

# Importance of vocational guidance prior to access to higher education

## *Importancia de la orientación profesional previa al acceso a la enseñanza superior*

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## Abstract

Vocational and professional guidance for higher education students is essential to ensure success in learning and professional practice. This research aims to compare self-reported careers and vocational and professional orientation test results by types of vocational guidance. Using descriptive, documentary, and field research with a mixed approach, we explore the vocational orientation test of 3,692 students in 13 public schools in the city of Ibarra in Ecuador. The test consisted of 98 dichotomous items identifying vocational interests and aptitudes using a computer-based questionnaire in Kobotoolbox. The instrument's validity was evaluated using Cronbach's Alpha, and reliability was estimated using McDonald's Omega coefficients. The Chi-square test was used to compare self-reported careers and the CHASIDE test results by vocational and professional guidance of the students using the R-studio software. Results showed significant differences between students' self-reported careers and the CHASIDE. Indeed, the correspondence between the two showed values lower than 50% since a family member mainly did vocational guidance processes, and professional guidance needed to be more present. Results suggest the importance of vocational guidance done by a professional before entering higher education institutions to minimize the risk of dropouts among students after mistakenly choosing a career.

**Keywords:** CHASIDE Test, Vocational Guidance, Generation Z

## Resumen

La orientación vocacional y profesional de los estudiantes de educación superior es esencial para garantizar el éxito en el aprendizaje y la práctica profesional. El objetivo de esta investigación es comparar las carreras autodeclaradas y los resultados del test de orientación vocacional y profesional según los tipos de orientación vocacional. Utilizando investigación descriptiva, documental y de campo con un enfoque mixto, exploramos el test de orientación vocacional de 3.692 estudiantes de 13 colegios públicos de la ciudad de Ibarra en Ecuador. La prueba consistió en 98 ítems dicotómicos que identificaron intereses y aptitudes vocacionales mediante un cuestionario computarizado en Kobotoolbox. La validez del instrumento se evaluó mediante el Alfa de Cronbach y la fiabilidad se estimó mediante los coeficientes Omega de McDonald. Se utilizó la prueba de Chi-cuadrado para comparar las carreras autoinformadas y los resultados de la prueba CHASIDE por orientación vocacional y profesional de los estudiantes mediante el software R-studio. Los resultados mostraron diferencias significativas entre las carreras autoinformadas por los estudiantes y el CHASIDE. De hecho, la correspondencia entre ambas mostró valores inferiores al 50% ya que un miembro de la familia realizaba principalmente procesos de orientación vocacional, y la orientación profesional debía estar más presente. Los resultados sugieren la importancia de la orientación vocacional realizada por un profesional antes de ingresar a las instituciones de educación superior para minimizar el riesgo de deserción entre los estudiantes después de elegir erróneamente una carrera.

**Palabras clave:** Test CHASIDE, Orientación profesional, Generación Z

## Introduction

Vocational guidance is a process in which support is offered to discover abilities, interests, values and personality before making informed decisions about possible career choices for higher education and future professions. Vocational and professional guidance can be carried out through various methods and techniques, the most common being psychometric tests, interviews, questionnaires and self-assessment activities (García, 2018). In this sense, the orientation also seeks to investigate the educational offer and the labor market and develop an action plan to achieve professional goals (Espinal, 2022; Gualteros, 2021).

Work activities require the student to comply with specific requirements that demand innumerable challenges, commitments, and obligations that require the decision-making process to be carried out prior to a reflective analysis of multiple aspects and factors called vocational maturity. For adolescents, young people, or adults, the choice of a profession is one of the most significant challenges because it must be done from self-knowledge and analysis of its possibilities, which encompasses not only the deliberation of activity but also a lifestyle and a way of contributing to the construction of society through the work that they will develop throughout their lives (Bálsamo, 2023).

Accessing vocational guidance is considered essential since choosing a career is one of the most significant decisions with a lasting impact on a person's life, which can increase their satisfaction with study activities and subsequent professional success (Badel y Doria, 2022). These activities can positively impact society by increasing job satisfaction, productivity, and stability (García y Loor, 2021).

Vocational guidance should serve as support for professional projection, provide information regarding the characteristics of personal interests, the family environment that sometimes influences the profession to choose, the characteristics of the social environment in cases where the preferred careers of the student do not exist in the local universities, or the university of their choice is in another environment.

In addition, the vocational orientation of the student can contribute to the exploration of interests, abilities, aptitudes, and values and to the acquisition of a clearer understanding of the career options available in their environment, which could be adapted to their characteristics, thus allowing them to feel fulfilled in the execution of their studies and the exercise of their professions. It can also provide them with relevant information about the labor market, higher study opportunities, and development (Lema, 2020).

Reliable vocational guidance services should be accessed before choosing a higher education career so students can express their concerns and reflect on their interests and goals, facilitating the process reasonably and consciously so that the selection is in line with their personality (Espinal, 2022).

Vocational and professional guidance services should be available to high school students who are part of Generation Z, post-millennials, Centennials, or Snowflake Generation since they were born



from 1995-2010. This group comprises students between 16 and 18 who enter higher Education (Ortega, s.f.).

Vocational guidance for people belonging to Generation Z represents a significant challenge given their characteristics, such as their social media usage, self-taught capacity, curiosity, and the necessity for learning through digital media. They are also collaborators since they are used to creating links with unknown people and have a high capacity for cooperation and communication, especially within the virtual environment (Toledo-Vita, 2020).

These young people are creative, overexposed to information, innovative, and enterprising; they prefer a learning style that demands responsibility, high social value, flexibility, and participation, with essential and positive commitments towards society and the planet. In addition, they feel motivated in educational and work environments that meet the characteristics of immediacy, flexibility, the balance between personal and work life, digital fluency, practicality, and the ability to perform multiple tasks (Gómez y Montero, 2003).

Technological innovation and the changing environment have resulted in new professions, such as influencers. Influencers are people who, with their publications on YouTube (YouTubers), Instagram (Instagrammers), and other social networks, influence the way of thinking and acting of young people, turning them into their referents and models to imitate (Gutiérrez et al., 2022). Therefore, the profession of influencers is the most desired profession today in Argentina, Venezuela, Colombia, Ecuador, Paraguay, Costa Rica, Nicaragua, and Honduras (Flores, 2023).

The effectiveness of vocational guidance can vary depending on various factors, such as the quality of guidance services, training and experience of the professionals who provide it, the receptivity and participation of students, and other contextual elements such as the generational characteristics (Céspedes et al., 2020). The absence or ineffectiveness of vocational guidance may drive young people to face various challenges and potential consequences, such as inappropriate career choices, frequent career changes, stress, anxiety, academic difficulties, lack of direction, purpose, and lack of motivation in their daily activities (Cabrera et al., 2006).

Lack of self-knowledge, inadequate perception of their abilities and aptitudes, lack of financial resources, motivation, and lack of academic or emotional support influence university dropouts. Educational institutions and governments often work on policies and programs to reduce college dropouts and improve student retention to ensure academic completion and achieve educational and professional goals (Ulloa y Ulloa, 2022).

Dropping out of university can have significant consequences in a student's academic, professional, and personal life; among the most common are the loss of time and resources for the student himself, his family, and the State. In addition, the lack of a university degree can limit career options and generate financial consequences, such as acquiring student loans or other debts to finance studies. Likewise, dropping out of university can negatively affect the self-esteem and confidence of the student and generate a competitive disadvantage in the labor market compared to those who complete their higher Education (Sotomayor y Rodríguez, 2020).

Career counseling cannot guarantee student retention. However, it can help reduce the dropout rate by allowing students to make informed and conscious decisions about their career choices. According to data from the Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENESCYT) the dropout rate in 2019-2020 was 28%. If this same trend continues, the Ecuadorian State could save \$2,097,811.88 in 2023 to \$2,104,989.77 in 2025 (SENESCYT, s.f.).

In Ecuador, vocational guidance is recognized as an integral part of the educational and labor system. The Ministry of Education promotes the implementation of vocational guidance services in the country's educational institutions by using workshops, talks, aptitude, and interest tests, and individual or group counseling (Ministerio de Educación del Ecuador, 2021).

The CHASIDE test has been considered an appropriate tool for predicting interests and vocations in Ecuador; however, in most of the publications, that has been incorrectly attributed to the researcher John Holland, who has developed other vocational guidance tests, such as the Self-Directed Search, Environmental Typology RIASEC, and the Inventory to the Sixteen Personality Factor (Holland, 1962; Holland, Daiger, y Power, 1980; Holland, 1985; Holland, 1994). It is worth noting that the real author of the CHASIDE test is Juan Lázara, who developed the test in 1994 based on Holland's Environmental Typology RIASEC; and considers the constructs that relate interests and aptitudes for a particular vocation with specific occupational areas (Lázara, 2007).

The importance of Vocational Guidance is specified by the Ministry of Education of Ecuador in the educational research agenda for 2022-2026, including the role of vocational and professional orientation research in high schools in the Education and Work research line (Ponterotto & Ruckdeschel, 2007). In response to this national interest in Education, this research aims to compare self-reported careers and vocational and professional orientation test results by types of vocational guidance.

## Methodology

This paper is a descriptive, documentary, and field research, with a mixed approach, carried out with a sample of 3,692 students. The students selected to participate in the study belong to the second and third years from 13 public High Schools in Ibarra, Ecuador. This sample represents 56% of students enrolled in Ibarra's second and third years of High School. Participants were asked to complete the CHASIDE Vocational and Professional Guidance Test, which consists of 98 dichotomous response items focused on identifying interests and aptitudes for selecting a profession (Lázara, 2007) and a questionnaire to characterize the sample.

Data was collected through a computer-based questionnaire implemented in KoboToolbox. Subsequently, individual reports were delivered to each student, and group reports to the Student Counseling Departments were generated using a system developed in the PHP programming language with a MySQL database.

The data obtained from the CHASIDE test were analyzed together (Interests and Aptitudes) to establish career options, selecting those areas where students obtained the highest score in both interest and aptitude; in cases where students have identical aptitudes and interests, in three



or more areas they have been determined as undefined. The reliability of the instrument was evaluated using Cronbach's Alpha ( $\alpha=0.911$ ) and the Omega coefficient ( $\omega=0.92$ ). The CHASIDE results were contrasted with the self-reported preference of the students by types of vocational guidance included in a questionnaire before answering the battery of items of the instrument. The comparative analysis was performed using the Chi-square ( $\chi^2$ ) test. All statistical analysis was performed using the R-studio software.

## Results

### 3.1 Sample characterization

The characteristics of the participants that have directly influenced the findings. A total of 3,692 students participated in this study, of which 48.35% were women and 51.65% were men; the average age of men was 16.85 years, and 16.84 years for women. In addition, it was found that only 5.34% of the participants received some vocational guidance from a professional (psychologist or teacher), 43.31% received guidance from a family member, and 51.35% reported not having received any guidance or support regarding the career choice they are about to make. Regarding the need to receive guidance on vocations, the majority of young people (68.26%) indicate that they would have a favorable attitude if someone could help them choose their professional career as long as it is done through personalized meetings or meetings group sessions in schools (76.21%) since it seems to them the best option to receive this type of guidance compared to the option of being guided through interactions on websites or mobile applications. It is important to note that the results show that most students surveyed have not received any vocational guidance (94.66%) in educational institutions, and 43.31% stated that they had received guidance from their families. Even though the Ministry of Education defines the application of a Vocational Guidance Guide to high school students in its regulations, it is worrying that the results of this research show that only 5.34% have received such guidance.

This paper is relevant to vocational research in Ecuador since it has the most significant sample studied. Indeed, the CHASIDE test is widely used in the country for individual assessment, and the aggregated reports consist mainly of small samples that may influence the results found in this paper.

The reliability and consistency of the scale are presented in *Table 1*. As seen in the table, the analysis of the overall scale has excellent reliability and consistency scores with values closer to 1 (Reise et al., 2013). However, when the statistics are estimated separately, problems in aptitude-related items can be observed, suggesting limitations in analyzing interest and aptitudes independently.

**Table 1**

*Validity and Consistency of the CHASIDE Test*

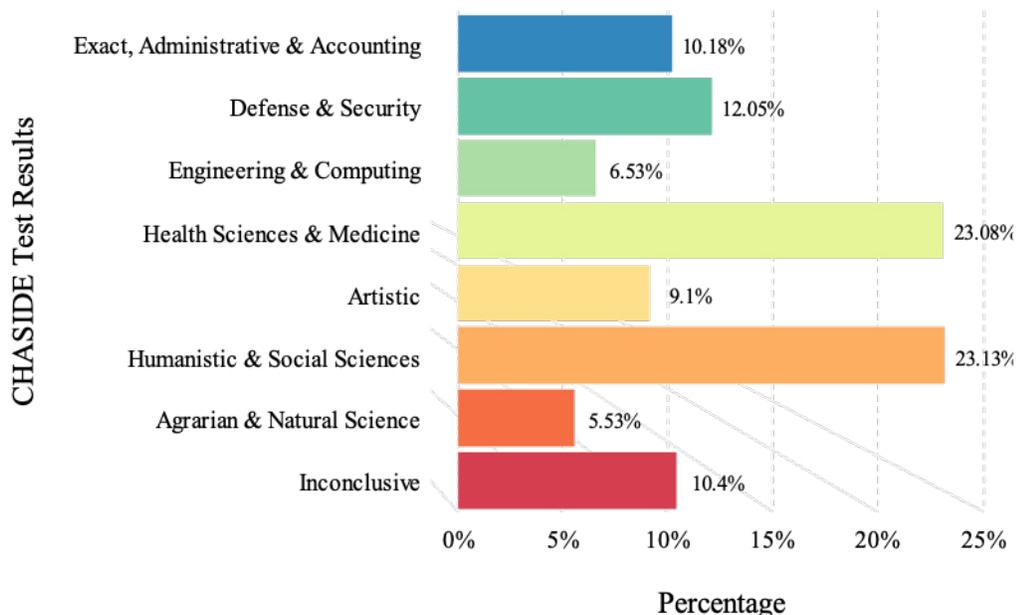
Test	Items	Cronbach's Alpha	McDonald's Omega
All	98	0.911	0.92
Interest	70	0.900	0.91
Aptitudes	28	0.647	0.67

Morales and Gálvez (2018) found similar results considering Cronbach's alpha in the overall scale ( $\alpha=0.980$ ) in a study of 350 students. However, differences appear when considering interest ( $\alpha=0.905$ ) and attitudes ( $\alpha=0.824$ ) as separate constructs since the authors reported excellent results. These differences in interests and aptitudes may be due to the sample size differences or the implementation strategy since the authors used a paper-based questionnaire. This research did not present other indicators, such as the Omega coefficient, so the studies are not entirely comparable. Even though previous studies present different results of interest and aptitudes, only the overall score is considered in this paper to ensure inferences based on the data obtained.

Figure 1 shows the CHASIDE vocational guidance test results, considering that the process involved identifying the professional areas in which students obtained the highest interest and aptitude for career choice. In addition, students with identical aptitudes and interests in three or more areas were considered inconclusive career options.

**Figure 1**

*CHASIDE Test Results*



The highest percentages of student preference were obtained from the Humanities and social areas (23.13%) and Medical and health sciences (23.08%), followed by defense and security (12.05%),

and exact and agricultural sciences (10,18); there are extremely low percentages in careers related to the arts, engineering and computing, and administrative and accounting sciences; in addition to 10.40% of students who have more than three career options according to the criteria used in this study.

In recent years, numerous studies have been carried out in Latin America that use the CHASIDE test to assess the interests and aptitudes of Generation Z. In Bolivia, preferences have been found in areas such as administration and accounting, humanities, social sciences, medicine, and health sciences (Cruz, 2021). In Colombia, interests in engineering, computing, and art have been identified (Vélez et al., 2022). In Ecuador, interest in areas such as art, defense, and security has stood out, as well as a 61.5% aptitude toward medical and health sciences (Solis, 2023). In other studies, carried out in Ecuador, interests towards art and aptitudes towards medicine and health sciences have been evidenced, and secondly, interests towards defense and security and aptitudes towards administration and accounting sciences (Ruperti et al., 2020).

According to data from SENESCYT, the current academic offer updated as of February 20, 2022, includes the areas of administration, agriculture, forestry, fishing and veterinary medicine, arts and humanities, natural sciences, mathematics and statistics, social sciences, business education and law, journalism and information, education, engineering, industry and construction, health and welfare, health and social services, and information and communication technologies; The areas with the most significant number of careers offered by higher education institutions are the areas of administration, education, social sciences, commercial education and law and engineering, industry and construction. However, according to data from the same entity, the four areas in which the highest number of students enrolled in 2022 are registered are engineering, industry, and construction; social sciences, journalism, information, and law; Social sciences and business education and education (SENESCYT, s.f.).

The areas of student preference in this study and those carried out at the Latin American level show the students' preference for the administrative, humanistic, and health sciences areas. These data could be in line with the personality characteristics of the students of Generation Z, such as altruism, responsibility, a high value of the social, flexibility, participation, and the need to assume essential and positive commitments with society; however, significant divergences can be found in terms of student preferences with the existing academic offer and the enrollment rate at the national level.

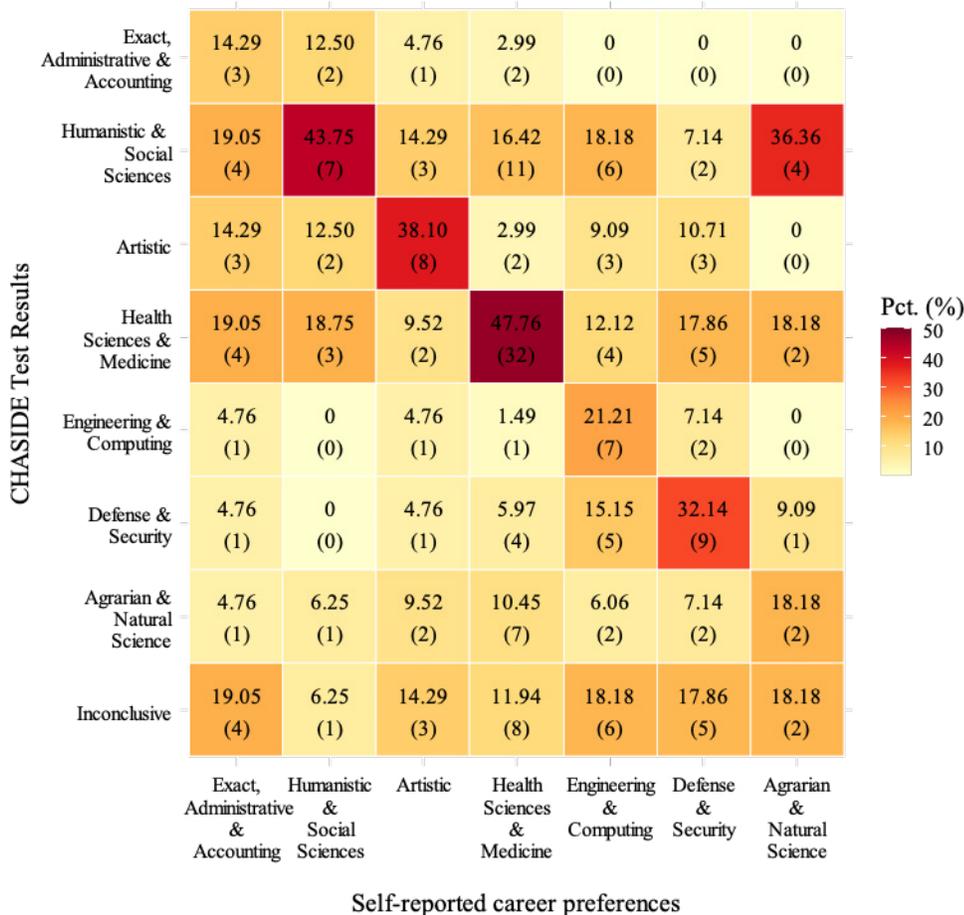
When proposing vocational guidance, based on the options of professional areas proposed by the CHASIDE test, a multiplicity of emerging professions and those linked to the appearance of artificial intelligence, which has emerged in recent years, are excluded so that a vocational and professional reductionism that could later affect the professional and occupational life of this generation and those to come.

*Figure 2* shows the results obtained from the analysis of the relationship between self-reported interests and the CHASIDE vocational and professional guidance test results in students who have received some guidance or vocational and professional guidance from a professional, be it a

teacher, psychologist, or institutional counselor. The variables are statistically significantly different ( $\chi^2 = 97.1922, p < 0.001$ ).

**Figure 2**

*Comparison of CHASIDE Test Results and the Self-Reported Career Preference of Students with Professional Guidance*



The percentages of correspondence between self-reported interests and those obtained from the CHASIDE test do not exceed 50% in any of the areas studied, which denotes little correspondence between what students intend their higher education career to be and the results of their answers to the vocational guidance test. However, the areas with the highest percentage of correspondence are Medicine and health sciences (47.76%), the Humanities area (43.75%), and Administrative and accounting Sciences (38.1%). These results reflect a high probability that the vocational guidance received by the students needed to be adequate and the expected effect needed to be obtained.

Gómez and Palma consider in their study of vocational orientation that the indicators of social behavior also reveal a significant discrepancy between interests and actions based on vocational choice. Therefore, the authors consider it necessary to consolidate, in the vocational guidance processes, other axes such as personal satisfaction, social behavior, variables associated with the

study, the correlation between interests and aptitudes, and social behaviors, aimed at improving the processes and that can guide young people to make better choices and professional actions (Gómez y Palma, 2019).

Similar results were obtained in another study with high school students belonging to Generation Z in the city of Triunfo in Ecuador, where it was possible to show greater interest in Art and aptitudes in Medicine and Health Sciences and, in the second instance, interests directed toward the area of defense and security and aptitudes towards administration and accounting sciences (Ruperti et al., 2020). There is a significant discrepancy between students' reported interests and the CHASIDE career guidance test results, suggesting that students may have the wrong idea of what they want to study in higher education.

In addition, other factors, such as personal satisfaction and social behavior, must also be considered in vocational guidance processes to improve decision-making among young people. Importantly, these results highlight the need for effective career guidance services with quality processes and qualified professionals to help students make informed decisions about their educational and professional future. Educational institutions and government agencies must improve career guidance services to help young people make more informed and satisfying decisions regarding their interests, aptitudes, and career goals; this can positively impact student performance and career satisfaction.

The national educational offer must adapt to the current era of globalization and technology, considering professions that align with current and future labor market trends and allowing students to acquire skills and knowledge relevant to the modern world. In this sense, it is essential to incorporate artificial intelligence (AI) as a central aspect in training new generations. AI has become a vital tool in many sectors, and its use will continue to grow, so students must become familiar with it early and learn to use it effectively and ethically. In this way, future generations will be prepared to face challenges and take advantage of the opportunities offered by the current and future world.

The results obtained from the analysis of the correlation between the interests reported by the students and the results of the CHASIDE test in those students whom a relative has mentored are presented in Figure 3. The variables are statistically significantly different ( $\chi^2 = 396.8240$ ,  $p < 0.001$ ).

**Figure 3**

*Comparison of CHASIDE Test Results and the Self-Reported Career Preference of Students with Family Counseling.*

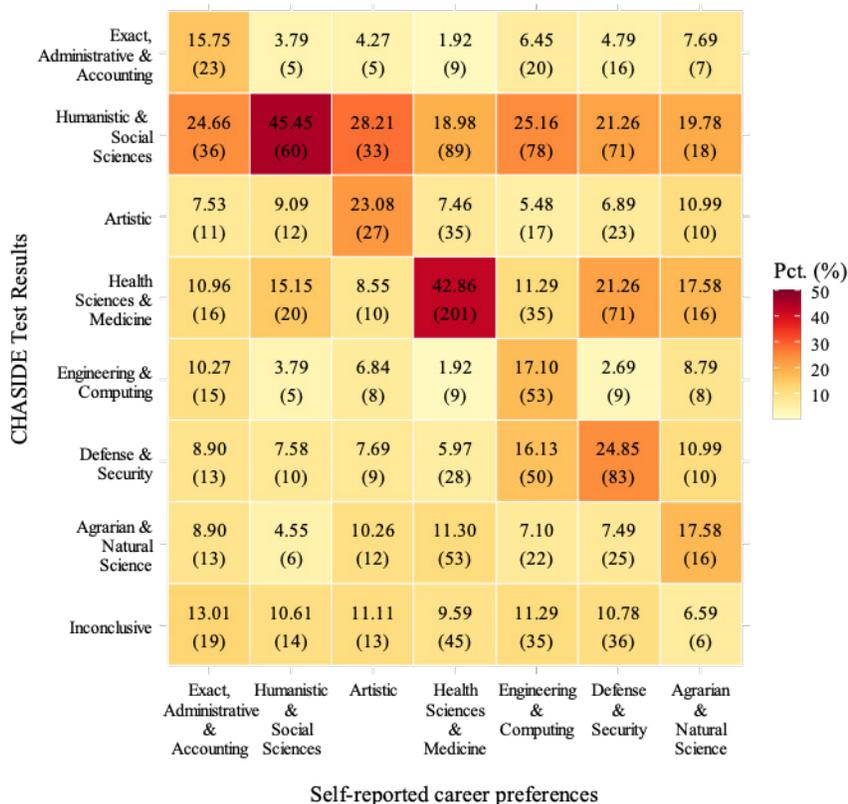


Figure 2 and Figure 3 do not show percentages more significant than 50% correspondence in terms of personal perceptions and the results of the vocational test. In Figure 3, those who received vocational guidance from the family reached a relationship percentage lower than those presented in Figure 2, which presents the students who received vocational guidance from a professional. The areas with the highest percentage of relationships are the humanities (45.45%), medicine and health sciences (42.86), and administrative and accounting sciences (23.08%). These results coincide with those presented in students who have received vocational guidance from professionals.

When choosing a career, the family directs the student mainly with four criteria: the social prestige of the profession, which gives rise to interest in specific fields that are considered prestigious; the spirit of the times (fashion), which consists in the choice of a relevant and prestigious career for the time. The coefficient of family traditionality relates to the interests of the child and the profession of the father/mother. Finally, the profession is the adequate means to meet vital needs such as food, clothing, and housing (Balleza et al., 2021).

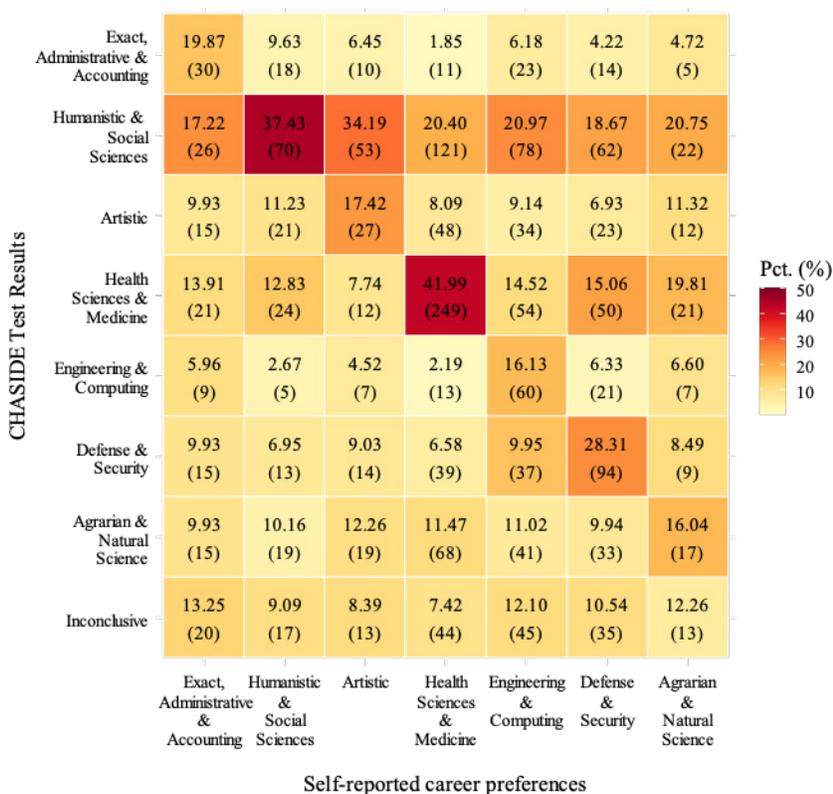
Students must receive personalized and quality vocational and professional guidance to make informed decisions according to their interests and abilities, regardless of family and social

expectations that may affect their choice, without neglecting the family environment when designing vocational guidance processes so that systemic interventions can be proposed in addressing this moment in the life of an adolescent.

Figure 4 shows the results of the analysis of the relationship between the self-reported interests of students who have not received vocational guidance and the results of the CHASIDE test. The variables are statistically significantly different ( $\chi^2 = 453.2343$ ,  $p < 0.001$ ).

**Figure 4**

*Comparison of CHASIDE Test Results and the Self-Reported Career Preference of Students Without Vocational Counseling.*



It can be seen in *Figure 4* that the percentage of relationships for students without vocational guidance is 41.99% in the health area and 37.43% in the Humanities; the rest of the professional areas presented values between 16.04% for careers in the exact and agrarian areas and 28.31% in defense and security.

Choosing a university major is crucial in any person’s life since it can influence their academic, professional, and personal future. It is essential to have the support and guidance of professionals trained in vocational guidance, who can guide young people in decision-making. Vocational guidance seeks to provide tools and resources to help students choose the most appropriate career based on their interests, abilities, and aptitudes and understand the socioeconomic and academic factors related to their choice. In addition, this orientation aims to improve student retention,

especially for students who have yet to decide on their career, do not know the procedures, or need better preparation to act on their criteria (Erazo y Rosero, 2021).

It is important to note that career guidance should not be limited to choosing a career but should also be present during and after choosing a profession; career guidance professionals can help students improve their study skills, develop their self-knowledge, and to establish clear and achievable professional goals (Casillas, 2021).

In Ecuador, university dropout is a problem that affects many young people, and the lack of adequate guidance in choosing a career may be one of the factors that contribute to this situation; therefore, young people must receive specialized guidance to avoid deficient or lacking practice in decision-making and thus avoid career changes, dropouts and other problems that may arise from not having the information and the necessary support (Erazo y Rosero, 2021).

The choice of a university major is crucial and can have a significant impact on a person's future life. Therefore, it is essential to have guidance and support from professionals trained in vocational guidance to guide young people in decision-making. Vocational guidance provides tools and resources to help students choose the right career based on their interests, abilities, and aptitudes and understand the socioeconomic and academic factors related to their choice. Career guidance can also help students improve their study skills, develop self-awareness, and set clear and achievable career goals. The lack of adequate guidance in choosing a career may be one factor contributing to university educational dropout, which further emphasizes the need to guide young people to avoid problems in the future.

The correlation coefficients are significantly higher in the counseling group, suggesting that counseling is relevant in translating an individual's interests into a successful career choice. The results clearly show the tendency of students to choose the area of medicine and health sciences in the three circumstances raised, whether they have a vocational orientation or not, since these are the ones that present the highest percentages of correspondence between the results. Of the vocational orientation test and their self-reported preferences before taking it.

Of the number of students surveyed, the results obtained for the group that did not receive vocational guidance were higher than the rest of the participating population (1,896 students), while 197 students only represented the group that received vocational guidance from a professional. It can also be observed that the result for the group that received family guidance had almost the same effectiveness as guidance by professionals; This allows us to infer that vocational guidance is essential for the career selection of every student and that therefore vocational and professional guidance should be promoted, fostered, and guaranteed for students entering Higher Education Institutions.

## Conclusions

Vocational guidance is crucial for any student seeking to enter higher education and choose their future profession based on self-knowledge, skills, interests, and values. This research showed that vocational and professional guidance is essential so that students entering the university can



successfully acquire the training corresponding to their careers, which guarantees them better and more effective professional performance.

Career guidance services must be offered by professionals who are qualified in the use of individualized and group approaches to explore career preferences and aptitudes and are available to support high school students, especially those belonging to Generation Z, who have unique characteristics that must be taken into account in order to provide them with a good orientation that is following the needs and conditions of the present and future world of work.

Although career guidance cannot guarantee that a student will not drop out, it can help reduce the dropout rate by allowing students to make informed and conscious decisions about their career choices. Investment in student retention policies and programs benefits students and has significant economic implications for governments and educational institutions.

The significant divergences between interests and aptitudes could not only be caused by the lack of vocational guidance in students or the ineffectiveness of existing processes. Reducing the student dropout rate can avoid significant costs in terms of financial and human resources and, in turn, can positively impact the country's economy.

The importance of having reliable and updated evaluation tools and promoting research and development of vocational guidance programs in the educational field.

The psychological community needs to keep updated with available career guidance tools and techniques and ensure that the tests used are accurate and supported by scientific research.

The significant divergences between interests and aptitudes could not only be caused by the lack of vocational guidance in the students or the ineffectiveness of the existing processes but rather by the efficiency of the instrument in question since, in the present study, it has been mathematically evidenced that it is a good predictor of interests but not of aptitudes.

Finally, regarding existing public policies in Ecuador, until recently, for admission to higher education, it could be concluded that the main drawback was not the exam as such but a problem of ineffective vocational guidance, for which reason It is recommended that new vocational guidance processes be developed that make it possible to address the aptitude characteristics of students in a better way.

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