Psychosocial Variables and their Relationship with Learning Approaches as Determinants of Academic Performance in College Students

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Abstract

The academic performance of college students is influenced by many factors, including teaching methods and psychosocial factors. Learning approaches refer to the strategies and attitudes that students use in the learning process, while psychosocial factors refer to the emotional, motivational and social aspects that can influence academic performance. Both play an important role in student success at the college level. The research was born with the purpose of evaluating how psychosocial factors can affect the learning approach and, in turn, what the results achieve on their academic performance. Under this panorama, a research was carried out with a quantitative approach, of a descriptive - correlational nature, with a sample of 313 students with a 95% confidence level from a population of 1650. To obtain information that allows validating the research, the survey technique will be applied with a questionnaire that will be validated through an exploratory and confirmatory factor analysis. Since academic performance in many cases cannot be measured directly, the aim is to apply the statistical technique of structural equations that determines the relationship of dependence or independence that the variables that intervene in them have through the integration of equations linear.

Keywords: *Learning approaches; Psychosocial factors; academic performance; University students.*

1. Introduction

As you mention it Muñoz & Gómez (2005) Over the last twenty-five years, a number of studies have been carried out, especially in Great Britain, Sweden and Australia, which have given rise to an area of research called SAL (Student Approaches to Learning). Several labels have been used by authors: meaningful and rote learning, generic and reproductive processing, reproductive and transformational learning (Thomas & Bain, 1984), deep, superficial and strategic approach, deep, superficial and high-performance approach, among others. (Ausubel, 1986) (Wittrock, 1974)(Entwistle, 1988)(Biggs, 1987)

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From 1976 onwards, the contributions of Marton & Saljö (1976) They initiated a specific line of research by checking what aspects students focused on when reading research articles, beginning to use the terms deep focus, to refer to students who showed interest in the meaning of what they learned, and superficial approach, to refer to students' reproductive conception of learning. The term approaches to learning was first coined by Marton and Säljö to refer to the adaptation of study strategies that students carry out to face different tasks throughout their study life. Learning approaches were "the starting point for the conceptual framework generically known as the Student Approaches to Learning (SAL) theory.(Biggs, Kember, & Leung, 2001)

Along these lines, Muñoz & Gómez (2005) proposed the objective of analyzing, applying multivariate techniques, on a sample of students from the Universidad Católica S. Antonio de Murcia, the effect that, in the process of educational production, certain characteristics of the learning of university students have and that condition the probability of academic success at the University. Likewise, Barrón & Mitma (2017) mentions that every year, thousands of medical students face the challenge of passing the subjects to acquire the skills for their professional activities. The success of student life on the path to the profession depends on many factors including approaches to learning, and the approaches to learning.

Learning approaches is a basic topic of study for those who develop a formative work at the university is the analysis of what are the processes and strategies through which students learn. Every year, thousands of students face the challenge of passing academic subjects to acquire the necessary skills for the development of their professional activities. According to learning theories, the success of student life on the way to the profession depends on many factors, including the influence of educational and sociocultural factors on learning and motivation. Most studies on learning theory highlight the central importance of learning-teaching interaction. Learning approaches are a reflection of different levels of information processing and are not only concerned with individual differences in purpose and motive when students are faced with a learning situation, but are also related to the use of corresponding strategies.(Smith & Miller , 2005)(Barrón & Mitma, 2017)(Diseth & Martinsen, 2003)

Learning approaches are understood as the learning processes that arise from the student's perceptions of an academic task, insofar as they are influenced by the characteristics of the individual. This concept has both situational and personal elements. According to this author, when a student is faced with a task, two fundamental questions arise, the first referring to the goals and motives: what do I want to achieve with this?, and the second to the strategies and resources that they must use to achieve their objectives: how do I achieve them? Thus, learning approaches are based on motives and use certain strategies, which are combined through a metacognitive process. (Biggs, Kember, & Leung, 2001)

Styles can be thought of as relatively general and constant predispositions that respond to a tendency of the subject and derive from an individual's willingness to adopt the same strategy in different situations, regardless of the specific demands of the task. However, approaches are more flexible than styles and are modulated according to the context and needs, mobilizing the appropriate strategies to achieve the intended objectives, which are more specific or particular. In short, in the case of approaches, it is true that each person has a predisposition to learn in a certain way, to use a certain approach, but it is also true that the person-situation interaction means that a subject can adjust its functioning to the most pertinent approach to solve it well.(Schmeck, 1983)(Biggs, 1987)

It is important to consider that learning approaches are not something stable in the learner, that is, they are not an immutable personal characteristic. Conversely, a student is able to adopt one or the other approach to learning (shallow or deep) depending on the academic task they are facing.(Ullah, 2016)

In the deep approach, students have intrinsic motivation to understand ideas on their own. The in-depth approach is based on an intrinsic interest in the subjects: The strategies serve this interest, the student will try to understand the contents as much as possible by connecting new ideas with previous knowledge.

Gargallo et al (2006) state that deep learning isbased on intrinsic motivation. The student has an interest in the subject and wants to make the learning personally meaningful. Strategies are used to achieve understanding and satisfy personal curiosity. At the process level, the student interacts with content related to prior knowledge and experience, uses organizational principles to integrate ideas, relates evidence to conclusions, and examines the logic of argument. At the level of results, a deep level of understanding is obtained, integrating well the fundamental principles as well as the facts. Students with a deep profile usually perform well academically. However, an exclusively deep approach on its own is not as good as the predominantly deep one. According to Biggs (1987), students who use the former define their own goals and try to achieve them in their own way; if it turns out that these are not the academic goals, it will give the impression that the student is doing poorly in the "official" sense of the term, regardless of how satisfying the learning may be from his or her particular point of view.

In the superficial approach, motivation is extrinsic, that is, learning by rote and purposelessness. Whereas, the student who employs the strategic approach is motivated to obtain the highest possible grades using comprehension and memorization strategies. The superficial approach is based on an extrinsic motivation of the students, a minimal effort to avoid failing without trying too hard. According to this motivation, the superficial student deploys the appropriate strategies, namely, studying only the essentials and reproducing from memory, he is a student who worries about possible failure while regretting the time he spends on his work.(Diseth , 2001)

In the same way, it is based on extrinsic motivation. It seeks to "deliver" and avoid failure. The student's intention is to meet the requirements of the assessment through reproduction. Strategies are at the service of machine learning. The processes that are mobilized are oriented towards rote learning, by repetition, so that facts and ideas are hardly interrelated. The student accepts ideas and information passively and concentrates only on the exigency of the test or examination. As a result, routine memorization is obtained, without recognizing the guiding principles or guidelines, and a null or superficial level of comprehension. These students underperform against goals and plan to drop out early.

From the strategic approach, strategic learning can be defined as learning strategies leading to conscious or unconscious decision-making, where the student chooses, recovers and masters a certain strategy in a coordinated manner, managing to learn the knowledge he needs to fulfill a certain task, demand or objective, depending on the characteristics of the educational situation in which the action occurs. In a very brief way, it can be said that the strategic approach: organization of the study, time management, achievements, monitoring of effectiveness.(Monereo & Castello, 2001)

On the other hand, for Díaz and Hernández; (2002, p. 234) Learning strategies are procedures or sequences of conscious and voluntary actions that may include several specific techniques, operations, or activities that pursue a certain purpose: learning and problem solving.

For Monereo (2001), learning to use learning procedures strategically requires specific training. This training in the strategic use of learning procedures must always be carried out in a contextualized manner, taking into account the needs, interests and motivations of the learners to whom the program is directed: the training of strategic teachers, who learn the contents of their specialty intentionally, using learning strategies, that they plan, regulate and reflectively evaluate their teaching performance, that they teach learning strategies to their students through content. This training should initially be provided at

universities. This can be summed up in the following: if we teach student teachers to be strategic learners, they will obviously be strategic teachers.(Monereo & Castello, 2001)

"Motivation as the process that directs us towards the objective or goal of an activity, that instigates it and maintains it. Therefore, it is more of a process than a product, it implies the existence of goals, it requires a certain activity (physical or mental), and it is a determined and sustained activity" (Carreño & Toscano, 2012, p. 126). Motivation is an activity of the human being and has been present throughout the evolution of the human being, because thanks to the goals and motives of the species, capacities and potentialities have been developed for the survival and full development of the human being.

Requiring physical, mental and even spiritual activity, motivation is precisely that engine that moves the subject to be better every day, and it is on this path where motivation mainly becomes the engine that has moved the human being to achieve evolution in all fields of science, knowledge and technology.

It is necessary to take into account that the new challenges of higher education – a consequence of economic globalization and the information and knowledge society – have exposed the need to constantly review academic performance, according to different variables. Therefore, working with students from the socioeconomic condition is also a strategic variable to be investigated, especially in the current historical moment of public higher education.

Studies on academic performance in higher education are scarce compared to other levels of education. Likewise, a quantitative approach has prevailed and they have been oriented to the development of economic information. The causes of academic performance, particularly of students according to socioeconomic levels, have been little explored.(CEPAL, 2000)

Academic performance has an impact not only at the institutional level, in terms of the use of resources, external-social projection, but also personally. From the student's perspective, academic performance affects their efforts, aspirations, and personal projects, among others. There are many causes associated with academic performance, which is why it is considered a multi-causal phenomenon; That is, there is a tendency to relate certain causes to academic performance, but they cannot be generalized to different populations.

Conceptualizing academic performance is difficult, due to its multicausality and complexity, since it involves factors such as: attitudes, habits, character of the teaching staff, methodologies, professional training, family environment, organization of the educational system and socioeconomic condition, among other social, economic and psychological aspects (Valverde, 2005). What seems to be a consensus is that multiple factors affect academic performance: personal, social, economic, and institutional. For this reason, these conditions cannot be homogenized. These factors are grouped into several categories: sociodemographic, psychosocial, pedagogical and institutional; It is common to find socioeconomic indicators within sociodemographic indicators.

Academic performance has been studied by different theoretical and methodological approaches, in which it is common to find the approach to this complex and multicausal phenomenon, through multilevel linear regression models and structural linear equation models, for example. Usually, theoretical dimensions are applied that include personal, sociodemographic, institutional, and pedagogical variables and, to a lesser extent, are addressed according to socioeconomic level.

Academic performance is a set of multi-causal factors that impact academic outcomes; socio-demographic, psychosocial, pedagogical, institutional and socio-economic aspects are involved; among them, elements as varied as: motivation, anxiety, self-esteem, perception of the academic climate, enthusiasm, teaching staff, sense of purpose, and so on (Montero & Villalobos, 2004b).

The academic performance of university students is a transcendental indicator for the evaluation of educational quality, it is considered as the result of the union of different elements that interact in the performance of the academic life of the students. This result is manifested through the grades achieved by each student, usually in a quantitative assessment. The value of grades represents the achievements achieved in academic performance, the product of a series of personal, academic and social variables that interact with each other and with each other. In this regard, they refer to variables that intervene in academic performance such as pedagogical, institutional, sociodemographic and psychosocial variables.(De Miguel, y otros, 2002)(Rodríguez, Fita, & Torrado, 2004)(Pirrón, Rojas, & Arzola, 2009)

2. METHODOLOGY OR MATERIALS AND METHODS

For the development of this research, students of the first cycles of the State University of Bolívar, Faculty of Agricultural Sciences, careers of Agronomy, Agroindustry and Veterinary Medicine will be taken into account, with age ranges between 18 and 25 years, between men and women, they are characterized by coming from different provinces of the country which can be considered a strength since they will have different points of view and in some way it can be analyzed whether sociocultural factors influence students' responses about the learning approach and psychocial factors as determinants of academic performance.

A quantitative approach is proposed under the survey technique that allows the analysis of research variables, learning approach and psychosocial factors on the academic performance of university students. The research is descriptive and correlational in scope because it seeks to describe the sociocultural characteristics of the group of students part of the study, as well as the learning approaches they apply and the factors or psychocial traits that motivate them to study. The technique determined within the research is the survey itself, which will allow us to obtain quality information from the students, part of it, in order to have data that allows statistical processing to be carried out that leads to understanding the problem in question.

For data collection, a survey form will be designed that contains items related to the learning approaches and psychosocial factors that university students possess and whether they predict academic performance in the different subjects in their academic cycles. In this line, it is of vital importance that the statistical analysis adapts to the needs of the research and achieves the objectives and purposes set within the study, in this sense the following detailed statistical strategies are proposed:

Due to the fact that countless studies have been developed that address academic performance from different approaches and with the analysis of different elements that characterize students, it is necessary to analyze the different instruments that have been developed and validated for this purpose. In this sense, it is intended to use the statistical method known as Exploratory Factor Analysis (EFA) [Exploratory Factor Analysis; EFA] is a statistical technique that allows us to explore more precisely the underlying dimensions, constructs or latent variables of the observed variables, i.e. those observed and measured by the researcher. In order to develop a survey form that takes the benefits of the different forms developed with the aim of verifying to what extent these instruments or the items that make them up adequately represent the latent constructs of interest or different dimensions of the same construct, in order to have a quality survey form that achieves the objectives proposed in the research.(Méndez-Martínez & Rondón-Sepúlveda, 2012)(Pérez & Medrano, 2010)

In the application of the EFA, it is necessary to consider three fundamental standards that are related to: (1) the sample size, (2) the minimum ratio of cases per variable, and (3) the ratio of variables per factor. In general, EFA should not be applied when the sample size

is less than 50 cases. In addition, it is preferable that such a size be larger than 100 or, ideally, 300-400 cases (Hair et al., 2010) in order to minimize the probability of error (inflated values), increase the accuracy of population estimators and, therefore, confidence in the inferences made.(Mavrou, 2015)

Regarding the ratio of observations (cases) per variable, although there is no unanimous agreement, it is suggested that it should be at least 10-15 cases for each variable. If commonalities are low and factors are poorly overdetermined, then a ratio of at least 20:1 is recommended, whereas with large sample sizes, the required ratio may be lower.(MacCallum, 2001)

The second issue has to do with the quality and nature of the observed variables. According to , these variables must be relevant depending on the domain being studied, otherwise there is a risk that the EFA will not reveal important factors or that it will lead to spurious and ill-defined factors. In general, it can be said that, in social science or education research, Exploratory Factor Analysis (EFA) is a useful tool to identify underlying factors that drive the common variance among the observed variables.(Fabrigar, 1999)

If the analysis aims to identify the number and composition of the common factors (latent variables) necessary to explain the common variance of the set of items analyzed, then it is appropriate to apply an EFA. In this case, the algebraic representation of the model for $m \leq p$ common factors has as an equation:

$$X1 = v1(1)\ F(1) + v1(2)\ F_{(2)} + \ldots\ldots + v1(m)\ F(m)_{+\ e1}$$

$$X2 = v2(1)\ F(1) + v2(2)\ F_{(2)} + \ldots\ldots + v2(m)\ F(m)_{+\ e2}$$

$$Xp =_{v\ p(1)\ F(1)\ +\ v}\ p(2)\ F(2)_{+\ldots\ldots + v}\ p(m)\ _{F(m)} + ep$$

where X_j, $_{Fi,\ and\ e}$ j contain a person's score on item $X_{j,\ the\ common\ factor\ F\ j,\ and\ the\ specific\ factor\ e}$ j, m: number of Common factors, p: number of items, F: common $_{factor,\ v\ j(i)}$ weight of the common factor associated with the observed fifth variable or item, $i=1, 2,.., m$; $j= 1, 2,...,$ p; e_j: single factor, $j = 1, 2,...,$ p.

Confirmatory factor analysis will then be used as a method to analyze the reliability and validity of the instrument analyzed through AFE. Unlike the exploratory factorial, the confirmatory factorial assumes that the researcher is able to venture a priori the structure of the data – preferably based on a well-established theory – and only needs to confirm that this structure can also be obtained empirically. This method explains the covariances or correlations between a set of observed or measured variables through a reduced set of latent variables or factors. This means that there is a form based on validity and reliability criteria (Fernández-Aráuz, 2015)(Lévy-Mangin & Varela-Mallou, 2006)(Pérez, 2020). Factor analysis uses several assumptions:

- The Linear Relationships of Variables
- Absence of multicollinearity
- Relevance of variables
- The existence of a true correlation between factors and variables

Below is the scheme that is followed when using the factor analysis technique.

Figure 1 Factor Analysis Scheme
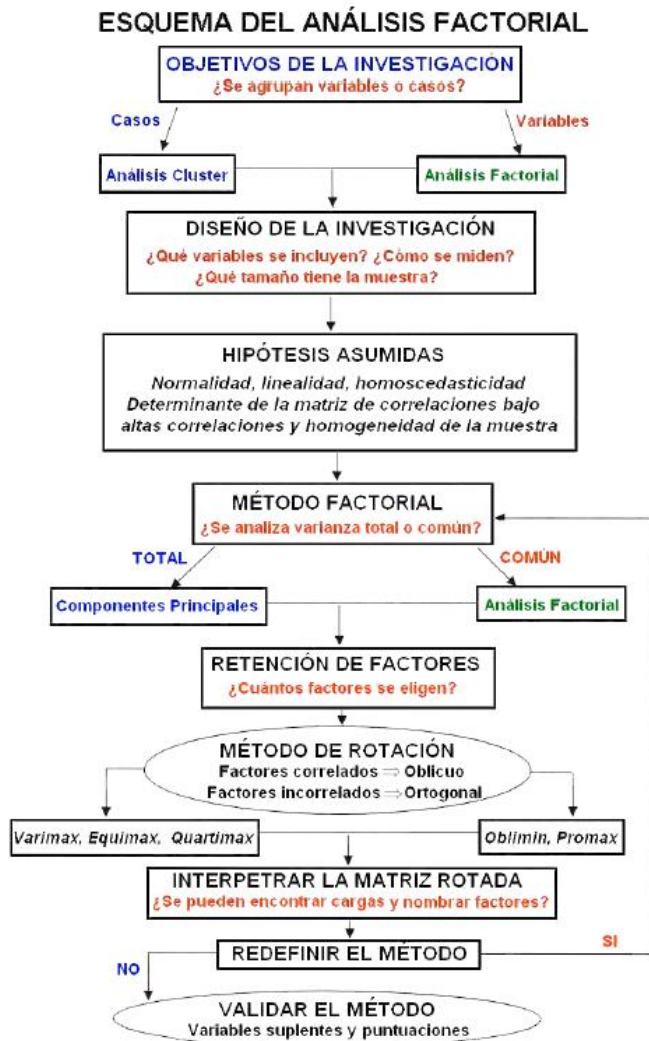
Structural equation models (SEM) determine the dependency or independence relationship of the variables involved in them through the integration of linear equations (Holgado et al, 2019). These models combine factor analysis with linear regression to determine the fit of the information obtained with a model proposed by means of a trail diagram, in which the relationship between the latent and observed variables is represented. The observed variables can be measured directly, usually through questionnaires. Latent variables are those that are not directly measured, and can be endogenous (dependent) or exogenous (independent).(Vargas-Chanes, 2023)

In this sense, it is the statistical technique determined for the present research, because it allows to analyze complex patterns of relationships between variables as is the case that we want to study, since it is intended to understand if learning approaches and psychosocial factors predict academic performance, so it is intended to analyze a number of factors. Some are directly observable and others indirectly (latent variables), in the same way many social and educational research uses this statistical technique because it is a complex process that is thought to be analyzed and allows us to address complex problems or relationships under high levels of complexity as shown in the following example in the figure.

Figure 2 Example of Structural Equations
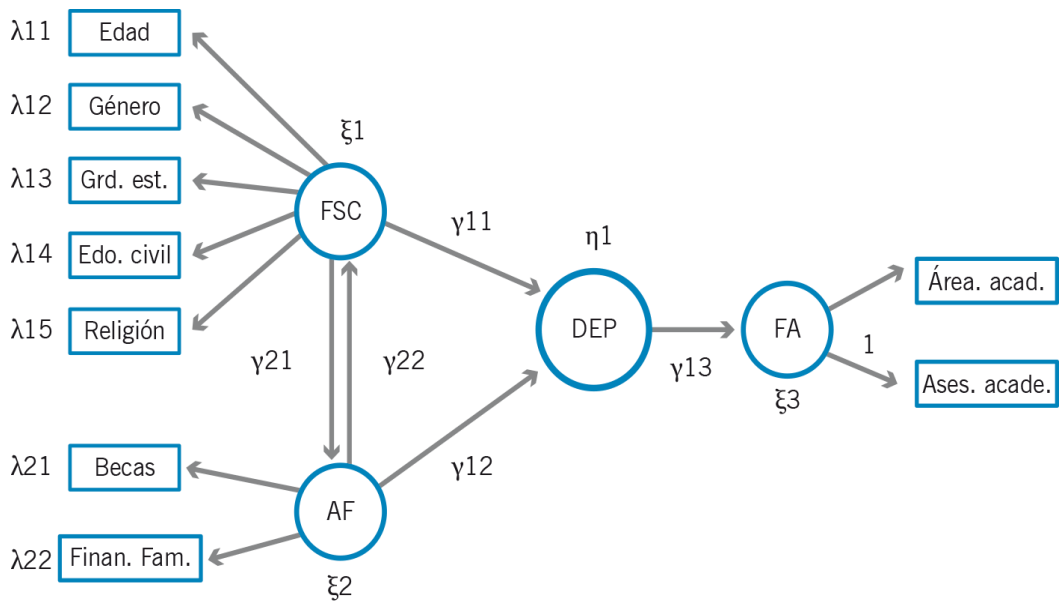
## 3. RESULTS AND DISCUSSION

The results obtained within the present study denote that there are some socio-cultural factors that affect the academic performance within university students since in one way or another they condition them, in this sense it is observed that factors such as economic level, types of family, characteristics of parents, even the gender of the respondents determined that they are related to the learning style that the respondents assume, The results obtained within the study are detailed below. One of the first data obtained in the respondents is their gender, it was evidenced that within the university there is a higher percentage of female students with 52.1%, compared to 47.9% of men.

Figure 3 Gender of respondents
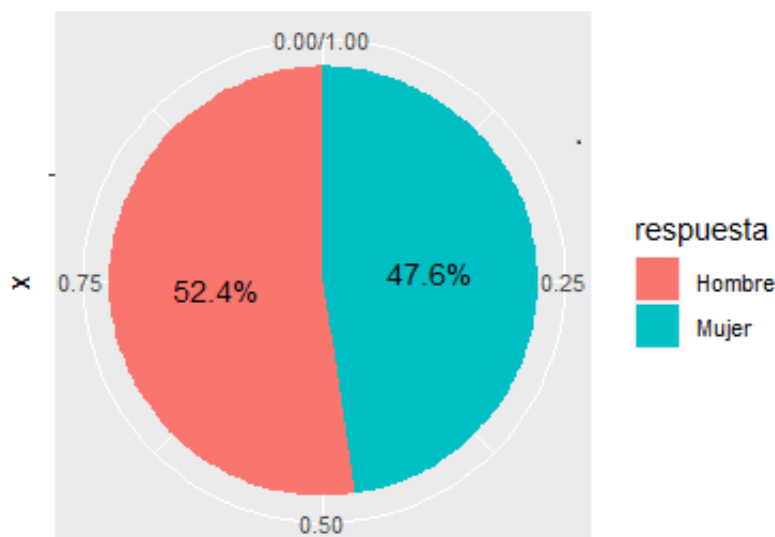
In the same way, it is observed that the self-identification of the respondents is varied, although there is a predominance of students with mestizo self-identification, followed by indigenous people in the areas where the University operates in the Sierra Centro region, where there is a large index of indigenous communities and small percentages of other races.

Figure 4 Respondents' ethnic self-identification
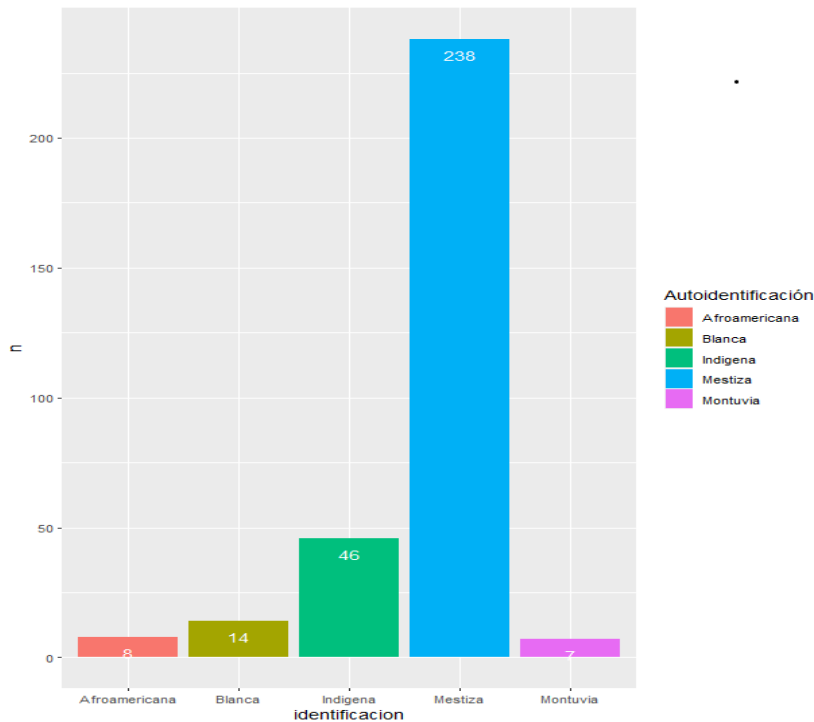
Being a public university, it is observed that the economic level of the respondents is mostly low and medium-low, followed by a group that has a medium level, these answers go hand in hand with the economic conditions of the region and province.

Figure 5 Economic level of the respondents
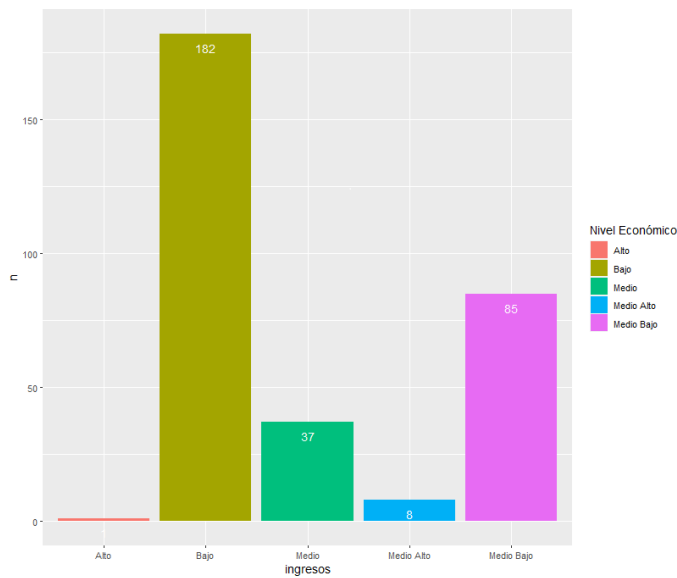
Another factor that characterizes the university students surveyed within the State University of Bolívar is that they have different types of hierarchical roles on the part of their parents, among which a higher percentage of democratic parents stands out, followed by authoritarian ones, a high number of indulgent and aggressive parents, it is clear that this factor can be a determinant on the academic performance of students.

Figure 6 Types of Respondents' Parents
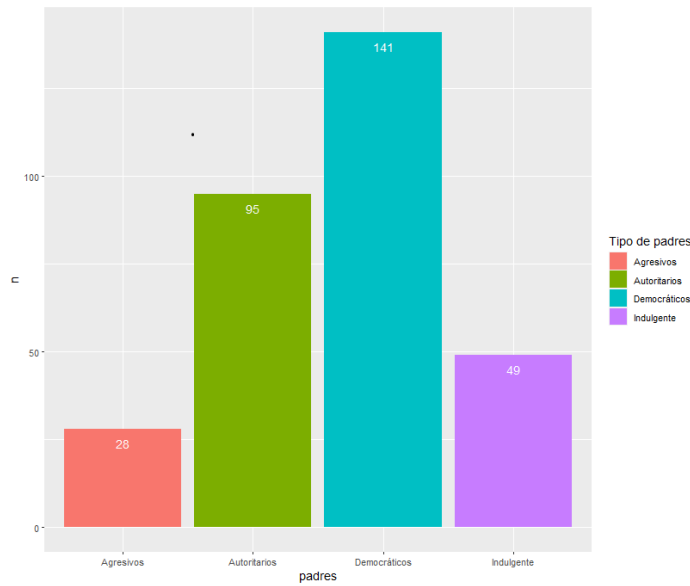
Another socio-cultural factor that has been shown to have an impact on students' academic performance is the level of education of the parents, because it has been shown that students whose parents have university studies or jobs of medium or high level are more likely to succeed academically than those who come from families with lower educational or socioeconomic level. In this sense, it is observed that the number of respondents mentions that the educational level of the parents is primary, followed by a large percentage who have secondary education, a much smaller number have university studies and a very small group has master's studies, in the same way it is observed that there is no record that proves having parents with a doctorate. (Gutiérrez-Monsalve & Segura-Cardona, 2021)

Figure 7 Educational level of respondents' parents
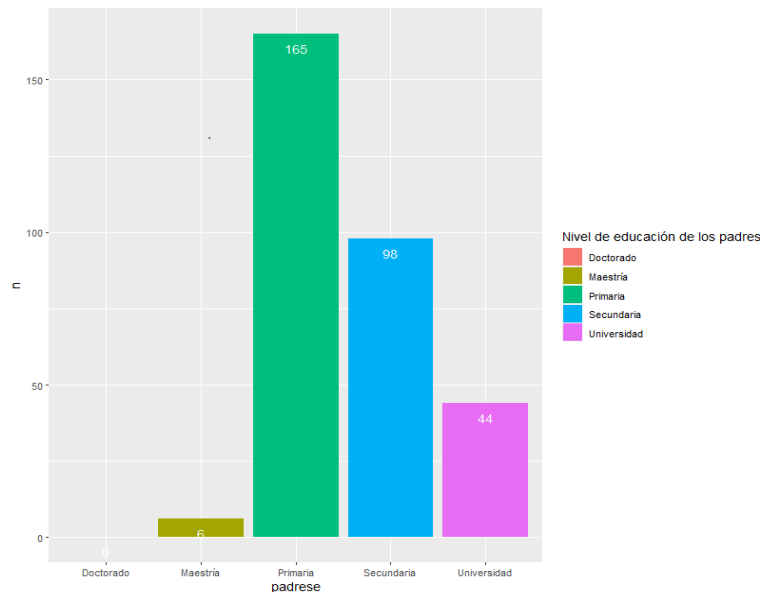
When contrasting the sociocultural results with the learning styles assumed by the students, it is observed that initially, most of the university students surveyed assume a superficial style, followed by a group that assumes a deep style and a smaller number assumes a strategic style. It is evident that the majority of students assume a superficial

style, which determines that it is limited to the simple memorization of information, without giving it a greater analysis.

Figure 8 Learning style assumed by respondents
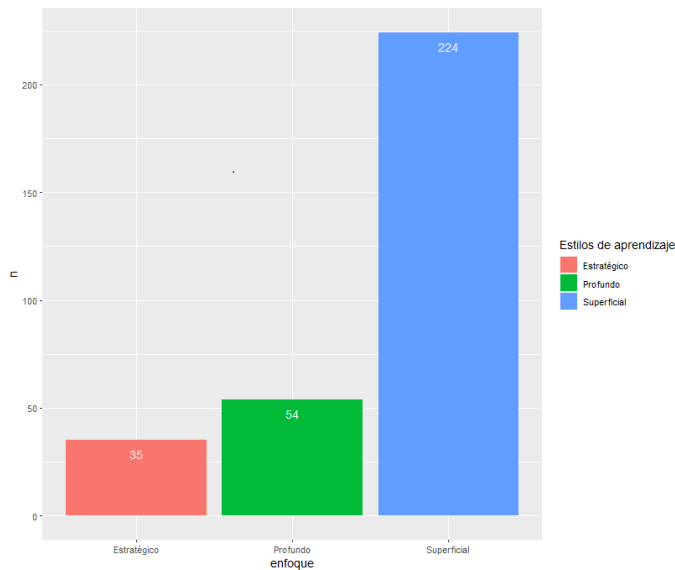
In reference to the gender of the respondents, it is observed that it affects the type of learning style that the respondents assume, because it is observed that a greater number of men are inclined towards the superficial style compared to women, in reference to deep learning it is observed that women are inclined to this type of style and that in the strategic style in the same way women assume a For this type of learning, these responses determine that gender affects the adoption of this type of learning.

Figure 9 Respondents' gender-based learning style
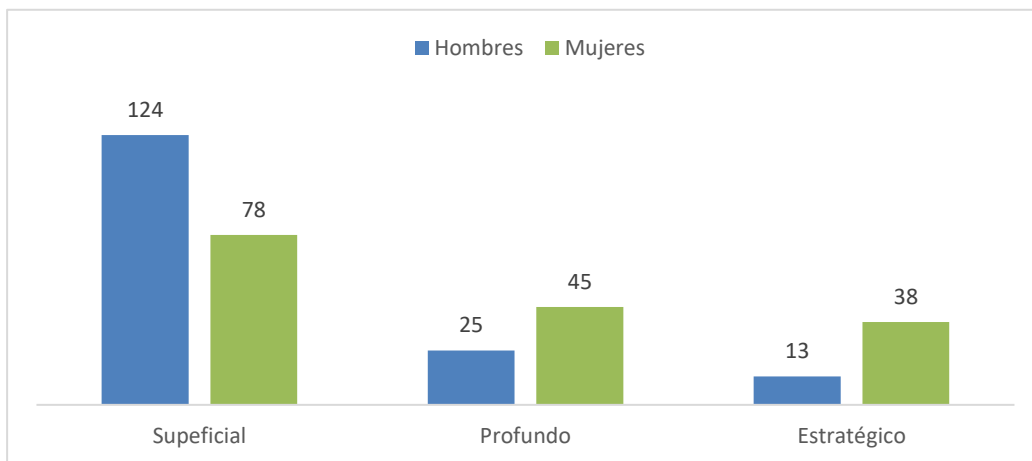
The results obtained from the research show that the parenting style of the respondents provide certain indications that they influence the learning style that they assume, since it is observed that in democratic and authoritarian parents it is observed that students are oriented towards the deep and strategic style, unlike in indulgent and aggressive parents who do not present children who assume a deep and strategic style. These aspects are established because these styles are the ones that provide evidence of influencing better academic performance. (Alanya y otros, 2021)

Figure 10 Learning Style by Type of Parent of Respondents
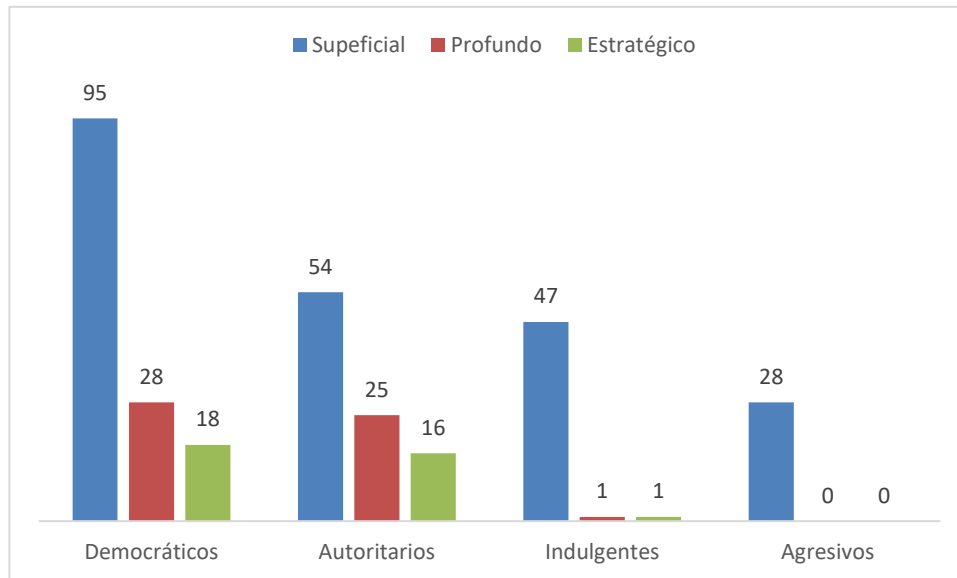
In the same way, it is observed that the level of education of the family peers affects the type of learning style that university students assume, since the data obtained from the applied surveys show that students who have parents with higher levels of education are oriented by deep and strategic learning styles. which in the long term means that they will achieve better academic performance because deep learning involves a meaning orientation, that is, the student seeks to understand the concepts, ideas and relationships that underlie the information, and applies them to different contexts and situations The student with this style is interested in learning, It has a critical and reflective attitude, and uses strategies such as questions, applications among others. In the same way, strategic learning assumes an orientation to performance or achievement, that is, the student seeks to obtain the best possible grades, adapting to the demands and expectations of the teacher or the subject. The student with this style is interested in the outcome, has an active and organized attitude, and uses strategies such as planning, time control, selection of relevant information, and self-evaluation.   (Esteves et al., 2020) (Loor & Alarcón, 2021)(Vera y otros, 2019)(Salas y otros, 2021)

Figure 11 Learning Style by Type of Parent of Respondents
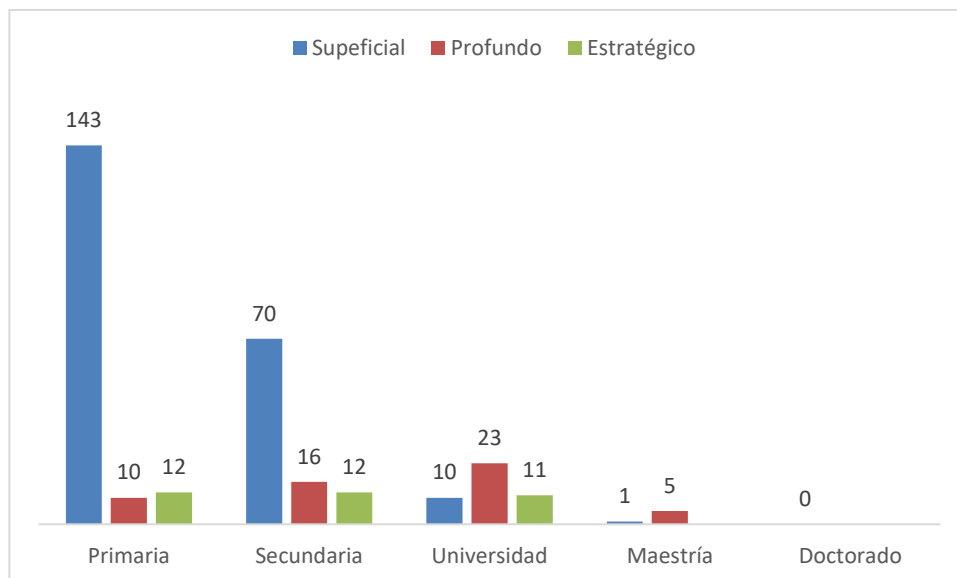
4. CONCLUSIONS

The results obtained by the respondents denote that sociocultural factors have a direct impact on the learning styles that a student assumes, identifying that there are three types of styles: superficial, deep and strategic, of which there is evidence that the deep style is the one that generates the best academic performance, since it generates reflective thinking. critical and in search of new ways to achieve greater learning and the strategic that is characterized by having an orientation to achievement, that is, within it the final objective is sought which is to achieve high grades, however the superficial style is a style that seeks simple memorization without a level of analysis or commitment on the part of the student.

It is observed that in the surveyed students there are certain factors that affect the adoption of certain learning styles, in a general way it is observed that in the respondents 78% assume a superficial style, 17% a deep learning and 11% a superficial learning, however, it is evident that in most of the respondents belonging to the male sex assume a superficial learning compared to the female sex, In other words, women are more likely to assume a deep and superficial style.

The type of parent that the respondents have shows signs of influencing the learning style assumed by university students, since it is observed that respondents who had authoritarian and democratic parents assumed a deep and strategic learning style in greater numbers, compared to students who assumed superficial learning had forgiving and aggressive parents. On the other hand, it is observed that the level of education that parents have shows signs of influencing the learning style assumed by students, since students who had parents with higher levels of education assumed a deep and strategic style, while students who had parents with low levels of education assumed a superficial style.

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