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Dropout in the University of Granada: Understanding External Factors Influence for making Pedagogic Proposals using ICT

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Abstract

University dropout is a widespread phenomenon that affects higher education institutions worldwide. Dropout is considered a multidimensional and multicausal issue, influenced by a range of personal, academic, and contextual factors. This investigation presents a correlational-predictive study examining the influence of motivation, attitude and behavior, commitment, and socioeconomic conditions on university permanence. The sample consisted of 637 students from the University of Granada. Data were collected using the standardized questionnaire developed by Velázquez Narváez and González Medina (2017), which includes 78 Likert-type items. The results indicate that all analyzed factors are significantly associated with student permanence. Socioeconomic conditions showed the strongest correlation ($r = 0.397$, $p < .001$), highlighting their predictive value. Finally, methodological strategies such as gamification or the use of Virtual Reality are proposed to help reduce university dropout rates.

Keywords: *University Dropout, External Factors, Gamification, Virtual Reality, Pedagogic Proposals*

Introduction

University dropout is a complex and multidimensional phenomenon that affects educational institutions worldwide. This term refers to the interruption of university studies before obtaining an academic degree. Dropout rates vary according to country, institution, study program, and the individual characteristics of students. The causes of university dropouts are diverse and interrelated, including economic, academic, personal, and social factors. Among the economic factors, the financial difficulties students face in covering tuition fees, materials, and living expenses are significant. In the academic realm, lack of prior preparation, lack of motivation, and the perception of an excessive academic load can significantly contribute to dropout.

On the personal and social level, health problems, the need to work full-time, family responsibilities, and the lack of emotional and social support also play a crucial role. Additionally, the lack of integration into university life and the absence of support networks within the institution can exacerbate feelings of isolation and frustration, leading some students to abandon their studies. The impact of university dropout is significant, both on an individual and social level. For individuals, it represents a loss of educational and professional opportunities, affecting their future income potential and personal development. On a social level, university dropout implies a waste of educational and human resources and can negatively impact the economy and social development. In response to this challenge, many institutions and

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governments have implemented various strategies and support programs to reduce dropout rates. These initiatives include scholarship and financial aid programs, academic tutoring, psychological and emotional counselling services, and efforts to improve student integration into university life. Understanding the causes and consequences of university dropout is essential for developing effective policies and creating an educational environment that promotes student retention and success.

Justification

University dropout is a complex and difficult situation to frame, since there is no definition that fully encompasses the multiple aspects of this term (Díaz 2008). Trying to conceptualize the term "university dropout", it is possible to find different meanings. One of them is the one provided by the Royal Spanish Academy RAE (2024) where it defines "dropout" as the action or effect of abandoning or abandoning oneself. Following this vision of the term, an approximation to a definition of "university dropout" could be made as the fact of abandoning the higher education system and everything related to the University. However, taking into consideration the nuances made by Díaz (2008) and that we have previously expressed, the definition that has been proposed is superficial, since it does not consider the different nuances that surround university dropout. One of the first definitions of "university dropout" was proposed by Tinto in 1994, who defined university dropout as the sum of various reasons, which could be psychological, educational, economic, family, institutional and social in nature. Further down the timeline, Cabrera et al. (2006) stated that university dropout refers to that young person who, for various reasons, decides not to renew his or her university enrolment for two consecutive years. García, in 2014, stated that university dropout refers to students who do not have academic activity for a certain number of consecutive years; however, he makes clear that university dropout also includes those people who, after having followed one or several cohorts for a period equal to or greater than the duration of their university studies, have not completed their studies. López (2014), following the line of García (2014), defines the university dropout rate as the total number of students in a cohort who, even though they should have enrolled during their studies, did not do so the following year.

A more current definition, which tries to encompass all the aspects that have been previously exposed, is the one proposed by Álvarez Ferrándiz et al. (2022, p.17) who stated the following: "University dropout occurs when a person who is studying at university decides not to enroll again for two consecutive courses, the cause being psychological, educational, evolutionary, family, institutional, economic or social factors."

More actual definition is done by Fernández Cruz et al. (2024) that says:

> […] the university system dropout rate is measured as the percentage of students in a cohort who, in year "X" in which they should have graduated, have not obtained their diploma and have not enrolled in any university degree program at in any university for two consecutive years. (p.2).

Dropout Statistics

Dropout in Europe

In this section, we will take a geographical tour, showing the different data on university dropout rates. First, we will start with Europe.

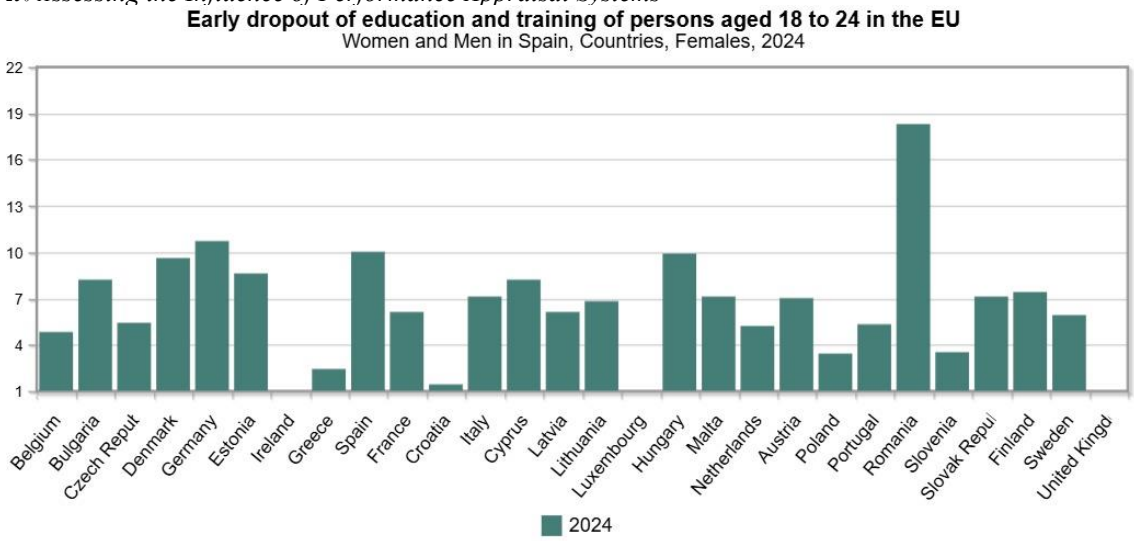

Figure 1. Percentages of university dropout in Europe of 2024 year

In Europe, the National Institute of Statistics (INE forward) analyses the census of European university students who drop out every year.

In Figure 1, we can see the percentages of university dropouts in each of the countries that make up the European Union. The country with the highest university dropout rate is Romania, with 18.3% of university dropouts in 2024; this country is followed by Germany with 10.7% dropouts; then Spain with 10% and finally Hungary, with 9.9% dropouts. Spain is among the top four countries with the highest number of university dropouts.

On the other hand, we observe that the three countries in Europe with the lowest university dropouts are Slovenia with a percentage of 3.4%; followed by Greece with 3.1% and the European country with the lowest percentage of university dropouts is Croatia with 2% university dropouts (INE, 2024).

University Dropout in Europe: Spain Abandonment

The Spanish Integrated University System of the Ministry of Universities (SIIU) (2025) produced a report where the user can consult the percentages of dropouts from undergraduate studies for the 2021-2022 period cohorts. It highlights that 22.1% of the new cohort of students in 2021 ended up not re-enrolling in the degree. Of this 22.1% the 17.1% represent students from presential universities.

According with this organization the global Spain's dropout rate of the presential universities, show significant variations between communities. The highest percentage of dropout in 2019-2020 in first place we have Isles Balears (20.1%) and Canary Islands (19.1%). And the lowest percentages have them communities like Navarra (10.7%), País Vasco (10.8%) and Extremadura (10.8%). Andalucía has (13.8%).

University Abandonment Factors

In a superficial way, in the previous sections we have expressed some of the fundamental reasons why a student ends up dropping out of university. Fernández-Mellizo (2022) names the variables that have the greatest weight in university dropout. The reasons that have the greatest weight in university dropout are those that have an individual origin, such as the characteristics of the student or his family environment. Then there are the variables related to the studies taken.

In the research carried out by Constante-Amores et al. (2022) categorizes the most common reasons based on the division made by García (2014).
These reasons are the following:
1. Demographic. Highlighting the age and sex of the subject. Freixa et al. (2018) state that the age with the highest percentage of university dropouts is those over 25 years of age. In relation to sex, as we have already stated before, the INE (2024) shows that men have the highest percentage of dropouts: 11% men, 7.7 women.
2. Socioeconomic. Munizaga et al. (2018) or González Ramírez and Pedraza-Navarro (2017) both investigations state that those students with a higher socioeconomic level are those who drop out the least.
3. Academic. Academic performance, according to Belloc et al. (2010) is a fundamental factor for university permanence. The students who are less likely to drop out of higher education are those whose academic performance is high.

The Present Study

Given the priorly established relationships and factors of influence on university dropout, advised only on general theorized links that have yet to be given substantial empirical grounding, the objective of this work was to identify external factors influential on university persistence. Furthermore, as to guide the overall research process, several specific objectives were established: (i) to determine the degree in which motivation influences persistence; (ii) propose alternatives to improve university persistence rate. Therefore, the study sought to identify and quantify the impact that various variables have on permanence, providing knowledge about the factors that most contribute to sustaining the participation of individuals in different contexts. This could allow the development of strategies aimed at improving the retention and long-term commitment of students in their studies.

Method

As the goal of this work was to examine the underlying relationships between a given set of variables, with no intent to manipulate them, a correlational-predictive design was followed (Cohen & Manion, 2002). As such, the study was first focused on examining the correlational links between the variables of interest, to then establish predictive models based on such preliminary associations (Bisquerra, 2014).

Participants and Procedure

Initially, the minimum sample to be addressed in this work was estimated as to configure a demographically and statistically representative study sample. Due to management and financial constraints, the study opted for focusing on a single Spanish higher education institution as a case of interest. In this manner, the University of Granada, established in southern Spain and being one of the Spanish universities with the highest volume of annually enrolled students in the country, was chosen as the object of study for this work.
As such, the population of interest was established at 45000 students as a high-end estimation of currently enrolled students in the institution (41763 students during the 2024/2025 academic year, Universidad de Granada, n.d.). Considering a confidence level of 95% and a sampling error = ±3.9, maximizing the variability in the retrieved sample (p=q=.5), the target sample size amounted to 641 enrolled students. Sampling was performed following a non-probabilistic convenience approach, viz. students were contacted either via online means or onsite classroom visits to ask for voluntary participation. The research instruments were administered using a survey hosted in the *Google Forms* platform. Participant anonymity was assured to all potential participants, as well as being informed of the purpose, goals and analysis procedures to be

undertaken during the present research.

Measures

Unless otherwise stated, all administered instruments followed a traditional Likert scale format (i.e. a five-point items with *strongly disagree* and *strongly agree* as anchor values). The main instrument was the *Questionnaire on student persistence and success in higher education* designed and validated by Velázquez Narváez and González Medina (2017). The instrument, including a grand total of 64 items, is structured in several dimensions: (i) motivation, reflecting the internal drive that leads students to remain engaged in their teaching-learning environment; (ii) attitude and behavior, which encompasses students' perceptions and behavioral reactions that can facilitate or hinder their continuation in their studies; (iii) commitment, referring to the level of emotional or cognitive dedication that a student has towards a particular objective or environment; and (iv) socioeconomic conditions, which incorporates external factors such as economic status and living conditions that can affect a student's ability to continue pursuing their studies.

The reliability of the whole scale was deemed satisfactory ($\alpha = .912$; $\omega = .918$). Each dimension retrieved satisfactory reliability measures as well, with motivation being established at $\alpha = .803$ and $\omega = .805$, commitment at $\alpha = .783$ and $\omega = .795$, attitude and behavior at $\alpha = .826$ and $\omega = .830$, and for economic conditions at $\alpha = .721$ and $\omega = .826$. Both the Kaiser-Meyer-Olkin (KMO) sampling adequacy and Bartlett's sphericity tests determined that the sampled data was able to undergo factor analysis (KMO = .842; $\chi^2 = 4351.647$; $p < .001$).

To measure student permanence on their studies, an ad-hoc, sociodemographic instrument was introduced, in which students were questioned about their already-passed subjects in their respective degree programs, the regularity of their class attendance, and whether their university studies had been continuously developed or had undergone a temporal interruption. In this regard, permanence refers to the ability and continuity of students to remain in an educational program until its completion. This implies not only avoiding desertion but also maintaining an active commitment to the educational process. This secondary instrument included items pertaining to basic sociodemographic information as well, including age, sex, studies, faculty of enrollment, marital status and financial/living independence.

Data Analysis

For the data analysis implemented, correlational-predictive statistics have been calculated through the JAMOVI statistics program (The Jamovi Project, 2024), as we did previously when we calculated reliability as internal consistency. First, we analyzed the sample under study and its characteristics via descriptive statistics and bivariate correlations. Afterwards, using as reference the sign and strength of the reported bivariate relationships, several hierarchical linear regression models will be estimated, using the strength of the relationships with university retention as a criterion to determine the order of entry in the model (i.e. variables with stronger relationships were entered first).

Results

Descriptive Statistics

The sample was made up of 512 women and 124 men, with a percentage of 80.4% and 19.5% respectively (see Figure 2). 0.2% of the sample decided not to answer the "sex" question. Regarding student enrollment (see Figure 3), 512 participants are enrolled in the Faculty of Education Sciences in Granada, on the Cartuja campus; 70 belong to the Ceuta campus; 38 students are studying a degree in Health Sciences; 3 are enrolled in the Faculty of Physical Activity and Sports Sciences; 7 are enrolled in the Higher Technical School of

Telecommunications; 3 in Economics and Business Sciences and Law; 3 in the Faculty of Sciences; and 1 person in the Higher School of Canal and Civil Engineering.

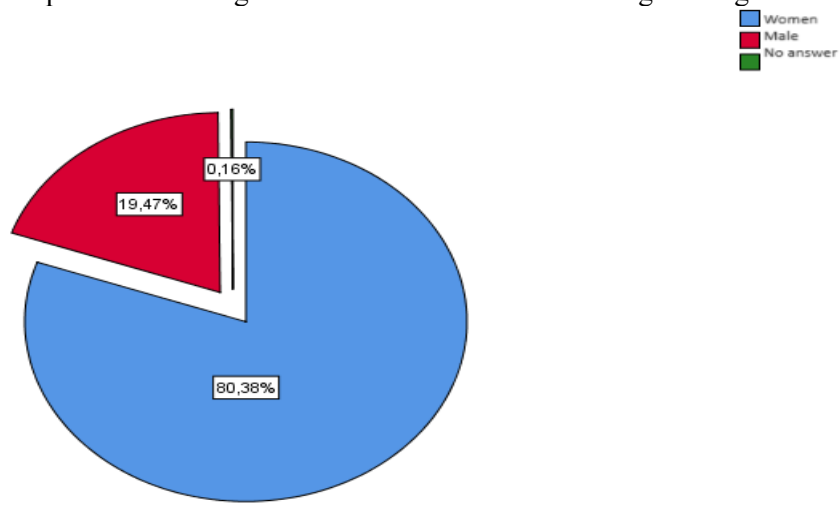

Figure 2. Sample Distribution of Gender

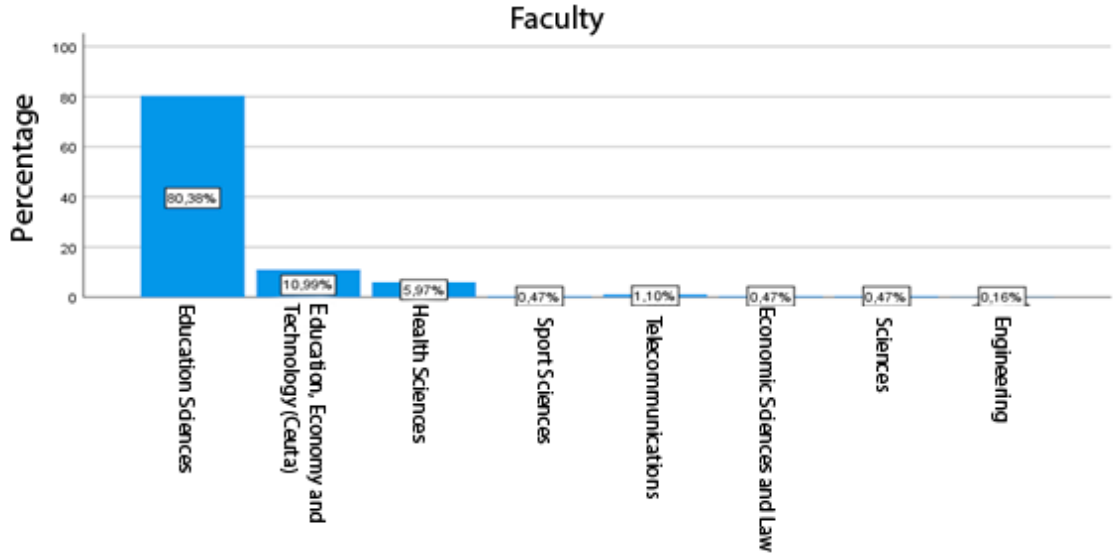

Figure 3. Sample Distribution by Faculty

As can be seen in the graphs above, the highest percentage of students who participated in this study are enrolled in the Faculty of Education Sciences, on the Cartuja campus (Granada) with a percentage of 80.38%. Lower percentages would correspond to those students who are enrolled in the Faculty of Education, Economics and Technology in the city of Ceuta. Figure 4 shows the percentage of degrees according to the sample that participated in this study. 33.75% studied Primary Education; 32.03% studied Early Childhood Education; 15.07% studied Social Education; 8.16% studied Pedagogy; 6.12% studied Nursing; 2.04% studied the double degree in Primary Education and English Studies; 1.10% studied Telecommunications; 0.78% studied Business Administration; 0.47% studied Industrial Engineering; 0.31% studied Physical Activity

and Sports Sciences; and 0.16% studied Civil Engineering.

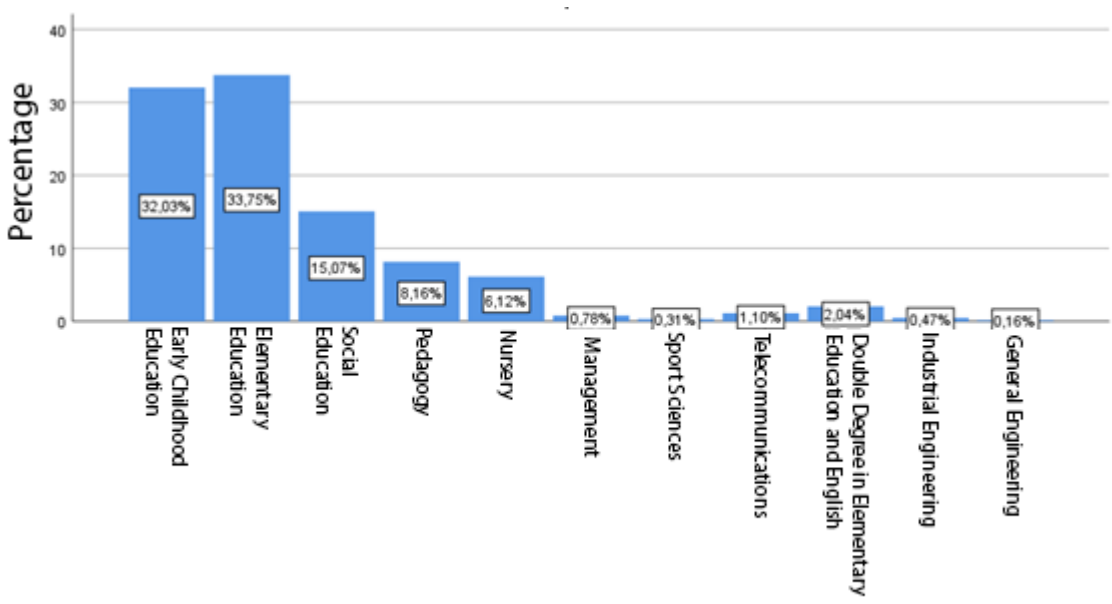

Figure 4. Sample Distribution by Degree

Correlational Analyses

Regarding the results obtained, both in the form of a correlation matrix and a heat map (see Figure 5), we are going to focus our interest on the bivariate correlations obtained by the variable Permanence with the rest. In this way we can affirm that:

1. Correlation between permanence and motivation (Mot). A moderate and statistically significant correlation is observed ($r = 0.221$, $p < .001$), indicating that the greater the motivation, the greater the permanence, although this relationship is not very strong, but it is statistically significant, which in the end is what matters.
2. Correlation between permanence and commitment (Com). The correlation is moderately strong and statistically significant ($r = 0.320$, $p < .001$). This suggests that better communication is significantly associated with greater permanence.
3. Correlation between permanence and attitude and behavior (Att-Beh). The correlation is moderate to strong and statistically significant ($r = 0.339$, $p < .001$), suggesting that performance skills have a positive impact on retention.
4. Correlation between retention and socioeconomic conditions (Soc). It has the strongest correlation with retention ($r = 0.397$, $p < .001$) and is also statistically significant, indicating that socioeconomic conditions are a significant predictor of retention.

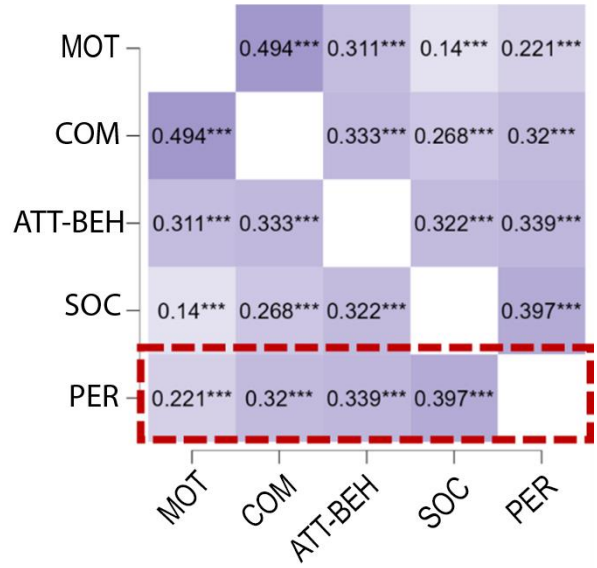

Figure 5. Heat map of Pearson correlations of all variables with each other in a bivariate manner.

Note. in red we mark the correlations of the permanence dimension with respect to the other dimensions.

In general, all variables showed statistically significant correlations with retention, although the strength of these correlations varies. Socioeconomic conditions appear to be the most influential factor in retention, followed by performance skills and communication. Motivation, although positively correlated, has a relatively minor effect compared to the other variables. These results can help focus efforts on key areas to improve permanence in the context studied, but they can certainly be very useful to implement a subsequent multiple regression analysis.

Regression Analyses

Model	R	R^2	Adjusted R^2	RMSE
1	0.000	0.000	0.000	0.849
2	0.397	0.157	0.156	0.780
3	0.455	0.207	0.205	0.757
4	0.485	0.235	0.231	0.744

Table 1. Summary of the models considering the multiple correlation coefficients obtained, their coefficients of determination (R^2 and adjusted R^2) and the root mean square error (RMSE).

First, regarding the summary of the models inferred by the stepwise procedure, we can state that:
Model 1: acts as a reference model that only includes the intercept. It has an R^2 of
0.000, indicating that it does not explain any variability in the dependent variable. The RMSE is 0.849, the highest among all the models, which indicates inaccurate predictions.
Model 2: includes a predictor variable, which significantly improves the previous model with an

R^2 of 0.157 and a reduced RMSE of 0.780. This indicates that approximately 15.7% of the variability in Permanence can be explained by the variable included in this model.
Model 3: adds another variable, increasing the R^2 to 0.207 and reducing the RMSE to 0.757. The increase in R^2 suggests that the addition of this second variable has provided an additional 5% explanation of the variability in Permanence, improving the accuracy of the predictions.
Model 4 or final model: incorporates a third predictor variable. The adjusted R^2 rises to 0.231, and the RMSE decreases to 0.744, indicating that this is the most robust model among those presented, with almost 23.1% of the variability in Permanence explained by the variables included.

Table 2. ANOVAS associated to the inferred models

Model		Sum of Squares	df	Mean Square	F	p
4 (definitive)	Regression	104.391	3	34.797	62.820	< .001
	Residual	339.551	613	0.554		
	Total	443.942	616			

Note: The intercept model is omitted as no meaningful information can be displayed.

The variance analyses developed indicate that all models, but especially model 4 (final), which is the one we finally show, explain in a significant and statistically significant way (<.001) more than they are not able to explain (residual).
Finally, we present the unstandardized and standardized coefficients obtained in the different regression equations.

Model		Coefficients no standardized	Error Standard	Coefficients Standardized	t	p
1	(Intercept)	4.094	0.034		119.783	< .001
2	(Intercept)	2.368	0.164		14.436	< .001
	SOC	0.425	0.040	0.397	10.718	< .001
3	(Intercept)	1.295	0.235		5.514	< .001
	SOC	0.344	0.041	0.321	8.456	< .001
	ATT-BEH	0.330	0.053	0.236	6.211	< .001
4	(Intercept)	0.606	0.273		2.222	0.027
	SOC	0.309	0.041	0.289	7.611	< .001
	ATT-BEH	0.260	0.054	0.186	4.799	< .001
	COM	0.295	0.062	0.180	4.732	< .001

Note. The following predictors were considered but not included in the final model (model 4): Mot.

Table 3. Unstandardized and standardized coefficients of the regression equations of each model. As can be seen, we have obtained different non-standardized and standardized coefficients in each of the models. However, model 4 or the final one is the important one in our analysis. In this sense, we can see how all the coefficients obtained are associated with significance levels $p<.001$ for the predictors/tangents b1 (socioeconomic conditioning), b2 (attitude and behavior, b3 (commitment) and $p<.05$ for the intercept or constant "a".

Discussion

Throughout this article we have studied how different aspects of the subject influence their decision to drop out of university studies. I must state that this type of research is not new, but that there are many investigations that try to study the factors that influence university dropout. We will name some of them in this section and compare their results obtained with respect to those found in other research and in this investigation.

The first of them is the one carried out by Tinto (2022) in which a series of diagnostic criteria for students at risk of dropping out of university classrooms are established. Serving as a start for the study of how some of the subject's external and internal factors influence their university performance.

Fernandez Cruz et al. (2024) applies the same questionnaire that we have used for our study, with the difference that the sample amounts to 976 students from various Andalusian universities. Fernández Cruz et al. (2024) state that there are significant correlations in five of the dimensions that make up the questionnaire: Permanence factor, Peer motivation and attitude.

Another research is that carried out by Miranda Rodríguez and Alarcón Díaz (2021) in which they focus on the analysis of risk factors during Covid-19 at the Technological University of Peru. In this study, it is shown that the economic factor would correspond to 40.7% of the fundamental reason for abandoning university studies; 33.3% of respondents state that the motivational component is decisive for university dropout and finally, with 20.4% the institutional one.

López Cózar Navarro et al. in 2020 carried out an exploratory analysis of the factors that influence engineering degrees. The analysis is carried out on a sample of 430 students and considers some factors collected in previous research that our dissertation has not taken into consideration, such as: prior expectations about the degree, the level of vocation or the professional academic advice they have received prior to enrolling in the university degree. The researchers affirm that vocation is a fundamental factor for permanence in university degrees. In addition, they state that better prior guidance is necessary.

University Dropout Proposals

Gamification. Motivation and University Permanence

One of the ways that we must consider when trying to prevent university dropout is the implementation of active learning methodologies such as gamification. Gamification is an umbrella term since it involves various strategies that are applied to fields that are not of an idle nature. Throughout this point of the article, we will see some research that has been carried out in different educational periods using gamification.

Nivela-Cornejo et al. (2021) constructed and validated a more quantitative questionnaire consisting of 8 questions with Likert-type responses from 1 to 5. This was then passed on to 50 undergraduate students from the Faculty of Philosophy of the University of Guayaquil who were taking the computer science module. The results show that 90% of the sample surveyed consider this strategy useful, compared to 10% who are negatively positioned; likewise, the "motivation" factor has been considered, since 80% of the sample finds the use of this active methodology

motivating, compared to the remaining 20% who have stated that they do not. Regarding its usefulness: 29 people stated that it was very useful; 12 quite a lot; 7 somewhat, 2 a little and 0 not at all, as shown in the following figure.

Continuing with examples of the implementation of this form of teaching, we cite Solís-Castillo and Marquina-Luján (2022), who used gamification in a classroom made up of 22 students whose age ranged between 18-20 years. Once the experience was over, they conducted unstructured interviews. This way they obtained the maximum information about the methodology they used previously. They stated the following:

"Students say that they have had experiences unmatched by other courses, where gamification is not used in their classes; they also report that the course becomes a more motivating element and also more competitive among their classmates to reach the highest level […]" (p.78).

In 2023, Poveda Pineda, Limas-Suárez and Cifuentes Medina used the gamification strategy in the university with a sample of 290 students of Teacher degree. After doing this experience, the students' perception changed: 33.4% consider this strategy an excellent way to learn, mixing knowledge and amusement; moreover, they manifest (31% of sample) that this methodology generates innovation in the learning process.

Last, Jaramillo-Mediavilla et al. (2025) made an experience with gamification for studying the impact in the academic performance of the students. In a sample of 215 university students, they did a division in a control group (87 students) and an experimental group (128 students). The results shows that the experimental group people have a significative improvement in academic performance: with a difference of 0.66 points between the control and experimental groups.

Virtual Reality

Nowadays, the use of some of the examples of extended reality (augmented reality, virtual reality or mixted reality) in universities classrooms it is becoming fashionable. This is because the investment of money of the institutions for improving the significant learning experiences of the university students. As we have done in previous headline, we will illustrate some investigations that have good results using these technologies.

However, before start, we have to highlight that the use of virtual reality has demonstrated that is a great tool to change the way of learning and experience life. Its' influence by using the immersive learning, observational and experiential

Agüero Corzo & Dávila Morán, (2023) did an experience in the grade of industrial engineering utilizing the virtual reality in one private university in Perú. They divide the sample (44 students) in two groups: 22 in control group and 22 in experimental group; they administrate a pre-test and then when the experience has concluded a pos-test. The experimental group (the one who used the virtual reality methodology) showed significant variations in their learning process ($p=0.040<0.05$) leaving us to know that the use of virtual reality can strengthen the learning of subject making them more visual and giving the opportunity to the student to see thing from a unique perspective.

Next, Agurto-Cabrera & Guevara-Vizcaíno in 2023, in their investigation titled "Virtual reality for the improvement of academic performance in higher education students", make a no experimental and descriptive analysis in the Catholic University of Cuenca (Ecuador) to 38 students of the Language Center of this university. We have to highlight of this investigation their results of using the virtual reality in language learing: the 60.5% of the sample (23 students) they affirmed that this methodology is high satisfactory; and the 29% of the sample (11 people) very satisfactory. On summary the 92.1% of the sample are high/very satisfactory with the use of virtual reality in learning languages.

Carrasquero Ferrer and Vaca Suárez (2024) used the virtual reality for chemistry education. In the same line that the previous investigations, this shows that the use of the virtual reality in chemistry subjects obtained the 80% of the student participants (48 people) expressed positive results for understanding chemistry concepts. In addition, the 91% of the surveyed said that they would like to see more VR activities in chemistry field.

Artificial Intelligence

Another tool that it is highly present in the universities classrooms is the Artificial Intelligence. This software has great possibilities for following the SEN students and improving the learning process. But this tool is wrong used by the students throughout the universities (Benavides-Lara, et al. 2025)

The adventages of the use of the IA in the university there are:

1. "Personalization of the messages.
2. Identification of the learning problem.
3. Boosting educational research through large-scale data analysis
4. Stimulate students' interest in learning, since if outside the classroom they are personally resorting to AI and inside they only follow traditional teaching methods, it is not difficult to predict that a disconnection will occur between the subject taught and the student's motivation" (García, García & Núñez Cansado, 2024 citting Tinoco-Plasencia, 2023)

The cited investigation Martín García, Martín García & Núñez Cansado, (2024) manifest that there is a general use in the sample of the AI *Askmore*; the students said that the use of this kind of software is because the fast access and the easy way to get to the information. Moreover, the results of this study show that the university have to have more comprehension and supervision of this item.

Arredondo Castillo (2020) in her PhD thesis focus on chatbots as a complement for learning since the teachers interviewed manifest that the chatbots are a useful tool to help them to develop their teaching work. The professors highlight the applicability of chatbots, the easy and fast way to access to information saving time of the teacher and students, adaptability of the software, high storage… among other benefits.

But the use of this kind of software, have some ethic and moral limitations that, as professionals we have to have into account. As Haba-García, Victoria Maldonado, et al. (2024) said the quality of the information provided by this chatbots has to be revised by the user. For instance, the most recognisable chatbot is ChatGPT by OpenAI, takes information of three different sources:

1. Information that is on the Internet.
2. Information obtained from third license parties.
3. And information that is given by other users of the chatbot.

The other wrong and worrying use of the chatbot is the replacement of workers in companies or factories. There is evidence that some companies replace physical people to the use of an AI taking in advance its functions and utilities. Just as it happened in the industrial revolution with the appearance of machines.

Limitations and Conclusions

The correlation analysis and the multiple regression model developed offer a set of valuable conclusions about the factors that influence student retention in the context under investigation.

The correlation results indicate that all the variables examined: motivation, commitment, attitude and behaviour, and socioeconomic conditions are significantly associated with student retention. The strongest correlation is observed with Socioeconomic Conditions ($r = 0.397$, $p < .001$), suggesting that this factor is a significant predictor of student retention in their studies.

In the multiple regression analysis performed using the successive stepwise procedure, the final model includes three predictor variables that jointly explain 23.1% of the variability in Student Retention. This model is superior in terms of precision and explanatory capacity compared to the previous models, as demonstrated by the reduction in the RMSE and the increase in the adjusted R^2.

The coefficients obtained in the final model are all statistically significant, which highlights the importance of each variable included. Specifically, Socioeconomic Conditions, Attitude and Behaviour, and Engagement were shown to have a positive and significant impact on Permanence.

These findings underscore the need to consider a multifaceted strategy to improve permanence, paying special attention to improving socioeconomic conditions, fostering strong commitment, and promoting positive attitudes and behaviours. Policies and programs that focus on these aspects could be more effective in increasing permanence within the analysed group or context.

Finally, although Motivation is also related to permanence, its effect is comparatively smaller, suggesting that interventions that only focus on improving motivation may not be sufficient to obtain significant improvements in permanence.

As we have seen in this article, the conditions that surround the subject play a fundamental role in his academic performance. In order to improve the motivation of the same, we have proposed some changes in the teaching methodology, more specifically the use of active learning methodologies such as the use of Virtual Reality in all its variables (Extended Reality, Augmented Reality and Mixed Reality) or the use of gamification in Higher Education classrooms, since we are certain that they have worked in other educational stages and that the new cohorts of students entering universities have another way of learning that is much more dynamic than that of their predecessors.

In relation to the limitations of this study, we highlight some of them such as: firstly, it has been impossible to carry out a qualitative study, together with this one, which is quantitative in nature. Secondly, the sample should have been expanded to other universities in the rest of Andalusia. This will be done in subsequent studies. And thirdly and lastly, the sample of participants should be expanded within the University of Granada.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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