

Factors Influencing University Dropout in Distance Learning: A Case Study

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In the field of higher education in Ecuador, there is a phenomenon where students abandon the career, they were initially enrolled in. This research article aims to identify the determining factors that influence dropout, analyzing sociodemographic variables and economic, technological, institutional, and academic variables. The methodology used is action research built from educational practice. A survey was used to address several factors applied to 260 students of the second, fourth, and seventh levels of undergraduate study at a private institution. As a result, it was found that the most determining factor for a student to abandon their university career in the distance mode, with 72.31%, is the economic factor. Finally, it is concluded that students' permanence is affected mainly by socioeconomic aspects, which cause economic resources, illness, lack of time, and academic performance to be the most representative factors when deciding whether to remain or abandon a university career. This information increases the bibliography that deals with student behavior to search for alternatives to work on students' permanence.

Keywords: student attrition, distance education, higher education

INTRODUCTION

The term dropout in higher education implies the understanding of the phenomenon of students who drop out of their studies, considering various circumstances, opportunities, or difficulties of all kinds (Añez López y Añez López, 2021). Other terms can refer to this problem, such as failure; however, the literature describes a situation in which students are prevented from continuing their studies (Chávez Maciel et al., 2007). Talking about dropouts implies analyzing why many students leave the university and do not finish their professional careers (Nuñez-Naranjo, 2020).

Distance education or online education has gained importance during the last few years, and thanks to the use of new technologies, it has been possible to increase academic offers. However, this type of education needs to improve, including the dropout rates, which are generally higher than in the conventional or face-to-face mode. Many researchers constantly agree on the need to reduce attrition and guarantee the permanence of students, especially in the distance mode. This is essential to ensure specific quality indicators of this study modality. For this reason, it is necessary to identify dropouts in time to prevent dropouts and keep students satisfying the characteristic needs of the modality (Yukselturk et al., 2014). In the distance learning modality, students' success depends mainly on their commitment to the virtual learning

environments and the permanent interaction in the different activities proposed in their classrooms (Marques Queiroga et al., 2020).

Academic dropout has been a relevant research topic in several parts of the world. In a study conducted by Yasmin (2013), it was revealed that the overall dropout rate is 15.82%, being more noticeable in men (20.74%), married (25.31%), and stable jobs (36.39%). Other factors that also drew attention were that students over 25 (24.65%) and those studying mathematics (49.15%) dropped out; finally, no significant differences were seen in the dropout rate among students from marginalized or low-income sectors. Academic dropout is a reality; the challenge is ensuring students' future. In Latin America, this problem has a high incidence and is one of the factors that limit the development of nations. According to Cubillos-Romo et al. (2017), it is necessary to define the concept of dropout in higher education and thus generate strategies for student retention in Latin America. According to Santiviago et al. (2021,) one of the relevant aspects of student disengagement in Latin America is related to the conformity of individuals regarding the career they choose to pursue. While 75% of the students who have just entered the program say they are satisfied with their principal as they advance in their careers, 25% say they are no longer comfortable with their decision. It is important to note that 67% of the participating students say that they have not received a vocational orientation process.

The study by Cambruzzi et al. (2015) presents the results of experiments conducted at a university in Brazil, where the courses studied show an average of 87% accuracy in predicting dropout. This led to adopting several pedagogical strategies for students with a higher probability of abandoning their careers, obtaining a reduction of 11% on average in dropout or desertion rates. In the study by Segovia-García et al. (2022), after applying a 62-item survey to 384 students, a specific intention to drop out of one of the 403 virtual or distance courses was identified. The permanence of students depends on the level of satisfaction; for this, it is essential to guarantee the quality of the services offered and the academic content developed.

An essential tool that motivates students to stay in school is the implementation of online education. According to Clark (2019), since the widespread use of the Internet, changes in the distance education paradigm are evident. This is confirmed by Perazzo Logioia et al. (2021), who mentions that the success of online education in several countries is centered on their high levels of technological development. On the contrary, in Latin America, there is a low level of development of new technologies, and this occurs precisely because of the existing social inequalities that limit the continuity of education; it is enough to analyze specifically in Ecuador, a low percentage of the population has access to the Internet, so the right to education presents great difficulties (Mendoza Zambrano et al., 2017). Finally, in the research by Catalano et al. (2021,) concerns arise when students in the distance modality reside in places with several needs, including the scarcity of electronic devices and limited access to the Internet. This makes it difficult for students to participate; consequently, the results will differ from what is expected. According to Sanchez Caicedo y Ruiz Calvachi (2021), Ecuador must offer conditions similar to face-to-face teaching to protect the right to quality higher education. For this purpose, teachers should be accompanied and trained in appropriate tools for this modality, and methodologies should be adapted.

Finally, it is fascinating not only to analyze the determinants of dropout but also to study what is still unknown about this issue. The abandonment of a university career leaves after-effects in people with emotional, family, and social affectation. Therefore, this research article aims to identify the factors dropout, analyzing sociodemographic and other economic, technological, institutional, and academic variables. This information can contribute to future research to generate strategies against this problem.

The document's structure consists of four sections, including the introduction in section 1. The methodology and results are in sections 2 and 3, respectively. Finally, the discussion and conclusions are described in section 4.

METHODOLOGY

Type of Research

This descriptive study presents information and characteristics of the population studied without any intervention. It is cross-sectional because the evaluation was carried out at a specific time. It was based on a quantitative approach because the collection and analysis of the information used numerical and statistical measurements to establish relationships between the variables studied. The type of study chosen was a case study because it is applied in a higher education institution in Ambato, Ecuador, with a representative sample. The present work is framed in the action-research methodology built from educational practice. The first step to making a change is identifying the determining factors of university desertion in the distance learning modality.

Participants

The study population considered was 794 students enrolled in the Basic Education program in the distance learning modality of an Ecuadorian university. A simple random sampling was carried out with a confidence level of 95% and an error of 5%, which gave a total of 260 students. Inclusion criteria included students enrolled in the course described and who gave their informed consent. The Declaration of Helsinki's ethical aspects were respected, complying with the ethical principles of confidentiality, autonomy, and respect. The only exclusion criterion considered those who did not wish to participate. The information on the sociodemographic variables is presented in Table 1.

Instruments for Data Collection

Data was collected through a survey developed in the free Google Forms tool, including sociodemographic, technological, institutional, and academic questions. The socio-demographic data included gender, academic level, area, natural region, age, race/ethnicity, marital status, and whether they had children.

Instrument Validation

The instrument designed for this work allows the evaluation of the determinants of university dropout in the distance learning modality. To meet the objective of identifying the determinants of dropout, economic, technological, institutional, and academic aspects are evaluated. The validation of the questionnaire was based on the criterion that any measurement or data collection instrument must meet specific essential requirements: content validity, criterion validity, construct validity, and expert validity. Finally, the objectivity of the instrument is considered from the conception that it can be influenced by the biases of those who apply and interpret it (Hernández Sampieri et al., 2014).

For the validation of the instrument, the type of validity called expert validity was considered, where the specialists stated that it is applicable, giving a perfect evaluation of some criteria. These are clarity in the wording, internal coherence, response induction (bias), language appropriate to the level of the informant, and measurement of what was intended. There were only a few observations related to the structure of the question and its respective wording that was changed.

Data Processing

The data from the online form were saved in a document with a .xlsx extension. The SPSS version 24.0 statistical program was used for data analysis. Since the study had ordinal and nominal qualitative variables, the inference was determined with the Chi-square statistic and the Phi coefficient because it is a cross-sectional study in the same group, and the presentation of the results will be based on categories.

TABLE 1
SOCIODEMOGRAPHIC DATA OF THE PARTICIPANTS

Variable	Category	n	%
Gender	Female	208	80
	Male	52	20
Age	18 – 25	119	45.8
	26 – 33	88	33.8
	34 – 41	38	14.6
	42 – 49	12	4.6
	50 o more	3	1.2
Marital status	Single	56	21,5
	Married / Union	12	44,6
	Divorced	42	16,2
Race/people	Mestizo	222	85.4
	Indigenous	18	6.9
	Afro-Ecuadorian	4	1.5
	White	1	0.4
	Peasant	1	0.4
	Montubio	2	0.8
	Mulatto	1	0.4
	Kichwa	6	2.3
	Tsáchila	1	0.4
None	5	2	
Zone	Urban	128	49.2
	Rural	132	50.8
Natural region	Sierra	137	52.7
	Coast	92	35.4
	Amazon	31	11.9
Academic level	Second	104	40
	Fourth	72	27.7
	Seventh	84	32.3
Family responsibilities	No	170	65.4
	Yes	90	34.6

Results

The questionnaire in Table 2 shows information about the participants' economic, employment, and social situation. Most participants come from a public school, seek a third-level degree, and like teaching. The distance mode is chosen because of the flexibility of schedules (69.2%) and because it is presented as a more accessible option than the other modes (15.8%). Most students do not currently work (37.7%) or in an area other than education (33.8%). Most people use a computer or laptop for their classes (94.6%), and although most have their Internet service (68.1%), a third rent or request it.

Table 3 describes the questionnaire results related to student satisfaction with the services offered by this education center. Most feel satisfied with the university support center (77.3%). However, 20.8% mention that the information provided could be improved. Virtual libraries are the most used service, with 73.1%, but the low participation in cultural/sports clubs stands out (0.8%). A regrettable aspect is that only 57.7% of those surveyed are satisfied with the performance of their teachers and request better explanations of homework assignments (19.1%), tutoring (13.1%), and patience with homework (10.4%). A favorable aspect is that 83.5% of the students are satisfied with the platform used for their training. Finally, it was

learned that economic resources would be the main reason for abandoning studies (72.3%), although the quality of the teachers also has an influence (9.2%).

TABLE 2
SUMMARY OF SURVEY RESULTS: ECONOMIC, LABOR, AND SOCIAL SITUATION

Variable	Category	n	%
School of origin	Prosecutor	174	66.9
	Fiscomisional	35	13.5
	Private	48	18.5
	Municipal	3	1.2
Motivation to study education	Enjoys teaching	200	76.9
	Family tradition	8	3.1
	Works in the area	44	16.9
	Did not enter the desired career	8	3.1
Motivation for distance learning	Flexible schedules	180	69.2
	Facilities in activities	33	12.7
	Easier than other modalities	41	15.8
	Influence of friends and family	6	2.3
Motivation to start the career	Third level degree	114	43.8
	Job stability	90	34.6
	Financial stability	31	11.9
	Other	25	9.6
Current place of work	Basic education	48	18.5
	Other areas of education	26	10
	Other areas of knowledge	88	33.8
	Not working	98	37.7
Financial sustainability of studies	Own resources	157	60.4
	Third-party resources	73	28.1
	Student loans	24	9.2
	Scholarships	6	2.3
Device used for classes	Computer / Laptop	246	94.6
	Smartphone	9	3.5
	Tablet	2	0.8
	Other	3	1.2
Type of internet service used	Own	177	68.1
	Borrowed	50	19.2
	Rented	33	12.7

Subsequent Analysis

After six months (the next academic period), those students who remained in the university were analyzed to identify the factors that may have influenced their decision. Evaluating the sociodemographic variables, it was found that those older than 40 did not drop out. Seventy percent of the students who dropped out of their studies in the previous academic period mentioned that they could have done so because of economic problems. This shows that this aspect should be considered, although there was no significant inference between these variables. 20.6% of students without family responsibilities abandoned their studies, while those with family responsibilities had a higher incidence (30.4%).

TABLE 3
SUMMARY OF SURVEY RESULTS: STUDENT SATISFACTION

Variable	Category	n	%
Satisfaction with the university support center	A lot	201	77.3
	A little	56	21.5
	Not at all	3	1.2
Ways to improve care at the support center	Information	54	20.8
	Attention	21	8.1
	Support and patience	20	7.7
	Speed	45	17.3
	Digital media	12	4.6
	No need to upgrade	88	33.8
	No knowledge of the support center	20	7.7
University services used	Access to virtual libraries	190	73.1
	University welfare	37	14.2
	Coordination of student services	31	11.9
	Integration of clubs (cultural / sports)	2	0.8
Satisfaction with teachers	A lot	150	57.7
	A little	106	40.8
	Not at all	4	1.5
Ways to improve teacher support	Tutorials	34	13.1
	Methodological strategies	25	9.6
	Detailed explanation of tasks	47	19.1
	Patience	27	10.4
	Tolerance	1	0.4
	Clarify concerns	14	5.4
	Prepare classes	15	5.8
	Assignment deadlines	6	2.3
	Recordings available	7	2.7
	Didactic material	5	1.9
No need to improve	79	30.4	
Experience with virtual classrooms/platform	Easy to understand, user-friendly	217	83.5
	Difficult to navigate	43	16.5
Reason for dropping out of school	Financial resources	188	72.3
	Time	22	8.5
	Study another language	2	0.8
	Quality of teaching	24	9.2
	Illness	6	2.3
	Academic performance	7	2.7
	Calamities	2	0.8
None	9	3.5	

Regarding the professional aspect, most students who are not currently working decided to withdraw from their studies, and those with an educational credit (29.2%). Although there is high satisfaction with the support received by the university, 17.9% of them withdrew in the following period. Something similar occurs with students who are satisfied with their teachers' performance; 22.7% are no longer at the institution. The 20% of those surveyed who recommended improving methodological strategies withdrew, which could be an aspect to be considered in institutional changes. The 25.6% of students who were not

satisfied with the platform used have dropped out, something like those who were not happy with the teaching 20.8%. Table 4 analyzes the relationship between each of the variables and student retention.

TABLE 4
RESULTS OF THE CORRELATION OF VARIABLES WITH STUDENT PERMANENCE

Variable	Statistics	Significance
Gender	-,049	,431
Marital status	,113	,345
Age	,169	,116
Race/village	,261	,024
Zone	,047	,453
Region	,097	,294
Family responsibilities	-,076	,222
School of origin	,161	,082
Motivation to study education	,105	,415
Motivation to study at a distance	,112	,350
Motivation to start career	,130	,224
Current place of work	,061	,808
Financial sustainability of studies	,086	,589
Device used for classes	,095	,504
Type of internet service used	,120	,151
Satisfaction with the university support center	,067	,554
Ways to improve care at the support center	,156	,388
University services used	,071	,730
Current academic level	,118	,162
Satisfaction with teachers	,110	,206
Ways to improve teacher support	,215	,283
Experience with virtual classrooms/platform	-,072	,247
Reason for dropping out of school	,111	,865

The student's academic level shows an inference that is not significant but representative; according to the permanence data, those students of the second level reported more dropouts ($p=.162$). This can be interpreted as an association between a higher academic level and a lower dropout probability. Those students who must rent Internet outside the home report more dropouts than those who have their service ($p=.151$).

The school of origin also appears as a variable with some relationship, although insignificant ($p=.82$). Students from public and private schools have higher dropout rates. After analyzing the information, it was found that after one academic period (approximately six months), 19.23% of the students dropped out of school. Although this variable does not have a significant inference ($p=.116$), younger students are the ones who report more dropouts.

The only variable with a significant correlation, although not as strong ($\phi=.261$), is race/town. Most students who dropped out are mestizos. However, more representative percentages are evident in the indigenous population, where 44.4% of students dropped out after one academic period. This trend was also observed in other peoples and nationalities less representative of Ecuadorian culture: peasants, Montubios and Tsáchilas.

DISCUSSION

When the sociodemographic variables were analyzed, it became evident that 70% of the students who dropped out of school did so because of economic problems. In addition, in this same line, it was identified that 20.6% of the students without family responsibilities dropped out of school. In comparison, the students with family responsibilities had a higher incidence of 30.4%. This is related to the study by Gonzales Lopez y Evaristo Chiyong (2021), who state that in Peru, dropout students have been influenced by economic, work, family, and illness variables. Notably, at least 49% of the students who worked full-time could not dedicate themselves to developing their homework and studies.

Most students who do not currently work have retired (21.4%), and 29.2% of students have an educational credit; this seems to agree with Segovia-García et al. (2022). This study shows that the impact on the labor market and the loss of jobs can intensify poverty for many people. In Colombia, employment data show a drop of up to 20.5%, a situation that increases vulnerability and could harm the permanence of students.

When the variables in the professional aspect were analyzed, it was evidenced that, although there is great satisfaction with the support students receive from the university, 17.9% withdrew for the following academic period. Something similar happened with several students who were satisfied with the performance of their teachers (22.7%). In the Ecuadorian context, according to Álvarez-Santana y Caicedo-Montesdeoca (2021), it seems to be very common because social intervention and tutoring are considered variables of main importance related to university student dropout. In this study, 39% suggest strengthening the educational system to improve the teaching-learning process, 24.8% to expand the scholarship and financial aid program, and 4.7% specify that it is essential to improve infrastructure and equipment. All this is to mitigate desertion.

In addition, it became evident that 20% of those surveyed who recommended improving methodological strategies withdrew, which could be an aspect to be considered in institutional changes. The 25.6% of students who were not satisfied with the platform used have dropped out, something similar to those who were not satisfied with the teaching 20.8%. These results could be related to what is stated in the research of Herrmann et al. (2017), who determined that among the main factors of desertion are the difficulty in organizing between work and study and lack of money. Finally, the hours spent studying are decisive in the success or failure to continue studying.

CONCLUSIONS

The present study examined the sociodemographic and professional variables that influence university dropout, highlighting economic problems as the main factor in the abandonment of studies. From the results obtained, it is concluded that it is necessary to address this problem by improving the supply of scholarships and financial aid for university students. Likewise, the importance of strengthening methodological strategies and the teaching platform was identified to achieve greater student satisfaction and commitment to their academic training. In addition, the need to optimize the organization between work and study to achieve success in the permanence of students in the university was highlighted.

Nevertheless, the present study presents some limitations, including the design of a case study and the representativeness of the population studied, which limits the generalization of the results to other university populations. In addition, the need to deepen the study of the identified variables is recognized and explore new variables that may influence university dropout. Consequently, future work in this area is suggested to investigate the variables specified in this study in greater depth and address new variables that may influence college dropout. It would also be essential to consider a more representative sample to broaden the generalization of the results.

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