

The use of factor analysis in determining the factors affecting school failure

A field study of a sample of secondary school students in Oran

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Abstract

The Algerian school suffers from many problems, the most important of which are those directly related to the student, including: school failure, and although failure appears to be a problem that concerns the student because it is reflected in his abilities and his psychological and social status, but in reality it is a serious problem that is reflected in his family and society, when a goal is evident The current study aimed at identifying the factors affecting school failure and arranging them according to their importance using the factor analysis method and relying on questionnaire data drawn from a field study that included 1000 students who failed in a number of high schools in the state of Oran.

The study concluded that 8 factors, the first and most important of which contribute to school failure, is the family environment, which included 5 variables, the most common of which were family problems and the relationship between parents. The other factors were ranked as follows: mother's characteristics, family income, hobby, father's characteristics, number of siblings, housing conditions, transportation to the institution and finally the school environment..

Keywords : school failure, student, Algerian school, failure factors, factor analysis

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1- Introduction

Algeria has allocated huge material and human resources to the process of education, and pinned its hopes on educational systems to achieve the highest return in quantity and quality at the lowest possible cost, so that the educational system contributes to human development, which represents the axis of development in society.

However, there remains a set of pedagogical problems that, without achieving the objectives of this process in particular, the phenomenon of school dropout is considered an educational, economic, social and psychological problem as well. No matter the cause of the erosion, most educators agree that there is no root, preventive solution to this multi-dimensional, rooted educational problem. It is not limited to one country or one side, but everyone is exposed to it, albeit to varying degrees, depending on their ability to resist and treat it.

The phenomenon of sedimentation is one of the major problems known to the education and teaching sector in Algeria, which is increasing in volume every year. There are students who suffer from this problem without others, despite their presence at the same academic level. The phenomenon of teacher shortages has become an obstacle facing all levels of education, making it take a steep trajectory in recent years, especially at the secondary level.

In Algeria, a noticeable increase in school dropout rates was recorded in 2018/2019, reaching 9.11% for females and 20.3% for males in the first year, for the second year, 6.24% were female and 12.63% were male, whereas for the third year of secondary school, 19.71% were female and 23.42% were male.

There have been many studies that have addressed the topic of classroom management in both its theoretical and practical aspects.” Which appears at first glance as a problem for the student who failed academically and does not go beyond the scope of his individuality, while in reality it is a problem that limits the achievement of goals and causes a loss of time, effort and money and its impact is reflected on the individual, society, and human development, social and economic and others, and stands in the way of progress that societies desire.”(Al-Shudayqat, 1996, p. 5)

The changes that have occurred and are constantly occurring in the system in terms of curricula, programs, methods, means and evaluation... are evidence of the awareness of the responsible authorities of the seriousness of this educational crisis and the need to research and investigate its negative effects on the educational system and society in general, which calls for its combat and alleviation. The student's failure and his return to the school year can make him lose confidence in himself and weaken his feeling of success in trying again, which may lead him to abandon his studies, believing that he is not capable of success. Therefore, it is necessary for the concerned parties to recognize this feeling and take it into account, creating an appropriate atmosphere to make him aware of the importance of trying and the necessity of proving his abilities by

respecting his wishes and taking into account his psychological and social conditions, and taking into account all the actors involved, especially the family and the school.

We hope that through this study, we can participate in the efforts to reduce school dropout rates, and be a reference for all teachers, counselors, educators, and administrators by highlighting the most influential factors in school dropout rates, especially in secondary education. Our research question will be: What are the most important factors contributing to school dropout rates, and how are these factors ranked in terms of their contribution to this phenomenon?

1. Factors affecting school failure

The phenomenon has attracted the attention of Arab and international conferences and seminars, as well as national organizations, due to its negative effects on the educational process. Where conferences were held to study and analyze it. In Algeria, Belhandouz presented an approach in which she stated that in 1990, among the 28 million Algerian residents, there are about 70% under 20 years of age, and 7.5 million of them suffer from illiteracy, and that these numbers rose after the black decade that was recorded in the 2000 statistics, where she indicated that There are about 73% of students who fail to study and 50% leave schools without certificates, and that out of 100 registered students, only 27 of them succeed in the baccalaureate. Numerous studies and research have also been conducted to find out the factors affecting school failure, which are represented in “psychological, educational and physiological factors(Belhandouz, 1990).” Social research on student academic failure indicated that several sources contribute to it, including: the student himself, the classroom, the school, teachers, family, society and cultural factors.(UNESCO, 1973, p. 22)

In general, other studies indicated that school failure has multiple causes, which were classified by(Odeh, Khaled, & Omar, 2016, pp. 238-242)according to what he collected from previous studies, which we were able to refer to:

- **Educational**, including the school, its educational staff, its curricula, the foundations on which the educational system is based, the lack of suspense in some curricula, the lack of use of modern teaching methods, the use of unqualified teachers, the weakness of academic and educational guidance, in addition to the failure of the prevailing examination system that focuses on Preservation and memorization.(Moqbel, Obeidat, Al-Najdawi, & Al-Shubailat, 1991; Obeidat, Suleiman and Al-Rashdan, Abdullah, 1993; Morsi, 1998; Al-Sarheed, 2005; Khatibeh & Al-Sa’ud, 2009).
- **Reasons related to the student**, including psychological reasons such as students’ aversion to studying and preparing lessons, lack of focus of attention, fear of failure, test anxiety, in addition to the lack of interest of many students in school exams conducted by the teacher, and subjective reasons such as poor general mental ability necessary for achievement, and physical growth disorders , physical disabilities, and

the lack of compatibility of the type of study with the student's tendencies.(Al-Zaabalawi, 1998; Al-Bakkar, 2003; Al-Bawat, 2006)

- **Family and social reasons**, such as neglecting to follow up on children and lack of interest in their educational future, as well as the weak link between the family and the school and the consequent weakness of parents' follow-up to their children's behavior at school, as well as the low level of parents' aspirations and the level of their education, are all factors associated with failure and low achievement.(Morsi, 1998; Al-Sarheed, 2005; Al-Bakkar, 2003; Al-Bawat, 2006; Moqbel, Obeidat, Al-Najdawi, & Al-Shubailat, 1991)

Hence, this study is of great importance because it is necessary to conduct studies and research such as this in order to reveal the factors that stand behind their presence in the educational community in our country, especially since conditions change affecting these factors whose contribution to school failure varies with the difference in these circumstances.

2- Research methodology :

This research is a statistical study that exploited the data of a field survey conducted in 2015 using the descriptive approach, which relied on the method of factor analysis of the results of a questionnaire for a non-probability quota sample of secondary school students in the state of Oran, numbering 1,000 students who had previously failed. The city includes 26 secondary schools within 11 A county, and due to the difficulty of moving for all the secondary schools, the high school that includes the largest number of repeaters was chosen from each province, so that the total number of repeaters in the selected secondary schools was 1729 students, and according to the quota method that respects the relative distribution of students in each secondary school and at each academic level, and according to each gender it was distributed The sample is as shown in the following table:

Table 1: Distribution of the respondents according to gender and educational level

| Gender Educational level | Female | | Males | | Total | |
|---|---------------|-------------------|---------------|-------------------|---------------|-------------------|
| | number | percentage | number | percentage | number | percentage |
| First year secondary | 103 | 10.3 | 172 | 17.2 | 275 | 27.5 |
| Second-year secondary | 84 | 8.4 | 124 | 12.4 | 208 | 20.8 |
| third year | 264 | 26.4 | 253 | 25.3 | 517 | 51.7 |

| | | | | | | |
|------------------|------------|-------------|------------|-------------|-------------|------------|
| ofhigh school | | | | | | |
| Total | 451 | 45.1 | 549 | 54.9 | 1000 | 100 |

Source: Field research

As noted, 54.9% of the repeaters are males, and about 52% are students from the third year of secondary school, which is the final stage. The high percentage is due to the baccalaureate exam, as the success rate in the selected secondary schools in this city did not exceed 50%.

And we relied on the questionnaire tool, which included a set of questions within several axes: data of the dropout, his family environment, his school environment, his external environment, and finally his opinions about school failure.

3- Statistical method:

The current study aims to identify the most important factors affecting school failure (secondary), although there is a correlation between a very large number of variables and school failure, but because of the large number of these variables and the difficulty of determining the interrelationships between them, it is difficult to explain these factors, and here lies the importance The use of factor analysis to reveal the most important of these factors, which we extracted using the basic components method, where we first depended on 30 variables, and after excluding the weakly loaded variables, we kept 20 variables, according to the output of the SPSS program, we obtained a Determinant that represents the determinant of the matrix with a value greater than 0.0001 (0.007), and therefore we do not delete any variable. While we found that the value of the KMO measurement is greater than 0.5, which means that the sample size is sufficient and the reliability of the factors that we obtained is increased. We also noticed that there is a correlation between some of the matrix variables according to the Barlett test (sig = 0.000), which means that the factor analysis can be performed.

Indice KMO et test de Bartlett

| | |
|--|----------|
| Indice de Kaiser-Meyer-Olkin pour la mesure de la qualité d'échantillonnage. | ,699 |
| Test de sphéricité de Bartlett | |
| Khi-deux approx. | 4907,613 |
| ddl | 190 |
| Signification | ,000 |

Determinant = 0.007

As for the variables of the study, they were as follows: the educational level of the parents, the occupation of the parents, the number of brothers, the number of brothers who are in school, family income, ownership of housing, number of rooms, the nature of marital life between parents, the relationship between parents, the relationship between parents and children, parental support, family problems, The distance between home and

high school, dependence on a means of transportation, choice of class, relationship with the administration, practicing a hobby, interest in the hobby at the expense of studying. Among them, the factors affecting school failure were identified, as each factor includes variables that give it certain characteristics.

4- Results and discussion:

After conducting the factor analysis, we found that the extracted factors explain a high percentage of the variance of the variables, where the lowest percentage is estimated at 0.535 and is related to the parents' support for the student financially and morally, while we found that the most common variables, i.e. the most contributing to school failure, are family problems and the practice of a hobby (0.843). That is, 84.3% of the variation in family problems and the same percentage of the variation in practicing a hobby are explained by common factors. They are followed in terms of importance by the number of schooled brothers (0.828) and the number of brothers (0.827).

And through the components matrix after rotation, 8 factors were extracted using the basic components method with orthogonal rotation, and it explains 68.094% of the total variance for the total number of students (997 final size of the sample after conducting the analysis). The saturations of each variable were given for each of the extracted factors to facilitate their interpretation.

We found that there is a group of interrelated and interrelated factors that all or some of them lead to the occurrence of the phenomenon of failure, whether these factors are related to the student and his family and their social and economic conditions, or to the educational system and the school environment (Al-Subaie, 2003, p. 14), Its importance appeared according to the saturation of the variables included in it as follows:

The first factor: which can be called the family environment and includes five variables: the nature of the marital life of the parents (0.731), the relationship between the parents (0.805), the relationship between parents and children (0.730), and the parents' support for the student in the study morally and financially (0.696). Finally, family problems (-0.836). It is considered the most important factor as it explains 14.875% of the total variance. Where each of the variables of family problems and the relationship between the parents appear from the strongest variables related to the first factor.

Whereas, 54.2% of the students who failed indicated that family problems are the most important reasons for their failure, and 57.5% of them stated that the relationship between their parents is dominated by conflict, quarrels, and lack of acceptance of the other opinion. Whereas, their relationship with their parents is based on indifference and lack of understanding at a rate of 61.8%. And only 36.6% of those who find financial and moral support in continuing their studies permanently from their parents.

This is consistent with many studies conducted in Britain, Canada and Australia, that about 50% of the differences in the level of academic achievement, which often leads to failure, is due to factors related to family background (Al-Thabiti, 2002). The turbulent situation due to conflicts and misunderstandings between children and family members has a negative impact on the student's academic achievement and academic achievement. (Khalil, 1979, p. 207)

In general, the student, who witnesses continuous disputes between his parents and his family members, feels a lot of anxiety and lack of interest, care and follow-up, which affects his academic achievement and interest in his lessons, so he fails.

The second factor: It can be called **the socioeconomic characteristics of the family on the part of the mother**, as it includes three variables: the mother's profession (0.760), the family income (0.731), and finally the mother's educational level (0.714). This corresponds to the fourth factor, which also includes family income, educational level, and father's profession.

In the sense that they bring together the socioeconomic variables of the parents.

And what he went to (Anderson, 2000), who found that the economic situation and the level of education of the parents have an impact on failure. (Abdel-Rahman, 1998) Also argued that the low economic situation of the family (especially since we found that the income of about 50% of the families of students who failed is less than 40 thousand dinars) does not allow the provision of all the requirements of the student and may push him to help his family at the expense of his studies, which distracts him from studying, so his absence increases and his interest in it fails.

The low educational level of the parents leads to poor follow-up and monitoring of the student. Usually, parents of high educational levels tend to follow up on their children and provide a scientific environment that is complementary to that in the school.

Parents tend to move away from extremism and corporal punishment in the methods of upbringing, or to tend towards the use of discussion and new scientific methods whenever their educational level rises (Hamshari, 2003, p. 340), this treatment guarantees the student's readiness and psychological and physical compatibility to continue his studies successfully.

The profession of the mother, and in particular her individual condition, plays a role in the student's failure. It is common that working mothers do not have enough time to follow up on their children, as it was found that about 55% of the mothers of students who failed. More than 67% of them work in administrative jobs that require long hours daily, which makes them they are less present with their children and usually resort to private lessons to compensate for their poor level.

The third factor: It can be called a hobby. It includes both the practice of a hobby and the interest in studying at its expense as important variables affecting students' failure,

with very high saturations (0.917 and 0.918, respectively). Where we found that more than half of the students who failed (51.2%) do not practice any hobby, while (Zawgy, 2017) indicated that recreational activities can be a factor for academic excellence, as well as a factor for failure and academic failure. In this case, it is advised that these activities do not conflict with the student's education in terms of their type and the time allotted for them.

The fourth factor can be called the socioeconomic characteristics of the family on the part of the father, and it includes the father's educational level (0.766) and his profession (-0.816), in addition to the family income (0.423), which also appeared in the second factor. This factor is explained as we referred to in the second factor.

The fifth factor: It can be called the number of brothers, and it includes both the number of brothers and the number of brothers who are in school, with very high saturations (0.873 and 0.854, respectively). (Abu Zaid, 1995) that whenever the number of siblings increases, academic delay occurs, which leads to failure, and perhaps the reason for this is the difficulty of caring for all the children and following them up periodically and seriously.

The sixth factor: It can be called housing conditions and includes both the number of rooms (0.854) and housing ownership (-0.771). Where we found that 44.6% of students live in rented or messy housing, and 55.8% of their homes have three rooms at most, noting that they are not commensurate with the high number of individuals, especially schoolchildren whose average number reaches four as we mentioned earlier, which may contribute in the difficulty of reviewing and doing homework due to the narrowness of the dwelling and the lack of space for that. In addition, the lack of ownership of the house or its constraints affects the psyche of the parents in particular, which is reflected in the children, which limits their readiness for academic achievement, and thus they are more inclined to fail.

The seventh factor: It can be called mobility, and it includes the distance between the home and the secondary school (0.813) and the availability of means of transportation (-0.7126). We found that 59.3% of the students do not use any means of transportation, although 43.2% of them live far from their institutions. After school is far from the place of residence of the student, it is difficult for him to move to it, as it causes him fatigue, which affects his presence at the specified time, and he may be late or absent, which affects his academic achievement and thus leads to his failure (Muhanna, 2017, p. 27) inevitably lead to failure.

The eighth factor: It can be called the school environment, and it includes both the student's relationship with the administration (0.749) and the choice of the division (0.702).

We also found that about 40% of them attribute their poor relationship with the administration to one of the reasons for their failure, because 'not listening to students'

complaints or meeting with them from time to time, or that the school administration is very tolerant or very arbitrary (Wasfi, 2000, p. 20), Affects the student's psychology and behavior negatively, or the spread of issues of authoritarianism, chaos and neglect in the school, the student feels deprived of the possibility of expressing himself, which constitutes frustrations for him, so the student feels that he lives in a pressured atmosphere, and to escape from this terrible atmosphere, he resorts to stagnation and indifference, and this leads to him Riot to the actual escape from the study. (Khalifa, 1989, p. 50)

We also found that 56.4% did not choose the section in which they failed, because 'many students are directed on the basis of filling pedagogical positions only, so we find that the guidance method is a mechanism that does not primarily care about the student's abilities and tendencies, but rather aims above all to achieve the requirements of the school map (Avanzini, 1977, p. 6). The student finds himself forced to study in a section that he does not tend to or that does not fit with his mental abilities, so his achievement in it weakens and thus he fails.

In the light of these results, it was found that our study agreed with previous studies in the presence of the same factors affecting school failure, such as the studies of (Morsi, 1998; Al-Sarheed, 2005; Al-Bawat, 2006), especially the studies of (Ahmed, 2004), which combined the family environment, the economic and social status of the family and the school environment. However, they differed with her in the order of the most important ones. At a time when most studies indicated the importance of the school environment (the student's relationship with the teacher, the administration, the curriculum, and exams...), we found in our study that the family environment is the most important factor contributing to the student's failure. The presence of family problems and the tension of the relationship between the parents affect It affects the student's psyche and thus neglects his studies and weakens his level, which is what causes him to fail. In addition to the fact that the rest of the factors are all related to this environment. The educational level of the parents and their profession, especially the mother's, income, and the nature of the dwelling are all variables that formed more important factors, and finally the school environment came.

Conclusion

Failure is a very important educational issue and a form of educational waste that reflects negatively on the student and his surroundings, and its aggravation leads to wasting more human and material energies, causing great losses and an imbalance between the inputs and outputs of education. This study allowed to arrange the factors that most contribute to this phenomenon. And it turned out that the family environment and what is related to it, that is, the general social conditions of the student, played a major role in his failure.

Therefore, based on these results, we recommend:

- The importance of activating psychological counseling that deals with the student and contacts him to know his social and economic conditions.
- Educating the student's family about the importance of providing the appropriate atmosphere for his psychological stability.
- Giving importance to guidance and counseling in a manner that takes into account the circumstances and tendencies of the student

Encouraging the student to aim recreational activities that combine pleasure and benefit in order to develop his skills without harming his studies.

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