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**SCHOOL COUNSELING, NORTHERN TECHNICAL UNIVERSITY**  
**OF AUTOMOTIVE ENGINEERING, ELECTRICAL AND**  
**TEXTILE**

Cristian Guzmán Torres (a)\*, Jessy Barba Ayala (b), Bryan Yépez Ulloa Jefferson (c),  
Diana Karolina Benalcázar Morocho (d)  
\*Corresponding author

- (a) Universidad Técnica del Norte, Universidad Técnica del Norte, Avenida 17 de Julio 5-21, y Gral. José María Córdova, Ibarra, Ecuador, ceguzman@utn.edu.ec  
(b) Universidad Técnica del Norte, Universidad Técnica del Norte, Avenida 17 de Julio 5-21, y Gral. José María Córdova, Ibarra, Ecuador, jvbarba@utn.edu.ec  
(c) Universidad Técnica del Norte, Ibarra, Ecuador, jbyepez@utn.edu.ec  
(d) Universidad Técnica del Norte, Ibarra, Ecuador, dkbenalcazar@utn.edu.ec

### Abstract

High rate of student dropout, low academic performance, repeated semesters and subjects are the main issues that led us to conduct this research which focuses on high school counseling. The objective of the research is to ask some students from the Northern Technical University of Ibarra, Ecuador to evaluate the process of high school counseling. These students are first semester students belonging to the majors of Automotive Maintenance Engineering, Electrical Maintenance Engineering and Textile Engineering. The research is descriptive and quantitative. It is based on a 32 questions survey about self-knowledge, information, decision making and students' satisfaction with their major. It was submitted to a population of 108 students; 78 people of the male gender, 29 of the female gender and 1 person belonging to another gender. The analyze showed that the process of high school counseling did not have a significant impact on their choice of university major. Nevertheless, most participants appeared to be satisfied with the major they were enrolled in.

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## 1. Introduction

According to the Secretariat of Higher Education, Science, Technology and Innovation (SENESCYT), about 700,000 students are enrolled in a first semester course in a higher education institution in Ecuador. However, 26% of them will drop out of their studies within the first semesters. The reasons are mostly psychological, economical and social. This creates a serious social problem (Calderón et al., 2017).

According to a research made by the Northern Technical University and conducted among 256 students, Yaselga and Yépez (2010), university students drop out mostly concerns freshmen. Lack of economic resources appears to be the main reason (77.9%), followed by family problems (7.5%) and poor teaching practice (6.9%). The survey also showed that repeating semesters or subjects is mostly related to the poor relationship between students and teachers. Another reason to that appears to be the gap between freshmen's knowledge and the level of curricular capabilities expected by the University.

Choosing a university major, a profession or a career is paramount. Although this choice is strictly personal, when a wrong decision is made, it will affect not only the student, but also his family and the society as a whole. In Ecuador, within schools, it is the responsibility of Student Counseling Departments (DECE), Educational Psychologist and teachers to guide, inform and advise both students and their families about professional counseling (Barreno, 2011). It is the duty of DECE staff to carry out activities focused on guiding children, adolescents and their legal representatives to choose between different specialties, professions or occupations Méndez and Méndez (2014). To a certain extent, guidance is the responsibility of educational institutions. However, there are no psychometric instruments dedicated to that purpose which could guarantee a better vocational and professional guidance. In addition, the relevance of both internal and external factors remains unknown for a successful professional choice. Internal factors include personality, identity, skills, interests, values, significant experiences, while family, social relations, educational offer, labor field and the socio-cultural context are considered as external factors (Ormaza, 2019).

Vocational and professional counseling is a necessary and relevant process which is part of the development of each individual. Consequently, every student should receive counseling starting in preschool.

School counseling is a crucial element of students' academic training. It is currently present at all levels of education. In fact a research conducted in Colombia, a country whose population shares similar characteristics with Ecuador, clearly shows that school counseling directly influences the socioeconomic development of a society, it helps reducing youth unemployment and strengthens the labour market information. Therefore it is essential to consolidate it (García et al., 2016).

The objective of this research is to analyze the process of school counseling according to Northern Technical University first semester students in Ibarra, Ecuador, who are enrolled in the following majors: Automotive Maintenance Engineering, Electrical Maintenance Engineering and Textile Engineering. Moreover, it appears necessary to assess the efficiency of school counseling and to determine whether first semester students are satisfied with the majors they have chosen.

### **1.1. School counseling**

The objective of school counseling is to strengthen each one's self-knowledge. To do so, it must consider the person's interests and tastes using relevant strategies in order to identify the professional path that is right for him or her Reyes and Novoa (2014).

Cerro (2011) defines school counseling as the organized measures which favor the psychopedagogical accompaniment of the human being during the course of his life, in order to help him choose responsibly a profession or career. It is carried out by informing and supporting self-discovery, in order to encourage decision making.

### **1.2. Professional counseling**

According to The Ministry of Education's School and Professional Counseling Manual (2015) is defined as a process of follow-up, support and advice. The Students Counseling Department is in charge of professional counseling. Its staff is made of professionals trained in psychology who provide the necessary tools to strengthen students' self-knowledge, provide information and make decisions so that they can make the right professional choice.

Echeverría (2008) mentions that professional counseling is made of all activities helping students to choose a profession that will allow them to perform specific tasks, with the purpose of obtaining an economic compensation. However, considering the large number of university majors, students have to choose from, this requires taking into account their individual profile, their ability to fulfill given tasks, their economic situation and their human values.

### **1.3. External factors**

Professional decision making is greatly shaped by students' family, friends, social and economic context, the work environment and the educational offer. Such factors may have negative effects when they somehow force the students to opt for a specific path. In such case, the school multidisciplinary staff can help students to identify opportunities and threats associated with these external factors. Thus, students may be able to make an informed and independent decision (Barreno, 2011).

### **1.4. Internal factors**

They include the individual's own personality, skills and interests. Based on these elements, the school psychologist shall encourage personal and group activities in order to discover the student's vocational interest. Such activities may include interviews, activities, life experiences, surveys, psychological tests... Barreno (2011).

## **1.5. The school counseling process in Ecuador**

### **1.5.1. Self-knowledge**

One of the main axes of school counseling in the Ecuadorian educational context is self-knowledge. Bennet (2008) states that self-knowledge is divided into three parts. First, there is self-observation. The second step is to examine what others see of oneself, and finally action on oneself. Therefore, it is about the individual's capacity to analyze and identify his own characteristics. Similarly, The Ministry of Education's School and Professional Counseling Manual (2015) mentions that the individual can identify internal characteristics through introspection. Such process allows students to adjust to their environment.

### **1.5.2. Access to information**

It is necessary and essential to get access to information about different fields and activities. In this sense, The Ministry of Education's School and Professional Counseling Manual (2015) mentions that school counseling and relevant information must be offered to individuals to help and allows them to build their own opinion regarding their professional choice. It is important to provide this information in a timely manner so that students take advantage of such baseline for future choices.

### **1.5.3. The decision-making**

Decision-making is the most critical and impacting step of the process. Barrera (2009) defines it as the process of choosing one option among several others. This decision falls to the concerned individual who must have weighted all options. On the other hand, The Ministry of Education's School and Professional Counseling Manual (2015) states that making a decision consists in selecting one or several alternatives responding to the needs of each individual. It is a complex process which strengthens the student in his development as an individual. The Manual also adds that decision-making can only be a conscious and responsible act if student had proper access to information.

## **2. Problem Statement**

"Choosing a profession and/or a job does not only imply opting for a professional activity, but also for a way of life. Therefore, it should be done with the awareness that such decision shapes part of our identity, of our "I" and that we assume a role, a status that will even determine the partner we will share our life with" (Aguirre Baztán, 1994, p. 336).

With this statement, the author emphasizes how much school counseling is important in the development of an individual and how crucial it is to help him define his own interests, aptitudes and capabilities in order to make assertive decisions and to become a productive worker who loves his job in the future (Faz Delgado, 2016).

Valdés et al. (2016) highlights the characteristics of effective school counseling. He mentions that it is fundamental to guide the student to define his desire of personal growth by recognizing internal and

external factors. Internal factors include personal characteristics such as skills, interests, values, personality, intelligence, while external factors can be divided into economic and social factors.

One of the main problems that occur in higher education and particularly in the Northern Technical University is that freshmen students have not always benefited from enough school counseling in their respective high schools.

### **3. Research Questions**

- Did freshmen students currently studying Automotive Maintenance Engineering, Electrical Maintenance Engineering and Textile Engineering receive school counseling in high school?
- How these students evaluate school counseling?

### **4. Purpose of the Study**

The overall purpose of the research is to analyze the process of school counseling in high school according to freshmen students enrolled in Automotive Maintenance Engineering, Electrical Maintenance Engineering and Textile Engineering at the Northern Technical University.

### **5. Research Methods**

The research is based on a quantitative approach. To do so, a likert scale is used to measure respondents' opinions about the school counseling process. This allowed us to process and analyze numerical data. The research is descriptive because the characteristics and particularities of our object of study, i.e. school counseling, is known, described and determined.

Numerical data were analyzed and discussed by means of statistical tables on arithmetic mean and gender in order to get general information, actual facts and students' feedback about the school counseling process.

#### **5.1. Instrument**

Please replace this text with context of your paper. A 32-item pilot survey was prepared. The following questions were structured to address three variables (self-knowledge, information and decision making) : “Did you receive a satisfying school counseling in high school ?” and “Do you feel satisfied with the major you are currently studying?” The students’ answers allowed us to test the variable satisfaction regarding university major. The survey was validated by 6 professionals of the area. Data were computed in the correlation matrix ( $\alpha = \frac{np}{1+p(n-1)}$ ) using the software SPSS 2.0. The instrument resulted with  $\alpha$  value of 0.96, corresponding to a high level of validity and reliability of the instrument.

The survey was submitted to 108 students who belong to the majors of Automotive Maintenance Engineering, Electrical Maintenance Engineering, and Electrical Maintenance Engineering of the FICA faculty (School of Applied Sciences) within the Northern Technical University of Ibarra-Ecuador. It was conducted during the April-July 2019 academic semester on the second week of July. Filling the survey required about 15 minutes.

The population N was made of 108 students from the UTN's Faculty of Applied Sciences FICA, major of Automotive Maintenance Engineering, Electrical Maintenance Engineering and Textile Engineering. The concerned population was made of 78 male students, 29 of female students and 1 student of other gender. The average population age X was 20 years old. 39 students studied Textile Engineering, 34 students Automotive Maintenance Engineering and 35 students Electrical Maintenance Engineering.

## 6. Findings

**Table 1.** Arithmetic mean related to school counseling

	N	Mean	Standard deviation
Did you receive a satisfying school counseling in high school?	108	3,38	,983
Valid N (per list)	108		

The value of the arithmetic mean is 3, corresponding to a regular process of school counseling. It means that the professional orientation process was not adequate, view table 1. On the other hand, in a research by Machado et al. (2013) on training and school counseling based on a sample of 107 freshmen students studying Medicine at the University "José Ramón León Acosta" in Cuba, 44.86% of participants graded the guidance they received as good. Only 15.85% of them described it as not appropriate. This means that school counseling does not perform very well in Ecuador.

**Table 2.** Gender and the process of school counseling

	Male	Female	Other					
				Deficient	3	2	0	5
				Poor	10	3	0	13
Did you receive a satisfying school counseling in high school?				Regular	28	9	0	37
				Very good	30	11	1	42
				Excellent	7	4	0	11
				Total	78	29	1	108

The majority of respondents mentioned that school counseling received in their respective high school did not completely meet their expectations. Among the entire population, 41 male students and 14 female students reported the process of school counseling as deficient, poor or regular. In other words, there was no appropriate school counseling. The Ministry of Education's School and Professional Counseling Manual (2015) recommends to address school counseling through different axis, including gender. Such process identifies and values students' skills, tastes and interests. However, an approach focusing on gender is not totally satisfactory as it encourages certain society bias related to gender stereotypes. This may explain the respondents' answers discrepancy according to gender, view table 2.

**Table 3.** Arithmetic mean related to current major

	N	Mean	Standard deviation
Do you feel satisfied with the major you are currently studying?	108	4,23	,664
Valid N (per list)	108		

The arithmetic mean value related to students' satisfaction with their current major is 4. It corresponds to "satisfied", i.e., the majority of the population feels satisfied with the major it is pursuing, view table 3. A similar research conducted by Navarro (2014) was applied to a sample of 97 students studying Engineering at the Universidad del Bío-Bío in Chile. It showed that 50% of the respondents felt very satisfied with their current major, while 19% were not satisfied. Some similarities can be noticed between both studies made in the same Latin American environment. Similarly, students' subjective satisfaction with their major seems to be decorrelated from the views they expressed about school counseling process in high school.

**Table 4.** Gender and current major satisfaction

Do you feel satisfied with the major you are currently studying?	Poorly satisfied	0	1	0	1
	Moderately satisfied	7	4	0	11
Very satisfied	40	17	1	58	
Extremely satisfied	31	7	0	38	
Total	78	29	1	108	

Results show that 7 male students and 5 female students report not being very satisfied with the majors they are enrolled in, meaning that they do not like their studies according to their interests or preferences. On the other hand, the research exclusively applied to engineering majors in which male students are generally over represented, view table 4. In the same way, Ruiz & Santana (2019) in their research: "Major choice and gender" interviewed 155 students, 87 of them were male students while 68 were female students. Significant differences were highlighted across gender. 31.2% of men and 10.8% of women were enrolled in engineering majors. Even though, in term of right, both genders have by now equal access to such studies, professional preferences are still deeply influenced by gender stereotypes.

## 7. Conclusion

The analysis of the data shows some discrepancies between the following variables: "school counseling process" and "satisfaction with university major". From a theoretical and scientific point of view, it is expected that pertinent professional choice requires an efficient school counseling process based on a multidisciplinary structure but it does not appear this way. However, the discrepancy between both variables clearly shows that Ecuador fails to comply with the true objective of school counseling.

The results of this research points out that school counseling does not fulfill its mission as the survey showed that guidance students received in high school was not determinant in their decision making process when it came to choose their university major.

About the issue related to students' satisfaction with regard to their current studies, it appears that they globally feel satisfied with the choice they made. However, it is worth mentioning that school counseling process cannot take credit for this finding. Indeed, the level of satisfaction is rather due to family influence, socio-cultural and economic context as described earlier in this article. Finally, let's mention that some of the external factors previously mentioned may also influence the students' perception by introducing some bias in their assessment of studies satisfaction.

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