

Self-Concept As A Regulatory Element Of Academic Procrastination Among Pre-Service Teachers

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Abstract

Most research analysing the relationship between self-concept and procrastination in the academic environment has tried to identify those associated factors that concern how the individual perceives him/herself, the acquired competences and coping skills in terms of the academic results obtained. However, a positive self-concept may be one of the most important elements in achieving adequate personal, emotional and social functioning. The present research aims to provide evidence on the value of self-concept as a regulator of academic procrastination, based on the partial least squares (PLS-SEM) path model approach. A total of 723 pre-service teachers participated in the study. The distribution of gender were: 569 females (78.10%) and 154 male (21.90%), with a mean age of 22.32 years (± 5.50). The instruments used were: Self-Concept Questionnaire Form (AF-5) and Academic Procrastination Scale (EPA). The results showed that self-concept is significantly related to academic self-regulation and inversely related to procrastination. The practical consequences suggest preventing through structural strategies those psychosocial factors for the acquisition of competences related to self-concept as a transversal measure in the improvement of self-regulation, procrastination and academic performance of pre-service teachers.

Keywords: self-concept; self-regulation; academic procrastination; pre-service teachers; academic achievement.

Introduction

One of the most significant characteristics regarding the change of paradigm in the higher education of pre-service teachers has been the search for the complementarity of theoretical-practical, systematic, adjusted, extensive, ambitious and comprehensive learning, as part of the objectives of the European Convergence process (Teixeira et

al., 2019). Regardless of the university speciality studied, the aspiring teachers throughout the training process must face different obstacles, which include behavioural, cognitive and affective elements, which will affect both the performance of the tasks and also the self-concept and motivation of each individual (Berinšterová et al., 2021; Méndez, 2021). The present research aims to establish the

relationship between self-concept and procrastination in the performance of pre-service teachers as a consequence of their competence development. More specifically, the competences related to organisation, planning and self-regulation for the achievement of academic objectives (Chávez-Becerra et al., 2020). This relationship would be conditioned by the factors involved in the process of learning, development and academic performance, in order to evaluate those indicators of academic success. Attention will also be paid to those indicators of student procrastination and demotivation. Self-concept is situated within the internal personal factors, highlighting its incidence within learning and school performance.

Self-concept

Self-concept has been defined as the set of perceived characteristics, attributions and valuable judgements that a person has of him/herself in relation to the context (García & Musitu, 2014). These can be both descriptive and evaluative. In the university context, it has been conceptualised as the organised and stable structure, projected into a way of doing, based on one's own skills and acquired competences to solve tasks (Lee et al., 2018), related to decision-making (Duru & Balkis, 2017), academic performance (Méndez, 2021) and the adaptation to the university context (Ibarra-Aguirre & Jacobo, 2016). From this perspective, the Cognitive-Social Theory of Bandura (1987) considers that a person's perception of him/herself can significantly condition his/her possibilities, both in academic development and in the development of all dimensions of his/her life (Guerrero et al., 2022). Some research suggests that the multidimensionality of the student's self-concept (academic, family, emotional, social and physical) directly influences the theoretical and practical management of the university career (Gedda-Muñoz et al., 2021; Mattingly et al.,

2020). Academic self-concept will act as an empowerment between academic performance and attitudes (Veas et al., 2019), underpinned by two aspects: self-assessment and skills that one may have in that context. Similarly, a positive self-concept will be the basis for the good personal, social and academic functioning of the individual, achieving a cognitive and emotional balance of the student, based on a favourable perception of him/herself. On the other hand, those aspects that affect the development of self-concept will condition the socio-affective elements related to confidence and personal motivation when it comes to putting off tasks, as well as regulating academic training (Westgate et al., 2017).

In this order of ideas, it is coherent to argue that it is the academic self-concept, related to procrastination, which has the greatest impact on the academic development of students. In other words, the way in which the person perceives and values themselves clearly impacts on the way they face theoretical and practical tasks (Möller et al., 2020), 2020), realising strengths and weaknesses in relation to the context, with feedback in the student's behaviour, where he/she will feel more or less competent and motivated in the achievement of the proposed objectives (Campbell et al., 1996). Different research has shown that university students with a positive self-concept are able to cope, from an organised perspective, with the excessive load of theoretical-practical activities (Möller et al., 2020; Montoya-Londoño et al. 2019; Palacios-Garay & Coveñas-Lalupú, 2019).

Procrastination or the tendency to put off the task without justification

Procrastination represents an unquestionable variable in the analysis of university realities, relating to the behavioural tendency to unjustifiably put off compulsory and necessary tasks (García & Musitu,

2014). This is due to a lack of organisation and coping skills, triggering negative consequences in the student's academic development (Mejía et al., 2018). Even despite anticipating a negative consequence due to this delay, procrastination is characterised by short-term gains and long-term losses (Chen & Feng, 2022; Unda-López et al., 2022). Different research argues that procrastination may be due to strategies to protect against failure and lack of motivation (Duru & Balkus, 2017). Other research argues that it may be due to excessive task load and adaptive process to the university context (Gavín-Chocano & Molero, 2020; Westgate et al., 2017), where future teachers will have to acquire different competences that allow them to fulfil academic responsibilities. These are related to academic self-regulation or other avoidance behaviours, such as unjustified non-compliance with activities (Duru & Balkus, 2017).

Among studies on procrastination, we find that 50% of university students have procrastination problems. It is estimated that 80-95% of students suffer from procrastination at some point in their lives (Gustavson & Miyake, 2017). The worst thing about procrastination is that one is fully aware of the unnecessary delays and fails to avoid them, resulting in a failure of self-regulatory mechanisms, which will lead to negative emotional consequences related to the completion of the task, as it is considered boring.

With regard to the relationship between procrastination and self-concept, different studies have pointed out the relationship between these variables in the training of pre-service teachers, due to the fact that, during their training, they must acquire different competences for the exercise of their profession. That is, acquiring an effective and productive lifestyle, under a positive perception to meet the commitments and goals set (Kim et al., 2016; Li et al.,

2020; Rusdi et al., 2020).

In the current context of higher education, the interest aroused by the knowledge of those internal factors, such as self-concept, has based its development on those dimensions related to the perception that university students have of themselves, focusing its analysis on the characteristics of learning, self-control and academic self-regulation (Clem et al., 2018). However, there is little evidence on students' procrastination and self-concept, perceived competencies and other internal, protective and enhancing factors for increased motivation and pursuit of personal goals and objectives (Hansen & Henderson, 2019).

This study addresses the predictive value of self-concept, through its dimensions (academic, social, emotional, family and psychological) with procrastination through its dimensions (academic self-regulation and academic procrastination) of university students, future teachers (See Figure 1), consistent with different research that relate both constructs (Pichen-Fernández & Turpo Chaparro, 2022; Sidiq et al., 2020), where concern about negative evaluation and low self-concept as a determinant of procrastination was evidenced. Similarly, self-concept, as an internal factor regulating behaviour, can be externalised through procrastination behaviour (Margareta & Wahyudin, 2019; Popowiranta et al., 2019).

Based on this theoretical model, the research aims to determine the predictive and multidimensional value of self-concept in relation to procrastination (academic self-regulation and procrastination in prospective teachers).

The following hypotheses are considered here:

Pre-service teachers need to acquire different competences that enable them to meet their academic responsibilities. These will be related to self-regulation of learning or other avoidance behaviours, such as non-

compliance or putting off activities or procrastination (Duru & Balkus, 2017).

- H1: Within the multidimensionality of self-concept, academic self-concept will be positively related to self-regulation; and negatively related to procrastination.

Different research considers that the perception people have of themselves will condition their ability and motivation to achieve their goals, whether they are positive or not (Domínguez et al., 2019).

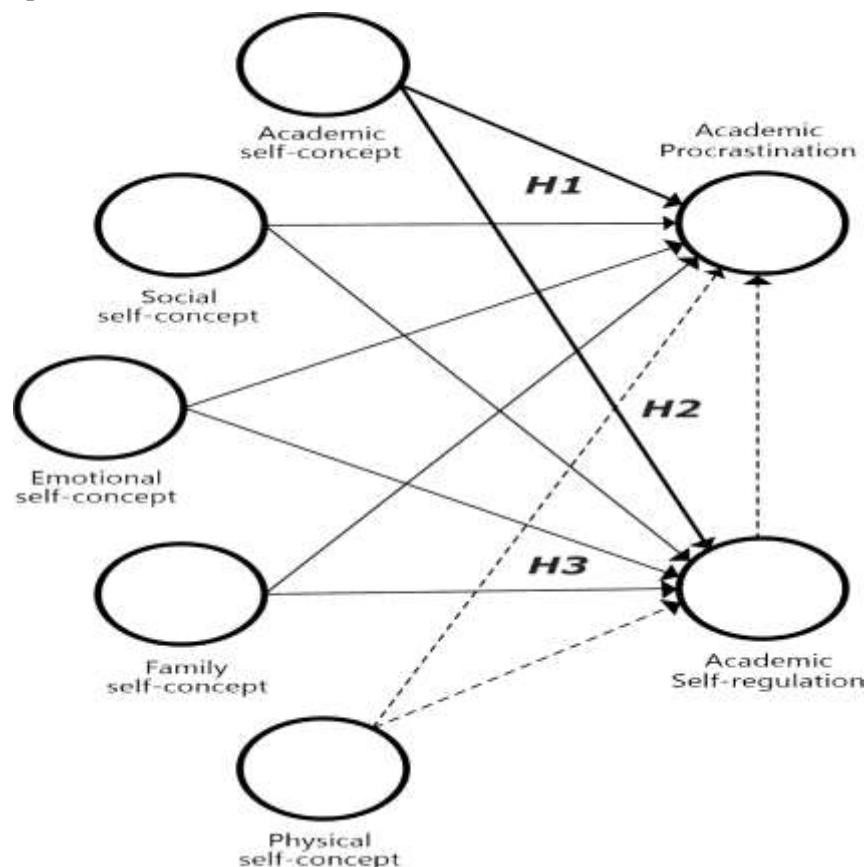
- H2: A higher global self-concept will be a predictor of greater motivation towards tasks.

The resulting evidence from different studies

argues that the procrastination of pre-service teachers is related to task attraction or not, motivation, improvement, uncertainty, fear of failure (Zarick & Stonebraker, 2009). These variables are strongly related to academic, social, emotional and family self-concept, and physical self-concept is not a conditioning factor (Gedda-Muñoz et al., 2021; Margareta & Wahyudin, 2019; Mattingly et al., 2020).

- H3: Self-concept variables (academic, social, emotional and family) will enter into the prediction model of procrastination (self-regulation and academic procrastination).

Figure 1. Proposed Theoretical Model



Method

Participants

The sample is composed of 723 university students, who are pre-service teachers. They belong to the Faculty of Humanities and

Educational Sciences of Jaén (Spain). Incident non-probabilistic sampling was used for their selection. The distribution of participants by gender is as follows: 569 are women (78.10%) and 154 men (21.90%), in

line with the gender ratio in education degrees in Spain. The age range was between 18 and 53 years, with an average age of 22.32 years (± 5.50).

Instruments

Self-Concept Questionnaire Form 5 (AF-5), developed by García and Musitu (2014). A 7-point Likert-type scale (1 to 7 points) was used. The questionnaire consists of 30 items, including academic, social, emotional, family and physical self-concept. The study conducted by the authors obtained a reliability of $\alpha=.815$. In the present study, the reliability of each factor is as follows: academic self-concept, $\alpha=.815$ and $\omega=.862$; social self-concept $\alpha=.845$ and $\omega=.855$; emotional self-concept, $\alpha=.829$ and $\omega=.832$; family self-concept, $\alpha=.851$ and $\omega=.857$; physical self-concept, $\alpha=.759$ and $\omega=.781$. The final sum of the items of each of the factors (academic, social, emotional, family and physical self-concept), indicates a higher or lower self-concept of the student.

Academic procrastination scale (EPA) from Busko (1998), adapted by (Domínguez-Lara et al., 2014), which consists of 12 items, which allows for the evaluation of academic self-regulation (9 items) and academic procrastination (3 items). A 7-point Likert-type scale (1 to 7 points) has been used. It can be applied individually or in groups, with an average time between 8 and 12 minutes. The study carried out by the authors obtained a reliability of $\alpha=.80$. In the present study, the reliability of each factor is as follows: academic self-regulation, $\alpha=.827$ and $\omega=.834$; academic procrastination, $\alpha=.884$ and $\omega=.897$. The interpretation of the results is straightforward: a higher score means a higher presence of the assessed behaviour.

Procedure

The ethical guidelines promoted and encouraged by national and international regulations for conducting research with

people were followed, through the use of informed consent form and the guarantee of confidentiality and anonymity of the data obtained. The instrument was administered individually through the Google platform (Google forms). The approximate response time for each subject was 30 minutes. This research was approved by the Human Research Ethics Committee of the University of Jaén (code OCT.20/1.TES).

Data analysis

Descriptive statistics (means and standard deviations) were obtained, prior analysing the validity, reliability (Cronbach's alpha and Omega coefficient) and internal consistency of each instrument, through Confirmatory Factor Analysis (CFA), to verify the psychometric properties of the questionnaire and obtain the factor loadings of each item. The normality analysis was carried out using multivariate hypothesis testing (the distribution of the set was multivariate normal, and each of the marginal variables met the criteria for univariate normality, but not vice versa), which resulted in a non-normal distribution. The analyses were performed using SPSS AMOS 25, jamovi software (The jamovi Project, 2020) in its Version 1.2 and SmartPLS (version 3.3.6). In relation to the coefficients considered in this study, the Chi-square test (χ^2), the degrees of freedom (gl) and the CFI, GFI, SRMR and RMSEA fit indices were used. In this regard, χ^2 should be understood from the ratio in relation to the degrees of freedom (χ^2/gl), where the values should be between 2 and 5. The comparative fit index (CFI) estimates the relative fit of the observed model, whose value should be above .90 which indicates a good fit. Similarly, the goodness-of-fit index (GFI), above .90, indicates the proportion of variance and covariance of the model data. Similarly, the standardised root mean square residual (SRMR), standardised means of the residuals, i.e. the difference between the observed and model matrix, which is less

than .10, indicates a good model fit. The root mean square error of approximation per degree of freedom (RMSEA), as a measure of discrepancy, should have results below .08 (Kline, 2015). In all cases a 95% confidence level was used (significance $p < .05$).

Results

First of all, we checked whether the data assumed normality by performing Mardia's multivariate test to contrast the skewness and kurtosis of the observed variables. This

showed that the data did not follow a normal distribution. The assumptions of multicollinearity, homogeneity and homoscedasticity were analysed to verify that the resulting distribution met the criteria of dependence between variables.

From the data obtained with each of the instruments (Table 1), a Confirmatory Factor Analysis (CFA) was performed to verify the validity and internal structure of each item.

Table 1. Factor loadings

Latent factor	Indicator	α	ω	Estimator	SE	Z	P	β	AVE	CR
Academic self-concept	A1	.85	.85	.460	.0728	6.32	<.001	.564	.514	.861
	A6	.81	.82	.859	.0789	10.88	<.001	.843		
	A11	.84	.84	.703	.0940	7.48	<.001	.647		
	A16	.85	.85	.648	.0938	6.91	<.001	.604		
	A21	.82	.82	.895	.0899	9.96	<.001	.796		
	A26	.82	.83	.752	.0749	10.04	<.001	.800		
Social self-concept	S2	.77	.79	1.321	.1029	12.84	<.001	.930	.505	.855
	S7	.83	.85	.641	.0930	6.90	<.001	.594		
	S12	.79	.81	1.303	.1309	9.95	<.001	.787		
	S17	.84	.85	.458	.0785	5.83	<.001	.518		
	S22	.84	.85	.972	.1438	6.76	<.001	.588		
	S27	.80	.82	1.081	.1130	9.57	<.001	.763		
Emotional self-concept	E3	.80	.81	.839	.1150	7.28	<.001	.651	.452	.832
	E8	.80	.81	.885	.1201	7.35	<.001	.657		
	E13	.80	.80	1.064	.1432	7.46	<.001	.666		
	E18	.80	.81	.958	.1291	7.45	<.001	.662		
	E23	.79	.80	1.127	.1453	7.78	<.001	.684		
	E28	.79	.80	1.207	.1480	8.13	<.001	.710		
Familiar self-concept	F4	.82	.83	1.056	.1397	7.56	<.001	.661	.501	.856

	F9	.83	.84	.846	.1072	7.89	<.001	.675		
	F14	.83	.85	.747	.1160	6.45	<.001	.580		
	F19	.83	.84	.810	.1024	7.91	<.001	.675		
	F24	.81	.82	1.087	.1039	10.46	<.001	.828		
	F29	.82	.82	.817	.0821	9.96	<.001	.798		
Physical self-concept	Ph5	.79	.80	.414	.1501	2.76	.006	.264	.389	.769
	Ph10	.73	.77	.699	.1735	4.03	<.001	.390		
	Ph15	.71	.74	.958	.1294	7.40	<.001	.641		
	Ph20	.70	.73	1.306	.1310	9.97	<.001	.797		
	Ph25	.70	.75	.877	.1622	5.41	<.001	.498		
	Ph30	.69	.71	1.163	.0992	11.72	<.001	.905		
Academic procrastination	Pro1	.94	.95	1.18	.1461	8.12	<.001	.667	.749	.897
	Pro6	.77	.76	1.59	.1170	13.62	<.001	.964		
	Pro7	.78	.78	1.59	.1231	12.92	<.001	.934		
Academic self-regulation	Sr2	.80	.81	.989	.1334	7.41	<.001	.650	.461	.798
	Sr3	.81	.82	.790	.1336	5.91	<.001	.537		
	Sr4	.82	.83	.505	.1202	4.20	<.001	.397		
	Sr5	.80	.80	1.000	.1153	8.68	<.001	.731		
	Sr8	.81	.82	.567	.1036	5.48	<.001	.504		
	Sr9	.80	.81	.875	.1250	7.00	<.001	.620		
	Sr10	.82	.82	.484	.0996	4.86	<.001	.457		
	Sr11	.79	.79	.947	.0945	10.02	<.001	.810		
	Sr12	.81	.82	.600	.0886	6.77	<.001	.602		

Note. AF5: Self-Concept Questionnaire (academic, Self-Concept Questionnaire (AF-5). The social, emotional, family and physical); Academic factor loadings for the items of this scale Procrastination Scale (academic procrastination and presented an adequate fit (Hair et al., 2021), academic self-regulation); SE: Standardised error; $\chi^2/df = 2.639$, with CFI = 0.921, SRMR = Z: Z-value in the estimate; p: p-value of Z estimate; .048, RMSEA = .069. The reliability of this β : Standardised estimate; AVE: Average Variance scale was Cronbach's $\alpha = .904$ and Extracted; CR: Composite Reliability. McDonald's $\omega = .909$.

Academic Procrastination Scale. Factor loadings for the items of this academic

procrastination and self-regulation scale showed a moderate fit (Hair et al., 2021), $\chi^2/df = 2.547$, with $CFI = .902$, $SRMR = .057$, $RMSEA = .078$. The reliability of this scale was Cronbach's $\alpha = .691$ and McDonald's $\omega = .712$.

Structural Model

In order to analyse the robustness of the factor loadings and the significance between variables, the Bootstrapping procedure was used with 2000 subsamples (Hair et al., 2021), which resulted in the structural model (Figure 2). The latent variables considered in this research are reported in this model. As the predictive significance R^2 indicates,

43.5% of the variance of Academic Procrastination and 47.4% of the variance of Academic Self-Regulation, explained by the self-concept variables (academic, social, emotional and family), which form the model. In this regard, R^2 values above .67 indicate a substantial model fit, and above .33 a moderate fit (Chin, 1998), with a root mean square error (SRMR) of .078. An SRMR value $< .08$ is considered acceptable and $SRMR < .05$ is considered optimal (Chin, 1998). Therefore, the overall predictive value of the model was adequate.

Figure 2. Reliability and validity of the model

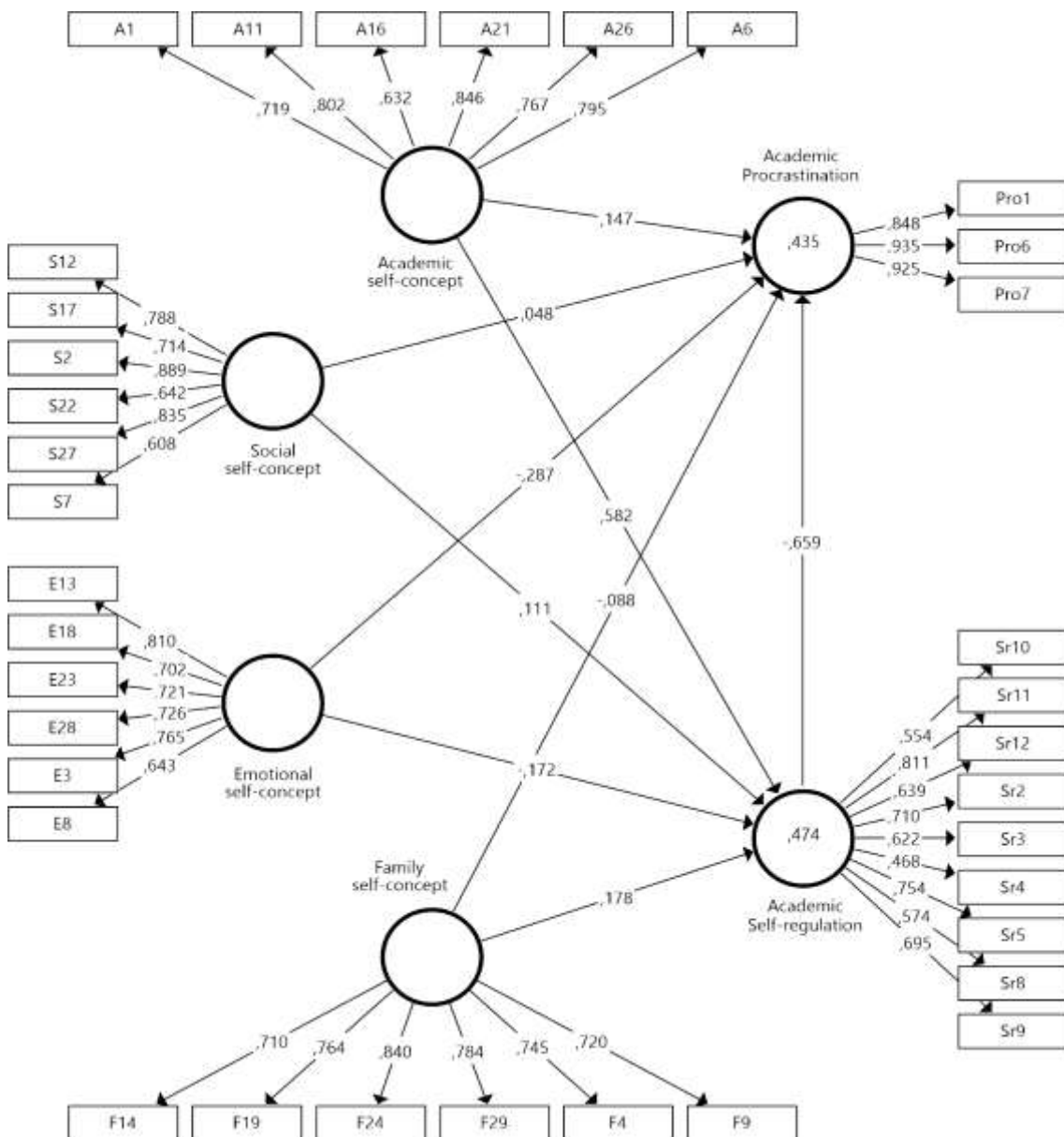


Table 2 presents Cronbach's alpha, Omega coefficient, external loadings and composite reliability index (CFI) scores. In relation to the convergent validity obtained through the estimation of the average variance extracted

(AVE), the values must be greater than .5, according to the criteria of Becker et al. (2018). That is, a high value of (AVE) will have a better representation of the loading of the observable variable.

Table 2. Convergent validity.

Variable	α	ω	Composite Fiability Index (CFI)	Rho_A	Average variance extracted (AVE)
Academic self-concept	.85	.85	.893	.890	.583
Emotional self-concept	.83	.83	.872	.868	.532
Familiar self-concept	.85	.85	.892	.869	.580
Social self-concept	.84	.85	.885	.881	.567
Academic self-regulation	.82	.83	.869	.847	.429
Academic procrastination	.88	.89	.930	.887	.816

Note: (1) Cronbach's alpha coefficient = α , Omega Coefficient = ω .

The discriminant validity (Table 3) used to verify that the indicators of the latent construct are not related to the inadequate constructs, shows the difference between the latent variable with the highest value with

the rest of the variables. The square root of the mean variance extracted (Martínez & Fierro, 2018), where the criteria are met, is indicated in bold (Martínez & Fierro, 2018).

Table 3. Discriminant validity

Variable	1	2	3	4	5	6
1. Academic self-concept	.763					
2. Emotional self-concept	.197	.730				
3. Familiar self-concept	.294	.280	.762			
4. Social self-concept	.415	.391	.481	.753		
5. Academic self-regulation	.646	.036	.354	.370	.655	
6. Academic procrastination	-.341	-.287	-.335	-.289	-.588	.903

Discriminant validity (Table 4) was analysed through the analysis of the cross-loadings of each of the latent variables and their respective observed variables. The loadings

with their own variable were higher than with the rest of the variables (Ramírez-Asís et al., 2020). The criteria are met.

Table 4. Cross-loadings (latent and observable variables).

Variable	Academic self-concept	Emotional self-concept	Familiar self-concept	Social self-concept	Academic self-regulation	Academic procrastination

A1	.719	.206	.268	.423	.504	-.259
A11	.802	.042	.272	.245	.634	-.399
A16	.632	.194	.112	.309	.336	-.152
A21	.846	.191	.348	.345	.574	-.330
A26	.767	.141	.090	.319	.381	-.124
A6	.795	.187	.120	.282	.373	-.142
E13	.133	.810	.186	.326	.078	-.291
E18	.213	.702	.314	.342	.042	-.163
E23	.211	.721	.255	.388	.056	-.150
E28	.122	.726	.344	.247	-.059	-.207
E3	.143	.765	.060	.218	.029	-.245
E8	.015	.643	.107	.214	-.049	-.086
F14	.309	.392	.710	.370	.196	-.350
F19	.219	.146	.764	.457	.369	-.243
F24	.248	.100	.840	.365	.371	-.267
F29	.152	.166	.784	.376	.209	-.184
F4	.147	.401	.745	.322	.153	-.277
F9	.233	.116	.720	.275	.245	-.186
S12	.214	.359	.315	.788	.171	-.266
S17	.424	.203	.377	.714	.412	-.236
S2	.328	.283	.376	.889	.331	-.227
S22	.175	.475	.313	.642	.166	-.196
S27	.398	.354	.491	.835	.294	-.252
S7	.208	.116	.217	.608	.163	-.052
Pro1	-.393	-.202	-.205	-.181	-.618	.848
Sr10	.432	.044	.256	.369	.554	-.208
Sr11	.463	.026	.232	.183	.811	-.612
Sr12	.334	-.055	.223	.181	.639	-.323
Sr2	.425	.055	.299	.264	.710	-.455
Sr3	.451	.185	.322	.421	.622	-.393
Sr4	.350	-.057	.291	.158	.468	-.205
Sr5	.499	.058	.162	.243	.754	-.504
Pro6	-.246	-.300	-.343	-.285	-.486	.935
Pro7	-.274	-.280	-.368	-.325	-.475	.925
Sr8	.373	-.120	.155	.225	.574	-.141
Sr9	.463	-.011	.174	.166	.695	-.424

Table 5 shows the results of the hypothesis testing, following the criteria of Hair et al. (2021), where the causal relationship with the latent variables can be observed. The t-test was obtained (values higher than 1.96 indicate the consistency of the model). In this research, the results that showed a higher value were: Academic self-concept - > Academic self-regulation: ($\beta = .582$, $t = 10.903$ $p < .001$); Academic self-regulation -

> Academic procrastination: ($\beta = -.659$, $t = 7.323$, $p < .001$); Emotional self-concept -> Academic procrastination: ($\beta = -.287$, $t = 2.815$, $p < .001$); Emotional self-concept -> Academic self-regulation: ($\beta = -.172$, $t = 2.720$, $p < .001$); Social self-concept -> Academic self-regulation ($\beta = .111$, $t = 2.286$, $p < .001$); Family self-concept -> Academic self-regulation ($\beta = .178$, $t = 2.062$, $p < .001$).

Table 5. Path coefficient (standardised regression coefficient).

Relationship between variables	Path coefficient t (β)	Standard deviation (σ)	Estatistic t	p
Academic self-concept -> Academic self-regulation	.582	.053	10.903	***
Academic self-concept -> Academic procrastination	.147	.095	2.542	***
Emotional self-concept -> Academic self-regulation	-.172	.095	2.720	***
Emotional self-concept -> Academic procrastination	-.287	.106	2.815	***
Familiar self-concept -> Academic self-regulation	.178	.086	2.062	***
Familiar self-concept -> Academic procrastination	-.088	.108	.811	.418
Social self-concept -> Academic self-regulation	.111	.087	2.286	***
Social self-concept -> Academic procrastination	.048	.103	.473	***
Academic self-regulation-> Academic procrastination	-.659	.090	7.323	.636

Note: *= $p < .05$; **= $p < .01$; ***= $p < .001$.

As can be observed, the model under study (see Table 5) obtained an $R^2 = .435$ and $R^2 = .474$ (moderate values); which implies that self-concept, through its dimensions, explains 43.5% of Academic Procrastination and 47.4% of Academic Self-regulation.

Discussion

The present study aimed to analyse the regulatory potential of self-concept on academic procrastination, and therefore academic performance, in accordance with previous studies (Selçuk et al., 2021; Suárez-Perdomo et al., 2022). Specifically, attention was paid to different key competences in a teacher, related to organisation, planning and self-regulation for the achievement of academic goals (Chávez-Becerra et al., 2020).

Based on the findings obtained, in order to highlight the primary results, it has been

corroborated that self-concept has been significantly related to academic self-regulation. In this vein, other studies have been devoted to analyse the relationship between academic self-regulation and self-efficacy (Alghamdi et al., 2020; Li & Zheng, 2018; Zhou et al., 2022). Accordingly, it has been identified how procrastination is positioned as a universal phenomenon that is perceived by most individuals and in diverse settings. This prevalence of academic procrastination implies the need to document the potential factors that lead to it, and subsequently explore potential ways to reduce it.

In any case, procrastination is inversely related to academic success and retention. Along these lines, Garzón-Umerenkova and Gil-Flores (2017), in a review of the impact of procrastination on dropout and retention in Higher Education, identified three types

of variables that condition this relationship: personal variables, institutional variables and circumstantial variables. In relation to the former, socio-demographic characteristics, individual resources and strategies that people have to face challenges and initiate self-regulation processes, as well as previous experiences in this respect, stand out; As for the second, reference is made to political and institutional conditions to promote success and reduce procrastination, academic variables such as the degree or assessment system and social factors related to accessibility to the system, through a scholarship system or similar; finally, the third refers to institutional interactions, student-teacher relationships and, especially, the contextual circumstances surrounding the individual.

Several studies have also focused on educational policy and measures to promote academic success, as well as on teachers, affirming the importance of developing the ideal learning conditions to favour self-regulated learning processes (de la Fuente et al., 2021; Dignath & Veenman, 2021).

In this regard, self-concept is strongly influenced by the social context in which they develop, so it is necessary to consider all the variables that influence academic environments and their agents, such as students' personalities, teachers, academic level or other conditions that directly or indirectly impact academic performance (Baumann & Harvey, 2021). These other conditions that determine academic performance can lead to a variety of problem behaviours, such as difficulty in making decisions, laziness in studying, hatred of homework, fear of failure, dependency experience, not daring to take risks, not being assertive and going against the rules (Handoyo et al., 2020).

Self-regulated learning has also been closely linked to procrastination, including other factors such as student motivation (Pelikan

et al., 2021). In this work, an inverse relationship between academic self-regulation and procrastination has been found in accordance with other work (Özberk and Kurtça, 2021; Scheunemann et al., 2021). From Alfari's (2020) research results, academic procrastination has a negative and significant relationship with learning outcomes, meaning that the lower the intensity of academic procrastination, the higher the learning outcomes, and vice versa, the higher the intensity of academic procrastination, the lower the learning outcomes.

These findings suggest the importance of considering psychosocial factors such as self-concept, as well as other personality variables in the design of instructional processes, with the intention of enhancing students' academic performance (García-Martínez et al., 2021), and also decreasing the risk of mental illness, such as depression or anxiety (Stöber and Joormann, 2001; Walsh and Ugumba-Agwunobi, 2002). Therefore, these results entail a set of practical implications related to engagement and coping strategies (García-Martínez et al., 2021) aimed at the acquisition of competences related to self-concept as a cross-cutting measure in the improvement of self-regulation, procrastination and academic performance of future teachers. Similarly, given the prevalence of teachers to suffer from procrastination, due to the stressful conditions that characterise their professional performance, especially when they do not have the necessary coping strategies to manage challenging situations (Veresova, 2013), the way is open for a remodelling, not only of the curricula for future teachers, but also in the continuous training plans for those teachers in practice. Having detected a gap in teacher discomfort at different educational stages, it is time to initiate processes of change that not only affect the profile of today's and tomorrow's teachers, but also at the legislative level,

demanding educational policies that regulate better working conditions for such an essential group as teachers (De Paola & Scoppa, 2015), beyond focusing exclusively on students.

In this respect, it is necessary to adopt a new educational perspective characterised by the search for new ways of working with teachers and students with the current needs and competences that society demands. Future studies will be aimed at designing interventions that incorporate different work techniques, promote different learning styles, and encourage students to feel free to work and show their potential, both academically, physically, socially and emotionally (Gavín-Chocano & Molero, 2020).

Regarding other personality variables, future studies will focus on stress perception as a positive and significant predictor of academic procrastination. This will enhance the effectiveness of self-regulated learning and self-control as moderators in the relationship between stress perception and academic procrastination, as well as improve the action capacity of pre-service teachers by reinforcing metacognitive strategies (Ma et al., 2022).

Also in relation to the effects of mobile and social technology resources from the technological usage habit approach, addressing mobile use, such as addictive or problematic use of technology, or students' psychological engagement with mobiles, such as screen time. These other future studies will be directed towards understanding mobile habits at the individual level and interruptions and impulsivity in everyday use, which may contribute as an element of procrastination in the academic performance of pre-service teachers (Meier, 2022).

In other words, this approach would facilitate students' integration with their social and academic environment, have a more reality-based view of the outside world

in which they live, of themselves and at the same time would be a way to also reinforce a positive perception of their academic performance and their role as a learner.

Finally, this study has a number of limitations that need to be considered. The first of these refers to the cross-sectional methodological design developed, which provides an overview of the situation, but it is not possible to investigate the causes that give rise to these results. To overcome this, future research will incorporate a longitudinal design, where instruments of a qualitative nature will be combined with the intention of gaining a deeper understanding of the reasons behind the findings. Secondly, there are also limitations in terms of the sex ratio of the sample. To mitigate this bias, in the future it is intended to incorporate students from other degrees where the sex ratio may be more balanced.

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