Self-efficacy, procrastination and academic performance in university students in Ecuador

Autoeficacia, procrastinación y rendimiento académico en estudiantes universitarios de Ecuador

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Abstract

The study of non-cognitive factors that influence academic success has become a topic of growing interest in educational research. This study aims to examine the relationship between university academic performance and two specific non-cognitive factors: self-efficacy and academic procrastination. Similarly, the mediating role that academic procrastination plays in the relationship between self-efficacy and academic performance is explored. The quantitative study was conducted in the Ecuadorian context and was based on a sample of 788 students enrolled in public and private universities in the Metropolitan District of Quito. The analytical strategy consisted on the formulation of path models, based on the methodology of structural equations. The main results of empirical analysis are: a) both self-efficacy and academic procrastination directly affect the academic performance of university students; b) self-efficacy is indirectly related to academic performance through academic procrastination; c) these non-cognitive factors are more determinant for student performance in the early career stage, especially in the case of private universities. Finally, the implications of the findings are discussed, considering the potential development of strategies to promote academic success through interventions that favor the students' sense of self-efficacy and self-regulation.

Keywords: Academic performance, academic procrastination, self-efficacy, academic self-regulation, university, Ecuador.

Resumen

El estudio de los factores no cognitivos que influyen en el éxito académico se ha posicionado como un tópico de creciente interés para la investigación educativa. En este marco, este estudio se propone el objetivo de examinar la relación entre el rendimiento académico universitario y dos factores no cognitivos específicos: la autoeficacia y la procrastinación académica. De igual manera, se explora el rol mediador que la procrastinación académica desempeña en la relación entre la autoeficacia y el rendimiento académico. El estudio cuantitativo se realizó en el contexto ecuatoriano y se basó en una muestra conformada por 788 estudiantes matriculados en universidades públicas y privadas del Distrito Metropolitano de Quito. La estrategia analítica consistió en la formulación de modelos de ruta, fundamentados en la metodología de ecuaciones estructurales. Los principales resultados del análisis empírico son los siguientes: a) tanto la autoeficacia como la procrastinación académica afectan directamente el desempeño académico de los estudiantes universitarios; b) la autoeficacia se relaciona indirectamente en el rendimiento académico a través de la procrastinación académica; c) estos factores no cognitivos son más determinantes para el desempeño estudiantil en la etapa inicial de carrera, especialmente en el caso de universidades privadas. Finalmente se discuten las implicaciones de los hallazgos efectuados, considerando el desarrollo potencial de estrategias de promoción del éxito académico mediante intervenciones que favorezcan el sentido de autoeficacia y la autorregulación del estudiantado.

Descriptores: Rendimiento académico, procrastinación académica, autoeficacia, autorregulación académica, universidad, Ecuador.

1. Introduction and state-of-the-art

The higher education system is a very important indicator for a country, since it represents the development and evolution in all areas of a society. With university education, governments face great challenges in meeting minimum quality standards (González-Zabala *et al.*, 2017). Significant changes have occurred in Latin America during the last decades: a growing demand of the population for accessing higher education, an increase in the number of universities, the opening of new careers and an increasing interest in the development of scientific research (Jara-López and Vargas-Jiménez, 2016). These trends have enabled countries to monitor Higher Education Institutions (HEIs) by establishing control mechanisms through an evaluation and accreditation process to measure the quality of the services they offer (Rojas, 2011; Véliz Briones, 2018).

This reality is not different in Ecuador, since the end of the 2000 a public policy was designed to guarantee free education in higher public education to standardize the process to access to it, and avoid a decrease in the quality of third-level curricula in general (Quinatoa-Andrango, 2019; Rojas, 2011). With the establishment of the Constitution of 2008, the National Secretariat for Higher Education, Science, Technology and Innovation (SENESCYT) was created, which is the agency in charge of implementing the National Leveling and Admission System (SNNA), which would be responsible for the evaluation and allocation of access quotas to undergraduate courses in public universities, applying the National Examination for Higher Education (ENES). Since then, and although it has undergone a series of modifications, the test has remained until now as a mandatory requirement for accessing public university (Zambrano, 2016).

Since its origin, this type of exam aimed to promote meritocracy through an admission process that enables students to reach a quota in the career and public university of their choice, guaranteeing SNNA actors the right to access and stay in higher education under conditions of equal opportunity (Jara-López and Vargas-Jiménez, 2016). However, the objective has not been entirely achieved, because inequalities prevail in terms of preparation for the exam which normally favor aspiring graduates in private schools, who also tend to have more access to preparation courses (Tobar-Pesántez and Solano-Gallegos, 2018). As a result, a significant number of applicants, mainly from public high school, tend to experience difficulties in achieving a score that allows them to access their preferred career, having to choose an alternative career at public universities or to pay for a private university (Zambrano, 2016). Thus, private HEIs are places for students whose first career was not accepted or for those who did not reach the minimum score for any career (Ruiz *et al.*, 2018).

Since enrollment in private universities has increased, it is common to observe in these universities more acute problems related with vocational incompatibility when the student chooses the career. According to Zumárraga *et al.* (2017) in an investigation carried out in an Ecuadorian private university with a national scope, about 24% of students choose a career that does not fit their professional preferences. This vocational problem is one of the main factors affecting student drop-out in higher education (Castro *et al.*, 2016). Using figures from the World Bank, during the last decade university drop-out among people from 25 to 29 years old in Latin America and the Caribbean has been around 21%, rising to 30% in Ecuador (Ferreyra *et al.*, 2017). In this sense, the specialized literature agrees to identify academic achievement as a fundamental determinant of student failure and drop-out of third-level programs (Díaz-Peralta, 2008).

While university academic performance has traditionally been related to the knowledge of academic content and skills of students, aspects that are largely conditioned by the quality

of the education taught at the middle level, an important part of this academic performance is explained by non-cognitive factors, which are also known as non-academic factors, soft skills, or psychosocial factors (Farruggia *et al.*, 2018). In this sense, the meta-analysis developed by Robbins *et al.* (2004), based on the accumulation of empirical evidence from 109 relevant research, reveals that non-cognitive factors explain the variability of academic performance in university students, compared with more traditional academic predictors such as socioeconomic status, average grade at school or standardized tests of knowledge. Also, non-cognitive factors show the advantage of being potentially malleable by concrete interventions, enabling educational institutions and professors to perform these individual attributes through different strategies, applied especially in the classroom context, thus improving the student's learning capacity (Allen *et al.*, 2009; Farrington *et al.*, 2012).

Although educational research has shown a growing interest in studying the relationship between non-cognitive factors and academic performance, as well as their practical implications, there are still gaps in knowledge about how these non-academic variables interact and intertwine to influence the academic performance of university students (Farrington *et al.*, 2012). Among the non-cognitive factors addressed by university-centered educational literature, self-efficacy and procrastination have not been deeply studied. Accordingly, this research aims to study the effect of self-efficacy and academic procrastination on academic performance in university students, in addition to exploring the mediating role that academic procrastination plays in the relationship between self-efficacy and academic performance. Likewise, setting Ecuador as a context, and considering the vocational problems of students when selecting the careers in private universities mostly, this paper proposes to investigate whether the relationship between self-efficacy, procrastination and academic performance

is modified by comparing early career students from public and private HEIs.

1.1 Self-efficacy, procrastination, and academic performance

The available literature has placed self-efficacy and procrastination as constructs that can significantly predict academic performance (Kim and Seo, 2015; Rodríguez-Durán and Barraza-Macías, 2017). According to the studies conducted, it is observed that a good academic performance cannot be guaranteed only by the intellectual capacity of individuals, since the action of other non-cognitive variables can determine a different performance in two students with the same degree of knowledge and academic ability (Ruiz-Dodobara, 2017)

Self-efficacy is defined as the beliefs that the individual has about his or her own abilities to act in the way required to achieve expected results (Bandura, 1997). At the educational level, self-efficacy is a strong predictor of university academic performance and consists of a student's personal belief in his or her ability to successfully carry out the academic activities required (Rodríguez-Durán and Barraza-Macías, 2017; Alegre, 2014). This would be reflected in students with a high level of self-efficacy expectations that would have high academic achievement, and vice versa (Contreras *et al.*, 2005). Similarly, students with a high level of self-efficacy will tend to evaluate their abilities in a positive way in the long term, leading to the completion of studies (Navarro-Charris *et al.*, 2017).

On the other hand, academic procrastination refers to the behavioral pattern characterized by postponing tasks, with the prior knowledge that such behavior will have negative effects or consequences (Angarita-Becerra, 2012). Similarly, the person who procrastinates experiences subjective discomfort (anxiety, guilt, etc.) when is aware of the consequences of having postponed (Przepiorka *et al.*, 2016).

In the university setting, procrastination has been considered as a type of irrational, deliberate and negative behavior for academic performance, mainly caused because the student does not like the task to be performed (Álvarez-Blas, 2010), reason for which the student will tend to postpone it until the end, and sometimes even failing to present it on time (Chan- Bazalar, 2011). Among the negative consequences of academic procrastination, repetition of subjects, low performance and academic dropout are common (Garzón-Umerenkova and Gil-Flores, 2017). In relation to the accumulation of empirical evidence, the meta-analysis carried out by Kim and Seo (2015), from 33 relevant studies on the subject, supports the existence of a negative and consistent relationship, especially in America and Europe, between academic procrastination and academic performance.

1.2 Self-efficacy and academic performance: The mediating role of academic procrastination

While empirical research has provided ample evidence of the effects that academic self-efficacy and procrastination have on academic performance, it still unknown how these non-cognitive factors articulate to affect the performance of university students (Farrington *et al.*, 2012). In this sense, the hypothesis is proposed regarding the fact that academic procrastination works as a mediator of the relationship between self-efficacy and academic performance. As discussed in the previous section, academic procrastination is a clear negative predictor of academic performance of university students, but in turn, this recurrent procrastination of academic tasks and responsibilities can be explained as the result of low levels of self-efficacy. There is a broad theoretical consensus on procrastinate behavior as a self-regulatory failure (Chan-Bazalar, 2011; Ferrari, 2001; Garzón-Umerenkova and Gil-Flores, 2017); however, this perspective is incomplete, since it does not consider the motivational

element that enables a person to self-regulate effectively and avoid incurring patterns of postponing activities.

In this point self-efficacy takes on a fundamental role because it is not enough to know about the cognitive and metacognitive strategies that can be used for implementing self-regulatory learning processes, but it is also necessary to be confident to execute them and sustain them in time (Bandura, 1997; Klassen *et al.*, 2008). In other words, for an individual to select appropriate learning strategies, assess his/her knowledge, self-monitoring, and understand the importance of using concrete strategies, he/she requires to believe that will be able to manage these elements to drive learning (Klassen *et al.*, 2008). In this sense, self-efficacy in self-regulation, understood as individual beliefs in one's own ability to employ self-regulatory strategies (Usher & Pajares, 2008), is key to enabling the student to meet the demands of academic training, favoring the systematic implementation of the skills and strategies necessary to control and organize the learning process more autonomously.

Thus, the lack of confidence in one's own ability to self-regulate leads to failures in the application of self-regulating learning strategies, which in turn leads to academic procrastination behaviors. Self-efficacy in self-regulation is a specific form of self-efficacy (Zuffianò *et al.*, 2013), and a positive association has been found between general self-efficacy and self-efficacy in self-regulation (Usher and Pajares, 2008).

Based on the theoretical argumentation, it is feasible to say that academic procrastination acts as a mediator of the relationship between self-efficacy and academic performance. The sense of self-efficacy allows the student to be able to carry out different activities and promotes motivation with respect to the self-regulated accomplishment of the tasks and action necessary to achieve their learning goals (Ruiz-Dodobara, 2017), which will lead to a less procrastinating behavior and therefore, a greater

probability of successful academic performance (Álvarez-Blas, 2010; Güngör, 2020).

Finally, when seeing the relationship between self-efficacy, procrastination, and academic performance in the university context of Ecuador, it is necessary to consider the differentiated reality that private and public universities experience regarding their enrollment and admission processes for new students, due to the current higher education access exam. As noted above, since private universities in many cases end up playing an absorptive role for those students who do not achieve a quota at the public university (Ferreyra, 2017), these types of institutions face major vocational problems when choosing the career. The latter along with the difficulties related to the transition from High school to the university (Páramo-Fernández *et al.*, 2017), would allow us to assume that problems of academic performance, linked to issues of self-efficacy and academic procrastination intensify at the initial levels of university education, mainly in those students who belong to private institutions. The latter because a student who lacks vocational affinity when choosing the career is more likely to feel unself-effective in pursuing university studies (Wessel et al., 2008). From the above, this work is considered to explore whether the relationship between self-efficacy, procrastination, and academic performance in the initial stage of career experiences changes when comparing public and private universities.

1.3 Hypothesis and research question

Hypothesis 1 (H1). Self-efficacy is positively related to academic performance.

Hypothesis 2 (H2). Self-efficacy is negatively related to academic procrastination.

Hypothesis 3 (H3). Academic procrastination is negatively related to academic performance.

Hypothesis 4 (H4). Academic procrastination acts as a mediator of the relationship between self-efficacy and academic achievement.

Question 1 (Q1): To what extent does the relationship between self-efficacy, academic procrastination and academic performance change when comparing public and private universities, considering the first levels of professional training?

2 Methodology

2.1 Participants and procedure

The empirical study involved the participation of 788 university students from the Metropolitan District of Quito (DMQ), Ecuador. The sampling procedure used was for convenience, with quotas for sex and type of university (public/private). Women accounted for 50.6 % of the participants and men for 49.4 %. The average age of the sample was 21.1 years (SD= 2.77). 56.3% of students belong to public universities and 43.7% to private universities. In addition, 72.7% of participants reported family incomes less than or equal to 1576 USD (4 unified basic wages). Regarding the level of studies completed, 56.0 % of the participants enrolled in the first career levels (1-3), 27.9 % in the middle levels (4-6) and the remaining 16.1 % were in the final stage of their respective programs (7° level onwards).

The data collection was carried out by applying a general survey on academic behavior developed by the Educational Innovation Group on Vocational and Professional Guidance of the Salesian Polytechnic University, Quito (GIEOVP-UPS). The information was collected on a face-to-face basis during June and July 2019. In relation to ethical considerations, this research considered some steps to protect the rights of the participants, in accordance with the ethical principles established by the American Psychological Association (2017). These actions consisted of ensuring the anonymity of the participants by avoiding requesting names or any other identifying information,

establishing and communicating the appropriate confidentiality protocols regarding the management of the obtained data, telling the objectives of the study, and requesting prior voluntary consent.

2.2 Instruments and measurements

Self-efficacy: It was measured using the General Self-Efficacy Scale (GSS) formulated by Alegre (2013), which consists of 20 items related to self-perception that, in general terms, a university student has about his or her abilities to develop appropriate actions for the achievement of goals or the resolution of problems. The GSS has a Likert-type rating scale with response options ranging from 1 [strongly disagree] to 5 [strongly agree]. By confirmatory factorial analysis (CFA), it was verified that the GSS has a one-dimensional structure, obtaining an adequate adjustment to the data for a unifactorial model: χ^2 = 942.81 [p < .001]; comparative fit index [CFI] = .91; incremental fit index [IFI] = .91; adjusted goodness-of-fit index [AFI] = .86; standardized root of mean quadratic residue [MRR] = .043.[1] The self-efficacy index was obtained by calculating the sum of the GSS item scores (theoretical range [20-100]; M = 77.63; DT = 11.97; α = .94).

Academic procrastination: The The Academic Procrastination Scale (APS) developed by Busko (1998) was used to measure it, considering the version validated for the Ecuadorian university context by Zumárraga-Espinosa and Cevallos-Pozo (2021). In this case, the APS consists of 12 reagents: three for the postponement of activities dimension and nine for the academic self-regulation factor. APS items use a 5-point rating scale, ranging from 1 [never] to 5 [always]. According to the CFA conducted, the APS has factorial validity for the two-dimensional model, with satisfactory goodness-of-fit indicators reported: χ^2 = 234.61 [p < .001]; CFI = .93; IFI = .93; AGFI = .93; SRMR = .066. Considering the recommendations of Zumárraga-Espinosa and Cevallos-Pozo (2021) for the use of an

overall academic procrastination index, this index was obtained combining the two dimensions of the APS, i.e., adding the score of all the items that make up the APS (theoretical range [12-60]; M = 29.78; SD = 6.94; α = .81).

Academic performance: Students' self-perceived academic performance was consulted through a reagent. To this end, the participating group was asked to rate its own performance during the last two academic periods, looking at a rating scale ranging from 1 [very bad] to 10 [outstanding] (M = 7.49; SD = 1.13).

Control variables: Sex, age, and family income reported by participants are included as control variables when empirically evaluating the hypothesis and research question of the study.

2.3 Data analysis

The analytical strategy used consisted of the formulation of path models, based on the methodology of structural equations, and an estimation of parameters for maximum likelihood. In line with this statistical technique, a hypothetical-theoretical model of simple and partial mediation is proposed to examine the hypotheses and research question. In all analyzes of structural equations, the variables of interest were residualized with respect to the control variables (sex, age, family income) to neutralize potential confusing effects that may distort the results. The bootstrap method was used to estimate indirect effects, using 5000 subsamples and 95 % confidence intervals. The statistical software used was AMOS 23.

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1   *The recommended benchmarks for concluding that a factor model has an acceptable fit to the data are CFI, IFI ≥ .90; AGFI ≥ .85; SRMR < .10 (Byrne, 2010; Schermelleh-Engel et al., 2003)..*

3 Results

## 3.1 Self-efficacy, academic procrastination, and academic performance

The route model results, corresponding to the hypothetical mediation model, are shown in Figure 1. The goodness-of-fit indicators show that the model has an acceptable fit to the data: χ^2 = 21.25 [p < .01]; CFI = .93; IFI = .94; AGFI = .97; SRMR = .035. First, self-efficacy is positively and significantly related to academic performance (β = .20; p < .001), which provides empirical support for H1. As expected, college students who feel more confident in their abilities to solve

tasks of any kind tend to report higher levels of academic achievement. In contrast, self-efficacy is negatively related to academic procrastination (β = -.34; p < .001). In this way, it was observed that the most self-efficacious participants are less likely to procrastinate intensely, compared to those with low levels of self-efficacy (H2 verified).

On the other hand, H3 also has empirical support since academic procrastination produces a negative and significant effect on academic performance (β = -.22; p < .001), which implies that students who procrastinate more frequently in relation to their academic tasks and activities, tend to report poorer academic performance

Figure 1

Partial simple mediation model: Self-efficacy, academic procrastination, and academic performance
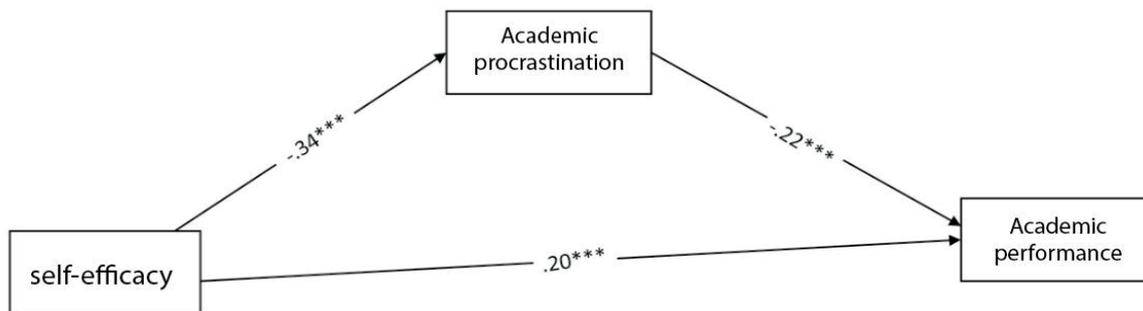
*Note: ***P < .001. Standardized regression coefficients are reported. Model goodness-of-fit indicators: χ^2 = 21.25 [p < .01]; CFI = .93; IFI = .94; AGFI = .97; SRMR = .035. R^2 Academic procrastination = 12.5%; R^2 Academic performance = 13.5%. Data collected by GIIOVP-UPS, Campus-Quito, during 2019.*

Regarding H4, the analysis of the indirect effect of self-efficacy on academic performance, mediated by academic procrastination, yielded a positive and significant result (β = .075; p < .001). Since this is a standardized indirect effect, if a student's self-efficacy increases by 1 standard deviation, this will result in an approximate increase of .075 standard deviations in academic performance, through a reduction in academic procrastination.

3.2 The case of early learners: a comparative reading by type of university

To explore whether relationships of interest change in the initial stage of university education, the analysis concentrated only on those students who were completing the first three levels of their university careers (N = 441). Considering this subsample, the route model evaluated in the

previous section was again executed, differentiating between students from public and private universities. Thus, the results of the analysis conducted are presented in Figure 2.

Regarding PI, it can be observed that, on average, the relationships among the variables of interest tend to intensify in the early career levels, especially in the case of the direct effect of self-efficacy on academic performance. In addition, considering the initial stage of the career, the indirect effect of self-efficacy on academic performance, mediated by academic procrastination, is higher in university students belonging to private institutions (β = .136; p < .001), compared to those studying in public universities (β = .045; p < .05). This suggests that the direct and indirect impact (through academic procrastination) of self-efficacy on academic performance is more important in the initial stage of university education, mainly in those who study in private universities (R^2 = 20.9 %).
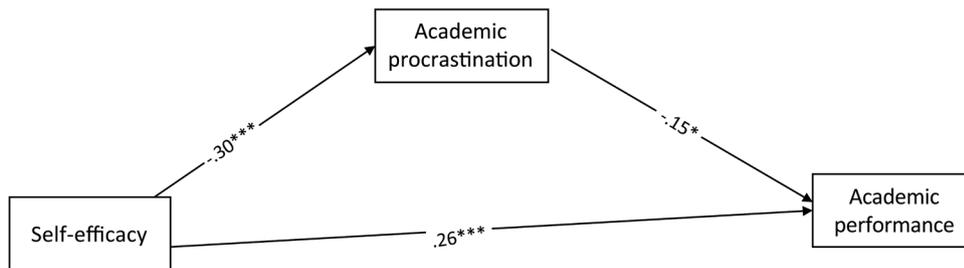
Figure 2

Route models: private universities vs. public universities: initial phase of the career
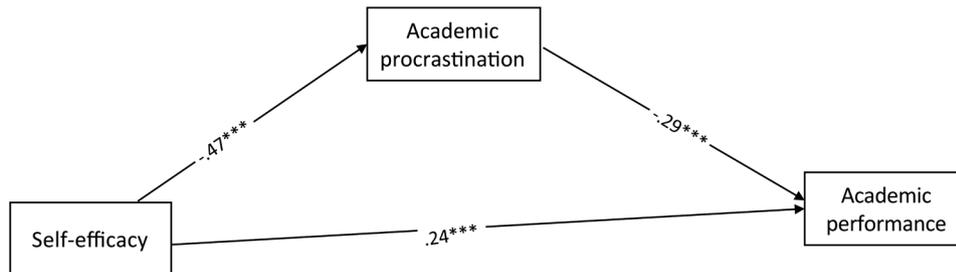
Note: ***p < .001; *p < .05. Standardized regression coefficients are reported. Private universities [N = 198]: χ^2 = 14.42 [p < .05]; CFI = .92; IFI = .92; AGFI = .92; SRMR = .059; R^2 Academic procrastination = 24.0%; R^2 Academic performance = 20.9%. Public universities [N = 243]: χ^2 = 16.26 [p < .05]; CFI = .84; IFI = .86; AGFI = .93; SRMR = .056; R^2 Academic procrastination = 11.4%.

Data collected by the GIEOVP-UPS, Campus-Quito, during 2019.

4 Discussion and conclusions

This research aimed to study the relationship between self-efficacy, procrastination, and academic performance among university students in Ecuador. In this respect, the findings derived from the analyzed partial simple mediation model in Ecuador, provide confirmatory evidence for the existence of direct relationships between self-efficacy and academic procrastination (negative), self-efficacy and academic performance (positive), as well as between academic procrastination and academic performance (negative), as expected according to the theoretical approaches initially addressed. The reported positive relationship between self-efficacy and academic performance is consistent with H1 and agrees with recent empirical studies at the university level, such as those of González-Cantero *et al.* (2020) and Sadoughi (2018). Similarly, H2 could be empirically supported from the negative and significant result for the effect of self-efficacy on academic procrastination, which is compatible with evidence recently provided by educational literature (Dike and Emmanuel, 2019; Güngör, 2020). Regarding the negative relationship between academic procrastination and academic performance stated in H3, the favorable statistical results presented, which made it possible to verify this hypothesis, are equal and are added to the results reported by recent empirical research (Hidalgo-Fuentes *et al.*, 2021; Pekpazar *et al.*, 2021).

However, in addition to the direct effects found, this paper was intended to contribute to the understanding of how self-efficacy and procrastination relate to each other to affect university academic performance. In this sense, the results of the mediation analysis carried out are consistent with the thesis that places academic procrastination as a mediating variable of the relationship between self-efficacy and academic performance, empirically supporting hypothesis 4 (H4). Thus, in addition to directly influencing the academic performance of university students, the sense of self-efficacy also produces an indirect effect through academic procrastination. In other words, part of the negative impact of low levels of self-efficacy in university academic performance is explained by the fact that a weak sense of self-efficacy leads to intensifying procrastinatory behaviors that lead to worsening academic scores and outcomes.

On the other hand, although this study provides evidence in favor of the mediating role of academic procrastination in the relationship between self-efficacy and academic performance, the empirical exploration of this mediating relationship is still quite insidious in the current literature. However, the approach to this mediation hypothesis was based on theoretical (developed in the initial section) and empirical bases.

On the empirical side, the basic criteria established by the specialized literature were taken as reference, which indicate that for a mediation relationship to happen, it must be verified that the independent variable influences the mediator, and that, in turn, the mediator affects the dependent variable. In this respect, the relationship between self-efficacy and academic procrastination, assuming a causal direction that positions self-efficacy as a determinant of procrastination, is supported by strong empirical longitudinal evidence (Ziegler and Opdenakker, 2018). The same is true of the causal relationship between academic procrastination and academic performance, also supported by cumulative evidence of meta-analytical (Kim and Seo, 2015) and longitudinal cut (Gareau *et al.*, 2019).

Additionally, the data suggest that self-efficacy and academic procrastination have a greater impact on the academic performance of those students in the early career levels. Similarly, the results of the comparative analysis indicate that the academic performance of students in private HEIs tends to be more affected by individual attributes such as self-efficacy and academic procrastination in the specific case of the initial stage of vocational training. The latter agrees with the approach about the vocational mismatches that adversely affect career choices made by students from private universities, due to the selectivity of the process of access to public higher education (via acceptance exam) and the dynamics of

absorption that of private universities for those who do not get the desired quota in public university.

Implications, limitations, and future studies

The results presented give rise to a series of practical implications for Ecuadorian universities. Since self-efficacy evaluations carried out by students are a critical factor for academic success in the initial career stage, it is important that HEIs, especially private, dedicate efforts to strengthen their vocational guidance programs and their respective induction processes to increase the number of students who start their studies with adequate confidence levels in their own ability to respond to the academic demands of their vocational training.

On the other hand, initial diagnostic systems on procrastination habits could be implemented using properly validated psychometric tests. In this way, it would be feasible to detect students with this problem and to apply actions oriented to exercise their ability to self-regulate, as well as their intrinsic motivation on concrete and measurable goals. Such interventions must be followed up by teachers throughout the career, and therefore they must also be trained in these types of strategies, so that they can assist the students in the optimal planning of their academic activities and the strengthening of the confidence that they will be able to carry it out satisfactorily.

Finally, HEIs could implement, from the beginning of the university life, courses based on self-regulation strategies that allow students to develop the ability to persist in the completion of their academic tasks, avoiding procrastination. Strategies can be implemented such as splitting tasks into subparts to make it easier to do it, estimating the time each task can take, creating lists, or other resources that can track complete and uncompleted tasks, preparing the material and environment for doing the task, among others.

Regarding the limitations of the study, since non-probabilistic sampling was used for collecting the data, the findings presented cannot be generalized to the entire Ecuadorian university population. It is therefore recommended that future work be based on probabilistic evidence of national representativeness. However, the value of exploratory research lies in detecting relevant relationships among the variables studied, so that the statistical results presented function as initial empirical evidence to guide future studies toward a deeper understanding of the subject, through more refined and rigorous research designs, including the use of probabilistic samples, longitudinal information, and even more experimental cutting approaches (Sarstedt *et al.*, 2018). Consequently, further investigations are expected to continue reviewing the proposed mediation model to more rigorously contrast the results presented.

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