.34**	—	.17*	3.24	.72	0.36	0.04
Flow	.65**	.59**	.54**	.56**	.39**	—	4.33	.52	−0.17	−0.30
M	3.19	3.93	3.38	3.69	3.53	4.08				
SD	1.0	.99	1.16	.95	.61	.55				
Skew	−0.32	−0.21	−0.24	0.18	0.04	−0.21				
Kurtosis	0.03	−0.28	0.05	−0.40	0.27	−0.07				

Note. Intercorrelations for Argentinean participants are presented above the diagonal, and intercorrelations for the Philippines participants are presented below the diagonal. Means, standard deviations, skew, and Kurtosis for Argentinean students are presented in the vertical columns. Means, standard deviations, skew, and Kurtosis for the Philippines students are presented in the horizontal rows.

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

a cut off close to .06. The results indicated the theoretical model fit the data very well in both countries (for The Philippines: $\chi^2 = 3.12$, $df = 6$, $p = ns.$, $\chi^2/df = .52$, GFI = .99, AGFI = .98, CFI = .99, RMR = .01, and RMSEA = .01; and for Argentina: $\chi^2 = 7.77$, $df = 6$, $p = ns.$, $\chi^2/df = 1.29$, GFI = .99, AGFI = .95, CFI = .99, RMR = .02, and RMSEA = .04).

Comparison of Model Between the Two Countries

First, we tested the cross-group measurement invariance for each of the scales included in this study. The results have shown that all scales are invariant across the Philippines and Argentina students (see Table 3).

We used a multiple group analysis to test whether the model was invariant across the Philippines and Argentina. We analyzed a series of nested models and compared them by examining the change in model χ^2 and comparative fit index (CFI) values.

The comparisons of models resulted no in statistically significant χ^2 differences for Model 1 (Unconstrained) versus Model 2 (Measurement weights) and Model 2 versus Model 3 (Structural weights); however, models resulted in statistically significant χ^2 differences for Model 3 versus Model 4 (Structural covariances), Model 4 versus Model 5 (Structural residuals), and Model 5 versus Model 6 (Measurement residuals) (see Table 4). Because the χ^2 difference tests could be influenced by the sample sizes and its underlying assumption that the model fits the sample data perfectly has long been recognized as problematic (Kline 1998; Jöreskog & Sörbom, 1996; Milfont & Fischer, 2010). Several fit indices have thus been developed to overcome limitations of the χ^2 difference; for example, Cheung and Rensvold (2002) suggest that a difference of CFI of less than or equal to .01 is an indicator that the constrained parameters are invariant. The results indicated that the theoretical model fit equally well for Filipino and Argentinean students (see Table 4).

The theoretical model is depicted in Figure 1 for each country. As can be seen in Figure 1, the influence of eustress on engagement occurs only indirectly, through the flow experience, but eustress has no indirect effect on student engagement in both countries.

Comparison of Engagement, Self-Efficacy, Eustress, and Flow Variables Between the Philippines and Argentina

In order to examine whether there were differences in levels of the different dimensions of engagement (vigor, dedication, and absorption), self-efficacy, eustress, and flow across the two countries, we carried out a MANOVA. Because all of the variables were correlated (see Table 2) we followed up the MANOVA with a Roy-Bargmann step-down analysis.

For the purposes of this study, the *a priori* dependent variable analysis sequence for the step-down *F* was self-efficacy; followed by eustress, flow; and

TABLE 3. Measurement Invariance Tests for Each Instruments

	χ^2	df	p	χ^2/df	GFI	AGFI	CFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI
Self-efficacy											
Configural equivalence	212.30	70	.001	3.03	.93	.92	.92	.05			
Metric equivalence	226.97	79	.001	2.87	.92	.91	.91	.05	14.67	9	.01
Scalar equivalence	228.96	80	.001	2.86	.92	.91	.91	.06	1.99	1	—
Eustress											
Configural equivalence	369.62	70	.001	4.67	.93	.93	.91	.07			
Metric equivalence	383.41	79	.001	4.85	.92	.93	.90	.07	13.79	9	.01
Scalar equivalence	390.60	80	.001	4.88	.92	.93	.90	.07	7.19**	1	—
Flow											
Configural equivalence	1414.67	596	.001	2.37	.92	.91	.92	.06			
Metric equivalence	1451.00	620	.001	2.34	.91	.90	.91	.07	36.33	24	.01
Scalar equivalence	1451.95	623	.001	2.33	.91	.90	.91	.07	.95	3	—
Engagement											
Configural equivalence	332.49	62	.001	2.25	.98	.94	.92	.06			
Metric equivalence	351.19	51	.001	2.21	.97	.93	.92	.06	18.69	11	—
Scalar equivalence	365.32	45	.001	2.21	.97	.93	.91	.06	14.13*	6	.01

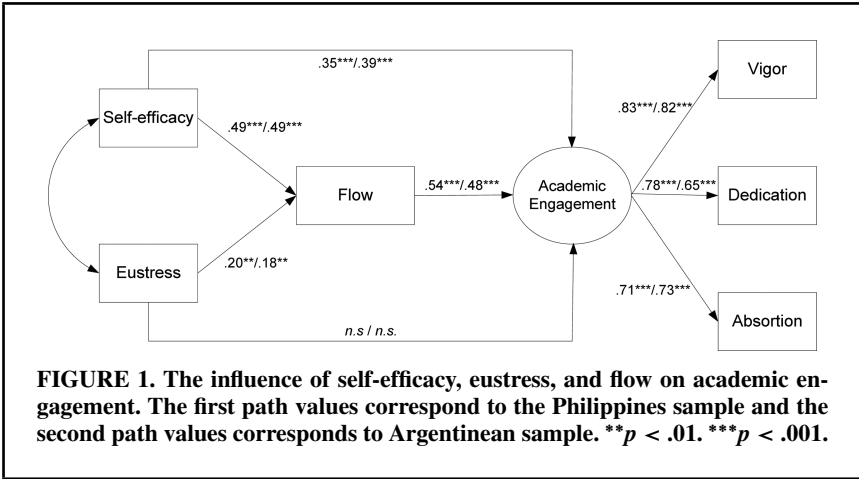
Note. * $p < .05$. ** $p < .01$.

TABLE 4. Fit Indexes for Theoretical Model Invariance Tests Across Two Countries

	χ^2	df	<i>p</i>	χ^2/df	GFI	AGFI	CFI	RMSEA	$\Delta\chi^2$	$\Delta\chi^2/\text{df}$	ΔCFI
Model 1	10.89	12	<i>ns</i>	.91	.99	.96	.99	.00			
Model 2	13.85	14	<i>ns</i>	.91	.99	.96	.99	.00	2.96	2	—
Model 3	19.66	19	<i>ns</i>	1.03	.98	.96	.99	.01	8.77	7	—
Model 4	32.33	22	<i>ns</i>	1.47	.97	.95	.99	.04	21.44*	10	—
Model 5	33.99	24	<i>ns</i>	1.42	.97	.95	.99	.04	23.10*	12	—
Model 6	43.82	27	.05	1.62	.96	.94	.98	.04	32.93**	15	.01

Note. Model 1 (Unconstrained), Model 2 (Measurement weights), Model 3 (Structural weights), Model 4 (Structural covariances), Model 5 (Structural residuals), and Model 6 (Measurement residuals).

p* < .05. *p* < .01.



lastly, three dimensions of engagement (vigor, dedication, and absorption). We followed the sequence presented in the previous theoretical model.

The analysis proves to be significant MANOVA, using Hotelling's trace criterion, for the country variable [$F(6, 345) = 18.77, p \leq .001, \eta^2 = .25$]. Results of the step-down analysis indicates that there is a statistically significant difference in self-efficacy [$F(1, 345) = 29.23, p < .001, \eta^2 = .08, d = .58$]. There is statistically significant differences in eustress after controlling for its correlation with self-efficacy variable [$F(1, 344) = 27.63, p < .001, \eta^2 = .07, d = .44$]. Likewise, there is statistically significant difference in flow after controlling for its correlation with self-efficacy and eustress variables [$F(1, 343) = 5.71, p < .05, \eta^2 = .02, d = .47$]. However, there is no statistically significant difference in vigor after controlling for its correlation with self-efficacy, eustress, and flow [$F(1, 342) = 5.71, p = .06$]. There is statistically significant differences in dedication after controlling for its correlation with self-efficacy, eustress, flow, and vigor [$F(1, 341) = 25.96, p < .001, \eta^2 = .07, d = .74$]. Lastly, there is statistically significant differences in absorption after controlling for correlation with all previous variables [$F(1, 340) = 9.35, p < .05, \eta^2 = .03, d = .01$].

In summary, Argentinean students scored higher on self-efficacy, flow, dedication, and absorption than the Filipino students, whereas the Filipino students scored higher than Argentinean students did on eustress. Note that percentage of explained variance for all variables is moderate and effect size that indicates the size of differences between means are also moderate except in the case of absorption.

Discussion

In this research we highlight the importance of studying engagement in the academic setting and other variables associated with it such as self-efficacy, eustress, and flow. We hypothesized that self-efficacy and eustress promote both flow and engagement in school, and in turn the flow state promotes engagement. Given that culture affects the way these variables interact, we decided to study this model in countries representing these two cultures, Argentina and the Philippines. Results of this study provide support for the hypotheses of invariance between the two countries.

Self-efficacy has a positive effect on flow and engagement. Self-efficacy promotes both flow experience and study engagement in Filipino and Argentinean students. Consistent with previous studies, this research supports the idea that self-efficacy plays an important role in the prediction of students' positive experiences in the academic setting. The findings could be interpreted to suggest that when students believe they are academically capable, it leads to the experience of flow and be increased engagement in their academic activities.

Also, findings suggest that eustress has a differential role in academic setting; although it has a significant positive relationship with flow experience at school, eustress is not associated with engagement. Eustress has an indirect effect, through flow, on student engagement. However, it demonstrates no direct significant relationship with engagement in either country. This evidence sets a clear distinction between flow and engagement; positive perception of stressor seems to be essential to experience flow but it is not necessary for students to feel engaged in academic tasks. This finding is consistent with the literature on flow theory showing that when an activity presents clear challenges and enables the subject to develop the corresponding ability, then people experience a high level of flow. Moreover, according to O'Sullivan (2011), people who experience a certain level of stress (good stress or eustress) can actually be more productive in that particular moment and produce more effectively than if the stress was eliminated. Maybe eustress is associated with momentary mental state (e.g., flow) because eustress is the result of a positive cognitive appraisal of momentary stressors and consequently, it is not related to a more stable state such as engagement.

According to the flow model, experiencing flow encourages a person to persist at and return to an activity because of the experiential rewards it provides, thereby fostering the growth of skill over time. In several studies, flow was associated with commitment and achievement during the high school years (Nakamura, 1988; Nakamura & Csikszentmihalyi, 2002), coinciding with the results of the present study that also showed that flow experience encourages engagement in undergraduate students.

As expected, the theoretical model that relates the variables studied here has remained constant across cultures because the basic psychological patterns remained invariant. Instead, the levels in which the variables appear in both countries

can vary. The second aim of this research then was to compare the levels of self-efficacy, eustress, flow, and engagement between the Philippines and Argentina. The results have shown that Argentinean students scored higher on self-efficacy, flow, dedication, and absorption (the last two dimensions of engagement), whereas the Filipino students scored higher on eustress. Note that with the exception of absorption, these differences explain a moderate proportion of explained variance.

The most relevant differences between countries seem to be in the levels of self-efficacy, flow, eustress, and dedication (a dimension of engagement). According to Klassen (2004), cultural context or cultural dimension such as individualism and collectivism might be associated with efficacy beliefs. Scholars have consistently shown that Asian students (collectivist cultures) report lower self-efficacy than non-Asian students (individualistic countries) (Leung, 2001; Mau, 2000; Scholz, Doña, Sud, & Schwarzer 2002) even though Asian students were more successful in terms of academic achievement (Yan & Gaier, 1994). Some authors explain that the lower self-efficacy of Asian groups is the result of an emphasis on the value of humility or modesty, whereas in Western culture pride and ability are highly valued (Eaton & Dembo, 1997; Salili, Chiu, & Lai, 2001). Moreover, hard work and effort are more highly valued than ability in Asian cultures while, as it is well known, Western cultures emphasize individual achievement and competitiveness (Ostrov & Offer, 1980). This is explained by the strong emphasis that Filipinos give to social harmony (Markus & Kitayama, 1991). If students will highlight their beliefs on their capabilities, it may be construed as a way to stand out and be recognized as being unique. Such recognition leads to a separation from the group, which is something highly frowned upon in interdependent cultures.

Despite the Philippines and Argentina being classed as collectivistic countries, there is still room for different degrees of collectivism between them. This could explain the difference perceived higher level of self-efficacy in Argentineans. The Philippine culture has been characterized by putting greater emphasis on social acceptance, group identity, and smooth interpersonal relationships (Church, 1987). As a result, it is highly likely that the importance attributed to the group led students not to appreciate highly individualistic ability such as self-efficacy. However, it is probable that Argentinean students understand "studying" as an opportunity for personal success, as well as a way to demonstrate their personal abilities. "Studying" for Argentinean students may be another way to stand out from others and express one's unique attributes (Markus & Kitayama, 1991).

Yan and Gaier (1994) suggest that individualist cultures emphasize self-reliance. This is consistent with attributing success to personal factors such as ability. Moreover, Tafarodi and Swann (1996) argue that in a collectivist culture, people are expected to defer to the wishes of others. This limits choice and self-perceived control, which are related to flow and engagement. A person needs to feel control, to be the causal agents of their actions

to experience flow and engagement during an activity (Csikszentmihalyi et al., 2005; Moreno Murcia, Cervello Gimeno, & González-Cutre Coll, 2006; Saeed & Zyngier, 2012). It is probable that the decision of Filipino students to study at the University may be the result of the desire to satisfy parental expectation more than a personal decision. Consequently, they experience lower levels of vigor, dedication and flow than Argentinean students. A recent study by Bernardo (2010) in Filipino students has shown the influence of parents on the choices student have in terms of their college education, gives emphasis to the interdependent element in the decision-making process of students.

For Filipino students, group's needs are more important than individual goals. It is likely that they experience less flow and engagement during individualistic activities such as studying. Studying is not always an individualistic activity, because it may also exist in a collaborative learning environment, which is often used interchangeably with cooperative learning, group learning, peer learning, learning community, and constructive learning (Campbell & Li, 2006). As a result, in this study, we focused only on individual experience during learning. Likewise, it is also possible that the Argentinean students prefer to work individually so that they can have full control of the final product, and this experience of full control could promote flow and study engagement.

On the other hand, Filipino students showed higher levels of eustress than Argentinean students; this mean that Filipino students have more positive psychological response to academics stressors than Argentinean students. Cross-cultural research on social comparison has found that people in collectivist countries tend to make upward comparisons, whereas people in individualist countries tend to make downward comparisons (Chung & Mallery, 2000; White & Lehman, 2005). Maybe Filipino students tend engage in upward social comparison with their classmates and may result in the desire to improve their personal outcomes. This way Filipino student develops better psychological resources to face academic stressors.

Limitations and Future Research Directions

A limitation of the present study comes from the use of a one-time self-report, which means that there is an inherent method effect contributing to the strength of all of the correlations. The study was based on cross-sectional data; therefore, the direction of the effects in the models is not clear. Moreover, samples were relatively small (around 170 students by country), which we recruited from one university by country, and it may not represent a culturally diverse group. Despite the fact that both groups of students were in their first year of university, it is important to consider that the Filipino students were younger than the Argentinean students. This variable could contribute to the differences found in levels of self-efficacy. Then, it would be important to consider age variable in future studies. Future research efforts directed at studying engagement using methods other than self-reporting, at different times and different level of education will be necessary.

Furthermore, it is worth noting the importance of the study of precursors of study engagement using longitudinal studies.

AUTHOR NOTES

Belén Mesurado is associate researcher at Interdisciplinary Center of Mathematical and Experimental Psychology Research (CIIPME) – National Council of Scientific and Technological (CONICET), Buenos Aires, Argentina. Her research interests are individuals' positive development and optimal experience in children and adolescents. **María Cristina Richaud** is Director of Interdisciplinary Center of Mathematical and Experimental Psychology Research (CIIPME) – National Council of Scientific and Technological Research (CONICET), Buenos Aires, Argentina. Her research interests include socio-emotional and cognitive development in children and adolescents. **Niño José Mateo** is assistant professor at De La Salle University, Manila, The Philippines. His research interests include counseling and educational psychology.

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