Threats or Opportunities That Undermine or Facilitate First-Year University Students' Levels of Academic Self-Efficacy

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University students experience new academic demands during their transition from school to college. This study explored variables that positively or negatively influence first-year university students' levels of academic self-efficacy, providing insights into teachers' practices and Higher Education Institutions. Data were collected at two points over the course of 6 months from a convenient sample of 311 students, and regression-based path analysis was undertaken using mediation and moderation analysis. The findings showed that positive emotions, negative emotional states, motivational processes, and internal states affect students' academic performance, beliefs, and judgments of their academic self-efficacy. More specifically, the results revealed that students' emotions, such as gratitude, negative emotional states, intrinsic motivation, perceptions of academic control, and motivational processes named obsessive and harmonious passion undermine or facilitate students' academic self-efficacy levels. Limitations and recommendations for future research, as well as practical implications for counselors and teachers, leaders and administrators, and students, are discussed.

Keywords: gratitude, passion, perceptions of academic control, intrinsic motivation, negative emotional states, academic self-efficacy

INTRODUCTION

First-year university students drop out more than do students of any other year (Cole, 2017) because emotional and academic-related demands are more significant in college than in school (UL-Haq, et al., 2018). During their transition to higher education, these students experience high levels of *stress, anxiety, and depression* (SAD), which impact how they perceive academic tasks (Hsu & Goldsmith, 2021) and challenge their cognitive and developmental processes (Kumari, et al., 2019). Thus, students require specific competencies to cope with educational demands and to succeed (Blazquez, et al., 2018). For example, personal resources, such as *academic self-efficacy* (ASE), are crucial in students' accomplishments and positive educational experiences (Bandura, 1994, 2010). This study reports on an investigation into variables that become the threats or opportunities that undermine or facilitate students' ASE levels over one academic semester at a large Higher Education Institution (HEI) in Chile. The findings provide valuable insights into teachers' practices and teacher education.

The primary objective of the HEI, where the study was conducted, has been to prevent at-risk students from failing and dropping out. Thus, it has been crucial for this HEI to implement strategies focused on developing students' cognitive skills, learning capabilities, and communication and writing abilities to support them during their transition into college. However, learning about students' emotions and focusing on their internal states, perceptions of academic control, and motivational processes, such as harmonious and obsessive passion, negative emotional states, or academic self-beliefs, has not been central to its action plan. Consequently, the impact of those initiatives has not been relevant. Therefore, it is significant for us to focus on those variables and to contribute to education through valuable insights for leaders, administrators, and teachers to make informed academic decisions based on this evidence and to incorporate them into their practices and professional development.

Emotions and emotional states can influence cognitive processes and performance (Frazier, et al., 2019; Zainoodin, et al., 2021) as well as individuals' self-efficacy judgments (Bandura, 2010). For example, students could strengthen their ASE by reducing negative emotional states (Bandura,1994). Furthermore, according to Ryan and Deci (2017), when students perceive themselves as being in control over challenging tasks, they perform better than if they do not. They added that these perceptions are also relevant to their behaviors and academic performance and their academic capability beliefs as well. Besides, because humans are highly social, it is crucial to focus on the social functions of emotions referred to as self-transcendent and positive emotions (Stellar, et al., 2017). More specifically, we analyzed *gratitude* and its effect on students' ASE. Most studies on self-transcendent emotions have focused on religious and spiritual well-being perspectives, philosophical and theological accounts, and how positive emotions promote personal resources, such as self-efficacy (Bandura, 2010; Fredrickson, 2000a, 2001). However, there is a need for more research on the link between *gratitude* and ASE among college students, which is one of the gaps that we intended to fill within the broader literature related to educational settings.

Theoretical Consideration

We relied on Kahneman's *Dual Process Theory* (Kahneman, 2011), which states that the mind operates using two parallel systems concerning human judgment and decision-making: *System 1* (thinking fast) and *System 2* (thinking slow). *System 1* operates automatically without reflection and is based on intuition and emotions. *System 2* involves analytical mental processes associated with choice and concentration that begins with the impressions caused by *System 1* (emotions) as the basis for the resulting effortful mental activity that produces logical arguments that validate decision-making. For example, a student who experiences fear when speaking in public becomes so stressed that the first reaction is to leave the classroom (*System 1*). In other words, the student experienced an immediate need and intuitively decided to leave based on fear (an emotion that when prolonged in time might provoke stress and anxiety). Instead, the student could choose to stay and ask for help; this alternative decision-making involved rational and logical arguments that justified his/her decision-making (*System 2*). In addition, we relied on Fredrickson's *Broaden-and-build Theory* to learn about the relevance of students' emotions, such as gratitude. This theory states that when individuals experience positive emotions as stable, their personal and cognitive resources increase, which enables creative thinking because they generate enduring and long-lasting personal resources, such as self-efficacy (Bandura, 2010; Fredrickson, 2004).

We also utilized Vallerand et al.'s (2003) *Dualistic Model of Passion* (DMP) to assess students' passion from a motivational construct. These authors defined passion as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (p. 757). If individuals autonomously engage in an activity, they will experience harmonious passion; however, they will experience obsessive passion when the activity controls them (Vallerand, 2010). Similarly, motivation involves two types of internalization processes, namely, autonomous and controlled (Vallerand, 2012). Autonomous motivation emanates from the self and individuals can experience choice (Ryan & Connell, 1989). In contrast, controlled motivation comes from the self-imposed pressure to be in control (Deci & Ryan, 2000). Finally, we also relied on the *Self-determination Theory*, which, according to Ryan and Deci (2017), focuses on analyzing the psychological level of human behavior and personality development and on the different types of motivation, intrinsic, with an autonomous orientation, and extrinsic or controlled

motivation. The authors claimed that this theory is particularly concerned with people's basic psychological needs for autonomy, competence, and relatedness. Then, to learn about students' motivation, it is important to be aware of their inner psychological needs.

Based on the literature and the aforementioned theories, we predicted that students' levels of *harmonious passion, obsessive passion,* and *perceived academic control* (PAC) mediate the relationship between *intrinsic motivation* (IM) and *academic self-efficacy* (ASE). Also, we explored whether students' IM mediate the effect their level of *gratitude* has on their ASE. Besides, we aimed to analyze whether the indirect effect of *gratitude* on students' ASE through students' IM is moderated by *anxiety*. Then, we predicted that the relationship between students' levels of *stress, anxiety, and depression* (SAD) and ASE is mediated by PAC. Finally, we projected that the relationship between SAD and ASE is mediated by *gratitude*.

VARIABLES OF THE STUDY

Academic Self-Efficacy

Several researchers have defined *academic self-efficacy* (ASE) as students' self-perceived confidence that they can academically succeed (Dixon, et al., 2020). It is a personal and cognitive resource (Oriol-Granado, et al., 2017) that relates to people's judgment of their abilities to perform a task successfully based on their skills (Bandura, 2010). Moreover, students' ASE significantly correlates with their academic achievement outcomes (Dixon, et al., 2020). For example, Rohmani and Andriani (2021) investigated the relationship between ASE and burnout among university students during COVID-19 and reported high levels of exhaustion and stress, which negatively impacted students' ASE and academic achievement.

When students perceive themselves as self-efficacious, they persist in the task (Bandura, 2010). However, if they believe that they cannot perform safely, they avoid engaging in the activity (Bandura, 1977). Thus, how much students perceive themselves as academically efficacious will determine how persistent they can become when exposed to challenging tasks or academic problems (Eakman, et al., 2019) and how quickly they can recover their efficacy levels compared to those with low self-efficacy (Bandura, 2010). Thus, we became interested in exploring students' levels of ASE and what variables influence their capability beliefs.

Stress, Anxiety, and Depression

Several first-year university students might feel threatened because of the new academic pressures (Bhujade, 2017). Thus, they might experience fear, which is a negative emotion that, when sustained in time, provokes negative emotional states, such as *stress, anxiety, and depression* (SAD) (Kahneman, 2011). These negative emotional states influence students' levels of academic achievement (Sharma & Pandey, 2017) and reduce their coping skills and levels of *academic self-efficacy* (ASE) (Respondek, et al., 2017). Moreover, SAD might impact students' cognitive functioning and personal resources, thereby influencing their perceptions of academic control (Pekrun, et al., 2017). Consequently, SAD affects students' academic accomplishments (Kumari, et al., 2019) because they perceive the activity as a threat, debilitating productivity (Tang, et al., 2018). Also, stressed students only focus on past pessimistic experiences and worries about the future (Fagley, 2018). Thus, it is difficult for them to look at the bright side of their lives and be grateful because of it (Baumsteiger, et al., 2019), impacting their ability to build personal resources (Fredrickson, 1998). Based on *Kahneman's Dual Process Theory,* Fredrickson's *Broaden-and-build Theory,* and *the literature review,* we became interested in learning about the influence of SAD on students' perceptions of their *academic control,* their levels of *gratitude*, and *academic self-efficacy* beliefs. We found these relationships essential to explore in the Chilean context.

Gratitude

Gratitude is an emotion that boosts immediate positive affect and is rooted in the willingness to help others (McCullough, et al., 2001), triggering prosocial attitudes (Armenta, et al., 2017). Positive emotions allow individuals to become open-minded, facilitating flexibility (Fredrickson & Losada, 2005), and when

prolonged in time, these increase personal and cognitive resources (Bandura, 2010; Fredrickson, 1998). As noted earlier, several studies have connected positive emotions and self-efficacy, but there are not enough studies that specifically link *gratitude* to *self-efficacy* in college students. Therefore, we found that it was interesting and possible to hypothesize, in academic settings, that *gratitude* is an emotion that predicts individuals' ASE. Moreover, psychological researchers have demonstrated that when individuals focus on the positivity happening in their lives, it buffers against such hampering effects from negative experiences (Fagley, 2018), which minimizes negative emotional states and maximizes positive emotions (Kausar, 2018). Hence, we found it important to consider *gratitude* as a mediator between negative emotional states and ASE among Chilean students.

Feeling grateful is intrinsically pleasant; thus, gratitude becomes a predictor of *intrinsic motivation* (IM) (McCullough, et al., 2001). Consequently, this might influence individuals' levels of engagement with the task (Bureau, et al., 2017). Then, students who experience positive emotions intrinsically engage in their learning and become motivated in their academic settings (Froiland, 2018). Therefore, and based on Fredrickson's *Broaden-and-build Theory*, we could infer that those who are grateful and motivated are ready to learn because they believe they have the personal resources they need. *Gratitude* could be associated with people who value the positive aspects of life (Datu & Bernardo, 2020; Datu, et al., 2022) and it helps them to be less critical and to experience a more compassionate relationship with the self (Jiang, et al., 2022). Then, gratitude increases life satisfaction and positive emotions (Datu, et al., 2022), students intrinsically engage in the activity (Datu & Jose Mateo, 2020), and, therefore, gratitude reduces anxiety (Kendler, et al., 2003). However, if individuals perceive an event as exceeding their coping skills, they experience high levels of negative emotional states and lower coping self-efficacy (Frazier, et al., 2019). Therefore, life satisfaction might be impacted by how people deal with experiences and emotional information. Given these findings, *gratitude* might lead to students believing in their academic capabilities and feeling intrinsically motivated. Still, this effect might be different when there are more or fewer levels of negative emotional states associated, which we deemed important to analyze. Then, we aimed to analyze whether students' levels of negative emotional states moderated the relationship between gratitude and intrinsic motivation.

Perceived Academic Control

Perceived academic control (PAC) refers to the levels of control that students perceive they have over the influence of academic outcomes, and it might influence students' *academic self-efficacy* (ASE) (Zhao, et al., 2021). Thus, it is expected that when individuals feel in control, they experience *self-efficacy* (Skinner, 1996). However, if students do not adapt to challenging academic demands, they might experience *stress, anxiety, and depression,* impacting students' PAC (Respondek, et al., 2017). Likewise, negative emotional states undermine personal resources (Pekrun, et al., 2017); however, if individuals manage to reduce negative emotional states' reactions in the first place, they could find ways of strengthening *self-efficacy beliefs* (Bandura, 1994). These effects might be mediated by students' positive perceptions of their academic control (Pekrun, et al., 2010). Finally, when people feel they can control unpleasant situations, they perform better than when they do not believe they can (Ryan & Deci, 2017). Thus, when students experience positive perceptions of their academic control, they can alter events (Skinner, 1996). Given these findings, it might be hypothesized that students' PAC might mediate the effects of *negative emotional states* on *self-efficacy*.

Intrinsic Motivation

Intrinsic motivation (IM) comes from within (Puspitarini & Hanif, 2019), and it is an internal state that results in goal-orientated behavior (Deci & Ryan, 2000). IM individuals freely participate in an activity because of the inherent satisfaction of just engaging in it, so they experience a high interest in the task and freedom of pressure (Hammerschall, 2019). Several conceptual models focus on self-efficacy as influencing motivation. For example, some researchers focused on self-competence as the basis for individuals' self-motivation and claimed that self-influences and self-efficacy beliefs partly govern motivation (Bandura, 1994, 2010). However, although Ryan and Deci (2000) stated that competence is a primary element in *IM*,

they highlighted that IM individuals inherently explore challenges to experience self-capacities. Then, IM individuals are self-driven, autonomous, and capable of becoming self-efficacious (Buch, et al., 2016). Thus, after reviewing the existing literature and based on the *Self-determination Theory*, we were interested in knowing how intrinsically self-motivated students in the Chilean context were about academics and whether this impacted their ASE levels.

Obsessive and Harmonious Passion

Obsessive passion (OP) and *harmonious passion* (HP) are motivational processes (Vallerand, 2015). Individuals who are obsessively passionate about an event that they consider essential and enjoyable feel an external force that possesses them, which might conflict with other aspects of their lives (Wang, et al., 2008). OP relates to a strong desire that involves a loss of control, and individuals become slaves to their passion (Vallerand, et al., 2003). OP students experience negative emotional consequences from their controlled engagement with the activity and high levels of non-self-determined forms of motivation (Kent, et al., 2018). Given these findings and based on the *Dualistic Model of Passion and the Self-determination Theory,* we hypothesized that IM is negatively related to OP, and OP to *academic self-efficacy* (ASE). Contrastively, *HP* individuals freely decide when to engage in the activity (Vallerand, et al., 2003). The task occupies a significant part of their lives without invading space in their identities (Vallerand, 2012) because they control the activity. The activity is in harmony with other aspects of their lives (Wang, et al., 2008), leading to adaptive outcomes (Vallerand, 2010). Autonomously motivated students enjoy their college experiences and attain higher marks than do those regulated by external contingencies (Black & Deci, 2000). Consequently, HP and IM are related due to the positive emotions associated with the activity (Vallerand, 2015). Moreover, students need to develop and to sustain passion and motivation for an enduring sense of efficacy (Rampa, 2014). Thus, these results reveal that IM and HP become significant variables to consider that predict ASE.

The Present Study

We addressed the following research question: What variables influence positively or negatively students' beliefs in their academic self-efficacy over some time while attending a private and large Higher Education Institution in Chile? According to the predictions among the variables presented earlier, we explored and analyzed the factors that positively or negatively impacted students' academic self-efficacy levels at two points over 6 months. Moreover, we examined the possible relations among the variables of the study. For this, we isolated the variables of interest that led to the four longitudinal hypotheses that we tested based on a thorough review of the literature discussed. In each hypothesis, we tested different portions of the conceptual model designed in Figure 1.

The hypotheses were as follows:

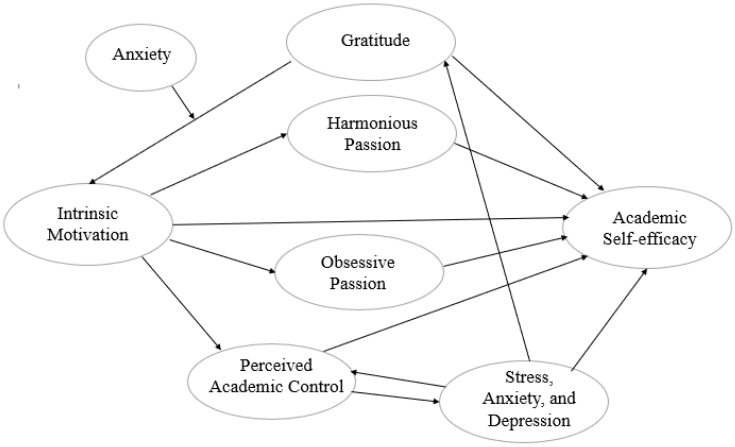
H1: *Students' levels of harmonious passion (HP) and obsessive passion (OP) for academics, as well as students' perceived academic control (PAC) at T2, mediate the relationship between intrinsic motivation (IM) at T1 and academic self-efficacy (ASE) at T2. Therefore, high levels of IM at T1 are associated with higher levels of HP and PAC at T2 and, in turn, with higher levels of ASE at T2. Then, low levels of IM at T1 are associated with higher levels of OP at T2 and, in turn, with lower levels of ASE at T2.*

H2: *The relationship between gratitude at T1 and academic self-efficacy (ASE) at T2 is mediated by intrinsic motivation (IM) at T2; therefore, high levels of gratitude at T1 are associated with higher levels of IM at T2 and, in turn, with higher levels of ASE at T2.*

H3: *The indirect effect of gratitude at T1 on students' academic self-efficacy at T2 through students' IM at T2 is moderated by anxiety at T1; therefore, it is expected that the moderated mediation effect will be statistically significant.*

H4: *The relationship between stress, anxiety, and depression (SAD) at T1, and academic self-efficacy (ASE) at T2 is mediated by perceived academic control (PAC) at T2. Therefore, high levels of SAD at T1 are associated with lower levels of PAC at T2 and, in turn, with lower levels of ASE at T2. Then, the relationship between SAD at T1, and ASE at T2 is mediated by gratitude at T2; therefore, high levels of SAD at T1 are associated with lower levels of gratitude at T2 and, in turn, with lower levels of ASE at T2.*

FIGURE 1
HYPOTHETICAL CONCEPTUAL MODEL THAT LINKS TOGETHER ALL THE VARIABLES IN ONE MODEL



METHOD

Participants' Background and the Study's Procedure

Almost 58% of the students who enroll at this HEI are first-generation students. Their educational and psychosocial outcomes are weak, and 80% of these students belong to a low socio-cultural and economic background. It is relevant to mention that the Chilean State has sponsored university loans over the past three decades, which has increased the indebtedness of families, especially first-generation students from the low socioeconomic stratum in Chile (Fleet & Guzmán-Concha, 2017). This still present reality has left many students economically vulnerable after graduation (Bellei, et al., 2014).

The current study was a two-wave research based on data collected through online questionnaires. The participants were first-year university students enrolled in 2019 at a large university in Chile. After receiving human subject approval from the institution where the study took place, the survey was administered. Phase 1 consisted of the total population from where the sample was drawn, involving 1,766 students. A total of 487 questionnaires were fully completed via SurveyMonkey, yielding a first-wave response rate of 27.57% (i.e., 487 / 1,766). Phase 2 comprised the participants who fully responded to the questionnaires in Phase 1. A total of 311 students completed the questionnaires in Phase 2, which represented a mortality rate of 36.13% (i.e., 176 / 487) and a second-wave response rate of 63.86% (i.e., 311 / 487). The breakdown of first-year university students who responded at Phase 1 and Phase 2 is listed in Table 1. Information regarding the participants' demographics across the 6-month study period is presented in Table 2.

TABLE 1
FIRST-YEAR UNIVERSITY STUDENTS WHO RESPONDED AT PHASE 1 (*N* = 487) AND AT PHASE 2 (*N* = 311)

Programmes	**Phase 1**		**Phase 2**	
	n	***%***	***n***	***%***
Psychology	229	47.0	133	42,8
Sociology	10	2.1	5	1.6
Social Work	25	5.1	9	2.9
Physical Education	128	26.3	98	31.5
Elementary Education	6	1.2	3	1
Music Education	2	0.4	2	0.7
Preschool Education	13	2.7	6	1.9
English Pedagogy Education	60	12.3	44	14.1
Psychopedagogy	14	2.9	11	3.5
Total	487	100	311	100

TABLE 2
PARTICIPANTS' DEMOGRAPHICS ACROSS THE 6-MONTH STUDY PERIOD (PHASE 1, N = 487; PHASE 2, N = 311)

	Phase 1		**Phase 2**	
	n	**%**	***n***	**%**
Gender				
Women	277	56.9	175	56.6
Men	210	43.1	136	43.4
Age				
Below 20	384	78.4	245	78.9
21 – 30	89	18.4	54	17.4
31 or more	14	2.4	12	3.7
Parents level education				
Primary school	17	3.5	10	3.2
High school	171	35.1	110	35.4
Undergraduate	237	48.7	150	48.2
Graduate	62	12.7	41	13.2
Total	487	100	311	100

We performed a sensitivity power analysis using G*Power 3.1.9.7, a power analysis program for a variety of statistical tests (Faul, et al., 2009), to estimate the statistical power for our multiple regression analysis. Implementing the conventional criterion of .80 power, considering seven parameters in Hypothesis 1, four parameters in Hypothesis 2, and five parameters in Hypotheses 3 and 4, including only the participants who completed the two phases, our study was sufficiently powered to detect a predictor with a small effect size of $f2 = .02$ in each of the hypotheses (J. Cohen, 1992).

Instruments

As the method to estimate the score internal consistency of the items involved in each of the questionnaires of the study, we computed Cronbach's alpha values via SPSS (version 22) to determine whether the multiple items measuring the same constructs yielded reliable scores (see Table 3).

Intrinsic Motivation Inventory (IMI)

IMI assesses motivation in several situations and contexts, and it was measured via a 7-point, Likert-format scale. High scores represent high levels of intrinsic motivation, and low scores represent low levels of intrinsic motivation. Scores about the IMI yielded an α reliability coefficient of .87 in T1 and .86 in T2.

Perceived Academic Control Scale (PAC)

PAC is an 8-item instrument. Individuals rated the items using a 5-point, Likert-format scale. High scores represent high levels of perceived academic control, and low scores represent low levels of perceived academic control. Scores about the PAC scale yielded an α reliability coefficient of .71 in T1 and .72 in T2.

Passion Scale

The Passion Scale assesses *harmonious passion* (HP) and *obsessive passion* (OP) toward an activity. It was measured via a 7-point Likert-format scale. High scores represent high levels of passion, and low scores represent low levels of passion. Scores about the Passion Scale yielded an α reliability coefficient of .73 in T1 and .72 in T2. Scores about the HP Subscale yielded an α reliability coefficient of .80 in T1 and .78 in T2. Finally, scores about the OP Subscale yielded an α reliability coefficient of .66 in T1 and .69 in T2.

Gratitude Questionnaire-six Item Form (GQ-6)

Individuals rated the items of GQ-6 using a 7-point, Likert-format scale. High scores on the scale represent high levels of gratitude, and low scores represent low levels of gratitude. Scores about the GQ-6 yielded an α reliability coefficient of .74 in T1 and .70 in T2.

Depression, Anxiety, and Stress Scale-21 (DASS-21)

DASS-21 comprises three subscales (i.e., depression, anxiety, and stress), with seven items on each scale. It was measured via a 4-point, Likert-format scale. **High scores represent high symptoms in each subscale, and low scores represent low symptoms in each subscale.** Scores about the DASS-21 scale yielded an α reliability coefficient of .93 in T1 and .94 in T2. Scores about the Anxiety Subscale yielded an α reliability coefficient of .83 in T1 and .84 in T2; scores about the Stress Subscale yielded an α reliability coefficient of .85 in T1 and .87 in T2; and, finally, scores about the Depression Subscale yielded an α reliability coefficient of 0.87 in T1 and 0.87 in T2.

Academic Self-efficacy Inventory (ASEI)

The full 18-item ASEI measures three factors (i.e., effort in completing the task, confidence in the task, and task understanding). We focused on 6 of the 18 items; three were related to *effort in completing the task* and the other three to *confidence in the task*. It was measured via a 5-point, Likert-format scale. High scores represent high levels of academic self-efficacy, and low scores represent low levels of academic self-efficacy. Scores about the Academic Self-efficacy Inventory yielded an α reliability coefficient of .77 in T1 and .76 in T2.

TABLE 3
SUMMARY OF CRONBACH'S ALPHA (PHASE 1, *N* = 311)

Scales and Subscales	Number of items	Cronbach's Alpha (α) Time 1	Time 2	Range
IMI	9	.87	.86	1-7
PAC	8	.71	.72	1-5
Passion	12	.73	.72	1-7
HP	6	.80	.78	1-7
OP	6	.66	.69	1-7
GQ	6	.74	.70	1-7
DASS-21	21	.93	.94	1-4
Anxiety	7	.83	.84	1-4
Stress	7	.85	.87	1-4
Depression	7	.87	.87	1-4
ASE	6	.77	.76	1-5

Note. Intrinsic Motivation Inventory = IMI; Perceived Academic Control Scale = PAC; Harmonious Passion = HP; Obsessive Passion = OP; Gratitude Questionnaire = GQ; Depression, Anxiety and Stress Scale-21 = DASS-21**;** Academic Self-efficacy Inventory = ASE

DATA ANALYSIS

Little's (1988) Missing Completely at Random (MCAR)

Before engaging in the data analysis and presenting the findings, we performed a statistical test called Little's (1988) Missing Completely at Random (MCAR). The missing data of the study were 176 students who dropped out of the survey at Time 2. We tested the missing values for each of the items of the questionnaires. Because the statistical significance value in each scale and on the demographic variables was higher than .05, we concluded that the data were missing completely at random. (See Table 4 and 5.)

TABLE 4
LITTLE'S (1988) MISSING COMPLETELY AT RANDOM MCAR TEST (PHASE 1, N = 487)

Scales and Subscales	Chi-square	Degrees of freedom	*p* value
IMI	8.12	9	.521
PAC	3.66	8	.886
Passion	9.86	12	.628
HP	6.59	6	.360
OP	3.53	6	.739
GQ	7.74	6	.257
DASS-21	29.92	21	.093
Anxiety	10.56	7	.159
Stress	9.24	7	.235
Depression	5.66	7	.579
ASE	.54	6	.997

Notes. Intrinsic Motivation Inventory = IMI; Perceived Academic Control Scale = PAC; Harmonious Passion = HP; Obsessive Passion = OP; Gratitude Questionnaire = GQ; Depression, Anxiety and Stress Scale-21 = DASS-21**;** Academic Self-efficacy Inventory = ASE

TABLE 5
LITTLE'S (1988) MISSING COMPLETELY AT RANDOM MCAR TEST ON DEMOGRAPHIC VARIABLES (PHASE 1, N = 487)

Demographic variables	Chi-square	Degrees of freedom	*p* value
Gender	.037	1	.848
Age	.285	1	.593

Multiple Regression Analysis

To conduct a multiple regression analysis of the 311 complete responses in Phase 1 and Phase 2, we used Hayes's PROCESS Macro for SPSS version 22. We performed a multiple regression analysis to examine a variety of alternative explanations for the associations between multiple predictors on an outcome variable (Hayes, 2013), which we quantified using ordinary least squares (OLS), a common practice with observed variable path analysis. The analysis was conducted using a 95% confidence interval for the indirect effect with 5,000 bootstrap samples. We used moderation and mediation models as inferential statistical techniques to analyze the relations among variables (L. Cohen, et al., 2011). We predicted the extent to which changes in any of the independent variables (X) influenced students' levels of *academic self-efficacy* and students' levels of *stress, anxiety, and depression*, the dependent variables (Y). Therefore, we treated certain variables as mediators and others as moderators to analyze the strength of the relation between the X and Y. Moreover, we focused on the direct effect of independent variables on the dependent variable and the indirect and total effects via the mediators (Baron & Kenny, 1986).

To test Hypotheses 1, 2, and 4, we performed a mediation analysis using Model 4 of the PROCESS (Hayes, 2013). We analyzed simple mediation models to test Hypotheses 2 which included one mediator variable in each model. We wanted to determine whether changes in X were influencing and provoking changes in Y because of the presence of the mediator variable (Cole & Maxwell, 2003). We expected to find that the correlations were statistically significant. In the case of Hypotheses 1 and 4, we tested parallel multiple mediator models in which X influenced Y directly and indirectly through three mediators, in the case of Hypothesis 1, and through two mediators, in the case of Hypothesis 4. For Hypotheses 3, we performed a moderated mediation analysis, using Model 7 of the PROCESS (Hayes, 2013) to analyze the conditional effect that occurs when the impact of X on Y through a mediator variable might change depending on the levels of the moderator (Baron & Kenny, 1986).

RESULTS

Preliminary Analysis

For each of the variables of the study, means, standard deviation, and Pearson's *r* correlations with the other variables were calculated and are reported in the correlation matrix in Table 6 (n = 311). Two-tailed *p* values were reported for each of these correlations. Because the purpose of this study was to examine mediation and moderation models assumed to underlie these data, we did not interpret the correlation matrix.

TABLE 6
MEANS, STANDARD DEVIATIONS, AND CORRELATION COEFFICIENTS

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	IM_T1	4.31	.57	1																			
2	IM_T2	4.23	.52	.38	1																		
3	PAC_T1	4.01	.52	.32	.24	1																	
4	PAC_T2	4.00	.51	.20	.33	.47	1																
5	PPassion_1	4.44	.85	.33	.17	.03	-.04	1															
6	PPassion_2	4.32	.85	.21	.32	-.02	-.05	.58	1														
7	HP_T1	5.36	1.08	.42	.28	.37	.18	.75	.46	1													
8	HP_T2	5.29	1.05	.27	.48	.22	.29	.37	.73	.54	1												
9	OP_T1	3.53	1.14	.10	-.01	-.30	-.22	.78	.44	.18	.03	1											
10	OP_T2	3.34	1.19	.07	.04	-.22	-.33	.52	.80	.19	.17	.60	1										
11	G_T1	5.49	.97	.24	.19	.35	.25	.17	.06	.39	.24	-.11	-.13	1									
12	G_T2	5.72	.89	.10	.22	.30	.33	.00	.02	.20	.27	-.19	-.21	.50	1								
13	SAD_T1	1.90	.59	-.01	-.06	-.38	-.29	.06	.01	-.26	-.28	.34	.26	-.34	-.30	1							
14	SAD_T2	1.91	.61	.04	-.11	-.26	-.26	.15	.03	-.15	-.27	.37	.28	-.22	-.31	.67	1						
15	AnxietyT1	1.88	.66	.04	-.01	-.38	-.27	.12	.03	-.18	-.25	.35	.25	-.25	-.26	.91	.64	1					
16	AnxietyT2	1.92	.69	.02	-.05	-.27	-.24	.18	.07	-.11	-.21	.36	.27	-.18	-.22	.61	.92	.65	1				
17	AA_T1	3.71	.61	.25	.25	.32	.26	.30	.14	.45	.30	.02	-.06	.29	.15	-.33	-.22	-.26	-.18	1			
18	AA_T2	3.76	.62	.20	.37	.28	.36	.15	.27	.31	.46	-.07	-.02	.25	.29	-.32	-.32	-.28	-.27	.60	1		
19	Gender	1.44	.51	-.18	-.17	-.04	-.05	.01	.00	-.03	-.06	.05	.05	-.20	-.20	-.14	-.11	-.16	-.14	-.03	-.01	1	
20	Age	4.16	4.02	.15	.19	.08	.10	-.04	-.06	.02	.03	-.08	-.12	.07	.09	-.14	-.15	-.10	-.13	.10	.14	.10	1

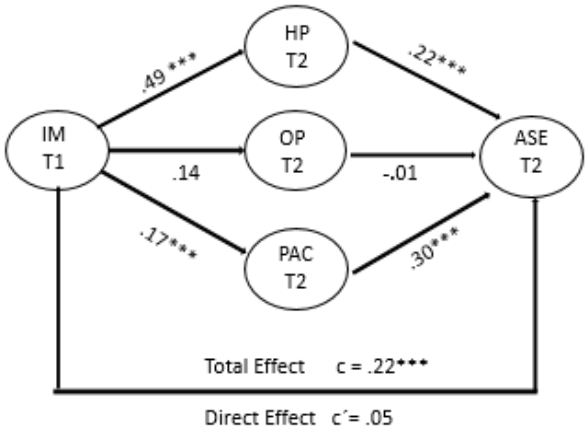
Note. N = 311. *p < .05, **p < .01, ***p < .001 **. Correlation is significant at the .01 level (2 tailed) *. Correlation is significant at the .05 (2 tailed). Intrinsic Motivation = IMI; Perceived Academic Control = PAC; Passion = PASS; Harmonious Passion = HP; Obsessive Passion = OP; Gratitude = G; Depression, Anxiety and Stress = SAD; Anxiety = ANX; Academic Self-efficacy = ASE

RESEARCH HYPOTHESES ANALYSIS

Hypothesis 1

We tested a parallel multiple mediator models and conceptualized *harmonious passion* (HP), *obsessive passion* (OP), and *perceived academic control* (PAC) at T2 as potential mediators, and we tested whether the mediators were caused by *intrinsic motivation* (IM) and whether they were a cause of *academic self-efficacy* (ASE). We determined that students' IM at T1 was strong and statistically significantly and positively related to students' levels of HP at T2 (r = .49, p < .001). IM at T1 also was statistically significantly and positively associated with students' levels of PAC at T2, but this correlation coefficient was weak (r = .17, p < .001). Finally, students' IM at T1 was small and not statistically significantly related to *OP* at T2 (r = .14, p = .24). Although IM was a statistically significant predictor for ASE, and for two of the three mediator variables, HP and PAC, the direct effect was no longer statistically significant in the presence of these mediator variables (C' = .05, p = .32). We concluded that students' levels of HP at T2 were weak but statistically significant and positively related to students' levels of ASE at T2 (r = .22, p < .00001). Our findings revealed that students' levels of PAC at T2 were moderate and statistically significant and positively related to students' ASE at T2 (r = .30, p < .00001). However, students' levels of OP at T2 were weak and not statistically significantly and negatively related to students' ASE at T2 (r = -.01, p = .94). (See Figure 2.)

FIGURE 2
PARALLEL MULTIPLE MEDIATOR: HARMONIOUS PASSION AND PERCEIVED ACADEMIC CONTROL MEDIATE THE RELATIONSHIP BETWEEN INTRINSIC MOTIVATION AND ACADEMIC SELF-EFFICACY



The 95% confidence intervals of the indirect effects of IM on ASE are displayed in Table 7. The 95% confidence interval about both the indirect effect of IM on ASE through HP and the indirect effect of IM on ASE through PAC did not contain zero. Therefore, these two indirect effects were statistically significantly different from zero. However, the 95% confidence interval for the indirect effect of IM on ASE via OP did contain zero; therefore, the indirect effect was not statistically significant. To conclude, we found that HP and PAC at T2 mediated the relationship between IM at T1 and ASE at T2, but OP at T2 did not.

TABLE 7
COMPLETELY STANDARDIZED INDIRECT EFFECTS THROUGH IM AND ASE

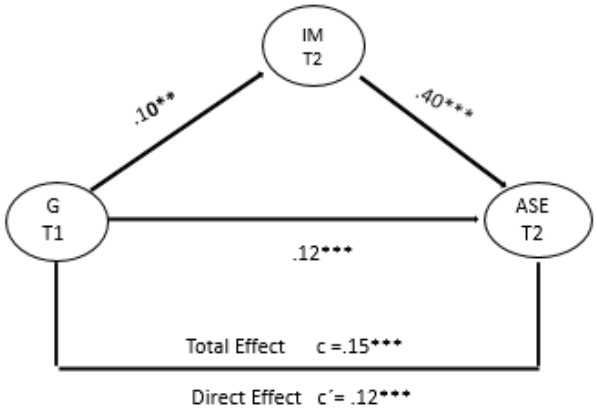
IV	DV	Mediator	β	BootSE	BootLLCI Lower 95%	BootULCI Upper 95%
IM (T1)	ASE (T2)	HP (T2)	.10	.024	.058	.15
IM (T1)	ASE (T2)	OP (T2)	-.01	.005	-.013	.010
IM (T1)	ASE (T2)	PAC (T2)	.05	.019	.015	.092

Note. Independent Variable = IV; Dependent Variable = DV; Intrinsic Motivation = IM; Academic Self-efficacy = ASE; Harmonious Passion = HP; Obsessive Passion = OP; Perceived Academic Control (PAC).

Hypothesis 2

We analyzed a simple mediation model with one mediator variable, *intrinsic motivation* (IM), and two pathways by which Gratitude was proposed as influencing *academic self-efficacy* (ASE). (See Figure 3.) We concluded that students' *Gratitude* at T1 was small and statistically significant and positively related to students' levels of IM at T2 ($r = .10$, $p < .01$). *Gratitude* was a small but statistically significant predictor for ASE (C' = .12, $p < .001$), and the total effect remained statistically significant, but the correlation coefficient was low (C = .15, $p = .001$). Students' levels of IM at T2 were moderate and statistically significant and positively related to students' levels of ASE at T2 ($r = .40$, $p < .00001$). Thus, it was found that the mediator, IM, was statistically significant in the model and that the independent variable, Gratitude, did not lose its statistical significance when IM was included in the model.

FIGURE 3
SIMPLE MEDIATION: INTRINSIC MOTIVATION MEDIATES THE RELATIONSHIP BETWEEN GRATITUDE AND ACADEMIC SELF-EFFICACY



When introducing IM, it can be observed that there was also a statistically significant indirect effect (95% CI = .026, .122) because the confidence interval did not contain a zero. Thus, we can interpret that IM at T2 mediated the relationship between *gratitude* and ASE at T2. The 95% confidence intervals of the indirect effects of *gratitude* on ASE are displayed in Table 8.

TABLE 8
COMPLETELY STANDARDIZED INDIRECT EFFECTS THROUGH GRATITUDE AND ASE

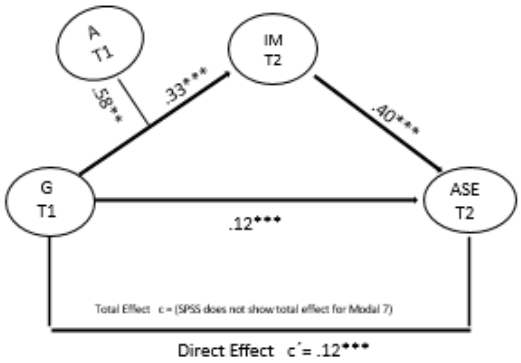
IV	DV	Mediator	β	BootSE	BootLLCI Lower 95%	BootULCI Upper 95%
G (T1)	ASE (T2)	IM (T2)	.06	.02	.026	.1142

Note. Independent Variable = IV; Dependent Variable = DV; Gratitude = G; Academic Self-efficacy Inventory = ASE; Intrinsic Motivation = IM.

Hypothesis 3

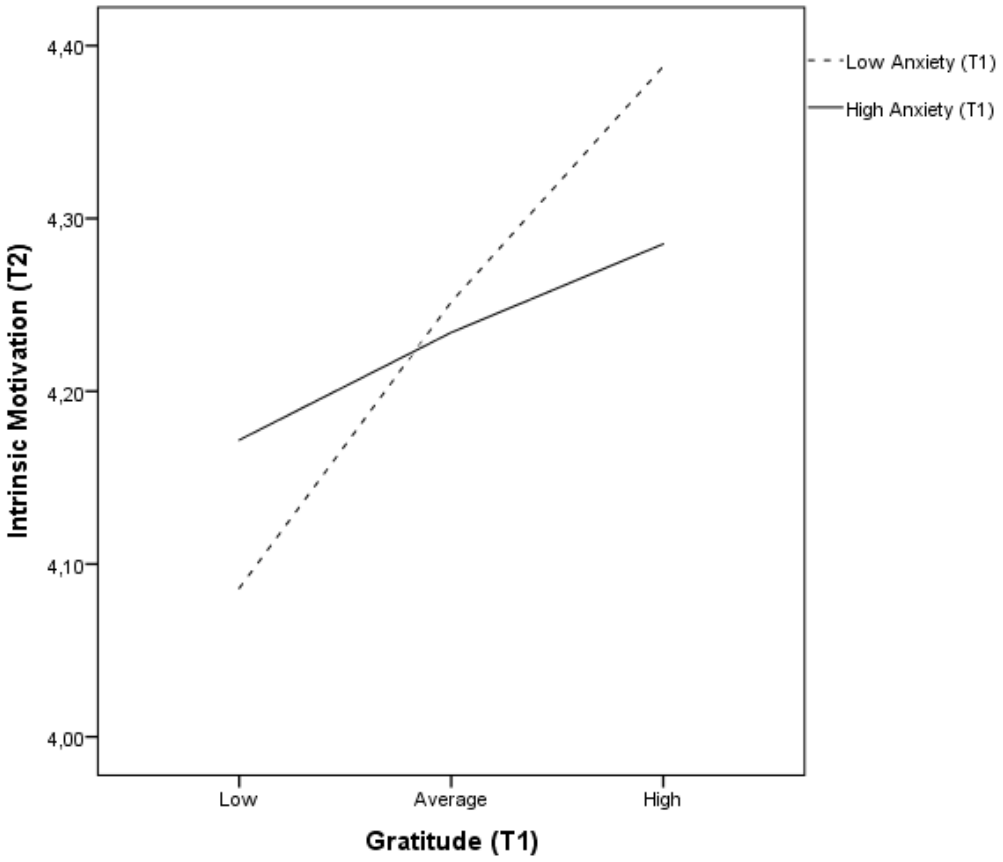
We included the same variables used in Hypothesis 2, but we added a moderator of the indirect effect of *gratitude* on *academic self-efficacy* (ASE) through *intrinsic motivation* (IM), and *anxiety* at T1 (see Figure 4); this new path affected the relation between students' *gratitude* at T1 and students' IM at T2. Consequently, this time, students' *gratitude* at T1 was moderate (not as low as it was in Hypothesis 2) and statistically significantly and positively related to students' levels of IM at T2 ($r = .33$, $p < .001$), as well as students' levels of *anxiety* at T1 ($r = .58$, $p < .01$), whose correlation coefficient was strong. (See Figure 4, Table 9, Table 10, and Table 11.)

FIGURE 4
MODERATED MEDIATION MODEL: ANXIETY (W) HAS A NONZERO WEIGHT IN THE FUNCTION LINKING THE INDIRECT EFFECT OF GRATITUDE (X) ON ACADEMIC SELF-EFFICACY (Y) THROUGH INTRINSIC MOTIVATION, TO THE MODERATOR



The interaction between *gratitude* at T1 and *Anxiety* at T1 was negatively statistically significant ($r = -.10$, $p < .01$), albeit small (see Table 9), which means that there is an inverse relationship between the effect of the independent variable and the product or interaction. In other words, when the levels of *gratitude* increase, the effect of the interaction decreases. Students with low levels of *anxiety* (T1) and low levels of *gratitude* (T1) manifested low levels of IM (T2), compared to those with high levels of *anxiety* (T1). Besides, students with low levels of *anxiety* (T1) and high levels of *gratitude* (T1) presented higher levels of IM (T2) compared to those with high levels of *anxiety* (T1). Thus, higher levels of IM (T2), as well as higher levels of *gratitude* (T1), were observed in students who also presented lower levels of *anxiety* than in those who were more anxious (see Figure 5). Finally, in the case of students experiencing low levels of *Anxiety* (T1), the slope was steeper than for those experiencing high levels of *anxiety* (T1).

FIGURE 5
INTERACTION BETWEEN GRATITUDE AND ANXIETY



The effect of *gratitude* at T1, on ASE at T2, through the mediator IM at T2 changed due to the levels of *anxiety* at T1 (the moderator). (See Table 9, Table 10, and Table 11.) We concluded that *anxiety* at T1 influenced the strength of the indirect effect of *gratitude* at T1 on ASE at T2, through IM at T2, and the moderated mediation effect was statistically significant. The conditional effect of *gratitude* at T1 on IM at T2 with *anxiety* at T1 as the moderator was more influential among students experiencing less *anxiety* (r = .20, p < .001) than among those experiencing greater *anxiety* (r = .08, p < .01). (See Table 10.) The conditional indirect effect of *gratitude* on ASE through IM was statistically different from zero at the different levels of the moderator because the confidence interval did not contain a zero (see Table 11.) Thus, the mediation is moderated because the confidence interval did not contain a zero (95% CI = [-.081, -.014]). (See Table 11.)

TABLE 9
INTRINSIC MOTIVATION (IM) AT T2: A DEPENDENT VARIABLE MODEL

IM = as DV	**β**	**SE**	**LLCI Lower 95%**	**ULCI Upper 95%**
Gratitude (T1)	.33***	.09	.160	.509
Anxiety (T1)	.58**	.20	.178	.978
Gratitude x Anxiety (Int_1)	-.10**	.04	-.177	-.030

Note. *p < .05, **p < .01, ***p < .001

TABLE 10
CONDITIONAL EFFECT OF THE FOCAL PREDICTOR GRATITUDE (G) AT T1 ON INTRINSIC MOTIVATION (IM) AT T2 WITH ANXIETY AS THE MODERATOR

Conditional effect of G over IM at values of the moderator	**β**	**SE**	**LLCI Lower 95%**	**ULCI Upper 95%**
-1 SD Anxiety (T1)	.20***	.05	.109	.293
Mean Anxiety (T1)	.16***	.04	.085	.228
+1 SD Anxiety (T1)	.08*	.03	.019	.143

Note. *p < .05, **p < .01, ***p < .001

TABLE 11
CONDITIONAL INDIRECT EFFECT OF GRATITUDE (G) AT T1 ON ACADEMIC SELF-EFFICACY (ASE) AT T2, AND INDEX OF MODERATED MEDIATION FOR ANXIETY (ANX) AT T1

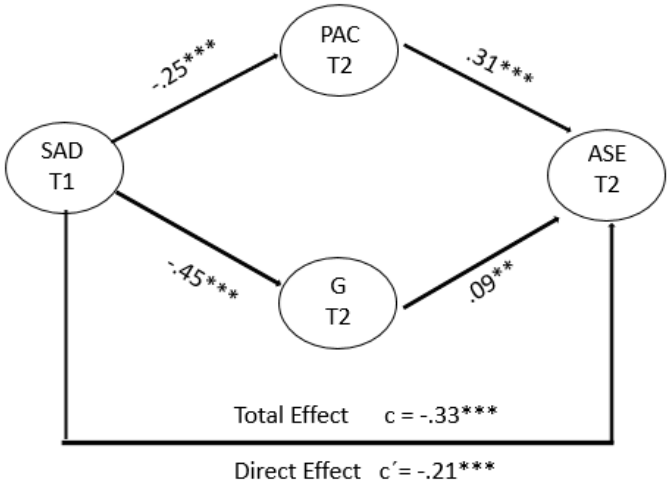
Conditional indirect effect of Gratitude T1 on ASE T2	**β**	**BootSE**	**BootLLCI Lower 95%**	**BootULCI Upper 95%**
-1 SD Anxiety (T1)	.08	.02	.041	.140
Mean Anxiety (T1)	.06	.02	.031	.108
+1 SD Anxiety (T1)	.03	.01	.007	.065
Index of moderated mediation for ANX T1	**β**	**BootSE**	**BootLLCI Lower 95%**	**BootULCI Upper 95%**
Anxiety (T1)	-.04	.01	-.081	-.014

Hypothesis 4

We tested a parallel multiple mediator models in which *stress, anxiety, and depression* (SAD) at T1 influenced *academic self-efficacy* (ASE) at T2 directly and indirectly through *perceived academic control* (PAC) at T2 and *gratitude* at T2, the two mediators of the model. We tested whether the mediators were caused by SAD and whether they were a cause of ASE. We concluded that students' levels of SAD at T1 were small-to-moderate and statistically significant and negatively related to students' PAC at T2 (r = -.25, p < .00001) and students' levels of SAD at T1 were moderate-to-strong and statistically significant and negatively associated with students' levels of *gratitude* at T2 (r = -.45, p < .00001). Thus, SAD at T1 was not only a statistically significant and negative predictor for both mediators, PAC, and *gratitude*, but also for ASE at T2 (C' = -.21, p < .001).

Students' levels of PAC at T2 were moderate and statistically significant and positively related to students' levels of ASE at T2 (r = .31, p < .00001) and their levels of *Gratitude* at T2 were small but statistically significant and positively related to students' ASE at T2 (r = .09, p < .01) (see Figure 6).

FIGURE 6
PARALLEL MULTIPLE MEDIATORS: PERCEIVED ACADEMIC CONTROL AND GRATITUDE, MEDIATE THE RELATIONSHIP BETWEEN STRESS, ANXIETY, AND DEPRESSION, AND ACADEMIC SELF-EFFICACY



The 95% confidence intervals of the indirect effects of SAD on ASE are displayed in Table 12. The indirect effect of SAD on ASE through PAC and the indirect effect of SAD on ASE through *gratitude* do not contain zero. To conclude, I found that PAC and *gratitude* at T2 mediated the relationship between SAD at T1 and ASE at T2.

TABLE 12
COMPLETELY STANDARDIZED INDIRECT EFFECTS THROUGH STRESS, ANXIETY, AND DEPRESSION (SAD), AND ACADEMIC SELF-EFFICACY (ASE)

IV	DV	Mediator	β	BootSE	BootLLCI Lower 95%	BootULCI Upper 95%
SAD (T1)	ASE (T2)	PAC T2	-.07	.02	-.124	-.036
SAD (T1)	ASE (T2)	G T2	-.04	.02	-.095	-.003

Note. Independent Variable = IV; Dependent Variable = DV; Stress, Anxiety, and Depression = SAD; Academic Self-efficacy Inventory = ASE; Perceived Academic Control = PAC; Gratitude = G.

DISCUSSION

Research Hypotheses Discussion

Hypothesis 1

We wanted to know whether *intrinsic motivation* (IM) at T1 influenced the mediators (*harmonious passion* [HP], *obsessive passion* [OP], and *perceived academic control* [PAC] at T2) and whether they were a cause of *academic self-efficacy* (ASE). We concluded that students' IM at T1 was strongly and statistically significantly and positively related to students' levels of HP at T2. Prior researchers have noted that IM shares some conceptual similarities with HP because they involve interest in an activity (Vallerand, 2015). For example, IM individuals experience intrinsic pleasure, which leads to adaptive outcomes (Vallerand & Verner-Filion, 2013). HP relates to adaptive motivation, such as intrinsic motives to reach objectives (Curran, et al., 2011). Therefore, HP emanates from intrinsic tendencies of the self that produce motivational energy freely to take part in the activity (Deci & Ryan, 2000).

IM at T1 also was statistically significantly and positively associated with students' levels of PAC at T2. Following these results, previous studies have demonstrated that motivation to engage in academia for self-determined reasons predisposes individuals to form beliefs that they can influence outcomes congruent with this motive (Staunton, et al., 2015). Moreover, those who engage in a task with high interest (Hammerschall, 2019) have goal-oriented behaviors (Deci & Ryan, 2000) that increase their academic development. Thus, students' self-determined motives relate to their perceptions that they can influence outcomes.

In addition, we found that students' IM at T1 was small and not statistically significantly related to *obsessive passion* (OP) at T2. As discussed in the introduction, it is known that, even though OP individuals participate in an activity because they enjoy it, their engagement is out of their control. It takes disproportionate space in their lives and identities (Vallerand, et al., 2003). Thus, OP students rigidly persist in engaging in the activity with no limits; they fear failure and treat themselves with no compassion (Schellenberg, et al., 2016). Because IM only leads to adaptive results, several researchers stated that, therefore, IM cannot predict OP (Deci & Ryan, 2000; Vallerand, 2010). We concluded that this claim is consistent with our findings, in the sense that in the Chilean context, IM did not relate to OP. Perhaps, these students tend to engage in academics through a more controlled motivation orientation rather than in a more autonomous manner as HP students might do due to the intrinsic pleasure that it derives (Duckworth, et al., 2016). Therefore, OP students might engage in academics mainly because of the possible outcomes attached to the task (i.e., rewards and extra points for an assignment) (Vallerand, et al., 2003) rather than of an inner motivational attraction towards the activity.

IM was a statistically significant predictor for ASE. This finding is consistent with several researchers who claimed that IM students eager to engage in academics developed high levels of ASE (Buch, et al., 2016; Guay, et al., 2020; Williams & Deci, 1996). Although IM was a predictor for ASE, and for two of the three mediator variables, HP and PAC, the direct effect was no longer statistically significant in the presence of these mediator variables. In reviewing the literature, we found that when students engage in passionate activities, they experience higher levels of HP, which, in turn, influences their psychological functioning (Vallerand, 2010). Therefore, their academic experiences become more meaningful (Bureau, et al., 2017), and they feel self-efficient (Forest, et al., 2012).

Our findings revealed that students' levels of PAC at T2 were related to students' ASE at T2. Perceived control relates to "a sense of personal competence" (Rodin, 1990, p. 4), and so "the feelings of efficacy result from experiences of control" (Skinner, 1996, p. 557). Thus, PAC and ASE are constructs that involve students' beliefs that they can successfully perform a task (Pintrich & Groot, 1990). However, students' levels of OP at T2 were weak and not statistically significantly and negatively related to students' ASE. These results reflect those of several researchers who claimed that OP interferes with individuals' achievement of a balanced and successful life, and leads to negative emotional consequences such as self-destructive behavior (Kent, et al., 2018). Consequently, individuals tend to abandon any other life interest due to their obsessed engagement with the task (Vallerand, 2012; Vallerand, et al., 2003), affecting individuals' beliefs that they can succeed (Bandura, 2010).

The findings supported the hypothesis that students' levels of HP and PAC at T2 mediated the relationship between IM at T1 and ASE at T2. However, this hypothesis was partially supported because OP did not mediate the effect IM had on ASE.

Hypothesis 2

We analyzed a simple mediation model with only one mediator variable, *intrinsic motivation* (IM) at T2, and two pathways. We wanted to determine whether changes in *gratitude* at T1 were provoking changes in *academic self-efficacy* (ASE) at T2 because of the presence of IM at T2, as the mediator variable. Several researchers have pointed out that *gratitude* provokes people to focus on the positive aspects of their lives (Emmons, et al., 2019). This appreciation is intrinsically pleasant and leads to IM and joy, which relates to positive emotions (McCullough, et al., 2001; Walsh, et al., 2022), cooperative actions, and reciprocation (Stellar, et al., 2017). Then, grateful individuals feel a sincere intrinsic interest in the action itself (Ryan & Deci, 2000; Stellar, et al., 2017). Thus, gratitude is positively associated with IM (Hicks, et al., 2018). For

example, students who experience gratitude intrinsically engage in their learning settings (Froiland, 2018), which is consistent with our findings in the sense that Gratitude at T1 was statistically significant and positively related to students' levels of IM at T2.

As noted earlier, several researchers have connected positive emotions to self-efficacy. However, there are not enough studies that specifically linked gratitude to self-efficacy in academic settings. We reported that *gratitude* at T1 was a small and statistically significant predictor for ASE at T2. Consistent with our findings, emotions influence individuals' efficacy judgments (Bandura, 2010). Besides, when people are thanked for their prosocial actions, they feel valued and appreciated (Froh, et al., 2010). When this occurs, it generates high levels of self-efficacy (Walsh, et al., 2022), an essential human motivation to feel competent and successful at attaining specific goals (Bandura, 1977; Ryan & Deci, 2000).

Besides, we concluded that students' levels of IM at T2 were moderate and statistically significant and positively related to students' levels of ASE at T2. Prior researchers evidenced that IM individuals are excited about the activity. They are confident that they can do it well, which is manifested as higher confidence and self-efficacy for the activity (Ryan & Deci, 2000). Those who experience spontaneous, sincere interest, and intrinsic motivation towards an activity are willing to engage again in it because they enjoy feeling efficacious concerning that task (Guay, et al., 2020).

Finally, we concluded that *gratitude* and IM were factors that influenced positively students' beliefs in their ASE. Thus, our findings supported the hypothesis that students' levels of IM at T2 mediated the effect *gratitude* at T1 had on ASE at T2. However, because we decided to add a new path to the relationship between students' *gratitude* at T1 and students' IM at T2, the mediation, this time, depends on the levels of the moderator variable we chose to add to the model.

Hypothesis 3

We tested a moderated mediation model to learn about the effect of the moderator variable, *anxiety* at T1, on the direct, indirect, and total effects of the mediated model. We were interested in analyzing the conditional effects that occurred when the impact of *gratitude* at T1 on ASE at T2 through the IM at T2 might change depending on the levels of the moderator.

Gratitude denotes a protective factor against anxiety because it is a positive emotion (Jiang, et al., 2022). We conclude that the *interaction* between *gratitude* and *anxiety* is negatively statistically significant, albeit small and that there was a moderated effect, which was stronger for people who experienced fewer levels of anxiety compared to those who experienced higher levels of anxiety. In other words, *gratitude* influences individuals with less *anxiety* than those who experience high levels of *anxiety*. Moreover, students with low levels of *anxiety* and high levels of *gratitude* experienced more levels of IM compared to those with high levels of *anxiety*. Thus, people who experienced higher levels of *gratitude* were those who perceived less negativity in their lives. So, they were less anxious than were those who perceived negativity in their lived experiences. However, students with low levels of *anxiety*, but low levels of *gratitude***,** presented low levels of IM as well, compared to those with high levels of *anxiety*. Thus, being grateful is relevant in the interaction between *gratitude* at T1 and *anxiety* at T1 over IM at T2 because it enhances positive emotions. However, sustaining high levels of *gratitude* in inhibitory situations to emotional experiences is very difficult to reach (Patel, 2019).

We concluded that these findings were consistent with those of other researchers in the sense that when people manage to reduce their levels of anxiety, they have chances to bring gratitude into their lives, which is intrinsically pleasant, and, in turn, leads to IM (McCullough, et al., 2001). Furthermore, people with lower anxiety levels can focus on what is fulfilling in their lives than on what goes wrong (Hill, et al., 2013). The reason is that they can connect to less punishing and more compassionate relationships with the self (Jiang, et al., 2022). Thus, grateful people experience less anxiety, mainly because they are sympathetic toward themselves when something goes wrong and are more capable of focusing on the positive aspects and outcomes in their lives (Emmons, et al., 2019).

The *conditional indirect effect* of *gratitude* at T1 on ASE at T2 through IM at T2 was statistically significant at each level of the moderator because the confidence interval did not contain a zero. These results agree with other studies that have focused on how gratitude expressions, and their effects on

prosocial attitudes, increase self-efficacy, and a desire to feel competent (Walsh, et al., 2022). Experiencing gratitude stimulates people to engage in positive actions that benefit themselves and everyone (Armenta, et al., 2017). Other researchers have analyzed the effects of gratitude on individuals' well-being, which motivates people intrinsically to engage in the activity that they find interesting (Deci &Ryan, 2000) to experience self-efficacy. Based on our results, we concluded that the moderator, *anxiety* at T1, influenced the strength of the indirect effect of *gratitude* at T1 on ASE at T2, through IM at T2, and the moderated mediation effect was statistically significant.

Based on these results, Hypothesis 3 was supported, and we concluded that the moderator, *anxiety* at T1, influenced the strength of the indirect effect of *gratitude* at T1 on ASE at T2, through IM at T2, and the moderated mediation effect was statistically significant.

Hypothesis 4

We tested a parallel multiple mediator models to analyze whether *stress, anxiety, and depression* (SAD) at T1 lost their statistical significance when the mediators *perceived academic control* (PAC) at T2 and *gratitude* at T2 were included in the model with ASE as the dependent variable. When the levels of SAD increased, the levels of PAC and *gratitude* decreased, and vice versa. Even though some stress levels might benefit students' personal growth, their psychological states become unstable if they feel threatened by their academic context (Bhujade, 2017). Also, when academics are highly valued, students might experience high levels of *anxiety* and low levels of PAC (Pekrun, 2006). In other words, several researchers have found that when students feel insecure and their levels of SAD increase, this influences how they perceive challenging and threatening experiences and how they appraise their ability to cope with those events (Stupnisky, et al., 2013). Our results corroborate the findings of Pond et al. (2012) which revealed that when individuals ruminate on negative experiences, their levels of *anxiety and stress* increase automatically. Thus, people cannot enjoy the positivity happening in the present time (Fagley, 2018), and their levels of *gratitude* decrease (Watkins & Bell, 2017).

Students' levels of PAC at T2 and their levels of Gratitude at T2 were statistically significant and positively related to students' levels of ASE at T2. Our results reflected those of Fishman (2014), who also found that PAC might affect students' ASE and academic success. When individuals balance their perceived capacity to influence their environments and their perceived ability to align with environmental forces, they experience an adaptive process that impacts their self-efficacy levels (Folkman, 1984). Finally, when people focus on the bright side of their lives and their thoughts and feelings are filled with appreciation, Baumsteiger et al. (2019) stated that it could be related to higher perceptions of individuals' self-efficacy. There is a need for more research building on the connection between *gratitude* and *self-efficacy* in educational contexts, which is precisely the new insight that we seek to contribute to academics.

Based on these results, Hypothesis 4 was supported, and we found that PAC and *gratitude* at T2 mediated the relationship between SAD at T1 and ASE at T2.

CONCLUSIONS

Our findings related to *Hypothesis 1* showed that *intrinsic motivation* (IM), *harmonious passion* (HP), and *perceived academic control* (PAC) were factors that influenced positively students' beliefs in their *academic self-efficacy* (ASE); however, *obsessive passion* (OP) was a factor that was not statistically significantly and negatively related to students' ASE levels. Thus, the findings partially supported our hypothesis that students' levels of HP and OP for academics, and students' PAC at T2, mediated the relationship between IM at T1 and ASE at T2. However, it did not work in the presence of OP as a mediator because the indirect effect of IM on ASE through OP did not contribute to the model estimation. In other words, OP does not mediate the effect IM has on ASE, which is why this hypothesis was partially supported. Future research should investigate the reliability of the finding that OP does not play a role in mediating the effect between IM and ASE.

Our findings supported *Hypothesis 2* as students' levels of IM at T2 mediated the effect *gratitude* at T1 had on ASE at T2. Several researchers have pointed out that *gratitude* motivates individuals to self-improve

(e.g., Stellar, et al., 2017), which is intrinsically rewarding and perceived as a decisive and influential factor in academic performance (Augustyniak, et al., 2016). In addition, for *Hypothesis 3*, we added a new path to the relation between students' *gratitude* at T1 and students' IM at T2, then the mediation, this time, depended on the levels of the moderator variable we chose to add to the model, *anxiety* at T1. This new path affected the relationship between students' *gratitude* at T1 and students' IM at T2. Consequently, this time, students' *gratitude* at T1 was moderate (not as low as it was in *Hypothesis 2*) and statistically significantly and positively related to students' levels of IM at T2 as well as students' levels of *anxiety* at T1, whose correlation coefficient was strong.

Finally, for *Hypothesis 4*, we tested whether the mediators, *perceived academic control* (PAC) at T2 and *gratitude* at T2, were caused by *stress, anxiety, and depression* (SAD) at T1 and whether they were a cause of ASE. Therefore, we analyzed whether SAD lost its statistical significance when the mediators were included in the model. Our findings showed that PAC and *gratitude* were factors that influenced positively students' judgments of their ASE, and *stress, anxiety, and depression* were factors that were negatively related to ASE. Thus, the analysis of the findings supported that SAD at T1 was not only a statistically significant and negative predictor for both mediators, PAC and Gratitude at T2, but also ASE at T2. Finally, the findings supported our hypothesis in the sense that PAC and *gratitude* at T2 mediated the relationship between SAD at T1 and ASE at T2.

Limitations of Study

We focused on instrumentation as a possible internal validity threat at the data collection stage. We estimated the internal score consistency of the items of the instruments that we administered. Scores about the Obsessive Passion Subscale (OP) yielded an α reliability coefficient of .66 in T1 (see Table 3). Consequently, it is possible that OP did not mediate the relationship between IM at T1 and ASE at T2 because of the relatively low-reliability coefficient, which can reduce statistical power (Onwuegbuzie, et al., 2005). Therefore, replications are needed to examine further the importance of this mediator. Another possible internal threat relates to the reversed items from two of the questionnaires that we administered: the Perceived Academic Control Scale (PAC) and the Gratitude Questionnaire. We concluded that students had difficulties understanding the reversed items because their responses were inconsistent, which significantly lowered the score reliability and likely attenuated the relationships associated with PAC and the relations related to *gratitude* in the models that we tested.

As the external validity threat at the data collection stage, we focused on population validity. We could only generalize the findings to students from HEI with similar background characteristics because the type of student might influence the results. Consequently, replications are needed to examine further whether our findings could be generalizable to Chilean first-year university students in general.

Recommendations for Future Research

As we highlighted earlier, although several studies have focused on positive emotions and self-efficacy, there is not enough research linking gratitude explicitly to self-efficacy among college students. Thus, further research is needed on this matter. Moreover, the impact of COVID-19 post-traumatic stress disorders is unknown (Fegert, et al., 2020). Because the findings of our study cannot be generalized across this pandemic condition, future replications are needed to examine further the impact of COVID-19 on emotions and emotional states that influence students' *academic self-efficacy* levels. As we mentioned earlier, one of the mediators in Hypothesis 1, *obsessive passion* (OP), did not contribute to the model estimation. Therefore, it is recommendable to administer a different instrument in future research to investigate the reliability of these findings. We also recommend analyzing students' ways of engaging and connecting with academia. For instance, it might be interesting to learn whether students engage in an activity because they are intrinsically motivated and harmoniously passionate about it or more of a controlled, extrinsically motivated, and obsessed kind of student. Perhaps we would propose a conceptual model framework without OP in future replications.

Implications

Implications for Counsellors and Teachers

Negative emotional states might influence students' college adjustment and their ability to build personal resources (Fredrickson, 1998). Therefore, to become effective, counselors and teachers must *monitor students' emotional states* and help them *expand their self-efficacy beliefs*. For example, teachers could use what Frederickson (2000b) called the *undoing effect* as a strategy to increase students' *ASE*. They can prompt students to search for thoughts to replace negative ones; this can help them stop focusing on threats and open to new ideas to build personal resources (Frederickson, 1998). Also, this strategy can foster students to engage in a motivated attitude toward academics (Salanova, et al., 2011). Besides, teachers can provide *frequent and positive feedback* to increase students' *ASE* (Carmona, et al., 2015) and to *avoid highly challenging activities* for them to *experience success* because mastery experiences strengthen students' *ASE* (Bandura, 2010). Because students avoid threatening situations with which they know they will not cope (Bandura, 1977), teachers should *highlight the relevance of students' self-improvement* to increase their perceptions of control over the outcome of situations (Skinner, 1996).

Autonomously motivated students perceive themselves as competent (Black & Deci, 2000). Thus, teachers should use strategies to *foster students' autonomy,* a predictor of self-efficacy (Oriol-Granado, et al., 2017), which, in turn, promotes academic achievement (Eakman, et al., 2019) through student-centered and active learning activities (Vallerand, 2012). Also, IM can become a predictor of perceived control (Staunton, et al., 2015), which, in turn, influences efficacy (Skinner, 1996) because when students do well, they have high efficacy perceptions (Black & Deci, 2000). In conclusion, perceived academic competence, one of the mediators in Hypothesis 1, mediated the relation between IM and ASE.

Implications for Administrators

Positive *psychology courses* can foster positive emotions (Rodríguez-Muñoz, et al., 2021). For example, providing strategies to develop gratitude towards experiences in life denotes a protective factor against anxiety (Jiang, et al., 2022). Thus, students might become more motivated in academic contexts (Froh, et al., 2010). Moreover, teaching students to keep *gratitude journals* and setting *up intrinsic learning goals* can increase intrinsic motivation (*IM*) and positive emotions toward learning, leading to high levels of *ASE* (Froiland, 2018). Besides, when teachers use *positive psychology techniques* to foster *IM* and to encourage autonomy during learning, this leads to high levels of academic control and *ASE* (Froiland, 2018). These *psychology techniques* also can help students stop ruminating about negative experiences (Baumsteiger, et al., 2019), put their lives in perspective, and increase their *ASE*.

Implications for Students

To manage challenges, students should focus on peers who have succeeded because they become social models who share the skills and knowledge they need to develop, to modify, or to strengthen self-efficacy beliefs (Bandura, 2010).

To summarize, our investigation brings light to the design and implementation of effective programs to increase students' ASE and to prevent the adverse effects of SAD, which is crucial for early detection of negative emotional states, increasing students' life satisfaction in college, and promoting long-term learning.

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