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MAPPING OF THE TYPOLOGY OF STUDENTS AT RISK OF SCHOOL DROPOUT IN TUNISIA: REGIONAL COMPARATIVE STUDY

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Abstract

We propose to study the typology of dropout students according to their socio-geographical affiliation. The idea supported is based on a simple observation: the more regional disparities persist, the more different and high the types of school dropouts specifically from disadvantaged regions. How to explain such a phenomenon? Using data analysis techniques, based on factorial and automatic classification methods, the article aims to provide a cartography that highlights a panorama of the typology of school dropout according to the seven Tunisian regions (socio-geographical affiliation). We identified significant differences in the types of dropouts across regions. These differences are explained by regional disparities, exclusion and social inequality. Thus, our study tends to show the importance of geographical and cultural space in determining the type of student at risk of dropping out of school. But our results confirm that there is a typology of dropouts (little interested, internalized and externalized behavioral disorders) which is due to social inequalities and geographical disparities in training and which persist especially in the interior regions of Tunisia. They are permanently rooted in the social and geographical diversities of Tunisian society.

Keywords: School Education, Dropping Out, Typology, Student Characteristics, Social and Regional Disparities, Inequalities of Opportunities, Mapping, Tunisia.

1. INTRODUCTION

Since it is easier to keep young people in school than to get them to return (Fortin et al. 2004), several authors highlight the importance of deploying prevention efforts as early as possible for students who are at risk of dropping out (Fortin et al. 2004; Franklin and Streeter, 1995; Rumberger, 1995). That is why it is essential to properly target students who are at risk. It should be mentioned that "Students at risk of dropping out of school are those who attend school, but who have a very high probability of dropping out. " (Fortin et al. 2004, p. 220). As has been pointed out previously, many factors can lead some students to be at risk of dropping out of school. It is also recognized that young people react differently to risk factors (Janosz et al. 1997).

This therefore suggests that they develop different profiles and difficulties. This diversity of factors and reactions suggests that students at risk of dropping out form a heterogeneous group. Some authors have studied the possibility of identifying a typology. Janosz, LeBlanc, Boulerice, and Tremblay (2000) have, for their part, worked to develop a typology of dropouts. More recently, Fortin, Marcotte, Potvin, Royer, and Joly (2006) have developed a typology of students at risk of dropping out. Given the importance of intervening as early as possible in the school dropout process and the need to increase knowledge of students at risk of dropping out of school, the typology chosen is that of Fortin et al. (2006).

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This typology has been developed according to three areas associated with the risk of dropping out of school, namely the personal, family, and school context. The sample used to validate this typology includes 810 students aged 12 and 13 from the first secondary school. These young people come from three regions of Quebec: Quebec, Trois-Rivieres, and Sherbrooke. The sample was divided into two groups, not at risk (493 students) and at risk (317 students) using the Decision questionnaire (Quirouette, 1988). Nine other measures were used to allow the authors to differentiate students at risk according to several dimensions. The measures are 1 analysis of school records (results in mathematics and French as well as absences), the questionnaire on social skills, the Social Skills Rating System (Gresham and Elliot, 1990), Beck's depression inventory (Beck, 1978), the Self-reported Delinquency questionnaire (LeBlanc, 1994), the questionnaire on parenting style, Parenting style (Steinberg, Lamborn, Dornbush and Darling, 1992), the Family Environment Scale (Moos and Moos, 1981), Parental participation in school monitoring (translation by Epstein, Connors and Salinas, 1993), the Classroom Environment Scale (Moos and Trickett, 1978) and the teacher's Attitude Scale towards the young person (Potvin and Rousseau, 1991).

The results of this study make it possible to identify four types of students at risk: hidden antisocial behaviors, uninterested/unmotivated, behavioral problems, and depression. The hidden antisocial behaviors type represents 18.9% of the sample of students at risk. These young people generally have good academic results, although slightly below average. Teachers perceive them positively and describe them as young people without behavioral problems. However, these young people show hidden anti-social behaviors such as lies, the initiation of fights, and vandalism. They also have a high level of depression. At the family level, they perceive little control, organization, or governance in the family. They also perceive little order and organization in the classroom. The type with little interest/little motivation represents, for its part, 39.7% of the sample. These students usually perform very well in mathematics, but they are not motivated enough and bored at school. Just like the type of hidden antisocial behaviors, they are perceived positively by the teacher and they perceive little order and organization in the classroom. These young people report little parental emotional support. They have a slightly higher than average level of depression and show good social skills. The third type of students at risk of dropping out of school is the behavioral problems type representing 30.5% of the sample. Compared with the other three types, these young people present the lowest results in mathematics, a higher level of behavioral problems, and delinquency.

They are perceived negatively by teachers and have a high level of depression. In addition, they perceive little order, organization, or emotional support in the family. Just like the other three types of students at risk, they report little order and organization in the classroom. Finally, the last type identified is the depressive type composed of 10.7% of the sample. These young people are mainly characterized by a high level of depression exceeding the clinical threshold in Beck's depression inventory (Beck, 1978). Teachers perceive these students positively. Young people of the depressed type report little order and organization in the classroom. They also report little cohesion, communication, emotional support, family organization, and a lot of control. This study by Fortin et al. (2006) clearly shows the existence of heterogeneity among

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students at risk of dropping out of school and the relevance of taking this into account in future work. There are certain differences and similarities between the four types of students at risk of dropping out of school according to the different components of the phenomenon. Taking these descriptions into account, it appears that these young people have great vulnerabilities that can greatly influence their lives and their experiences within the school setting and, by the same token, their perceptions about their quality of life at school.

In the Tunisian context, the problem of dropping out of school has worryingly worsened in the last decade. Moreover, the director of the Association of Studies for the Maghreb, Hassan Laoulab, revealed that Tunisia registers more than 100 thousand school dropouts every year. That is an average of 300 dropouts every day and a million dropouts since 2011. Knowing that these figures are distributed over all the governorates which have 24, divided into 7 major geographical areas: Greater Tunis: Tunis, Ariana, Ben Arous, and Manouba. The North Is: Nabeul, Bizerte and Zaghouan. The North-West: Béja, Jendouba, Le Kef and Siliana. The Center-West: Kairouan, Kasserine and Sidi Bouzid. The Center-East: Sousse, Monastir, Mahdia and Sfax. The South-West: Tozeur, Kebili and Gafsa. The South Is: Gabes, Medenine and Tataouine. In reality, Tunisia suffers from persistent socio-territorial disparities, which dig ditches and divide it into two major parts: the eastern part of Tunisia from the western part Indeed, The ranking of governorates, taking into account the Regional Development Index, indicates a high disparity between coastal cities, on the one hand, and inland cities on the other. As well as it is also a powerful superior of the North-East and the Center-East of the country with Tunis, Ariana, Monastir, Ben Arous, and Sousse reaching the first line of the ranking in 201the western cities that lag the most in terms of development and in particular the governorates of the West Center and the North-West with Jendouba, Kasserine Kairouan Siliana, and Sidi-Bouzid, which settle at the bottom of the ranking. Likewise, concerning the quality of teaching, the results of national competitions, and premature dropout from school. Some governorates, particularly those in the interior, show alarming high school dropout figures.

Hence, the dropout rate at the first cycle of basic school is very unequal according to the governorates; it increases in the interior regions to exceed ...% in some areas (Kasserine, Kairouan). In fact, from 1991, basic education became mandatory for all children aged 6 and up to 16 years old throughout Tunisia. This democratization of education has made it possible to ensure equitable access for all Tunisian children, to develop intellectual abilities and study skills. As well as ensuring the acquisition of knowledge in the sciences and participating in the evolution of physical abilities and motor skills. Moreover, despite the important achievement of the democratization of education, the majority of studies on school dropout have shown that the dropout rate is higher in certain regions, in particular, the least economically developed and located inside Tunisia. Of course, development issues affect academic success, but also cultural and geographical specificities are emerging as strong predictors of abandonment.

Considering that school dropout has its first roots in the geographical environment and the subculture specific to this environment, it then becomes essential to explore the Tunisian context and identify its cultural and geographical specificities that interact with other factors

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identified in previous studies to illustrate the profiles of Tunisian dropouts to intervene early on the predictive factors before they crystallize.

Our study therefore opts for the screening of young people at risk of dropping out and the most powerful factors associated with school dropout, to develop a regional mapping of school dropout according to the different profiles of potential dropouts, In fact, the more premature the screening, the better the possibilities of preventing school dropout. For this, we will aim to detect the most powerful predictors, but in a non-exhaustive way. From then on, we will focus our investigation on the cultural and geographical factors that present the specificity of the Tunisian context and of our study. Nevertheless, under no circumstances will we deny the role of other factors, since all studies have revealed the complexity of the dropout phenomenon within which several factors associated with it interact, such as family, school, and personal factors (Ekstrom, Goertz, Pollack, & Rock, 1986; Ensminger & Slusarcick, 1992; Janosz et al., 1997; Rumberger, 1990).

Numerous works have highlighted the diversity of the profiles of students at risk of dropping out of school during the last decades and we will detail below the genesis of different typologies developed. Many publications link school dropout and family and personal breakdowns, especially in families of working-class and/or immigrant origin. Dropouts have common points, even if each course is unique (Janosz et al., 2000). These points are identified by the institution, are of modest social origin, and are characterized by precarious living conditions and difficulties in early learning (Fortin et al., 2006; Potvin and Lapointe, 2010). However, the reality is more complex: more and more young people from privileged backgrounds are dropping out. Different typologies have been drawn up to classify students in dropout situations.

There are currently numerous scientific works focusing on defining the profile of dropout students. Previously, there was a unique and stereotypical profile of the school dropout. It was most often a boy, from a disadvantaged background showing behavioral problems in the classroom and/or delinquency problems outside. This student was led to leave school as a result of poor academic results, or as a result of an educational sanction (Blaya 2012). Of course, this reductive vision is of no use today, and Janosz and Le Blanc (1996) point out that this unique profile does not exist. The first research referring to a typological approach to school dropout dates back to the seventies. This approach has developed in parallel with a better understanding of the phenomenon and the highlighting of its complexity. The construction of typologies specific to the abandonment of studies pursues a double objective. Firstly, these typologies make it possible to account for the complexity of the trajectories through the highlighting of different profiles of school dropouts.

They thus make it possible to get out of the "stereotype of the school dropout" to broaden the question to all the situations that can lead to premature abandonment of studies. Secondly, it makes it possible to think in a more targeted way about prevention actions aimed at the different profiles of dropouts by highlighting the risk factors and the contexts in which perseverance difficulties appear in the studies of this or that type of student. In addition, current work is based on these typologies and on a set of risk factors that are linked to profiles of students at

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increased risk of dropping out of school. The corpora of data from longitudinal samples also allow an empirical knowledge of the process of dropping out of school. However, these works carried out in North America or Europe are based on very different samples. Depending on the studies, these are either typologies of dropout students or typologies of students at risk of dropping out. As far as we are concerned, we will not quote all of these works exhaustively.

Our study therefore opts for the screening of Tunisian young people at risk of dropping out and the most powerful factors associated with school dropout, to develop a regional mapping of school dropout according to the different profiles of potential dropouts, In fact, the more premature the screening, the better the possibilities of preventing school dropout. For this, we will aim to detect the most powerful predictors, but in a non-exhaustive way. From then on, we will focus our investigation on the cultural and geographical factors that present the specificity of the Tunisian context and of our study. Nevertheless, under no circumstances will we deny the role of other factors, given that all studies have revealed the complexity of the dropout phenomenon within which several factors associated with it interact, such as family, school, and personal factors (Janosz et al., 1996; Fortin et al., 1996-2000; Rumberger, 1995, Blaya, 2012).

Numerous studies have highlighted the diversity of the profiles of students at risk of dropping out of school during the last decades. All the typologies demonstrate the heterogeneity of the profiles of potential dropouts. The typological subgroups are divided into special categories and change according to the conditions and the times. They have helped to discern the types of students at risk of dropping out and have made it possible to better prevent dropping out from within. In contrast, they contain certain shortcomings, by way of illustration, The typologies developed by Erpicum and Murray (1975) Charest (1980) Kronick and Hargis (1990) Watherhouse Price (1990) Violette (1991) do not have empirical foundations (Janosz et al, 2000). The typology developed by Kronick and Hargis (1990) is considered relevant, despite the absence of empirical validation. Insofar as it takes into consideration two important dimensions which are academic difficulties and behavioral disorders to distinguish the school experience of students at risk of dropping out.

Similarly, for Janoz et al., (1997) although they developed a typology based on validated tests, they focused particularly on individual characteristics without taking into account other factors such as those associated with family or school. In conclusion, some of the works developed highlight mesocial factors (institutional and family) and others highlight microsocial factors (individual and interpersonal). In our study, we will adopt the "multidimensional explanatory model of school dropout" developed by Potvin and his collaborators (2005, 2010). It seems to us the most appropriate for the Tunisian context to identify the factors acting on the risk of dropping out. On the one hand, it encompasses risk factors, both varied and complex. On the other hand, it states that the risk of dropping out increases the more the student runs risk factors. In other words, the complexity and multiplicity of risk factors affect the educational path of young people. Overall, the risk factors identified according to Potvin's perspective are associated with four dimensions (living environment/school/families/student).

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These authors have identified four types of dropouts; firstly: the "depressive" who has the following characteristics; high level of depression, report being sad, discouraged and some are thinking of suicide, Secondly, the "little interested" who is little motivated in class and bored at school. The third type designates "Hidden antisocial conduct" which is characterized by hidden minor assaults, damage against property, and delinquent acts. Finally, there are "behavioral disorders and learning difficulties" This type is characterized by the manifestation of inadequate externalized behaviors.

This typology takes into account the academic and psychological dimensions and develops recommendations for intervention for each type of dropout. According to this perspective, the risk factors are numerous and can be divided into four components, namely, those related to the living environment such as poverty, geographical isolation, school-related risk factors such as lack of support for students in difficulty, classroom climate, and problematic master-student relationship, family-related risk factors as an example; low education of parents, instability of the family unit and risk factors related to young people and learning difficulties by way of illustration; association with deviant peers, poor well-being at school, school refusal ... Through this study and following the example of several Western countries, Tunisia must adopt its first Strategic Framework to Combat School dropout, which is characterized by its regionalization through the development of a Regional Strategic Framework to Combat this phenomenon for each of the seven (7) Tunisian regions that the country counts. Having detailed information on school dropout at geographical levels finer than the city can contribute to better targeting of remediation programs and actions (Deichmann, 1999; Davis, 2003; World Bank, 2003, Boudesseul & al. 2017 ...). The approach of mapping a social phenomenon makes it possible to reconstitute its indicators at the regional, provincial, and communal scale, based on survey data among school actors.

The choice and success of policy options to reduce school dropout depend, to a large extent, on a good knowledge of the socio-economic characteristics of the most vulnerable students as well as their geographical and socio-economic targeting. The indicators of school dropout as produced so far through the various studies on this phenomenon are mainly monetary and their disaggregations are limited to the regional level. Consequently, the diversity of levels and intra-regional facets of school dropout are not highlighted.

The school dropout mapping is thus becoming, more and more, for government officials and Non-Governmental Organizations an important tool for the development of effective policies to reduce social and economic inequalities, governance, and local development management. Moreover, school dropout mapping can prove to be a powerful means of communication and advocacy on inequalities within a country (Deichmann, 1999). First of all, mapping at the national level will allow the central authority to better target regions experiencing a certain delay in development or equipment. Then, at more disaggregated levels (regions), it will allow local authorities to better orient their development programs and actions. To carry out such an exercise, it is therefore necessary to have sufficiently detailed and exhaustive data sources. The general census of dropout students turns out to be the preferred source.

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The hypothesis supported by this study stems from a simple observation: the more regional disparities persist in Tunisia, the more different and higher the types of school dropouts specifically from disadvantaged regions. Our objective is therefore to take advantage of the quantitative data from our school dropout survey to construct the different types of school dropouts at a regional geographical level.

2. MÉTHODES

Participants

This study uses data collected in the fall of 2019 as part of our thesis work on student dropout and academic success. The students come from the colleges of the seven Tunisian regions (see table distribution of regions), in short, one class of a college per city. All students were solicited and participated in the study, which represents (35 students x 24 cities = 840 young people). Of these, some questionnaires had to be rejected because they were incomplete or invalid. Thus, the sample of this study is composed of 840 students (girls and boys). These young people are between the ages of 12 and 15 and come from seven Tunisian regions. The entire sample participated and completed our Questionnaire to Assess the Risk of Dropping Out of School. The students answered the questionnaires while they were still at school.

The typology of students at risk of dropping out was carried out using the Software for screening the risk of dropping out of school (Fortin and Potvin, 2007). Currently, the Tunisian territory is organized according to two approaches (Figures 1 & 2): (a) administrative decentralization (composed of 24 governorates (wilayat) subdivided into 264 delegations (mutamadiyat) and 2073 sectors (imadats), all directly determined by the central government; and (b) political decentralization (350 municipalities (baladyiat) directly chosen by the citizens and 24 municipal councils, which correspond to the 24 cities). All are divided into seven regions (Greater Tunis, North-East, North-West, Centre-East, Centre-West, South-East, South-West). In sociology, as a prerequisite for any other stage, it is necessary to determine the territory on which the sociologist is working. At the national level, the term "economic territory" of a country should be understood to mean: The area (geographical territory) under effective administration and economic control of a single public administration. In Tunisia, the choice has been made to divide the territory into seven major regions (see Table 1- figures 1-2).

Table 1: Geographical distribution of Tunisian regions

Regions	Cities			
Greater Tunis	Tunis	Ariana	Ben Arous	Mannouba
North East	Nabeul,	Bizerte	Zaghouan	
North West	Beja,	Jendouba,	Kef	Siliana
Central East	Sousse,	Monastir,	Mahdia	Sfax
Central West	Kairouan,	Kasserine	Sidi bouzid	
South East	Gabes,	Medenine	Tataouine	
South West	Gafsa,	Tozeur	Kébili	

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Figure 1 ; Geographical distribution of the 24 Tunisian governorates (Source: INS Tunisia,2015)

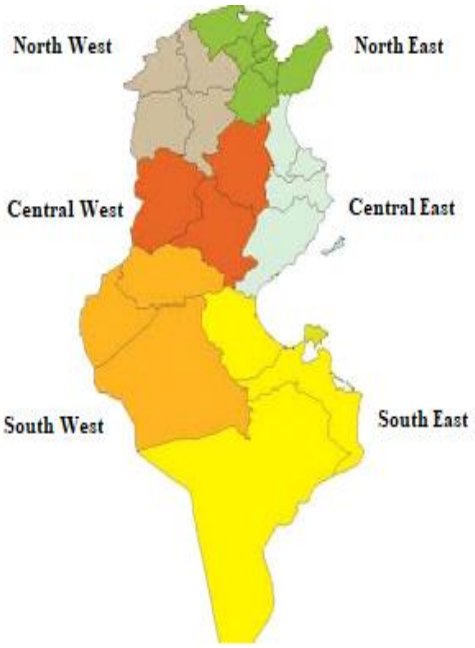

Figure 2 ; Geographical distribution of the 7 Tunisian regions (Source : INS Tunisia, 2015)

Measures

Screening questionnaire for students at risk of dropping out of school:

Our validated School Dropout Questionnaire (SDQ) (Chérif and Elloumi, 2021), This questionnaire is based on data from Potvin et al. (2009) makes it possible to identify students who are at risk of dropping out of school. It includes seven subscales: parental commitment, attitudes towards school, perception of their level of academic achievement, parental supervision, and academic aspirations, for a total of thirty-three questions. These questions are used to achieve two objectives: on the one hand; identify the most powerful factors in the paths of dropouts and, on the other hand, identify a typology of Tunisian students at risk of dropping out. Seven variables are taken into consideration: social factors, educational factors, economic factors, personal factors, cultural factors, and geographical factors. The first variable (social factors) is divided into six items: 1/Poverty and precariousness, 2/Social inequality of opportunities, 3/Peer groups, 4/Environmental impact, 5/ Social networks, and 6/ Health problems. The second variable, that of school factors, includes ten items which are: 1 /Negative climate in the classroom, 2 / Negative interactions with the teacher, 3 /Negative interactions with colleagues, 4 /Damaged infrastructure, 5 /Traditional school, 6 /Devaluation of vocational training courses, 7 / Overstaffing of classes, 8 / Teaching practices with little value and little differentiation, 9 /Massification of programs and 10 /Evaluation system and sanctions. The third variable of economic factors contains the following seven items: 1/Low economic and

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professional level of parents, 2/Regional disparity (Lack of development in internal regions), 3/Local labor market in unattractive jobs, 4/Parallel trade, 5/Illegal migration, 6/ Illegal child labor and 7/Displacement of families for seasonal agricultural work. While the fourth variable which corresponds to family factors consists of five items related to family relationships (1/ Low intellectual level of parents, 2/Family disintegration (Divorce / Death /domestic violence), 3/Tense relationships with parents (generational conflicts / adolescent crisis), 4/Individual confrontation with the school institution (lack of parental supervision) and 5/Belonging to a poor background). In addition, the personal factors variable contains six items, namely; 1/ Psychological factors (Low self-esteem demobilization, and demotivation), 2/Low academic performance, 3/Behavioral disorder, 4/Early academic difficulties (Learning difficulties) and 5/Disintegration 6/Repeated repetition. The last two variables of which we consider them very appropriate to the Tunisian context are cultural factors and geographical factors. On the one hand, the first (cultural factors) are divided into four items: 1/Negative vision of the school institution, 2 /: Girls in rural areas drop out more than boys, 3 /The culture of the environment prevails over the culture of the school institution and 4 /Refusal of diversity within the school. On the other hand, the last (geographical factors) are divided into three items: 1/Social, residential, and regional differences, 2/Distance / Home-School, and 3/Difficult climatic conditions (Rains, rivers, mountains wild animals).

The higher the score, the more the student is at risk. The questionnaire has a very good internal consistency (Cronbach's alpha coefficient of 0.89) as well as an acceptable to very good consistency for the subscales (0.72 to 0.84). A test-retest also shows that the questionnaire is stable over time.

Screening software for the risk of dropping out of school-LDDS (Fortin and Potvin, 2010)

The software makes it possible to screen students at risk of dropping out of school and to identify which type of students at risk they belong to (Fortin et al., 2006). The software includes six questionnaires, one of which makes it possible to identify the level of risk of dropping out and the typology, and five which make it possible to identify the type and personal, family, and school characteristics of students at risk. The psychometric qualities of the questionnaires are reported in detail in Fortin and Potvin (2010). Regarding the validity of the software, analyses have shown that the average scores obtained concerning personal, family, and school variables make it possible to significantly differentiate students at risk and not at risk of dropping out. Finally, the experimentation of this software with 4,500 students, every year since 2007 to date, has made it possible to identify 89% of the students who have dropped out (Fortin and Lessard, 2013).

Procedures

The research team obtained a certificate of ethics from the Sfax national education delegation to carry out this study. She then presented the research project to the directors of the establishments and, once the approval of the board of directors and the written parental authorizations had been granted, she proceeded to administer the questionnaires. The students went, at the beginning of the school year (2021-2022), to the school classroom to answer the

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questions of the Screening Software for the risk of dropping out of school. The young people answered the questionnaires under the supervision of research assistants from the team formed to pass the tests in groups and teachers from the school. The handover time varies from 60 to 90 minutes depending on the reading and comprehension levels of the respondents. The students who had not finished were able to continue the assessment at another time. The anonymity and confidentiality of the information collected have been guaranteed to both school families and students. After the presentation of the objectives of the study to the entire group of students, those who, despite parental authorization, did not wish to participate in this evaluation were directed to the study room.

In the present study, the approach consists of a direct measurement based on data from surveys carried out in Tunisia.Outils géographiques

Method for developing the school dropout mapping

It is important to point out that as a research group, we do not pretend to be experts in this field. The literature on the subject of indicators or cartography is abundant.

Cartography is a graphic technique aimed at the production of maps. Although a multitude of fields of activity (Sociology, psychology, biology) can use the map to treat their object of study, it is a technique that is mainly used by geography. As part of this research, we will treat cartography as an instrument for schematization of spatial information. In short, cartography is: 1) a graphic conceptualization exercise that requires a census and a spatialized information processing; 2) a reduced and synthesized visual model of our complex world; and 3), an information and communication tool for the dissemination of knowledge.

The geographic information system (GIS).

Cartography is the technique or process to achieve a final product which is the map, the plan, or any other related instrument (geographic information system).

The thematic maps (adopted by our study), for their part, deal with more specific themes and are constructed by assigning values to polygons (neighborhood, city, etc.), lines or geographical points. The values can be qualitative (area of insecurity for neighborhood x) or quantitative (proportion of low-income people) depending on the objectives of the communication. Thematic maps can deal with variables such as the unemployment rate, population density, family income, etc. The last level is the development of a geographic information system (GIS).

Factor analysis

The multidimensional typological analysis of school dropout is a methodology that offers new perspectives in the context of this multifactorial phenomenon (Boidin and Lardé, 2008). It is carried out in two stages: First, a factor analysis is carried out to construct indicators of school dropout based on many dimensions. The primary variables are combined within a few common factors which each contain a dropout facet. Secondly, classification methods are used to construct homogeneous groups based on the obtained factor scores. Among the most widely used techniques, the Hierarchical Automatic Classification (CAH) which has as its objective

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the constitution of homogeneous classes of the different factors and types of school dropout (Boidin and Lardé, 2008). The nature of the data processed by factor analysis lends itself to classifications according to the dynamic cloud method (DCM), a method that proceeds by partitions by optimizing an inertia-type criterion (Boidin and Lardé, 2008). Moreover, once the typology is realized, the interpretation of the profiles of the constituted classes is determined by the supervised classification approaches based on a qualitative variable, in this case, logistic regression or discriminant factor analysis. However, in the case where the analysis is carried out on a reduced number of axes derived from factorial methods, it is preferable to use discriminant Factorial Analysis (Sautory and Vong, 1992). This approach, not yet used at the national level, offers new perspectives to understand the multiple aspects of dropping out. All the more so, since the statistical apparatus offers a panoply of regional indicators providing information on all dimensions and types of school dropout. By resorting to data analysis techniques, based on factorial methods and automatic classification, the present work proposes a multidimensional prioritization of Tunisian cities and regions according to the geographical and cultural territory. By resorting to data analysis techniques, based on factorial methods and automatic classification, the present work proposes a multidimensional prioritization of Tunisian regions and governorates according to geographical space. The approach of multidimensional analysis of dropouts in the regions is based on data analysis techniques according to three stages:

1st step: Factor analysis

Since the variables are quantitative, it was natural to resort to principal component analysis (PCA), a very useful instrument for making spatial comparisons (Husson et al., 2017). Factor analysis makes it possible to reduce the number of starting variables by eliminating redundant information and by concentrating the information retained on a reduced number of new variables called "factors or dimensions".

2nd step: Clustering method

Cluster analysis is an unsupervised classification technique that consists of searching for the proximities of observations in a multidimensional space; the closest cities and regions are grouped into classes. The technique used is the hierarchical Ascending Classification (CAH) which uses an algorithmic partition approach thus making it possible to propose a typology of the cities of the region in terms of dropout.

3rd step: Discriminant factor analysis

Discriminant Factor Analysis (DFA) is a supervised classification technique intended to classify (i.e. assign to pre-existing classes) individuals characterized by a number of numerical variables. The AFD has a descriptive power since it makes it possible to identify the most discriminating indicators to characterize each class, and a predictive power because it makes it possible to predict the class of assignment of a new individual (city/region) described by the same quantitative variables.

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Data sources and variable definition

The screening questionnaire for students at risk of dropping out of school (Chérif and Elloumi, 2021, Potvin et al. 2009, Fortin and Potvin, 2010) is the main source of data for the definition of variables. The K variables characteristic of the factors and types of school dropout are characterized as shown in the table. 2. These 4 variables (4 types of dropouts) were all used to generate the composite dropout indicator.

Table 2: Nature and definition of school dropout types

Description of the four types of school dropout		
1) Uninterested	24 items	Items that reflect the behavior of the student with little interest
2) Externalizing behavior problems	10 items	Items related to the student's externalizing behavioral problems
3) Internalized behavioral problems	6 items	Items related to the student's internalized behavioral problems
4) Depressive	14 items	Items that reflect the profile of the depressed student

This study proposes to evaluate the different factors and types of school dropout based on several geographical variables examined jointly. These are the objective dimensions developed from the data of a survey (the screening questionnaire for students at risk of School dropout, (Chérif and ELLOUMI, 2019) providing information on the different situations of dropout in the Tunisian regions. It is the main data source for the definition of variables.

3. RESULTS

The objective is, firstly, to analyze, according to the Tunisian regions, the typology of students at risk of dropping out and, secondly, to measure the respective effect of sociogeographic and cultural factors on the probabilities of dropping out depending on the region of belonging of the students. The multivariate analysis which consists in looking for relationships between several relevant variables allows us to obtain richer results than those based on the univariate analysis.

School dropout by region

Table 3: Average scores of the 4 types of dropouts according to Tunisian regions

Types Regions	Uninterested	Externalizing behavior problems	Internalized behavioral problems	Depressive	General average
Central-East	3,02	3,94	2,83	1,97	2,94
South- East	3,68	3,45	2,70	1,99	2,97
North- East	3,58	3,57	2,87	2	3
Greater Tunis	4,08	3,65	2,43	1,99	3,04
North-West	3,58	3,56	3,09	1,99	3,06
Central-West	3,72	3,99	2,91	1,98	3,15
South-West	3,75	4,07	3,19	2	3,25
General average	3,63	3,75	2,86	1,99	3,06

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This table reflects the average scores of the types of school dropouts in each region and includes the following variables: Uninterested, externalized behavioral disorders, internalized behavioral disorders, and depressive. As presented in the table opposite, the distribution of the average scores reveals significant disparities between the regions with a coefficient of variation of 19.6% (i.e. the regions generally deviate by 19.6% from the national average value of 3.06). These disparities, however, reveal a systematic opposition between the coastal regions and the inland regions. Indeed, the interior regions record an average score of types of dropout of (3.25) much higher than the national average (3.06), that is to say, 0.19 points above the national average.

The classification of the regions according to the index of the types of school dropouts, indicates a great disparity between the coastal regions, on the one hand, and the inland regions on the other.

Table 4: Distribution of types of dropouts by region

Ranking	Typology Regions	Overall Type Average
1	Central East	2,94
2	South East	2,97
3	Greater Tunis	3
4	North East	3,04
5	North West	3,06
6	Central West	3,15
7	South West	3,25
National Average		3,06

Low dropout type
Medium dropout type
High dropout type

♣ **Greater Tunis**: Tunis, Ariana, Ben Arous et Manouba., ♣ **North East**: Nabeul, Bizerte et Zaghouan., ♣ **North West**: Béja, Jendouba, Le Kef et Siliana, ♣ **Central West**: Kairouan, Kasserine et Sidi Bouzid., ♣ **Central East**: Sousse, Monastir, Mahdia et Sfax ♣ **South West**: Tozeur, Kébili et Gafsa. ♣ **South East**: Gabès, Médenine et Tataouine

Overall, school dropout mainly affects students from all regions and more particularly the inland regions. The distribution of dropouts according to geographical space also differs. At the regional level, the number of types of school leavers is becoming more and more noticeable. Of the 7 Tunisian regions classified according to their averages of the types of dropout, four (3) groups are distinguished, (See Table 4 and Figure. 3-4) :

1. The group with an average of less than 3.06 has 4 regions (Center-East; South-East, Grand-Tunis and North-East);
2. The group whose average is equal to 3.06, has 1 region (North-West);
3. The group whose average is higher than 3.06, has 3 regions (Center-West, South-West);

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This result proves that the rate of types of dropouts from deep regions far exceeds the national average which is 3.06.

We then sought to determine whether the type of dropout students was also linked to the geographical area of belonging. The graph below shows the distribution of the types of dropout students according to their region.

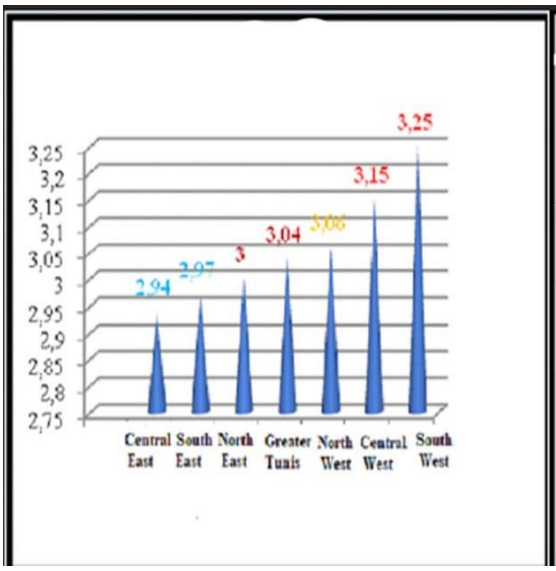

Figure 3 : Average score of dropout types by regions

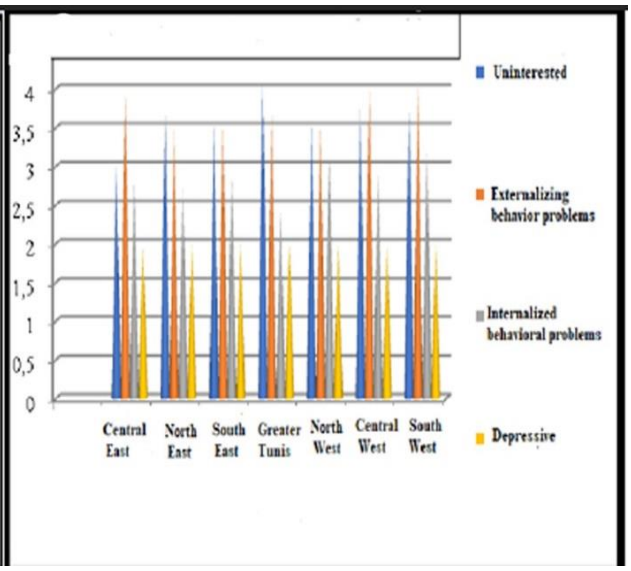

Figure 4 : Average score of each type of dropout by region

The results of the analyses indicate that the distribution by types varies slightly according to the geographical space of the student ($F = 13.2$; $p = 0.349$). All students (all regions combined) encounter, in a high proportion, behavioral problems (3.75) and are not very interested (3.63).

Students from different regions have a depression score below average (< to 2). Finally, they are in similar proportions to a hidden antisocial behavior disorder (2.86) except for students from the North-West (3.09) and South-West (3.19) regions who exceed the national average (2.86).

We note that students from the inner regions (North-West, Center-West, and South-West), mostly encounter (above the bar of the national average) externalized behavior problems (3.56; 3.75; 4.07) and internalized (3.09; 2.91; 3.19). We also note that they are not very motivated (3.58; 3.72; 3.75) and slightly depressed (1.98; 1.99; 2)

Thus, we note that, regardless of the geographical area of belonging, a very high proportion of students encounter behavioral problems (2.43 to 4.07). It is also noted that the proportion of students with little interest or little motivation remains relatively high (3.02 to 4.08) (All regions combined). If the typology of students at risk remains stable whatever the age, it differs on average according to the geographical space. Overall, school dropout mainly affects students from all regions and more particularly the inland regions. The distribution of dropouts

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according to geographical space also differs: F (1, n = 835) = 24.1; p = 0.000, but the association between the two variables is weak (the coefficient φ is equal to 0.05).

Principal Component Analysis (PCA)

The following results relate to the ACP dataset. This dataset contains 7 regions and 4 types of dropouts (Potvin et al. 2009).

Observation of extreme regions

The analysis of the graphs reveals no singular region.

Distribution of inertia

The inertia of the factorial axes indicates, on the one hand, whether the variables are structured and, on the other hand, suggests the judicious number of main components to be studied.

The first 2 axes of the analysis express 76.23% of the total inertia of the dataset; this means that 76.23% of the total variability of the cloud of regions (or variables) is represented in this plane. The inertia observed on the first factorial plane is lower than the reference value of 91.33%, and therefore low in comparison (this reference inertia is the quantile 0.95-quantile of the distribution of inertia percentages obtained by simulating 2965 sets of random data of comparable dimensions based on a normal distribution). In addition, the inertia observed on the first main component is lower than the reference value of 65.34%. The variability expressed by the analysis is therefore not significant.

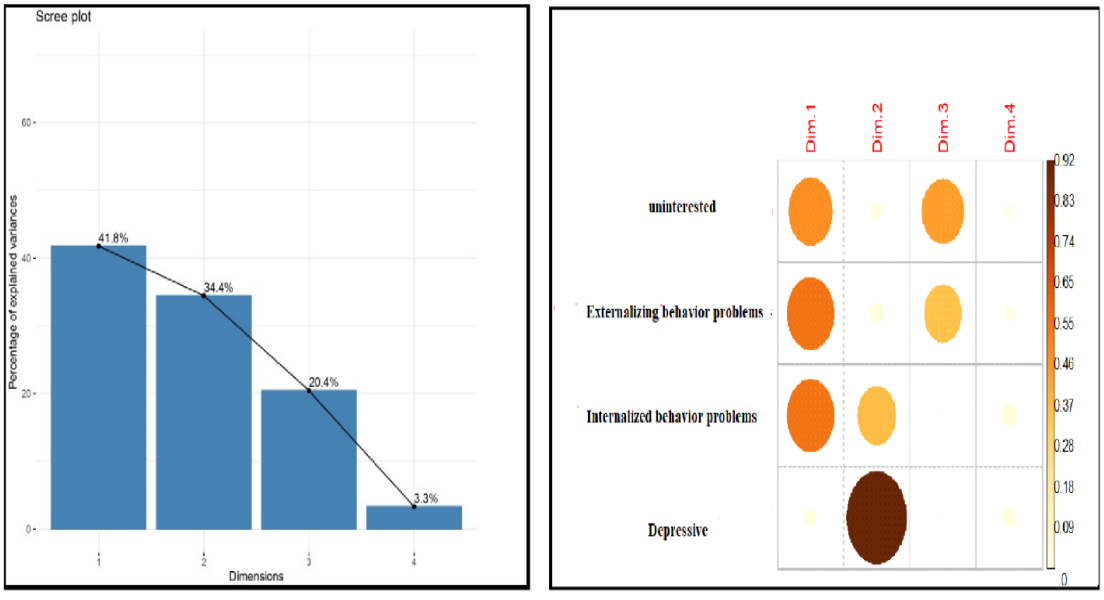

Figure 5- 6: Breakdown of total inertia (Axis 1: 76.23 %)

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An estimate of the relevant number of axes to be interpreted suggests interpreting none. Indeed, the inertia rate of the first component is not higher than that of the quantile 0.95-quantile of random distributions (41.78% against 65.34%). This observation suggests that no axis carries true information. Consequently, the description of the analysis will be restricted to these axes only.

3. Description of dimension 1

The labeled regions are those with the greatest contribution to the construction of the plan.

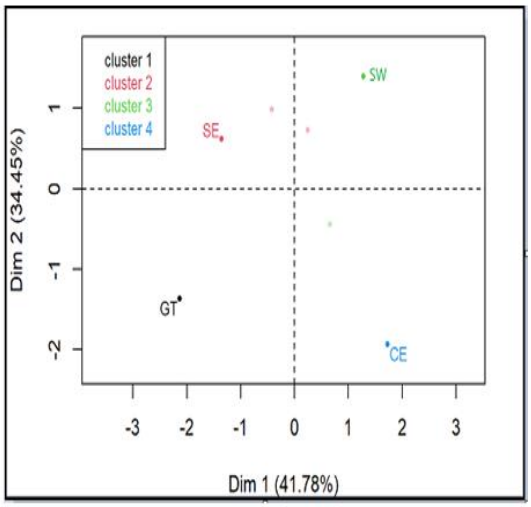

Figure 7- Distribution of regions on the two factorial axes Dim1 and Dim2 (PCA)

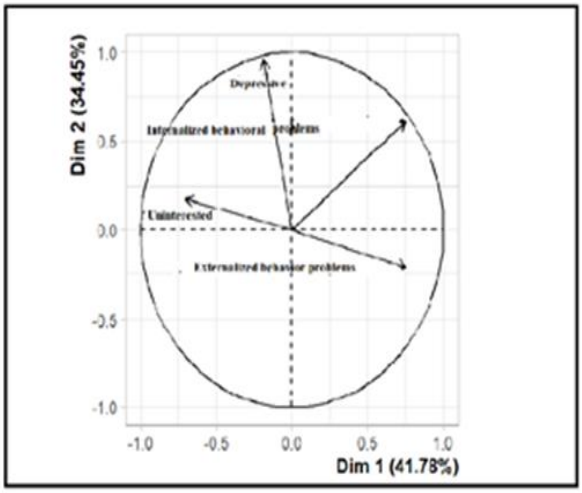

Figure 8-Graphical representation of the types of dropouts

The types of labeled dropouts are those best represented on the graphical representation. It appears from this figure, four groups of regions : Greater Tunis (GT) and South-East (SE) concerning the first axis (Dim.1) indicate that this group has a strongly negative coordinate on the axis, and is characterized essentially by the types of dropouts: externalized and internalized behavior disorders. Their position relative to the second axis has no significance since the dropout index only concerns the other regions. (Dim2) concerns the second and the third group of regions which display an opposition between the Southwest (positive coordinate on the axis) and the Center-East, (negative coordinate on the axis). Both regions are characterized by types of dropouts whose values are not significant.

Dimension 1 (maps 8 and 9) particularly distinguishes the regions of Greater Tunis (GT) and the South-East (SE) which present two groups to the left of the graph, characterized by a strongly negative coordinate on the axis).

These regions form a group sharing types of dropouts whose values do not differ significantly from the average.

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Dimension 2 (maps 1 and 2) opposes the South-West region (SO) (at the top of the graph, characterized by a strongly positive coordinate on the axis) to the East-Central region (CE) (at the bottom of the graph, characterized by a strongly negative coordinate on the axis).

The group to which the South-West region (SO) belongs (characterized by a positive coordinate on the axis) shares types of dropouts whose values do not differ significantly from the average.

The group to which the Center-East region (CE) belongs (characterized by a negative coordinate on the axis) shares types of dropouts whose values do not differ significantly from the average.

Note that the variable "Depressive" is extremely correlated with this dimension (correlation of 0.04). This variable could therefore summarize dimension 2 by itself.

To clarify the results obtained by the PCA, we proceed to a hierarchical ascending classification of the regions (HAC) according to their weights on the two axes. The results of this classification are presented in the following figure.

Hierarchical Ascending classification of regions according to the types of dropouts (HAC)

Classification techniques use an iterative algorithmic approach that seeks to group the closest statistical individuals in a multidimensional space. The principle of the algorithm consists of creating, at each step, a partition obtained by aggregating the closest elements two by two. To carry out the classification, we use:

- The Euclidean metric to measure the similarities between individuals since the variables are quantitative;
- The Ward criterion for measuring similarities between groups of individuals. Ward's aggregation method is based on the decomposition of the variance in such a way that the intergroup variance remains the largest and the intragroup variance the smallest (homogeneous classes).

The HAC technique makes it possible to constitute classes that group homogeneous regions in terms of multidimensional dropout. The PCA carried out on the 7 regions of the file makes it possible to extract 2 factors with a percentage of variance explained equal to 96.0%. It is useful, therefore, to apply the HAC on the first factorial plane (Dim.1, Sun.2).

Dendrogram

The hierarchical automatic classification based on the Euclidean distance and the Ward method leads to obtaining the classification tree or dendrogram which highlights the proximities between the regions and between the groups of regions having similar profiles. It is also possible to use the classification tree for the choice of the number of classes.

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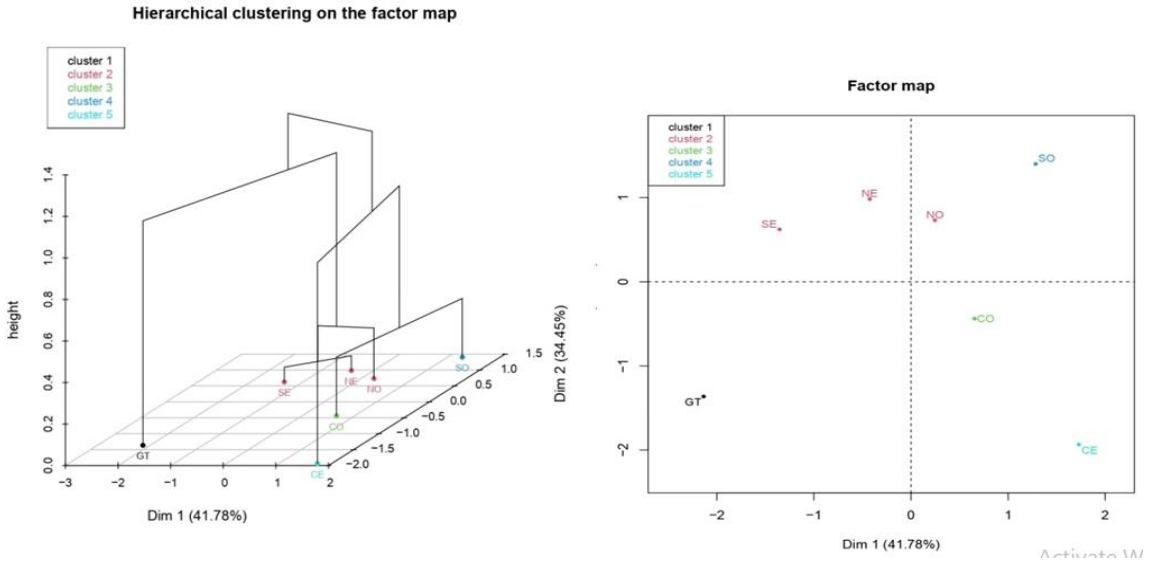

Figures 9-10: Hierarchical Ascending Classification Tree of the regions according to the types of dropouts.

The classification carried out on the regions reveals 5 classes:

Class 1 is composed of 4 coastal cities that represent Greater Tunis (GT). This group is characterized by a typology of dropouts whose values do not differ significantly from the average.

Class 2 is composed of 10 southern governorates which form the Southeast (SE), Northeast (NE), and Northwest (NO). This group is characterized by low values for the variable External behavior disorders.

Class 3 is composed of 3 inland cities represented by the Central West Region (CO). This group is characterized by variables whose values do not differ significantly from the mean.

Class 4 is composed of 3 coastal cities designated by the South-West Region (SO)). This group is characterized by variables whose values do not differ significantly from the mean.

Class 5 is composed of 4 coastal cities designated by the East Central Region (CE). This group is characterized by variables whose values do not differ significantly from the mean.

Moreover, the quality of the score can be determined from the tree, the aggregation coefficients, the number of individuals, the variability of the individuals, or even according to the interpretability and the description of the classes.

4.2. Obtained region classes

The dendrogram obtained from the (CAH) makes it possible to prioritize all Tunisian regions into 5 homogeneous classes. The following table presents the elements of each of these four classes:

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Table 5: Classes of regions according to the HAC

Class 1	Class 2	Class 3	Class 4	Class 5
Greater Tunis Tunis, Ariana, Ben Arous Manouba	**South East** Gabès, Médenine et Tataouine **North East** Nabeul, Bizerte Zaghouan **North West** Béja, Jendouba, Le Kef et Siliana	**Central West** Kairouan, Kasserine et Sidi Bouzid	**South West** Tozeur, Kébili et Gafsa	**Central East** Sousse, Monastir, Mahdia et Sfax

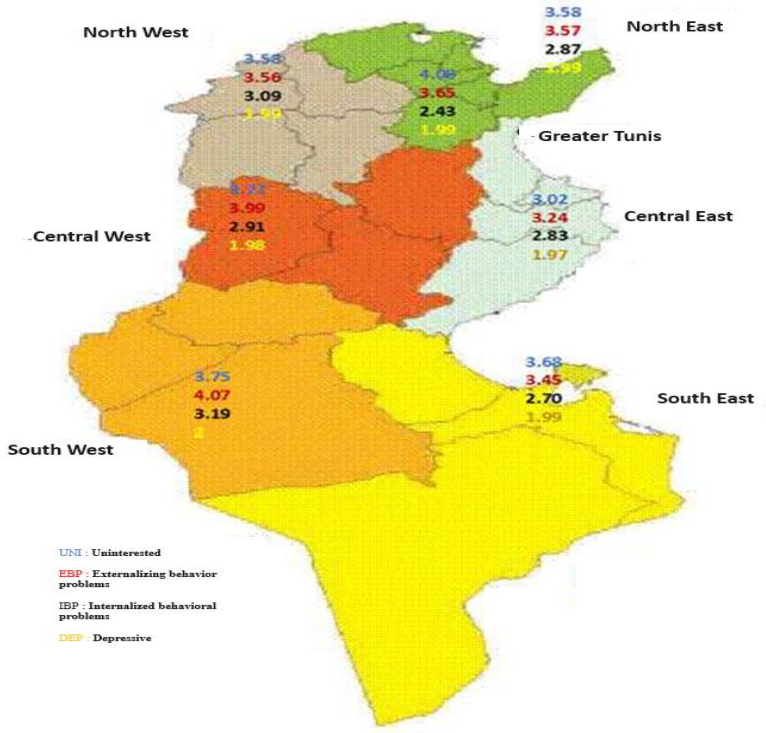

Figure 11: Mapping of absolute variation in dropout types by region

The mapping of the typology of school dropouts for the Tunisian regions shown in Figure 12 highlights the result of the typology carried out. The analysis of the map makes it possible to raise some annotations on the distribution of the different types of dropouts according to the regions: North-East, Greater Tunis, and the Center-East, are slightly spared from dropping out of school. The magnitude of this phenomenon is accentuated differently by moving from the

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southern regions (East and West) to the northwest and becomes more serious in the Central-Western region with an average of (3.67) compared to the national average of (2.95).

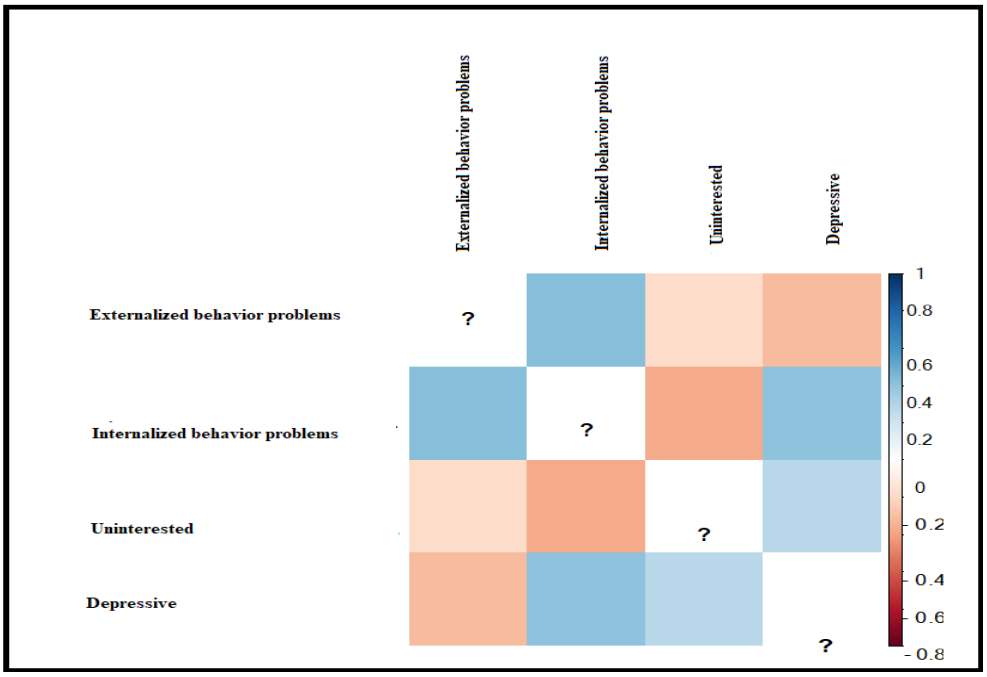

Figure 12: Correlations between different types of dropouts

4. DISCUSSION

The review of the writings clearly shows the importance of conducting a study concerning the quality of life at school. These previous researches have sought to examine the impact of a multitude of variables on school dropout, in particular the effect of students' personal, family, and academic factors, including academic performance, student behavior, or social origin, for example. If some have focused on the study of disparities according to gender or ethnicity, none of our knowledge has understood the differences related to disparities according to geographical and cultural space.

The present study aimed to examine the importance of these variables according to the characteristics and types of students at risk of dropping out. First, we observed the distribution of the types of dropout students according to geographical space. This analysis shows first of all that dropouts mostly encounter behavioral problems (all regions combined), since they represent 57.8% to 71.1% of proven dropout cases. These results are congruent with the conclusions of previous research identifying delinquency and aggression problems as associated with school dropout (Blaya, 2010; Fortin et al., 2004, Potvin et al.2009). Our analyses also suggest that the profiles of students who drop out differ significantly depending on the region where the dropout students belong. Thus, the typology of dropout students is significantly different, on average, from one region to another.

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Secondly, we carried out factor analysis to know the impact of certain geographical and cultural characteristics of students on their probability of dropping out and compare the magnitude of this effect according to the region of belonging of the student. The results of these analyses show that geographical disparities have a significant impact on the probability of dropping out. Similar results have already been reported in research writings. Indeed, our results, like those of the theoretical model of Fortin et al. (2013), Potvin et al. (2009), and like the study by Janosz et al. (1997), show that boys are more likely to drop out than girls, but gender loses its productivity when it is controlled by a set of individual, family and school variables. These results are very important, given that many managers and professionals of school boards choose to intervene according to gender to counter school dropout, which is an unfounded choice. Rather, these results suggest that it is necessary to intervene according to the geographical and cultural characteristics of the students, regardless of gender. Nevertheless, we observe some differences among students belonging to the interior regions. In the regions, the rate of students with behavioral problems is higher than that of coastal regions. Therefore, the probabilities of dropping out are associated essentially with the student's behaviors such as delinquent behaviors, inability to solve problems with parents, suspensions from school and dissatisfaction with school, attention problems as well as the number of unjustified absences. We can also hypothesize that given their behavior in the classroom, students with behavioral problems experience a lot of conflicts with the teacher and suffer many disciplinary consequences, which must negatively influence their perception of their relationship with the teacher.

These results are in line with the conclusions of previous research placing the high frequency of behavioral disorders as one of the factors most associated with school dropout (Jimerson, Egeland, Sroufe, and Carlson, 2000, Blaya, 2003, Fortin et al. 2006, Potvin &al.2009, Lecoq & al. 2014). These authors confirmed that students with aggressive behavior have a very low level of academic performance. In our study, we have shown that other variables could contribute to a better understanding of the student's school dropout: culture and socio-geographic disparities (social origin) as proposed by Fortin et al. (2006) in his theoretical model but which have not been verified in his studies "ethnicity and social origin". Fortin et al. 2013, p.32). Finally, we should also note the strong impact of the average depression score (all regions combined). Our results are in the same direction as the theoretical model of Fortin et al. (2013) and those of Battin-Pearson et al. (2000), who identify performance as a central variable in the school dropout process. However, we bring the important nuances related to the differences according to the sociogeographic disparities.

At the regional level, the average score of the types of dropouts varies significantly, so the OECD report (2018) puts forward several factors that can be at the origin of such a performance, which are political, sociocultural, geographical and economic factors, and which can explain such a discrepancy between the regions, resulting from a blatant imbalance between inland areas and coastal areas.

Moreover, the Tunisian education system remains marked by a very high number of students who drop out of school, so nearly 100,000 school-age children stay out of the education system every year.

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Geographical or cultural space also seems to play an important role in determining the level of education. Indeed, academic failure affects especially the inland regions (always at the bottom of the table of the ranking of cities in the baccalaureate or college Certificate tests).

The strong interregional disparities revealed by this typology of dropouts still persist. Judging by the geography of dropping out of school during secondary education, the chances of going up to the baccalaureate, then obtaining it and pursuing higher education therefore remain unequal from one region to another.

These inequalities, now manifest themselves at the end of the first cycle of colleges, at the time of passages in the second cycles, the findings converge to suggest that rural young people do not have as many chances to pursue and succeed in long secondary studies as urban young people.

Without ignoring the role of distance from high school, the additional costs and the personal difficulties that it represents for many rural young people, it would be risky to pretend that it is the remoteness of the training offer compared to the demand which, determining inequalities in access to more qualified training, would be the essential cause of the disadvantages and training handicaps of many rural young people. There is every reason to think that the skein of causes and effects is much more complex than that, that families' projects and their resources are also involved (let's not forget that most rural colleges recruit students from working-class families and that the average social level of their students is often lower than in the city), their relationships to training and employment, their interest in other training such as apprenticeship or vocational education, references and practices of teachers and heads of schools, the local situations of the job market, ... etc.

Poverty and territorial disparities between Tunisian regions are the main factors that differentiate them, from the most precarious to the most privileged. The coastal regions have more or less homogeneous characteristics of these types. (See Figure 12). This confirms our hypothesis stating that the more the sociogeographic disparities persist, the more the types of school dropout amplify.

5. CONCLUSION

We have therefore studied the typology of students at risk of dropping out of school by analyzing the characteristics of dropouts according to their sociogeographic space of belonging based on the typology of Potvin et al. 2009, Fortin et al. (2006, 2013). More precisely, our first objective was to compare the types of dropout according to the Tunisian regions, using factor analyses.

Thus, our results show that a set of factors are associated with the probability of dropping out. The results of the factor analyses make it possible to identify the variables that are most associated with school dropout according to the socio-geographic space. The region of belonging (territorial disparities) of the student holds a central place in the process of dropping out of school. In the interior regions, it is above all the negative impact of behavior (Internalized and externalized) that is strongly associated with the paths of students from a disadvantaged

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background, as also suggested by the theoretical model of Fortin et al. (2013).

We have selected a set of variables to predict school dropout and we have combined this analysis with a differentiated approach by types of school dropouts depending on the regions. The present research confirms that it is the combination and cumulation of a significant number of personal, family, and school factors especially cultural and geographical, which favors school dropout. Indeed, it is not a single factor that explains the school dropout alone, but a set of variables, different according to the students, but also according to their age. We have also shown that the best dropout preachers vary according to the socio-geographic space of the student. Such a result means that this variable is a central element in the understanding of educational pathways in Tunisia. Rather than taking into account mainly gender and age, an interesting avenue of intervention deserves to be raised. This would take into account the specific needs of students according to their age and type: it seems essential to work on the behavioral problems of adolescents.

The foregoing invites us to conclude that the inequalities in access to training that are now a reference point on the labor market rarely have their primary origins in the geographical distance of young people from the establishments where these training courses take place. Many other factors intervene, which are more decisive, first of all, social origins and what they mean as material inequalities, ambition, knowledge of the possibilities offered by the educational system, and familiarity with this or that type of training: apprenticeship for some, high schools for others.

The development of social categories and disadvantaged regions inevitably requires a strategy to put the school back in its noble mission of social lift. That's when we can say that she is a Republican.

As for regional inequalities in the level of training provision, it is to be hoped that the awareness that the Revolution has generated on the need to take seriously the issue of combating the regional imbalance in terms of development, will eventually and quickly translate into an improvement in the social, economic and cultural environment of the regions of the interior. This will not fail to have a positive effect on the state of education in general in these regions and on the attractiveness of institutions from the interior both for students and for quality teachers.

In summary, the results generated within the framework of this research give rise to promising future lines of study. Research intended to examine the trajectories of the typologies of the students, to apprehend their change of status (not at risk comparatively, to, at risk of dropping out) or of typology, would allow a better understanding of the paths of the students. It would not only be instructive to identify these different trajectories and to relate them to the characteristics of the students, but also to know the impact of these on the process of dropping out of school.

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ISSN 1533-9211
DOI: 10.5281/zenodo.11083224

Bibliography

1) Banque mondiale (2003), *Copinage, performance économique et inégalité des chances*, Rapport d'étude.

2) BATTIN PEARSON Sara, NEWCOMB Michael, ABBOT Robert, HILL Karl, CATALANO Richard et HAWKINS David (2000), « Predictors of early high school dropout : a test of five theories », *Journal of Educational Psychology*, vol. 92, n° 3, pp. 568- 582.

3) BECK Aaron (1978), *Depression inventory*, Philadelphia, Center for Cognitive Therapy.

4) BLAYA Catherine (2010), *Décrochages scolaires : l'école en difficulté*, Bruxelles, De Boeck.

5) BLAYA Catherine (2012), « Le décrochage scolaire dans les pays de l'OCDE ». *Regards croisés sur l'économie,* vol. 12, n° 2, pp.69-80

6) BLAYA Catherine et HAYDEN Carol (2003), *Constructions sociales des absentéismes et des décrochages scolaires en France et en Angleterr*e, Paris. LARSEF/Observatoire européen de la violence scolaire.

7) BOIDIN Bruno et LARDÉ Pierre (2008), *Comparaisons internationales des niveaux de santé : cadre théorique et éléments d'application aux pays africains*, Trentièmes Journées des économistes de la santé français, Colloque, Calendo.

8) BOUDESSEUL Gérard, METAYER Cécile, MONSO Olivier, CARO Patrice, GRELET Yvette, MINASSIAN Laure et VIVENT Céline (2017), « Les inégalités territoriales de risques sociaux d'échec scolaire », *Géographie de l'école*, vol. 12, pp. 106-123.

9) CHAREST Diane (1980), *Prévention de l'abandon prématuré. Milieux économiquement faibles. Soutien aux adolescents*, Québec, ministère de l'Éducation. Direction générale des réseaux.

10) CHÉRIF Aicha & ELLOUMI Ali (2021), « Construction and Validation of an Arabic Questionnaire on the School Dropout Factors (QSD) », *Advances in Social Sciences Research Journal*, vol. 8, n° 1.

11) DAVIS He (2003), « Conceptualizing the role and influence of student-teacher relationships on children's social and cognitive development », *Educational Psychologist,* vol. 38, n° 4, p. 207-234.

12) DEICHMAN Uwe (1999), *Geographic Aspects of Inequality and Poverty,* Washington, World Bank.

13) EKSTROM Ruth, GOERTZ Margaret, POLLACK Judith et ROCK Donald (1986), « Who Drops Out of High School and Why? Findings from a National Study », *Teachers College Record***,** vol. 87, n° 3, pp. 356-373.

14) ENSMINGER Margaret et SLUSACIK Anita (1992), « Paths to high school graduation or dropout : A longitudinal study of a first-grade cohort », *Sociology of Education*, vol. 65, n° 2, pp. 95-113.

15) EPSTEIN Joyce, CONNORS Lori et SALINAS Karen Clark (1993), *High School and Family Partnerships : Questionnaires for Teachers, Parents, and Students*, Center on Families, Communities, Schools and Children's Leaming.

16) ERPICUM Dominique et MURRAY Yves (1975), « Le Problème du drop-out scolaire dans le monde moderne », *Orientation professionnelle*, vol. 11, n° 1, pp. 9-24.

17) FORTIN Laurier, MARCOTTE Diane, Diallo Thierno, POTVIN Pierre et ROYER Égide (2013), « A multidimensional model of school dropout from an 8-year longitudinal study in a general high school population ». *European Journal of Psychology of Education*, vol. 28, n° 2, pp. 563-583.

18) FORTIN Laurier, MARCOTTE Diane, POTVIN Pierre, ROYER Égide et JOLY Jacques (2006), « Typology of Students at Risk of Dropping Out of School: Description by Personal, Family and School Factors », *European Journal of Psychology of Education,* vol. 21, n° 4.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.11083224

19) FORTIN Laurier, ROYER Égide, MARCOTTE Diane, POTVIN Pierre et YERGEAU Éric (2004), « La prédiction du risque de décrochage scolaire au secondaire : facteurs personnels, familiaux et scolaires », *Revue canadienne des Sciences du comportement*, vol. 36, n° 3, pp. 219-231.

20) FORTIN Laurier, TOUPIN Jean, PAUZE R, MERCIER H et DERY Michèle (1996-2000), « Les facteurs associés aux difficultés d'apprentissage des élèves en trouble du comportement de niveau primaire », Dans L. Barbeiro et R. Vieira (Éds.) ? Précursos de aprendizagempraticas éducativas (pp. 204-224). Leiria, Portugal : Escola Superior de Educaçae de Leiria.

21) FRANKLIN Cynthia et STREETER Calvin (1995), « Assessment of middle-class youth at- risk to dropout: school, psychologist and family correlates », *Children and Youth Services Review*, vol.17, n° 3, pp. 433-448.

22) GRESHAM Frank et ELLIOT Stephen (1990), *Social Skills Rating System Manual*, American Guidance Service.

23) HUSSON François, LE Sebastien et PAGÉS Jérôme (2017), *Exploratory Multivariate Analysis by Example Using R*, Boca Raton, Chapman.

24) JANOSZ Michel (2000), « L'abandon scolaire chez les adolescents : perspective nord- américaine », *VEI enjeux*, n° 122, pp. 105-127.

25) JANOSZ Michel et LEBLANC Marc (1996), « Pour une vision intégrative des facteurs liés à l'abandon scolaire », *Revue canadienne de psycho-éducation*, vol. 25, n° 1, pp. 61-88.

26) JANOSZ Michel et LEBLANC Marc (1997), « Les décrocheurs potentiels au secondaire : prévalence, facteurs de risque et prévalence », *PRISME*, vol. 7, n° 2, pp. 290-307.

27) JANOSZ Michel, LE BLANC Marc, BOULERICE Bernard et TREMBLAY Richard (2000), « Predicting Different Types of School Dropouts: A Typological Approach with Two Longitudinal Samples », *Journal of Educational Psychology*, vol. 92, n° 1, pp. 171- 190.

28) JIMERSON Shane, EGELAND Byron, SROUFE Alan et CARLSON Betty (2000), « A Prospective Longitudinal Study of High School Dropouts Examining Multiple Predictors Across Development », Journal of psychology, vol. 38, n° 6, pp. 525-549.

29) KOBIANE Jean-François (2004), « Habitat et Biens d'équipement comme Indicateurs de Niveau de Vie des Ménages : Bilan Méthodologique et Application à l'Analyse de la Relation Pauvreté-Scolarisation. », *African Population Studies/Etude de la Population Africaine*, vol. 19, pp. 265-283.

30) KRONICK Robert et HARGIS Charles (1990), *Dropouts: who drops out and whyand the recommended action.* Springfield, Charles Thomas.

31) LEBLANC Marc (sous la dir de) (1994), « La réadaptation des jeunes délinquants », *in* SZABO Denis et LEBLANC Marc, *Traité de criminologie empirique*, Montréal, Les Presses de l'Université de Montréal, pp. 301-322.

32) LECOCQ Aurélie, FORTIN Laurier et LESSARD Anne (2014), « Caractéristiques individuelles, familiales et scolaires des élèves et leurs influences sur les probabilités de décrochage : analyses selon l'âge du décrochage », *Revue des sciences de l'éducation*, vol. 40, n° 1, pp. 11-37.

33) LOULAB Hassan (2019), tps ://www.leconomistemaghrebin.com/2019/11/14/abandon- scolaire-reforme-profonde-système-educatif/#

34) MOOS Rudolf et MOOS Bernice (1981), *Family environment scale manual*, Palo Alto, Consulting Psychologists Press.

35) MOOS Rudolf et TRICKETT Edison (1987), *Classroom EnvironmentScale Manual* (2e éd.), Palo Alto, Consulting Psychologists Press.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.11083224

36) OCDE (2018). Rapport sur la Tunisie : Le bien-être des élèves, PISA, Éditions OCDE, Paris.

37) POTVIN Pierre (2003), « Décrochage scolaire : dépistage et intervention », *Les Cahiers Dynamiques,* 2015, vol. 1, n° 63, pp.50 à 57.

38) POTVIN Pierre et ROUSSEAU Romain (1991), « Attitudes des élèves ordinaires et en difficulté scolaire envers les enseignants », *Revue des sciences de l'éducation*, vol. 19, n°4.

39) POTVIN Pierre PINARD Renée (2010), « L'alliance possible entre deux approches en prévention du décrochage scolaire au Québec : l'approche scolaire et l'approche périscolaire », Communication présentée au 16e Congrès de l'AMSE. Monterrey. Mexique. 31 mai au 4 juin 2010.

40) POTVIN Pierre, FORTIN Laurier et LESSARD Anne (2005), « Le décrochage solaire », *in* MASSÉ Line, DESBIENS Nadia et LANARIS Catherine (sous la dir. de), *Troubles du comportement à l'école : prévention, évaluation et intervention* (pp. 67-78), Montréal, Gaétan Morin.

41) POTVIN Pierre, FORTIN Laurier et ROUSSEAU Michel (2009), « Qualités psychométriques du questionnaire de dépistage des élèves à risque de décrochage scolaire », *Revue de psychoéducation*, vol. 38, n° 2, pp. 263-278.

42) QUIROUETTE Pierre (1988), *Décisions.* Orléans, Recherche en éducation.

43) RUMBERGER Russell (1995), « Dropping out middle school: a multilevel analysis of students and school », *American Educational Research Journal*, vol. 32, n° 3, pp. 583-625.

44) RUMBERGER Russell, GHATAK Rita, POULOS Gary, RITTER Philip et DORNBUSCH Sanford (1990), « Family Influences on Dropout Behavior in One California High School », *Sociology of Education*, vol. 63, n° 4, pp. 283-299.

45) SAUTORY Olivier et VON Sébastien (1992), « Une étude comparative des méthodes de discrimination et de régression logistique. », *Journée de méthodologie statistique INSEE*.

46) STEINBERG Laurence, LAMBORN Susie, DORNBUSCH Sanford et DARLING Nancy (1992), « Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed », *Child Development*, vol. 63, n° 5, pp. 1266-1281.

47) VIOLETTE Michèle (1991), *L'école… facile d'en sortir, mais difficile d'y revenir : enquête auprès des décrocheurs et décrocheuses*, Québec, ministère de l'Éducation, Direction de la recherche.

48) WATHERHOUSE Price (Firme) (1990), « Recherche qualitative sur les décrocheurs. Rapport définitif sommaire. Ottawa: Gouvernement du Canada », Ministère d'État à la jeunesse. 1990. 16 pages.