

Validation of a Questionnaire on the Factors of University Failure in Morocco

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Abstract

Objective: The objective of this research is to develop and validate a solid and reasonable scale to measure the failure of students in Morocco.

Material and Method: This is a cross-sectional study, which took place between November 2019 and March 2020. The internal reliability of the questionnaire was checked by calculating the Cronbach's Coefficient Index, and a factor analysis was performed.

Results: The population of our study is 184 students of three masters in teaching and education, University Ibn Tofail of Kenitra-Morocco. The average age at the time of enrollment in the first-year master's degrees is 26.59±5.65 years. Regarding gender, we noted that males represent a percentage of 71.2% (n=131), while females represent 28.8% (n=53) with a sex ratio (m/f) of 2.4 (p<0.005). The Cronbach's alpha value for all items was 0.84. Similarly, the calculation of Cronbach's alpha showed homogeneity across the different dimensions of the questionnaire. For the professional curriculum ($\alpha=0.93$), motivation ($\alpha=0.97$), educational satisfaction ($\alpha=0.93$), abandonment of university studies ($\alpha=0.96$) and non-academic curriculum of students ($\alpha=0.87$).

Conclusion: Based on the results of our study, we could, therefore, measure the academic failure of students in the education and teaching trade streams using a questionnaire.

Keywords: Validation, questionnaires, higher education, professional insertion, satisfaction.

Introduction

The Moroccan education system is characterized by the coexistence of the public and private systems and French and Arabic-speaking education. Regarding the Moroccan University cycle, it is based on the LMD system (License, Master and Doctorate) structured around 3 training cycles: License: diploma of Bac+3 level. Master: Diploma of Bac+5 level. And PhD : diploma at Bac+8 level. Indeed, the Moroccan university education system has grown from 780,000 to 900,000 students from the academic year 2016-2017 to 2017-2018¹. However,

the university dropout rate is one of the major problems of the Moroccan Ministry of Education and Higher Education. In 2018, according to the minister, more than 25% of the number of new students enrolled in the basic bachelor's degree drops out after only one year of training. Moreover, 43% of students leave the university system without obtaining a university degree, which could be explained by several factors. As far as we know, no Moroccan studies have been carried out to determine the factors of university failure in Morocco. For that reason, we have constructed a questionnaire to determine these factors among students of the master cycle in Morocco^{2,3,4,5}. The purpose of this study is to test the reliability and the validity of this questionnaire.

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Materials and Method

Study Design: This is a cross-sectional study, which took place between November 2019 and March

2020. The checking of the internal reliability of the questionnaire was carried out by calculating the Cronbach's Coefficient Index⁶, then a factor analysis was made.

Technical Sheet: A literature review concerning the determinants of motivation^{7,8}, the satisfaction^{9,10}, the abandonment¹¹, professional integration¹² allowed us to retain several items. These items have been submitted to experts in the field of university education, and the heads of master training for scientific feedback and to a linguist to judge the comprehensibility of the items as this scale will be intended for an Arabic-French speaking population. The opinion of these experts allowed us to discard 20 items. A total of 44 items were retained. This questionnaire was intended for students who have followed the master's degree course in education and teaching, it is divided into five dimensions:

- Professional curriculum (04 items): The first dimension focuses on the student's professional background, their experiences before and after the formation.
- Non-academic curriculum (03 items): This part is dedicated to the collection of information concerning the student's non-academic curriculum, certificates and attestations of training.
- Motivation (07 items): This part concerns the factors of choice of formation.
- Satisfaction (04 items): This fourth item treats the satisfaction of the students of the Master's degree courses.
- Abandonment (05 items): This last part is reserved for students who have abandoned their studies; it deals mainly to the reasons for abandonment.

Besides, we realized a self-questionnaire that covers the socio-demographic and socio-economic information of the participants of this study before and after the registration to the master's degree.

- Socio-demographic situation (11 items)
- Socio-economic status (06 items)

Thus we distributed the survey sheets personally to the students in coordination with pedagogical team. For ethical reasons, we respected the confidentiality of the students' personal information.

Statistical Methodology: In our research, the process of validation of our questionnaire was based on two steps. Initially, we calculated the reliability of the entire questionnaire and scale dimensions using Cronbach's alpha. Then, exploratory factor analyses were done. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) statistical software, trial version. The data collected were processed and analyzed on an exploratory basis.

In our study, we calculated Cronbach's alpha to verify the reliability and homogeneity between the items of the measurement scale. An alpha between 0.6 and 0.8 is acceptable for an exploratory study^{13,14}. We used the Kaiser Meyer Olkin (KMO) test. A KMO score less than 0.5 is unacceptable, 0.5 is mediocre, more than 0.6 is acceptable, 0.7 is average, 0.8 is meritorious and 0.9 is excellent¹⁵ so we used Bartlett's sphericity test for appreciating the potential effectiveness of PCA studied. For a factor analysis to be feasible, the Bartlett test must be significant ($p < 0.05$). Principal Component Factor Analysis (PCA) is the most effective method for synthesizing information and discovering the underlying structure of a concept because it is a method of multivariate data analysis that allows simultaneous exploration of the relationships between several variables of interest.

Results

Socio-demographic and professional profile of our population: The population of our study is made up of 184 students of three masters degrees in teaching and education from the Ibn Tofail University-Kenitra-Morocco. The average age at the time of registration for the first-year master's degree is 26.59 ± 5.65 years. Concerning gender, we noted that males represent a percentage of 71.2% ($n=131$), while females represent 28.8% ($n=53$) with a sex ratio (m/f) of 2.4 ($p < 0.005$). Urban students represent 71.7% ($n=132$) and rural students represent 28.3% ($n=52$). Concerning the socio-professional situation, we noted that before the Master's period, 23.4% ($n=43$) of the students were working as public officials and 20.7% ($n=38$) of the students were salaried employees. The socio-demographic characteristics of the students who participated in the survey are presented in Table 1.

Table 1: Socio-demographic and socio-economic profile of our population (n=184)

Variables	Number	Percentage	P-value
Age range			
20-25	71	38,6	0.05
25-30	84	45,7	
30-35	13	7,1	
35-40	7	3,8	
40-45	4	2,2	
45-50	4	2,2	
50-55	1	0,5	
Rural/Urban			
Rural	52	28,3	0.05
Urban	132	71,7	
Gender			
F	53	28,8	0.05
M	131	71,2	
Socio-professional situation before the Master's program			
Students	103	56	0.05
Public officials	43	23,4	
Salaried employees	38	20,7	

Validation of the questionnaire:

Internal consistency of questionnaire items:

The Cronbach's alpha value for all items was 0.84. Similarly, the calculation of Cronbach's alpha showed homogeneity across the different dimensions of the questionnaire. For the professional curriculum ($\alpha=0.93$), motivation ($\alpha=0.97$), educational satisfaction ($\alpha=0.93$), abandonment of university studies ($\alpha=0.96$) and non-academic curriculum of students ($\alpha=0.87$). Table 2 shows all of these results.

Table 2: Cronbach's alpha values of all items and dimensions of the questionnaire

	Cronbach's Alpha	Number of items
Item Sets	0,84	23
Professional Curriculum	0,93	4
Motivations	0,97	7
Satisfaction	0,93	4
Abandonment	0,96	5
Non-academic curriculum	0,87	3

Factor analysis: To make a factorial analysis of the questionnaire we took into consideration the value of the KMO index and the Bartlett sphericity test. For our study, the KMO index was $0.85 > 0.5$ which shows an acceptable value for factor analysis. The Bartlett sphericity test was highly significant.

Table 3: KMO index and Bartlett test

Value		
Precision measurement of Kaiser-Meyer-Olkin sampling.	0,85	
Bartlett Sphericity Test	Approximate Chi-square	5797,51
	ddl	253
	Meaning of Bartlett	<0,00

Factor analysis in the main axes with varimax rotation showed that five factors in the eigenvalues are higher than 1 explain 88% of the total variance. The five dimensions are well defined and distinct on the respective factors: the first factor, which includes four items (EX_1, EX_2, EX_3, EX_4) constituting the professional experience dimension, explains 29.03% of the total variance. The second, with seven items (WORD_1, WORD_2, WORD_3, WORD_4, WORD_5, WORD_6, WORD_7) constituting the dimension of student motivation, explains

21.83% of the total variance. As for the third factor, with four items (SAT_1, SAT_2, SAT_3, SAT_4), explains 14.87% of the total variance, constituting the dimension of student satisfaction with the master's degree course in Educational and Teaching Professions. For the fourth factor, which includes five items (ABD_1, ABD_2, ABD_3, ABD_4, ABD_5) constituting the dimension that is related to the students' satisfaction, which explains 13.59% of the total variance. Table 4 represents the cleaned component matrix.

Table 4: Component matrix cleaned

	Component				
	1	2	3	4	5
EX_1				,724	
EX_2				,694	
EX_3				,723	
EX_4				,676	
MOT_1	,961				
MOT_2	,874				
MOT_3	,890				
MOT_4	,903				
MOT_5	,937				
MOT_6	,935				
MOT_7	,904				
SAT_1			,791		
SAT_2			,877		
SAT_3			,841		
SAT_4			,797		
ABD_1		,838			
ABD_2		,784			
ABD_3		,807			
ABD_4		,787			
ABD_5		,796			
NA_1					,628
NA_2					,764
NA_3					,769

Discussion

University formation is one of the most important elements in the economic development of a country. Over the last few years, increasing attention has been paid to the social role and the impact of research carried out in universities. This is confirmed by our study: every year, universities take in new students and graduate others; in this continuous cycle, the quality of education occupies a crucial place. Therefore, increasing the quality of the education system is considered to be the most influential factor in the development of countries. Students acquire, through their academic success, a position in which their maximum internal and external strengths are used to achieve the objectives of higher education and to obtain the necessary conditions for a successful social life. On the other hand, the lack of success in education opens the way to several personal and social problems and

deviations from the achievement of the objectives of the education system¹⁶. In this regard, one of the major problems of higher education establishments is the academic failure of students at all levels of education, which not only leads to a loss of current expenses and time, but also generates psychological, social and family problems for university students. According to studies, this problem is aggravating every year, so that many students are unable to follow the program (academic curriculum) or to complete it on time¹⁷. Academic failure includes various aspects such as frequent absence from classes, dropping out, repeat grades or poor quality of teaching¹⁸. UNESCO attributes the concept of academic failure to repetition, early dropout and declining quality of learners' education¹⁹.

Concerning our study, to determine the factors of the academic failure of students enrolled in the master's degree in education and teaching professions, we used Churchill's method^{20,21} which is used in several areas. The questionnaire that has been developed contains several dimensions to gain a better understanding of the concept of failure. This questionnaire focuses on several dimensions such as academic and non-academic factors, professional career and student motivation, as they are one of the primary factors that cause academic failure according to several studies²².

Various research have determined the relationship between addiction to psychoactive substances (cigarettes, alcohol...)²³ and university failure²⁴ that we didn't mention in our study for socio-cultural reasons. Similarly, a study made by an American University among people who committed suicide indicated that academic failure was the most common cause of their death²⁵. Various studies have shown that personality factors, motivation, interest, satisfaction, loneliness, the expectation of success, and family circumstances can affect the level of academic success in universities. In a comprehensive approach, the factors involved in academic failure can be classified into three categories, (i) **individual factors** (components such as having a goal, motivation, anxiety, method of study, intelligence, attention, planning, emotional and mental conditions, lack of attendance, motivation, anxiety, method of study, intelligence, attention, planning, emotional and mental conditions and the lack of class attendance, emotional and mental conditions and the lack of class attendance), (ii) **internal organizational factors** (professional characteristics of instructors, space and appropriate facilities and equipment) (iii) **external organizational factors** (parents' level of education and how they cope with students' academic failure, socio-economic status of families and uncertain career prospects)^{26,27,28}. These factors are in harmony with the dimensions of our questionnaire.

Conclusion

This study aims to identify the factors that affect academic failure from students in the master's cycle in teaching and education and the professional integration of students. Our future work is now oriented towards calculating the results of this experiment. This will allow us to have a view on the university failure rate in Morocco.

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Ethical Clearance: No

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Conflict of Interest: Nil

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