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## **Do I study what I want or what I must? The effects of motivation on study preference, perceived efficacy, academic engagement and dropout ideation in university studies**

¿Estudio lo que quiero o lo que debo? Efectos de la motivación en la preferencia de estudio sobre la eficacia percibida, el engagement académico y la ideación de abandonar los estudios universitarios

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### **Abstract**

*The present study uses a cross-lagged model in order to analyse the impact of (intrinsic and extrinsic) motivations on the choice of a university degree. It examines how these motivations affect perceived efficacy, academic engagement, academic results and the tendency to change or drop out. A sample of 198 students from Spanish universities answered a battery of questionnaires before and after the first academic evaluation period of the course. The results show the significant*

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*and positive impact of intrinsic (as opposed to extrinsic) motivations on perceived efficacy and academic engagement. On the other hand, it is noted that engagement plays a mediational role in the relationship of motivation and perceived efficacy with the ideation of change and university dropout. The latter indicator is predicted by both lower engagement and poorer academic performance. The data highlight the relevance of an adequate pre-university orientation towards degrees for which the student experiences greater intrinsic motivation, due to its subsequent impact on variables that prevent dropout and change of studies. These actions should be complemented with others that increase the levels of personal resources and well-being of students once they have started their studies.*

*Keywords:* academic motivation; academic engagement; student dropout; self-perceived efficacy; psychological well-being.

### **Resumen**

*El presente estudio analiza, mediante un modelo cross-lagged el impacto de las motivaciones (intrínsecas y extrínsecas) en la elección de una titulación universitaria. Se investiga cómo estas motivaciones afectan la eficacia percibida, el engagement académico, los resultados académicos y la tendencia al cambio o abandono de estudios. Una muestra de 198 estudiantes de universidades españolas respondió a una batería de cuestionarios antes y después del primer periodo de evaluación académica del curso. Los resultados muestran el claro impacto positivo de los motivos intrínsecos (frente a los extrínsecos) sobre la eficacia percibida y el engagement académico. Por otra parte, se observa que el engagement ejerce un papel mediador en la relación de la motivación y la eficacia percibida con la ideación de cambio y el abandono de estudios universitarios. Este último indicador es predicho tanto por un menor engagement como por peores resultados académicos. Los datos destacan la importancia de una adecuada orientación preuniversitaria hacia titulaciones para las que el estudiante experimente una mayor motivación intrínseca, por su impacto posterior en variables que previenen el abandono y el cambio de estudios. Estas acciones deberían complementarse con otras que incrementen los niveles de recursos personales y el bienestar del estudiantado, una vez iniciados los estudios.*

*Palabras clave:* motivación académica; engagement académico; abandono estudiantil; eficacia percibida; bienestar psicológico.

### **Introduction**

Recent data on university drop-out rates in Spain show figures of 13.5% for undergraduate students in on-campus universities (UU.PP.) and 12.5% who switched to other university studies (Ministry of Universities, 2023). These values are similar to those of other European countries (European Commission, 2015). The dropout rate in distance learning universities is significantly higher, 53.4%, although it is similar in the case of a change of degree, 12%.

Several studies (Casanova et al., 2018; European Commission, 2015) point, among the causes, to insufficient pre-university orientation and, therefore, factors related to an

inadequate choice of studies; insufficient academic resources (such as study techniques or accompaniment and integration actions) and personal resources (such as a low perception of ability or motivation, a negative shock with initial expectations; Merhi, 2011) or low levels of academic commitment (Tinto, 2017). The literature also supports the relationship between better academic results and a lower tendency to drop out of school (also in Bask and Salmela-Aro, 2013; Carloto and Gonçalves, 2008, cited in Merhi, 2021).

Increasingly, universities are addressing this problem through actions such as new student orientation, mentoring programmes and remedial courses. From a psychological perspective, universities are progressively increasing the importance of the psychosocial well-being of their students through actions that foster it, both for the positive effects *per se* and for its impact on academic performance (Casanova et al., 2018; Hodge et al., 2019). This aligns with positive education, a branch of positive psychology that focuses on the study and promotion of factors related to personal development and optimal functioning in academic settings (Seligman and Adler, 2018).

### **Academic success as a multi-causal phenomenon**

Combining the institutional and psychological approach, it is worth talking about the impact of pre-university guidance. In this regard, Figuera Gazo et al. (2018) highlight the importance of an appropriate choice of studies, aligned with the desires and motivations of the individual, for its impact on academic satisfaction, commitment and student academic success. Students who pursue first-choice studies have a more positive perception of their ability to face challenges (Tapasco et al., 2019) compared to those who do not, the latter lacking a defined vocational project and the necessary commitment to their academic activities.

Numerous research studies have examined the distinctive role of intrinsic and extrinsic motivations (Ryan and Deci, 2020) in decision-making. Intrinsic motivation drives people to act for the sheer pleasure of doing so, based on personal interests and intrinsic enjoyment. In contrast, extrinsic motivation is derived from external rewards, such as social recognition, money or avoidance of sanctions. In the context of academics and study choice, this means that students may choose a degree that they are passionate about (intrinsic motives) or one that they perceive as having more career opportunities or is influenced by external pressures (extrinsic motives). According to current evidence, a study choice aligned with more internal or vocational motivations will have a significantly greater impact on the maintenance of intrinsic motivation during university, degree satisfaction, psychological well-being and academic performance (Casanova et al., 2018; Figuera Gazo et al., 2018). Some obstacles to the choice of highly motivated studies are insufficient entry grades or financial constraints, especially if moving away from the family home is required (Ministry of Universities, 2023).

However, academic performance (and dropout) is a multi-causal phenomenon, so other intervening factors besides motivation must be taken into account (Llanes et al., 2021). The

Theory of Job Demands and Resources (Demerouti et al., 2001, cited in Demerouti and Bakker, 2023) can explain performance in a broad way, in addition to well-being. Applied to the academic environment (Hodge et al., 2019, cited in Merhi et al., 2018) it states that the characteristics of the environment can be disaggregated into demands (aspects that require cognitive, emotional and/or physical effort to resolve) and resources (each individual's abilities to cope with the tasks of a given context). According to the model, the learner will experience higher levels of stress and psychosocial distress and lower performance if the demands exceed the resources available to him/her (Demerouti and Bakker, 2023). On the other hand, resources, such as increased motivation to study, will themselves produce positive effects on the individual's health and satisfaction. Even in the face of high academic demands, these may become challenges if they match the level of resources available, as well as increasing well-being and improving academic performance (Salanova, Martínez et al. 2005).

In the academic context, the demands and resources theory (DRT) would constitute a perspective focused on the need to develop strengths as a means to enhance well-being (Hodge et al., 2019).

In this regard, high intrinsic motivation has been associated with indicators of emotional well-being, while high levels of extrinsic motivation have been associated with stress, poorer academic performance and a greater tendency to drop out of school (Díaz-Mujica et al., 2019; Merhi, 2021). However, there is mixed evidence on the impact of the type of motivation on study choice. The report on academic dropout by the Ministry of Universities (Fernández-Mellizo, 2022) shows that it is students in the Arts and Humanities who drop out more than those in Health Sciences, a fact that the authors attribute mainly to the lack of job prospects for their studies. Therefore, there seem to be variables that influence the relationship between prior motivations and academic performance (e.g. Casanova et al., 2018; Ryan and Deci, 2020; Tapasco et al., 2019).

### **Motivation and perceived academic effectiveness**

According to the theory of self-determination (Ryan and Deci, 2020), when experiencing greater intrinsic motivation towards an activity, it is more likely to develop greater perceived efficacy, referring to the degree of preparation that the person considers he or she has to successfully achieve a task or set of tasks (Salanova, Bresó et al., 2005). This is because such motivation fosters other resources such as perseverance, commitment and dedication, in turn increasing confidence in one's own ability to succeed (Casanova et al., 2018; Díaz-Mujica et al., 2019). In contrast, extrinsic factors, such as recognition and external rewards, can increase self-efficacy, but their effects are more limited and temporary, as they do not arise from the individual.

Perceived academic efficacy has been one of the most analysed personal resources within TDR given its psychological and academic consequences: students' psychosocial well-being, their performance or university dropout (Talsma et al., 2018). According to

Bandura's (2001) social cognitive theory, this variable impacts cognitive, behavioural and emotional aspects. Those with higher perceived academic efficacy tend to set more challenging goals, invest more effort and resources, and achieve better results.

However, a systematic review by Honicke and Broadbent (2016), while showing moderate relationships between self-efficacy and university academic performance, highlighted a low amount of evidence of mediating psychological variables, especially through longitudinal studies analysing the impact of motivational and cognitive variables involved in this process. A subsequent study (Díaz-Mujica et al., 2019) indicates that self-efficacy has an impact on academic retention, not directly, but through satisfaction with the degree and self-regulated learning.

### **Psychological well-being and academic success**

Positive education (Seligman and Adler, 2018) states that psychological well-being is associated with greater academic success. One of the most commonly used indicators to assess psychosocial well-being is *engagement*, which emerged in the workplace (Salanova et al., 2000), and has been transferred to the student environment (Merhi et al., 2018; Salanova, Martínez et al., 2005; Talsma et al., 2018; Williams et al., 2018). Academic *engagement* is a positive and persistent state of mind characterised by high levels of vigour or mental energy, persistence in performing academic tasks; enthusiasm and dedication towards the task or set of tasks; and the experience of absorption or ability to concentrate on performing tasks with the feeling that time "flies by" (Schaufeli et al., 2002; Mazzetti et al., 2023).

The literature has linked *engagement*, in addition to academic performance (e.g. Hodge et al., 2019; Tinto, 2017), to higher prior levels of personal resources (motivational, cognitive and emotional) within the TDR (Demerouti and Bakker, 2023). Understanding *engagement* as a positive motivational construct (Mazzetti et al., 2023; Schaufeli et al., 2002), students with a higher level of *engagement* also show greater intrinsic motivation (Ryan and Deci, 2020), which is related to greater self-efficacy, high persistence when facing difficulties in their studies, greater permanence in their studies (Tinto, 2017) and better academic performance (Casanova et al., 2018; Figuera Gazo et al., 2018). However, university studies are a field with less research, especially through longitudinal studies that allow us to analyse both the causal processes of the variables involved and their evolution (Barr et al., 2015; cited in Merhi, 2021).

### **The research model**

Based on the available evidence, the aim of the present study is to evaluate a prediction model of the ideation of dropping out or changing studies (Behr et al., 2020; Respondek et al., 2020), based on relevant motivational variables (study choice motives) and the perception of academic efficacy, understood as personal resources, as well as academic *engagement* and performance (Honicke and Broadbent, 2016), in a sample of university students in Spain at two points in time. Additionally, the aim is to test the differentiated

role of intrinsic and extrinsic motivations in the model. To this end, the following hypotheses are proposed (Figure 1):

- Exploratory hypothesis 1. Exploratorily, students who were able to choose their preferred degree will have higher levels of intrinsic motivation, perceived efficacy and *engagement* (T1), better academic results obtained and less tendency to drop out or change their studies (T2) compared to those who did not.
- Hypothesis 2. Intrinsic motives for study choice will predict higher levels of perceived efficacy and *engagement* (T1) and will be indirectly related to a lower propensity to drop out or change studies (T2). In contrast, extrinsic motives will not indirectly predict a lower propensity to drop out or change studies (T2).
- Hypothesis 3. Perceived efficacy (T1) will have a significant indirect effect on lower propensity to drop out or change studies (T2).
- Hypothesis 4. Academic *engagement* (T1) will predict better academic results and a lower tendency to drop out and change studies (T2).
- Hypothesis 5. *Engagement* mediates the relationship between motives and perceived efficacy (T1), understood as personal resources, and the tendency to drop out or change studies (T2).
- Hypothesis 6. Higher academic results obtained (T2) will be related to a lower tendency to drop out or change studies in (T2).

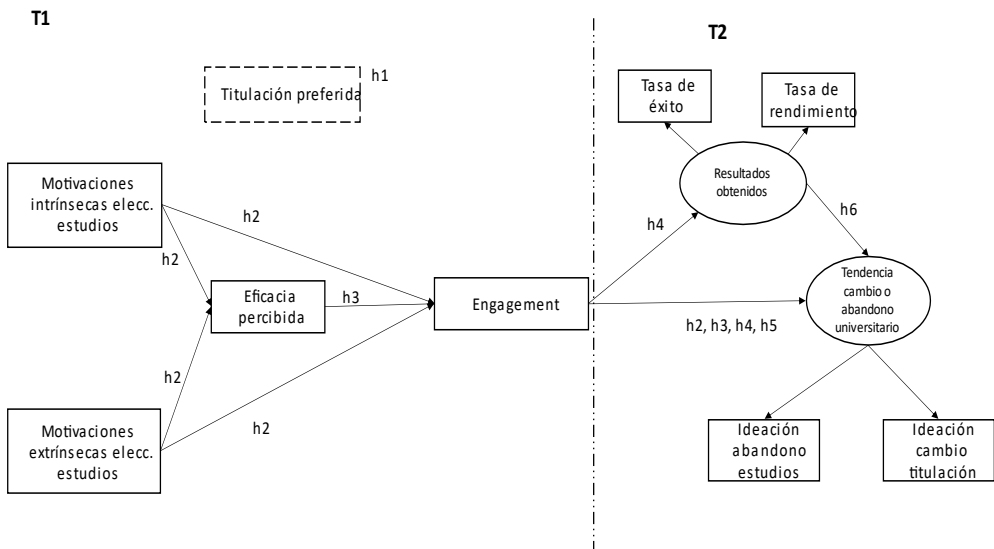


Figure 1. Study model M1

## Method

### Participants

The sample included 198 undergraduate students from different Spanish universities, by purposive sampling: UNED (44.2%), Universitat Jaume I (40.9%), and other public universities. Two sets of questionnaires were administered, before and after the first semester exams. The mean age was 29.9 years (UNED: 37.8; UU.PP. 23.6), with 65.7% women. The distribution by academic areas was: 64.6% in Social and Legal Sciences, 15.6% in Social and Legal Sciences, 15.6% in Social Sciences and Law, 15.6% in Social Sciences and Law, and 15.6% in Social Sciences and Law. Social and Legal Sciences, 15.5% in Arts and Humanities, and 16.6% in Engineering and Sciences. The distribution by academic year was: first year 32.6%, second year 23.2%, third year 18.2% and fourth year or higher 26%.

Given the different socio-academic profiles between the U.P. and UNED (Fernández-Mellizo, 2022), we analysed differences in the variables collected, finding statistically significant differences in intrinsic motivation ( $p < .001$ , Cohen's  $d = .60$ ), *engagement* ( $p < .001$ , Cohen's  $d = .5$ ) and tendency to drop out ( $p < .05$ , Cohen's  $d = .34$ ), with higher values of motivation and *engagement* in the UNED and a greater tendency to drop out in the face-to-face courses.

### Instruments

#### ***Instruments prior to the academic evaluation period***

*Motivation for the choice of studies.* An *ad hoc* scale, used in previous studies (Merhi et al., 2018), was designed to measure the reasons for choosing university studies. The 11 items of the scale were selected based on a thorough review of the literature and the experience of experts in the field. A priori the scale would measure two main factors, intrinsic and extrinsic motives. To assess its construct validity, we used confirmatory factor analysis (CFA), which showed an adequate fit of the two-factor model (Table 1). According to the CFA, ten of the items were grouped into two subscales: four in Intrinsic Motivations (e.g. "I am interested in its contents") and six in Extrinsic Motivations (e.g. "Because of its job opportunities"). The response scale is Likert-type, from 1 (*not at all*) to 4 (*very much*). Internal consistency was .71 for Intrinsic Motivations and .80 for Extrinsic Motivations. In addition, the item "I could not choose my preferred option" was included, not attached to any subscale.

*Perceived efficacy.* This measures the degree of ability to cope successfully with a task or set of tasks. It was assessed using the subscale of the *Maslach Burnout Inventory-Student Survey*, MBI-SS (Schaufeli et al., 2002), in its Spanish adaptation (Salanova, Martínez et al., 2005). It consists of 5 items (e.g. "In my opinion I am a good student") and a Likert-type response scale from 0 (*never*) to 6 (*always*). Internal consistency was .78.

*Academic Engagement.* It was measured with the Spanish adaptation of the Well-being in the Academic Context Scale - Utrecht Work Engagement Scale (UWES) by Salanova et al. (2000), specifically using the dimensions vigour and dedication. The literature has related them to positive consequences, as opposed to absorption, which is inversely linked to work or academic stress. Therefore, the five Vigour items (e.g. "My tasks as a student make me feel full of energy") and five Dedication items (e.g. "My career is challenging for me") were specifically used, as they have higher validity in a larger number of samples (Demerouti and Bakker, 2023). The internal consistency of the *engagement* and the dedication and vigor subscales was .89, .86 and .84, respectively.

### **Instruments after the academic evaluation period**

*Results obtained.* Three *ad hoc* items were used to collect self-reported objective data: number of subjects (a) enrolled, (b) assessed and (c) passed. From the division between (c) and (b) the variable "success rate" was obtained; and from the division between (c) and (a) the variable "achievement rate" was obtained.

*Tendency to change or drop out of university studies.* Two items were used (applied in previous studies; e.g., Merhi, 2021) asking, respectively, about the experience in the last few weeks of ideation of either dropping out of university or changing careers. This was accompanied by a Likert-type response scale from 1 (*never*) to 7 (*always*).

### **Procedure**

Faculty from participating universities were contacted to collect a wide range of socio-academic profiles. Information about the study was provided and the online administration of questionnaires was scheduled using Qualtrics®, with informed consent and confidentiality guaranteed.

Data collection took place at two points in time: (T1) before the first official evaluation period, between November and December; and (T2) after the closing of the academic records, between February and March. The risk of false answers was minimised thanks to the length of the survey (around 20 minutes), the recording of the response device by Qualtrics and the obligation to answer the items.

### **Data analysis**

First, a confirmatory factor analysis of the study choice motives instrument was performed, considering two a priori factors, intrinsic and extrinsic motives, and KMO and Bartlett's test of sphericity tests were performed to justify the results (López-Aguado and Gutiérrez-Provecho, 2019).

Subsequently, for the exploratory analysis of the preferred choice of degree (Hypothesis 1), a contrast of means was carried out using Student's t-test for independent samples (according to whether or not the desired option was available, *a little or not at all, and quite a lot or a lot*), additionally finding the effect size (Cohen, 1992).



Finally, descriptive analyses of the study variables were carried out, the assumptions of normality and homogeneity of variance were assessed, and Pearson's correlation coefficient was applied between the study variables (Hypotheses 2, 3, 4, 5 and 6). Statistical analyses were carried out with the SPSS statistical programme, version 24.

### **Hierarchical regression analysis**

To test the research model (Hypotheses 2, 3, 4, 5 and 6) and estimate the direct and indirect effects (Preacher and Hayes, 2008) between the variables collected, path analyses were conducted using IBM SPSS AMOS ©, version 24. Standardised regression coefficients were used to measure the size of the direct and indirect effects and the maximum likelihood (ML) method was used for parameter estimation, as it is the most widely used, efficient and invariant method for the type of scales used (Hooper et al., 2008).

To assess the fit of the proposed models, we analysed several frequently used indices (Garrido et al., 2020; Hooper et al., 2008): Hoelter's critical index N ( $N > 200$ ) to analyse the adequacy of the sample size; the root mean square error of approximation (RMSEA  $< .07$ ); the comparative fit index (CFI  $> .95$ ); the incremental fit index (IFI  $> .95$ ); and the Akaike Information Criterion (AIC), for the comparison of the models, whose values close to zero indicate a good fit (Cavanaugh and Neath, 2019). Path analyses also included the bootstrapping method, considered one of the most powerful methods for analysing the significance of the effect of intermediate variables (MacKinnon, 2008).

The main model M1 (Figure 1) tests a set of antecedent variables for the propensity to drop out or change university, including study choice motivation (intrinsic and extrinsic), perceived efficacy, *engagement*, outcomes.

## **Results**

### **Factorial fit of the Motives for Study Choice Scale**

The confirmatory factor analysis with varimax rotation, maximum likelihood obtained a KMO sampling adequacy coefficient of .755 and a Bartlett's sphericity coefficient of  $c^2(45) = 1769.11$ ,  $p < .001$ . Items with factor weights greater than .45 were considered factors with an eigenvalue greater than 1. The factor solution grouped the items into two factors that explained 50.98% of the variance. The first factor included six of the items, and the remaining four were ascribed to the second factor (Table 1). The KMO (KMO=.755) and Barlett ( $X^2 = 1769.112$ ,  $p < .000$ ) tests point to the adequacy of the confirmatory factor analysis performed. Furthermore, this two-factor model was confronted with a single-factor model, which showed a statistically worse fit ( $\chi^2 = 848.246$ ,  $l.g. = 35$ ;  $p < .000$ ; RMSEA = .182, CFI = .531, IFI = .534), supporting the validity of the two-factor model.

Table 1

*Factor analysis of the scale of motives for study choice.*

Item	Factor 1	Factor 2
It is a means to increase revenues	.758	
It is a way to have more chances for career advancement.	.749	
It is a way of being able to change careers	.410	
Confers social prestige	.588	
I am interested in its contents		.581
It is a cultural value		.679
For their employment opportunities	.539	
For obtaining a university degree	.429	
It will increase my cultural level		.680
For personal satisfaction		.574
Explained variance	28.4%	22.6%
Own value	2.84	2.26

### Exploratory analysis of preferred degree choice

To analyse possible significant differences in the study variables between those who were able to choose their desired study option and those who were not, mean differences were calculated for each variable and compared using the independent samples T-test.

Table 2

*Differences in means according to the item "I was not able to choose my preferred option".*

	M (DT)		t	Sig. bilatera l	d Cohe n
	(Nothing or something)	(Quite a lot or a lot)			
Intrinsic motivations	3.50 (.51)	3.13 (.72)	2.742	.007	.593
Extrinsic motivations	2.27 (.73)	2.44 (.91)	-.894	.372	.206
Perceived effectiveness	5.01 (.96)	4.02 (.95)	4.042	.000	1.036
<i>Engagement</i>	5.15 (.99)	4.40 (1.27)	2.886	.004	.650
Success rate	73.2 (36.5)	58.3 (41.2)	1.579	.116	.382
Rate of return	62.7 (36.4)	50.0 (37.2)	1.362	.175	.345
T. School dropout	1.91 (1.37)	2.59 (1.5)	-1.910	.058	.473
T. change of qualification	1.78 (1.44)	2.65 (1.84)	-1.888	.075	.526

*Note:* Degrees of freedom=179

Those who were able to choose their preferred degree showed significantly higher levels of prior intrinsic motivation, perceived efficacy and *engagement* than those who were not (Table 2). With a significance of  $p > .01$ , significant differences were observed in the tendency to drop out and to change studies. No differences were observed in the results obtained.

### Descriptive and correlational analysis of the variables of the study.

In order to establish the relationship between the study variables, a descriptive and correlational analysis was carried out.

Table 3

*Descriptive analysis and correlation matrix between the study variables (diagonal, mean and standard deviation).*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) <i>I was not eligible for my preferred option.</i>	1.34 (.72)								
(2) Intrinsic motivations	.260* *	3.47 (.54)							
(3) Extrinsic motivations	.104	.264* *	2.29 (.74)						
(4) Perceived effectiveness	.346* *	.328* *	-.003	4.92 (1)					
(5) <i>Engagement</i>	.265* *	.488* *	.021	.658* *	5.08 (1.04)				
(6) Success rate	.167* *	.134	-.049	.265* *	.123	71.79 (37.07)			
(7) Rate of return	-.132	.096	-.004	.302* *	.161*	.872**	61.47 (36.55)		
(8) T. abandonment	.194* *	-.161* *	-.013	.368* *	-.364**	-.349**	-.358**	1.98 (1.39)	
(9) T. change of qualification	.212* *	.234* *	.063	.266* *	-.355**	-.287**	-.267**	.587**	1.86 (1.5)

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

Table 3 shows the correlations between the study variables, most of which are significant.

Intrinsic and extrinsic motivations correlated positively with each other, but showed different patterns with other variables. Intrinsic correlated positively with *engagement* mainly, followed by perceived efficacy, and with lower propensity to change degree or drop out, with no significant association with success and achievement rates. Extrinsic motivation only correlated significantly (positively) with intrinsic motivation. The item "I could not choose my preferred option" correlated significantly and directly with intrinsic motivation, efficacy and *engagement*, and inversely with the ideation of dropping out and changing degree.

Perceived efficacy correlated significantly with higher *engagement*, and to a lesser extent with better results and less tendency to drop out or change studies. *Engagement* correlated significantly with a higher achievement rate, but not with a higher success rate and a lower tendency to drop out or change studies. Success and achievement rates correlated with each other and inversely with the indicators of tendency to drop out or change university studies. Finally, both indicators of ideation to drop out or change degree correlated significantly and highly with each other, reflecting a general need for academic change.

### Analysis of the background to university dropout

We propose a cross-lagged M1 model (Figure 2) to identify the antecedents of the propensity to drop out through study choice motivations, perceived efficacy, *engagement* and outcomes.

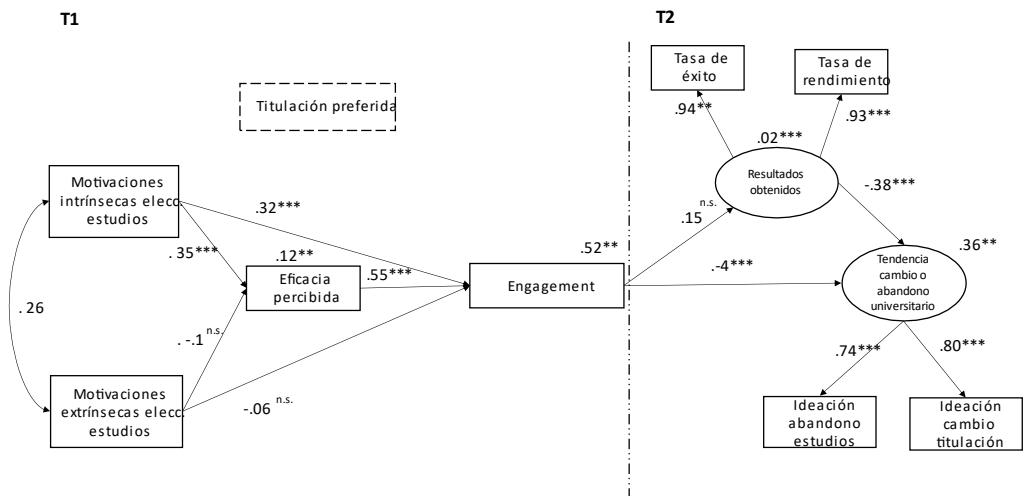


Figure 2. Results of Model M1.

The model presented an acceptable fit in several of the indicators evaluated ( $\chi^2=30.547$ ; g.l.=16; p=.15; CFI=.974 IFI=.975; AIC= 86.547; Hoelter's N=189). However, the RMSEA value was .71. Given these results, and according to Social Cognitive Theory (Bandura, 2001) and Self-Determination Theory (Ryan and Deci, 2020), another Mrevised model was proposed linking perceived efficacy with the results obtained.

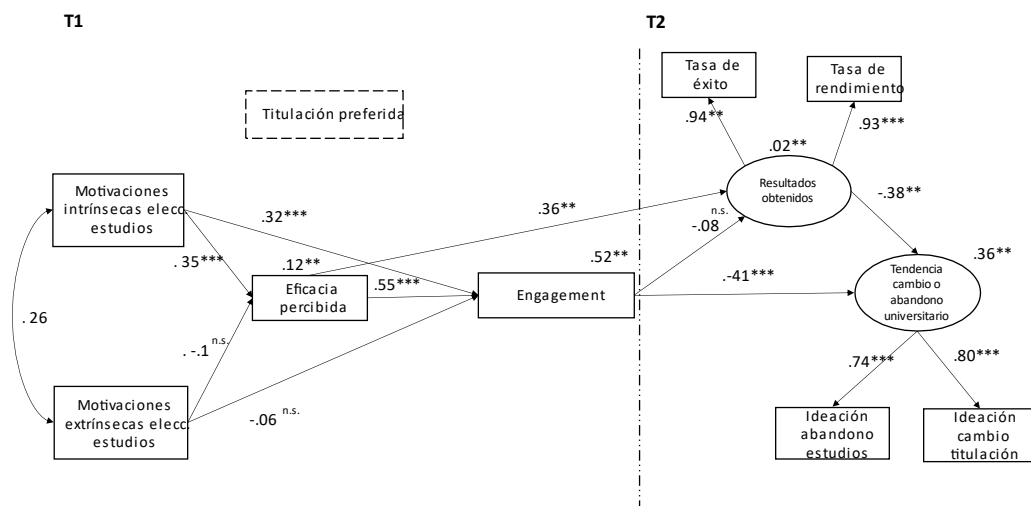


Figure 3. Results of the Mrevised Study Model

In this case, the fit was optimal for all the indicators analysed ( $\chi^2=17.464$ ); g.l.=15; p=.292; CFI=.996; IFI=.996; AIC= 75.464; RMSEA= .30; Hoelter's N=316).

Table 4

Standardised direct and indirect effects of the Mrevised model

Effects	Intrinsic motivations	Extrinsic motivations	Perceived effectiveness	Engagement	Results obtained
<i>Standardised direct</i>					
Perceived effectiveness	.353***	-.096			
Engagement	.323***	-.063	.552***		
Results obtained			.361**	-.083	
Tendency to abandon or change				-.407***	-.384**

Effects	Intrinsic motivations	Extrinsic motivations	Perceived effectiveness	Engagement	Results obtained
<i>Standardised Indirect</i>					
Perceived effectiveness					
Engagement	.195***	-.053			
Results obtained	.085	-.025	-.046		
Tendency to abandon or change	-.243***	.057	-.345***	.032	

Note: \*\*\*  $p < .001$ ; \*\*  $p < .01$ ;

Table 5

*Predictive modelling* ( $M_{revised}$ )

Predictor M1	$\beta$	E.E.	p	R2
<b>Perceived effectiveness</b>				.116**
Intrinsic motivations	.651	.134	***	
Extrinsic motivations	-.129	.097	.186	
<b>Engagement</b>				.519**
Intrinsic motivations	.619	.109	***	
Extrinsic motivations	-.087	.075	.245	
Perceived effectiveness	.574	.057	***	
<b>Results obtained</b>				.098**
Engagement	-2.738	3.234	.397	
Perceived effectiveness	12.410	3.416	***	
<b>Tendency to abandon or change</b>				.361**
Engagement	-.435	.080	***	
Results obtained	-.012	.003	***	

Note: S.E. = standard error. \*\*\*  $p < .001$ ; \*\*  $p < .01$ .

Table 5 shows the variance explained by the variables in the model, all of which were significant. Prior motivations explained 17% of the variance of perceived efficacy, with only intrinsic motivations being a significant predictor. Intrinsic motivations and perceived efficacy explained 52% of the variance in *engagement*, while extrinsic motivations were not a predictor of engagement. Only perceived efficacy was a statistically significant predictor of the results obtained, with the effect of *engagement* being non-significant. *Engagement* and the results obtained explained 36% of the variance of the tendency to drop out or change degree.

As for indirect effects (Table 4), prior intrinsic motivations showed a significant positive effect on *engagement* through perceived efficacy, and on the success rate and a negative effect on a lower tendency to drop out. Extrinsic prior motivations, which were not one of the predictors of perceived efficacy, also had no significant indirect effect on the other variables. Finally, perceived efficacy had a significant negative indirect effect on the tendency to drop out, through *engagement* and achievement.

## Discussion

The present study arises from the need to identify protective factors for university dropout in Spain (Ministerio de Universidades, 2023). Specifically, we assess the validity of a *cross-lagged* model to predict the tendency to drop out or change studies. First, we rely on the demands and resources theory (Demerouti and Bakker, 2023) which highlights the importance of personal resources for their positive effects *per se* on *engagement* (as an indicator of well-being) and student performance. Secondly, in positive education approaches (Seligman and Adler, 2018), underlining the relevance of student well-being, both for its positive psychological consequences (Williams et al., 2018) and for its objective impact on academic success (European Commission, 2015); and, finally, starting from the (extrinsic or intrinsic) motives for choosing the degree (Casanova et al., 2018; Díaz-Mujica et al., 2019; Figuera Gazo et al., 2018).

### Effects of intrinsic versus extrinsic motivation

First, we explored the impact of being able to choose the student's preferred option. The results obtained partially support hypothesis 1, with significantly higher levels of perceived efficacy and academic *engagement* (and, to a lesser extent, dropout rate and degree change) being observed in those who took their preferred option, with no differences being found in the achievement rate.

With regard to intrinsic and extrinsic motivations for study choice, the data confirm hypothesis 2. Only intrinsic motivation predicts perceived efficacy and *engagement*, with a direct and significant positive effect. There is also a negative indirect effect (through *engagement*) of intrinsic motivation on the ideation of switching or dropping out, but not on academic outcomes. That is, although prior motivation is key to academic continuance (Díaz-Mujica et al., 2019), it would not be a defining factor *per se*, but would act through other variables such as perceived efficacy or *engagement* (Casanova et al., 2018). Likewise, the motivations for choosing a degree would go hand in hand with positive expectations towards these studies that may clash with reality, resulting in an experience that is different from what was expected (Merhi, 2011). In this line, Tinto's (2017) model on the necessary integration in the university environment to obtain academic success points to academic motivation as a crucial factor for satisfaction and permanence. According to

Llanes et al. (2021), those who study the desired career tend to enjoy the learning process more and feel more motivated to develop their skills and acquire new knowledge. In the same direction, the study by Díaz-Mújica et al. (2019) conducted with 2741 Chilean university students showed that greater intrinsic motivation, in addition to a greater perception of efficacy, were preventive factors of dropout ideation. In addition, some studies highlight how students review their motivations as a way of motivating themselves in the face of adversity (Merhi, 2021).

### **The role of perceived effectiveness**

The results confirm Hypothesis 3, showing that perceived efficacy positively influences *engagement* and better academic results, in turn reducing the ideation of dropping out.

Several researchers have highlighted the perception of insufficient personal resources as one of the main causes of dropout (Demerouti and Bakker, 2023) or, at least, a mismatch between students' abilities and the demands of the degree (Casanova et al., 2018), indicating low perceived efficacy (Talsma et al., 2018).

Both the motivational process of TDR (Demerouti and Baker, 2023) and Bandura's (2001) Social Cognitive Theory explain these results. From both approaches, perceived efficacy goes beyond the self-assessment of skills and extends to goals set, efforts mobilised and results obtained. From the motivational process it is established that personal resources (such as perceived efficacy), would promote others such as motivation during studies allowing, together, to successfully address the demands, leading to positive results. Bresó (2008, cited in Merhi, 2021) demonstrated, in 1500 university students, the predictive role of perceived efficacy in university academic well-being and success and in greater intrinsic motivation to study. Similar results were found by Merhi et al. (2018), whose studies highlighted the explanatory role of perceived efficacy in greater psychosocial well-being in university students.

### **Academic engagement and performance**

The model partially validates hypothesis 4 by showing that *engagement* predicts lower dropout or career change ideation in undergraduates after the first period of regular academic assessment, but not better academic results.

Furthermore, it confirms that personal resources influence dropout or intention to change studies only indirectly (hypothesis 2) through *engagement* as a mediating variable (hypothesis 5). Promoted by higher levels of prior intrinsic motivation and other personal resources, *engagement* would consequently reduce the ideation of academic dropout (Martínez et al., 2016). Thus, *engagement*, without being a significant predictor of academic performance in this study, does appear to be a protective factor for student retention, which is, ultimately, a central problem for universities (Upsher et al., 2022).

The results are in line with previous studies that examined psychosocial antecedents



and academic outcomes of *engagement* (e.g., Hodge et al., 2019; Tinto, 2017; Williams et al., 2018).

It is worth bearing in mind the role of *engagement* as a positive motivational construct linked to other resources, given that the student experience (in particular) would show a process of reciprocity between the variables analysed.

This process has been defined by authors such as Fredrickson and Joiner (2018) as positive (virtuous or upward) and negative (vicious or downward) spirals. Salanova, Bresó et al. (2005) demonstrated in a longitudinal study the existence of a positive spiral through which perceived efficacy and *engagement* reproduced a positive, continuous and reciprocal influence, with an impact on university academic performance. Therefore, an intrinsically motivated student may experience a positive spiral of efficacy and academic performance, dedicating more time and effort to study, which in turn generates greater confidence in their ability to learn and succeed, ultimately translating into better academic performance (Fredrickson and Joiner, 2018; Meng and Zhang, 2023; Merhi, 2021; Salanova, Bresó et al., 2005).

Finally, hypothesis 6 is confirmed: higher academic success is related to lower ideation of changing or dropping out of studies (Respondek et al., 2020). Success would reinforce students' perception of competence and perceived efficacy, reducing the likelihood of dropping out or changing careers (Behr et al., 2020).

## **Limitations**

A limitation of the study is the exclusive use of self-report measures, potentially biased by acquiescence. To overcome this, instruments with different response scales were used (Podsakoff et al., 2012). In addition, the "success" and "achievement" rate variables were constructed using objective items, subjects passed, assessed and enrolled.

The small and incidentally selected sample size may limit the generalisability of the results. Nevertheless, the indices and values obtained were statistically significant and Hoelter's (1983) index adequate.

The inclusion of students from both face-to-face and distance learning universities could introduce biases, especially due to differences in dropout rates (Fernández-Mellizo, 2022). However, according to specific reports from the UNED (Luque et al., 2014), 61% of students who drop out do not even access the virtual classroom (33% of the total), a differentiation not reflected in national dropout reports. Predictably, the UNED sample participating in our study and similar ones would exclude that 33%, so there would not be such a difference in dropout with the public universities. This is in addition to the fact that only three variables analysed showed significant differences by type of university.

Our findings indicate that motivation to study is not directly affected by academic performance in secondary school, nor does it directly predict dropout or switching ideation or academic outcomes, contrary to previous research (Figuera Gazo et al., 2018).

## Practical implications

The study provides evidence, firstly, of the impact of a choice of university studies based on intrinsic aspects on an increase in perceived efficacy and academic *engagement* and, mainly, on a reduction in the tendency to drop out or change studies (European Commission, 2015). The results also reinforce the importance of perceived efficacy as a key personal resource associated with better academic performance and higher levels of *engagement*.

The study notes the importance of promoting *engagement* through motivation to study and the perceived effectiveness of its positive effects in itself and, specifically, in reducing the attempt to drop out or change studies.

For future research, it would be valuable to incorporate the variable of vocational maturity, which considers the students' ability to make informed decisions about their career choice (López-Fernández and Sánchez-Herrera, 2018), even if initial aspirations are not met (due to a clash of expectations, insufficient entry grades, etc.); as well as to explore differences according to socio-academic profiles (e.g. type of university) and to analyse the impact of academic performance on *engagement*.

In conclusion, we believe the following recommendations are necessary:

- Promote appropriate pre-university guidance that encourages degree choices aligned with their motivations, especially intrinsic ones (Casanova et al, 2018).
- Deploy institutional actions to increase student *engagement* by promoting more intrinsic motivations and providing ways to increase their perceived efficacy for the studies they undertake (Seligman and Adler, 2018), such as zero courses, mentoring and counselling programmes (Behr et al., 2020).

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