ISSN: 1984-3704

RC UFBA Revista de Contabilidade da UFBA

Ciências Contábeis UNIVERSIDADE FEDERAL DA BAHIA

DOI: https://doi.org/10.9771/rcufba.v19i1.66077

# Psychological and Sociodemographic Characteristics and the Level of Development of Employability Skills

# Características Psicológicas e Sociodemográficas e o Nível de Desenvolvimento de Habilidades para Empregabilidade

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**ABSTRACT**
This research analyzed some psychological and sociodemographic characteristics of Accounting students and their relationship with the level of development of essential skills for employability. Data were collected through electronic questionnaires, involving 299 undergraduate students from two educational institutions in Rio de Janeiro. The analysis of psychological characteristics was based on Jung's theory of psychological types, considering the dimension of the types with Extroversion/Introversion and the functions with Thinking/Feeling and Sensation/Intuition. For the analysis of the sociodemographic profile, the measures of Qualification, Income, Gender, Age and Teaching Modality were considered. To measure development, the study was based on the students' perception based on the most demanded skills cited in the literature. Multiple regression and factorial ANOVA models were used for the analysis. The results showed that: (i) there is a predominance of the Introverted-Thinking-Sensing type, (ii) some of the students' characteristics influence the level of skill development, and (iii) some levels of factors (qualification, modality, income and age) can simultaneously contribute to achieving better student performance. The findings bring relevant contributions, since, based on knowledge of student characteristics, institutions will be able to improve their strategy for teaching planning and encouraging students to develop essential skills, encouraging them to better develop classroom activities and foster theoretical discussions, which can help reduce dropout rates and improve employability.
**Keywords:** Essential Skills. Employability. Psychological Types. Sociodemographic Profile.

**RESUMO**
Esta pesquisa analisou algumas características psicológicas e sociodemográficas de discentes de Ciências Contábeis e a relação com o nível de desenvolvimento das habilidades essenciais para empregabilidade. Os dados foram coletados por questionários eletrônicos, envolvendo 299 discentes de cursos de graduação de duas instituições de ensino do Rio de Janeiro. A análise das características psicológicas foi baseada na teoria dos tipos psicológicos de Jung (1991) considerando a dimensão dos tipos com Extroversão/Introversão e das funções com Pensamento/Sentimento e Sensação/Intuição. Para a análise do perfil sociodemográfico considerou-se as medidas de Qualificação, Renda, Gênero, Idade e da Modalidade de Ensino. Para medir o desenvolvimento o estudo baseou-se na percepção dos discentes a partir das habilidades mais exigidas citadas na literatura. Para a análise foram utilizados modelos de regressão múltipla e anova fatorial. Os resultados demonstraram que: (i) há uma predominância do tipo Introvertido-Pensamento-Sensação, (ii) algumas das características dos discentes influenciam no nível de desenvolvimento das habilidades, e (iii) alguns níveis dos fatores (qualificação, modalidade, renda e idade), podem colaborar simultaneamente para a obtenção de uma melhor performance do discente. Os achados trazem contribuições relevantes, pois, a partir do conhecimento de características dos discentes, as instituições poderão melhorar a estratégia para o planejamento do ensino e o incentivo aos discentes para desenvolverem as habilidades essenciais, encorajando-os a desenvolver melhor as atividades em aula e fomentar as discussões teóricas, o que pode ajudar na redução da evasão e melhorar a empregabilidade.
**Palavras-chave:** Habilidades Essenciais. Empregabilidade. Tipos Psicológicos. Perfil Sociodemográfico.

Recebido em: 12/02/2025. Aceito em: 08/06/2025. Publicado em: 26/08/2025. Editor: Hellen Dias

## 1 INTRODUCTION

With the advent of the technological revolution, new technologies have prompted significant changes in social structures, economic systems, and the labor market (Schwab, 2018). Technology is automating various categories of work, particularly those involving repetitive manual or mechanical tasks, reshaping businesses and, consequently, the labor market and the relationships among professionals across diverse fields and levels (Schwab, 2018).

Similarly, in the accounting field, professionals are required to adapt to these changes by not only mastering technical knowledge but also developing a range of behavioral skills, including effective communication, strong interpersonal interaction, proficient conflict management, teamwork, among others, as highlighted in the studies by Bala and Singh (2021), Mhlongo (2020), Phan et al. (2020), and Tsiligiris and Bowyer (2021).

Due to the consequent changes in social structures, economic systems, and the labor market cited by Schwab (2018), employers in accounting have reported, for over three decades, a significant gap between skill development and market demands, as noted by Tsiligiris and Bowyer (2021) and Landsberg et al. (2023).

In this context, educational institutions have sought to align their curricula with the skills required by the labor market but face challenges, not only due to delays in updating teaching strategies but also because of political issues and limitations in the qualification of administrative and teaching staff (Tsiligiris & Bowyer, 2021). Thus, the size and nature of the skills gap may depend on how these skills are integrated into the curriculum, whether they are appropriately applied, and how they are developed and assessed (Reyneke & Shuttleworth, 2018). Moreover, the development of these skills may extend beyond institutional characteristics, encompassing sociodemographic features and aspects of student personality.

For this reason, the present study considered constructs related to psychological characteristics based on Jung's typology, as applied in the studies of Briggs et al. (2007), Swain and Olsen (2012), and Wetmiller and Barkhi (2021). This approach is relevant because employability, as addressed in this study, can depend, among other factors, on individual skill qualifications, which largely require mastery of behavioral competencies. Jung's psychological typology was developed considering type dimensions of Extraversion/Introversion and functional dimensions of Thinking/Feeling and Sensing/Intuition. Thinking/Feeling functions reflect how individuals process information and make decisions, whereas Sensing/Intuition functions describe personal tendencies in action, based on perception (through the senses) of the external environment (Jung, 2017).

Furthermore, it was considered relevant to examine certain sociodemographic characteristics, such as educational level, teaching modality, income, gender, and age, since some of these factors are determinants of educational performance and may consequently affect academic success in developing skills demanded by the labor market, as reported in the studies of Al Husaini and Shukor (2022), Araújo et al. (2021), Bertolin and Marcon (2015), Cornachione et al. (2010), Carol and Buker (2010), Helal et al. (2007), Nasu (2020), Rahman et al. (2023), and Takeuchi (2022).

Although research on student perceptions of skills developed in undergraduate programs has increased in recent years, studies analyzing these perceptions considering teaching modality variables (online and in-person) remain scarce, indicating a gap in this area. Gaps were also identified in understanding how sociodemographic profiles and aspects of personal attitude and interaction influence the development of skills deemed essential for employability.

Therefore, this study aimed to analyze the psychological and sociodemographic

characteristics of students from two undergraduate accounting programs and their relationship with the perceived level of development of skills essential for employability. Specifically, it sought to answer the following questions: What are the predominant characteristics, and what is the relationship between students' psychological and sociodemographic traits and their perception of the development of essential employability skills?

Accordingly, this study underscores the importance of understanding the student profile by identifying specific styles regarding the development of employability skills, as students who fall outside the expected profile may experience compromised learning processes and, consequently, may not develop the skills essential to succeed in the labor market, as reported by Swain and Olsen (2012).

Practically, the study provides knowledge for educational planning for both administrators and instructors, helping students better understand how their profile may impact academic performance and assisting in identifying individual learning difficulties.

The social contribution of this research extends beyond the generated knowledge. Understanding student profiles is also important for institutions and professionals to address potential mismatches between sociodemographic and psychological types, enabling adjustments in strategies and career-related decisions. Misalignment between student profiles and course or labor market expectations may result in school dropout, employment termination, or even career failure.

From a theoretical perspective, the study aimed to foster discussion on the sociodemographic and behavioral factors affecting academic and professional performance and to promote a broader debate on the phenomenon of employability in accounting.

## 2 THEORETICAL FRAMEWORK

This section presents discussions on the skills required to maintain employability, the sociodemographic and psychological type characteristics that may impact student performance, and the study hypotheses.

### 2.1 ESSENTIAL SKILLS FOR EMPLOYABILITY

Considering skills as essential for employability, the research refers to those competencies that professionals or recent graduates need to possess to secure and maintain employment. Yorke (2006, p. 8) defines employability as "a set of achievements – skills, understandings, and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, benefiting themselves, the workforce, the community, and the economy." The author further notes that employability implies not only the ability to obtain success in a job but also the capacity to remain employed and the concrete possibility of obtaining a new position if necessary (Yorke, 2006).

According to Gammie et al. (2002), employers should also provide specific training for the development of essential skills; however, the arguments regarding employer demands should not be accepted uncritically. The authors note that companies prefer experienced professionals, assuming that less time and fewer resources will be spent. Nevertheless, when administered by the company, training is generally specific to the organization's business model.

In this sense, Reyneke and Shuttleworth (2018) argue that the skills required are transient by nature, as business conditions change. Thus, it is important to consider which skills should be incorporated into the teaching process and which should be addressed beyond the academic curriculum. The authors emphasize that the current debate is not about who is

responsible for developing students' essential skills, but rather how the teaching-learning process has been conducted to develop such skills and contribute to personal growth for life.

In response to this need, the International Accounting Education Standards Board (IAESB), established by the International Federation of Accountants (IFAC), defined professional education standards through the publication of International Education Standards (IES). These standards provide minimum guidelines for professional training and function as a global reference. Their objective is to ensure high-quality competence of professional accountants in corporate practice (IAESB, 2019). The standards are organized into eight areas, and while this research does not aim to fully align its findings with international standards, it is partially aligned with IES 3, which addresses professional skills (intellectual, interpersonal and communication, personal, and organizational).

In this context, several studies have sought to identify the most common and most demanded skills in the labor market. The ten skills most frequently cited in the literature as required by employers are: (i) Oral communication (Banasik & Jubb, 2021; Mhlongo, 2020; Tsiligiris & Bowyer, 2021); (ii) Written communication (Banasik & Jubb, 2021; Mhlongo, 2020; Phan et al., 2020); (iii) Teamwork (Bala & Singh, 2021; Banasik & Jubb, 2021; Miranda et al., 2021); (iv) Self-discipline (Bowles et al., 2020; WEF, 2023); (v) Time management (Phan et al., 2020; A. Santos et al., 2021; Bowles et al., 2020); (vi) Problem-solving (Bowles et al., 2020; Miranda et al., 2021; Lira et al., 2021); (vii) Creativity and innovation (Bala & Singh, 2021; Bowles et al., 2020; WEF, 2023); (viii) Learning for decision-making (Bala & Singh, 2021; Bowles et al., 2020); (ix) Critical thinking and analysis (Lira et al., 2021; Mhlongo, 2020; Tsiligiris & Bowyer, 2021); and (x) Use of technologies (Bala & Singh, 2021; Banasik & Jubb, 2021; Miranda et al., 2021).

The studies reviewed converge with international standards, particularly regarding cognitive skills and some behavioral skills. In some cases, authors do not differentiate personal from interpersonal skills. For example, Tsiligiris and Bowyer (2021) consider interpersonal skills as a set of personal skills, subdivided into adaptability, communication, lifelong learning approach for continuous personal and professional development, critical thinking, dynamic problem-solving, and emotional intelligence.

It is also noteworthy that there is a tendency for studies to adopt the skills identified by IES 3, alongside an emerging trend to consider interpersonal and intrapersonal skills aligned with emotional intelligence, such as the ability to collaborate with colleagues, maintain a positive attitude, work with people from diverse backgrounds, self-control/self-discipline, resilience/motivation, proactivity, and adaptability, as highlighted by WEF (2023).

However, despite the identification of studies with diverse analytical focuses—such as employers, students, and faculty, and with varying objectives—the majority broadly examine the skills most demanded by the labor market without delving into how they are developed or how they impact teaching-learning processes. Therefore, a gap persists regarding the analysis of behavioral skills development and the relationship with student profiles in acquiring these skills.

## 2.2 SOCIODEMOGRAPHIC CHARACTERISTICS AND IMPACTS ON STUDENT PERFORMANCE

Several studies have demonstrated that certain sociodemographic characteristics can impact student performance. For simplicity, only some individual characteristics and institutional teaching models with scientific evidence will be discussed: (i) qualification, (ii) mode of instruction, (iii) income, (iv) gender, and (v) age.

Regarding Qualification, Helal et al. (2007) define it as a measure of individual educational attainment, which is important for predicting employability and is directly

associated with socioeconomic and family factors. Typically, individuals with higher qualifications come from families with greater purchasing power, functioning as a qualification reserve. In this case, this reserve "fundamentally includes the family, social, economic, and cultural context of the students" (Bertolin & Marcon, 2015, p. 112).

Yu (2021) found that postgraduate students exhibit stronger self-regulation and greater resistance to external disturbances, maintaining control over their learning behaviors and consequently achieving higher learning outcomes than students with only undergraduate qualifications. Therefore, for this study, it is assumed that students with higher qualifications will have better perceived levels of skill development required by the market, as they are likely pursuing further studies for professional improvement or career change. Based on this, the following hypothesis is proposed:

**H1:** Qualification positively impacts the perceived levels of skill development.

Concerning Mode of Instruction, given the increase in student enrollment in distance learning programs (EaD), according to Inep (2022) and Abdel-Rahim (2021), it is important to investigate potential impacts on academic performance amid ongoing transformations, as there is considerable debate regarding the effectiveness of EaD compared to face-to-face instruction (Carol & Buker, 2010). These impacts were significantly amplified by the COVID-19 pandemic, which forced traditional education (face-to-face) to adopt the distance learning paradigm (Hanushek & Woessmann, 2020).

Araújo et al. (2021) identified differences in the relationship between mode of instruction and student performance. However, the authors argued that, in isolation, the effect of instructional mode on their data is inconclusive. D. Rodrigues et al. (2017) also found differences in performance based on instructional mode. Nonetheless, the results were limited to comparisons between public and private institutions, where students in face-to-face programs at public institutions achieved higher average performance than those enrolled in EaD programs at private institutions.

Thus, assuming that face-to-face students may exhibit higher levels of skill development—given that these skills require greater interpersonal interaction—the following hypothesis is proposed:

**H2:** Face-to-face instruction positively impacts the perceived levels of skill development.

Regarding Income, studied by B. Rodrigues et al. (2016), it was one of the variables that most substantially explained student academic performance, forming part of the socioeconomic factors identified by Helal et al. (2007) and Bertolin and Marcon (2015). D. Rodrigues et al. (2017) found that income significantly influences academic performance, though not linearly. Santos (2012) also indicated that income, combined with other economic factors, was determinant for academic performance.

For this study, individual income was considered, under the assumption that students with personal income tend to be more independent and responsible, seeking to better develop market-required skills. Thus, the following hypothesis is proposed:

**H3:** Student income positively impacts the perceived levels of skill development.

Gender analysis is widely recognized in research, as it helps to understand study habits and styles, learning duration, achievement levels, personal behaviors, among other aspects (Al Husaini & Shukor, 2022). Although some studies suggest better academic performance among females, the literature lacks systematic and consistent evidence (Nasu, 2020). A significant portion of research investigates the relationship between gender and academic performance (Al

Husaini & Shukor, 2022; Cornachione et al., 2010; Rahman et al., 2023; Nasu, 2020; B. Rodrigues et al., 2016; D. Rodrigues et al., 2017; Santos, 2012; Takeuchi, 2022).

In this context, Rahman et al. (2023), Cornachione et al. (2010), and Takeuchi (2022) reported higher performance among female students compared to male students. Conversely, B. Rodrigues et al. (2016), D. Rodrigues et al. (2017), and Santos (2012) found evidence of higher performance among male students. This divergence suggests that other factors, such as psychological profile, course type, and level of qualification, may influence predictors of academic performance. Nevertheless, despite the lack of consensus, it is hypothesized that female students may demonstrate higher levels of interpersonal skill development, potentially due to greater aptitude in these skills. The following hypothesis is therefore proposed:

**H4:** Female gender positively impacts the perceived levels of skill development.

Age can also influence academic performance and is associated with variables such as gender, income, mode of instruction, qualification, and others not considered in this study. According to Araújo et al. (2021), age's association with individual maturity is important in EaD programs, but the authors consider the results inconclusive, and the variable has limited predictive power if analyzed in isolation. Caiado and Madeira (2002) found that student age explains academic performance, but in the opposite direction, i.e., the older the student, the lower the performance.

Paccagnella (2016, p. 3) states that "adults tend to lose their information-processing capacities as they age, especially if they do not use them." Al Husaini and Shukor (2022, p. 7) add that, with age, "brains undergo physical changes that make it harder to remember or learn effectively." Rahman et al. (2023) confirmed that student age is significantly associated with academic performance, but found varying relationships; generally, students aged 23 or older performed better than those aged 19–22.

Therefore, while recognizing that older age does not necessarily indicate lower performance, for the purposes of this study, age may negatively influence the perceived level of skill development. This assumption is based on the idea that older students may already possess greater maturity and have developed the skills in question, supporting the following hypothesis:

**H5:** Student age is inversely related to the perceived levels of skill development.

Finally, beyond sociodemographic characteristics, some aspects of students' psychological characteristics and their impacts on performance will be presented, since Wetmiller and Barkhi (2021, p. 2) state that "there is substantial evidence that individual personality differences may account for a large portion of behavioral differences."

## 2.2 PSYCHOLOGICAL TYPES AND THEIR IMPACT ON SKILL DEVELOPMENT

As labor market skills require substantial behavioral interaction, particularly interpersonal and intrapersonal skills (Phan et al., 2020; Mhlongo, 2020; Tsiligiris & Bowyer, 2021), this study adopted Jung's psychological type model, widely recognized in psychology as a key framework for understanding human personality (Feist et al., 2015).

Jung's psychological types were developed based on two dimensions: types and functions. In the types dimension, there is Extraversion (E) and Introversion (I). According to Jung (1991), types are distinguished by the direction of psychic energy, or libido. The libido represents psychic energy, reflecting the intensity of mental processes, a psychological force manifested in various effects. Jung (1991, p.316) explains: "the introvert behaves abstractly; is

basically always concerned with withdrawing libido from the object as a protection against the overpowering nature of the object. The extrovert, in contrast, behaves positively toward the object."

In the functions dimension, Jung identifies four types: Thinking (T), Feeling (F), Sensing (S), and Intuition (N). The Thinking function is considered rational, enabling the individual to express the essence of things, identify, and name them based on judgment. The Feeling function is also rational, as decisions are typically made considering the sentimental value assigned to things. Both Thinking and Feeling represent possible ways to evaluate received information for decision-making (Jung, 2017).

The Sensing function is considered an irrational perception, as it reflects how an individual acts based on external sensory input. Intuition is likewise an irrational perception function, operating at the unconscious level (Jung, 2017). Individuals with a dominant Intuition function "are guided by hunches or assumptions" or "by the unconscious perception of facts that are basically subjective and bear little resemblance to external reality" (Feist et al., 2015, p. 82).

Zacharias (2017) highlights that Jung's psychological typology can be applied in clinical analyses, education, and organizations, including private and public companies or nonprofit institutions. In individual psychological counseling, identifying types helps recognize adaptation challenges in daily life. In organizations, it supports professional and skills development. In education, it aids in identifying individual learning difficulties, providing a clearer view of each student's dominant (and auxiliary) functions and predominant attitude (Zacharias, 2017).

Regarding studies specifically using Jung's typology with accounting students, notable research includes Briggs et al. (2007), Swain and Olsen (2012), and Wetmiller and Barkhi (2021).

Briggs et al. (2007) aimed, among other objectives, to determine the personality profile of accounting students, assess gender differences, and compare student personality types with managers. Over a five-year window, most data were collected via questionnaires and analyzed through variance of mean scores with significance tests. They found a preference for the ISTJ typology (Introversion-Thinking-Sensing-Judging) and no significant changes in overall student profiles over time. A balance between extroverts and introverts was observed, as well as gender parity. Sensing types predominated over intuitive types (3:1 ratio), similar across genders. The authors noted that although there were some significant differences in judging-perceiving scales across different years, no clear temporal pattern emerged.

Swain and Olsen (2012) explored the impact of personality profiles on students choosing to study and pursue accounting, identifying which types are attracted and retained in the profession. Their longitudinal study (15-year window) collected data via questionnaires, analyzing dichotomous variables using Chi-square and Fisher's exact tests. Results indicated no significant differences in attitude type preferences (introverted/extroverted), but students with the TFJ typology were attracted and retained in accounting through both education and labor market demands. Intuitive (N) students were generally not pursuing accounting through their academic and professional trajectories, suggesting that traditional accounting favors individuals who collect data rigorously and make orderly decisions.

Wetmiller and Barkhi (2021) investigated traditional personality traits and cognitive styles of accounting professionals and those entering the profession. Using questionnaires and variance analysis of mean scores, they found an almost even distribution but noted a prevalence of ISTJ, corroborating Briggs et al. (2007). The authors suggest that such balance in introverted and extroverted attitudes benefits the accounting work environment, as companies require diverse skills and behaviors.

Comparing these findings with previously discussed market-required skills, a disconnect emerges between prevalent personality types and desired behaviors for interpersonal and intrapersonal skills. Introverted individuals may face social interaction challenges, contrary to market expectations, which may concern managers and educators. Market-demanded skills favor openness to interpersonal relationships, creativity, teamwork, group dynamics, strong oral communication, and the ability to defend opinions.

The predominant IST typology indicates that behavioral aspects may not fully support skill development. Introverts direct psychic energy inward, prefer solitary tasks, and choose less dynamic environments with fewer people, potentially limiting interpersonal communication. Dominant Thinking and Sensing functions suggest cautious, logic-based decision-making, adherence to rules, and practicality, positioning individuals as executors rather than planners (Zacharias, 2017).

Based on this discussion, the following hypotheses are proposed:

**H6a:** Students with a dominant extroverted attitude positively impact perceived skill development levels.

**H6b:** Students with a dominant introverted attitude negatively impact perceived skill development levels.

**H7a:** Students with a dominant Thinking function positively impact perceived skill development levels.

**H7b:** Students with a dominant Feeling function negatively impact perceived skill development levels.

**H8a:** Students with a dominant Sensing function positively impact perceived skill development levels.

**H8b:** Students with a dominant Intuition function positively impact perceived skill development levels.

## 3. METHODOLOGICAL DESIGN

For the analysis of student characteristics, the following sociodemographic data were considered: (i) income, (ii) age, (iii) gender, (iv) course modality, (v) qualification, and (vi) years in the program. The psychological type variables analyzed were: (i) extraversion/introversion, (ii) thinking/feeling, and (iii) sensing/intuition. For this purpose, samples of undergraduate students in Accounting from both distance education (EaD) and in-person modalities at public institutions in Rio de Janeiro were examined.

The institutions were selected by convenience due to accessibility and because, in theory, these groups are expected to present similar profiles, particularly demographically, as most students come from the metropolitan region of Rio de Janeiro. Regarding the students, the sample was divided into two groups: students from the 1st to 4th semesters, representing lower academic maturity, and students from the 5th semester onward, representing higher academic maturity. This division aimed to identify perceived differences in skill development levels (SkillDev Level).

Following approval by the Research Ethics Committee (CEP), emails containing the Google Forms questionnaire link were sent to all students between 17/09/2022 and 28/10/2022. A total of 313 responses were received, of which 7 were excluded based on attention bias control criteria and another 7 were removed as outliers following winsorization procedures. The final sample consisted of 299 participants. Considering a population of 1,267 enrolled students, the sample represented 24% of the total population, with 61% from the in-person modality and 16% from the EaD modality.

The questionnaire was developed based on the referenced literature in a structured

format, combining objective, subjective, and scaled questions to ensure systematic administration with strict criteria (Creswell, 2014). It was divided into three parts:

Sociodemographic Profile: Six questions with objective and semi-structured categories, and two open-ended questions (one regarding the main reasons for choosing the course and another to determine if the student works professionally in accounting or another field).

Psychological Profile: An instrument was developed based on Jung's psychological type theory (1991) to measure respondents' levels of extraversion/introversion, thinking/feeling, and sensing/intuition. The instrument contained 30 specific items using a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). A reduced scale was used instead of the original Jung model, as widely used commercial instruments require authorization, contain more than 90 items, involve high costs, and have limited validation in Brazil. This instrument was chosen for its cost-effectiveness, availability, practicality, application time, data tabulation, and ease of analysis.

Skills Most Demanded by Companies: Ten items reflecting the skills identified in the literature as most required by employers. Responses were collected using a 5-point Likert scale ranging from 1 ("not developed") to 5 ("highly developed"), based on students' perception of skill development during the course. The Likert scale was applied following best practices (Carifio & Perla, 2007; Gressler, 2014).

To ensure reliability and content validity, the items were developed following Borsa et al. (2012). Initially, a 45-item instrument was evaluated by three expert judges (psychologists with over ten years of experience in behavioral and Jungian theories) assessing Clarity, Pertinence, and Relevance. The items were subsequently evaluated by 33 students not included in the main sample to assess clarity, language appropriateness, and comprehension (Hernandez-Nieto, 2002).

Content validity evidence was further collected through Exploratory Factor Analysis (EFA) (Borsa et al., 2012; Rios & Wells, 2014) using a polychoric matrix and the Robust Diagonally Weighted Least Squares (RDWLS) method for nonparametric data. Bartlett's test of sphericity (3275.4, df = 435, $p < 0.001$) and the Kaiser-Meyer-Olkin (KMO) index of 0.734 indicated good factorability (Brown, 2006). Model fit was assessed using RMSEA, CFI, and TLI, yielding $\chi^2 = 4720.644$, df = 435, $p < 0.001$; RMSEA = 0.000 (0.000–0.010); CFI = 0.999; TLI = 1.014, indicating adequate fit (Brown, 2006). Factor stability for replicability was evaluated using the H index, with values above 0.80 suggesting a well-defined latent variable (Ferrando & Lorenzo-Seva, 2018).

Factor score quality was assessed using the Factor Determinacy Index (FDI), ORION marginal reliability, and Sensitivity Ratio (SR). Scores were considered reliable if FDI > 0.90, ORION > 0.80, and SR > 2 (Ferrando & Lorenzo-Seva, 2018). Most factors showed good quality, though Factors 1 (Intuition) and 2 (Feeling) presented marginal values, warranting caution for replication.

For data analysis, Multiple Linear Regression (MLR) was applied, and factorial ANOVA tests (4x2 and 4x3) were conducted to examine mean differences. In the MLR model, the dependent variable was Skill Development Level (SkillDev Level = sum of individual scale scores), and independent variables included Modality (EaD/In-person), Gender (male/female), Qualification (secondary/technical, graduate, postgraduate, master's), Age (years), Income (individual), and Extraversion, Introversion, Thinking, Feeling, Sensing, and Intuition (sum of scale scores).

Assumptions were tested using Shapiro-Francia and Jarque-Bera tests for normality, Durbin-Watson for independence, Breusch-Pagan and Cook-Weisberg for heteroscedasticity, and Variance Inflation Factor (VIF) for multicollinearity (Fávero & Belfiore, 2017).

Factorial ANOVA was applied to analyze two or more groups, first testing for

significant mean differences, followed by Bonferroni post hoc tests, which are conservative and suitable for fewer comparisons. Normality was assessed via Kolmogorov-Smirnov and Shapiro-Wilk tests, homogeneity of variance via Levene's test, and bootstrapping (1000 resamples; 95% BCa CI) was implemented to improve result quality and provide confidence intervals for mean differences.

## 4 DATA PRESENTATION AND RESULTS ANALYSIS

The results are presented along with descriptive analysis and an examination of the relationship between sociodemographic characteristics and psychological types with skill development levels, using a Multiple Linear Regression (MLR) model and mean differences between variables analyzed through Factorial ANOVA (FA).

### 4.1 DESCRIPTIVE PRESENTATION OF DATA

Table 1 presents descriptive statistics of the variables used, illustrating the composition of sociodemographic and psychological type data. In the first section, rows display the metric variables, while columns show the mean, median, standard deviation (SD), and minimum and maximum values. In the second section, categorical variables are presented in rows subdivided by factors, and columns indicate numbered categories along with absolute and relative frequencies.

Psychological type scores are presented as aggregated averages. Given the use of a 5-point Likert scale, individual scores range from 5 to 25. SkillDev (Skill Development Level) scores are reported as the aggregated mean of all skill scores.

Regarding the categorized variables in Table 1, the largest proportions of participants were observed for: (i) EaD course modality with 58%; (ii) secondary/technical qualification with 64%; (iii) female gender with 57%; (iv) semesters 5 and above with 53%; and (v) income up to R$ 1,212 with 38%.

Although income was used as a metric variable, it was also included among categorized variables to facilitate the FA (4x3) analysis, allowing comparison of means for Qualification (4 factors) relative to Income (3 factors). For other variables (Gender and Semester), participant groups were relatively balanced.

Table 1 also shows psychological type profiles by course modality. The scores represent the psychological characteristics respondents identified as predominant, i.e., those they prefer or exhibit most frequently. The predominant characteristics in the sample were: Introversion (18.6), Thinking (20.1), and Sensing (19.8). According to Jungian typology, the higher values in the polarity dimensions (Extraversion vs. Introversion) and function dimensions (Thinking vs. Feeling; Sensing vs. Intuition) are considered. Comparing these results with previous studies, there is a certain equivalence with findings by Briggs et al. (2007) and Wetmiller and Barkhi (2021), though partially differing from Swain and Olsen (2012).

Maintaining some balance between personality types can be important because organizations differ in structure and not all areas require highly developed profiles. This also applies to the use of behavioral typology in the workplace. However, it is necessary to assess whether such balance aligns with market demands in Accounting. For decades, companies have reported a lack of adequate qualification, reflecting a gap between educational outcomes and market needs (Briggs et al., 2007; Wetmiller & Barkhi, 2021; Tsiligiris & Bowyer, 2021).

It is crucial to conduct further studies that provide detailed analyses of current educational practices and enhance qualifications to meet technological changes, preparing

students for an increasingly volatile and uncertain market. In this context, more extroverted, rational, and intuitive profiles may have been less prioritized under the conditions experienced so far.

**Table 1**

*Descriptive statistics of metric and categorical variables, considering the sociodemographic and psychological type profiles*

| Metric Variables | EaD | In-person | EaD and In-person | | | | |
|---|---|---|---|---|---|---|---|
| | Mean | | Mean | Median | SD | Min. | Max. |
| Income[a] | R$4.023 | R$1.423 | R$2.919 | R$1.800 | R$3.820 | 0 | R$27.000 |
| Age | 36 | 24 | 31 | 28 | 10 | 18 | 59 |
| Extroversion | 15,8 | 17,3 | 16,4 | 16,0 | 3,6 | 7 | 25 |
| Introversion | 18,7 | 18,6 | 18,6 | 19,0 | 3,7 | 8 | 25 |
| Thinking | 20,2 | 20,0 | 20,1 | 20,0 | 2,7 | 11 | 25 |
| Feeling | 13,5 | 14,0 | 13,7 | 14,0 | 3,7 | 5 | 25 |
| Sensing | 19,8 | 19,7 | 19,8 | 20,0 | 2,9 | 10 | 25 |
| Intuition | 17,8 | 18,3 | 18,0 | 18,0 | 3,2 | 9 | 25 |
| SkillDev[b] | 38,8 | 39,8 | 39,2 | 39,0 | 5,2 | 23 | 50 |

| Categorical Variables | Factors[c] | Categ. | Abs Freq. | Rel Freq. |
|---|---|---|---|---|
| Modality | EaD | 1 | 172 | 58% |
| | In-person | 2 | 127 | 42% |
| Qualification | High school / Technical | 1 | 191 | 64% |
| | Undergraduate | 2 | 65 | 22% |
| | Post-graduate | 3 | 35 | 12% |
| | Master's | 4 | 8 | 3% |
| Gender | Female | 1 | 170 | 57% |
| | Male | 2 | 129 | 43% |
| Period | From 1st to 4th year | 1 | 142 | 47% |
| | 5th year onwards | 2 | 157 | 53% |
| Income | Up to R$ 1.212 | 1 | 113 | 38% |
| | From R$ 1.213 to R$ 2.424 | 2 | 74 | 25% |
| | Above R$ 2.424 | 3 | 112 | 37% |

Legend: Categ. = Coding into numerical categories / Abs. Freq. = Absolute Frequency / Rel. Freq. = Relative Frequency.
Notes: [a] Based on the Brazilian minimum wage in 2022 / [b] Skill development level. / [c] Categorization of factors for analysis using Factorial ANOVA

The results regarding the perception scores of skill development in the classroom environment indicate that, among the ten skills, those with the highest perceived development were: (i) reflection and critical analysis with a score of 1,296 points (87%); (ii) learning for decision-making with 1,242 points (83%); (iii) problem-solving with 1,227 points (82%); and (iv) written communication with 1,206 points (81%). All of these skills reached a perception level of 80% or higher.

Considering the comparison of perception levels between EaD and on-campus modalities, it was observed that the scores of both modalities follow the total scores for the skills with the highest perceived development, except for the teamwork skill in the on-campus modality, which showed the second-highest score. Nevertheless, the findings indicate that creativity and innovation are the skills with the lowest perceived development among EaD participants, followed by teamwork and oral communication. In the on-campus modality, the

lowest perceived development was observed for the use of technology/software, followed by time management and creativity and innovation.

Although preliminary, the evidence suggests a predominance of perceived development in certain skills typically emphasized in classroom settings, both for on-campus and EaD courses. Skills such as creativity, technology use, and oral communication—likely the most demanded by companies operating in uncertain and dynamic environments, such as cutting-edge technology firms—were the least perceived. These results reveal that students in the sample may exhibit deficiencies in skills necessary to ensure employability in more dynamic business models.

## 4.2 ANALYSIS OF SOCIODEMOGRAPHIC AND PSYCHOLOGICAL CHARACTERISTICS AND SKILL DEVELOPMENT LEVEL

Correlation analysis between sociodemographic variables and skill development level (SkillDev) using Spearman's coefficient revealed no statistically significant correlations. However, in the analysis of psychological type variables, most correlations were positive and statistically significant ($p<0.01$), except for Introversion and Feeling. The results indicate positive correlations between Extroversion (0.31), Thinking (0.39), Intuition (0.42), Sensing (0.46) and SkillDev, suggesting that the greater the predominance of these characteristics in students, the higher their potential levels of employability skill development in the classroom. Although this does not imply a causal relationship, it may indicate a bivariate association that could be influenced by other variables, as discussed later.

In the analysis using the MLR model, all regression assumptions were tested and validated, as shown in Table 2. Additional tests were conducted to verify model specification and the absence of omitted variables, using the Linktest and Reset procedures in Stata, following Fávero and Belfiore (2017). Results indicated that for hatsq (the square of the predicted variable), $p=0.314$ / $p>0.05$, confirming correct model specification. For the Reset test ($F(3,289)=0.50$/$p=0.6834$/$p>F$), the results indicated no omitted variables.

Thus, the MLR was conducted to investigate the extent to which sociodemographic profiles (income, age, course modality, qualification level, and gender) and psychological type profiles (Extroversion/Introversion, Thinking/Feeling, Sensing/Intuition) impact SkillDev. The results demonstrated that the overall model is significant, showing statistical significance for some profiles regarding SkillDev, as detailed in Table 2.

Income and Age profiles showed statistical significance at the 10% and 5% levels, respectively, both with low impact on SkillDev. The Income profile had a positive coefficient of 0.00014, indicating that for each one-point increase in income, SkillDev increases by 0.00008. In contrast, Age had a negative coefficient, indicating that for each additional year of student age, SkillDev decreases by 0.06.

**Table 2**

*The relationship between sociodemographic and psychological profiles and Skill Development Level*

| SkillDev | Coef. | Std. Err. | t | P>t |
|---|---|---|---|---|
| Modality | 0,26753 | 0,60307 | 0,44 | 0,658 |
| Qualification | 0,38256 | 0,43870 | 0,87 | 0,384 |
| Income | 0,00014 | 0,00008 | 1,76 | 0,080 |
| Gender | -0,56275 | 0,51332 | -1,10 | 0,274 |
| Age | -0,06263 | 0,02957 | -2,12 | 0,035 |
| Extroversion | 0,34340 | 0,08828 | 3,89 | 0,000 |

| | | | | |
|---|---|---|---|---|
| Introversion | -0,00143 | 0,08721 | -0,02 | 0,987 |
| Thinking | 0,49457 | 0,10393 | 4,76 | 0,000 |
| Feeling | -0,00672 | 0,07151 | -0,09 | 0,925 |
| Sensing | 0,41771 | 0,09856 | 4,24 | 0,000 |
| Intuition | 0,33830 | 0,08976 | 3,77 | 0,000 |
| _cons | 1146005,0 | 3017769,0 | 3,80 | 0,000 |

*Note: $R^2$ = 0.4092 / Adjusted $R^2$ = 0.3865 / F(11, 287) = 18.07 / VIF test below 1.50 with a mean of 1.31 / Durbin-Watson test = 1.954 / Shapiro-Francia p = 0.15598 / p > 0.05 / Jarque-Bera normality test p = 0.103 / p > 0.05 / Breusch-Pagan/Cook-Weisberg (p = 0.9243 / p > 0.05) / N = 299*

The psychological type profiles yielded more satisfactory results, with statistical significance at the 1% level. The Thinking type explains 0.49 of the outcome, indicating that the greater the predominance of this characteristic in a student, the higher the perceived SkillDev, followed by Sensing (0.42), Intuition (0.34), and Extroversion (0.34). Overall, the model explains approximately 40% (Adjusted $R^2$) of SkillDev, suggesting that, collectively, younger students with higher income and a predominant profile of Extroversion, Thinking, and Sensing (or Intuition) tend to exhibit higher levels of skill development and, consequently, may be better prepared for employability.

Other characteristics, such as Gender, Course Modality, Qualification, Introversion, and Feeling, were not statistically significant in explaining the model. Therefore, hypotheses H1, H2, H4, and H6c could not be confirmed.

Although Income showed marginal significance ($p<0.1$) with low magnitude, the result aligns with the findings of D. Rodrigues et al. (2017), B. Rodrigues et al. (2016), and Santos (2012), confirming H3, indicating that, by analogy, income impacts the perception of SkillDev. However, it is important to note that the income considered was individual, not family income, suggesting that this variable represents only part of its significance when analyzed in isolation. It may interact with or be influenced by other factors such as qualification, age, experience, and the students' family, social, and cultural context. Better economic conditions, experience, and supportive family and social environments may enhance academic performance and employability, as argued by Helal et al. (2007) and Bertolin and Marcon (2015).

Regarding Age, the MLR results are consistent with Caiado and Madeira (2002), Paccagnella (2016), and Al Husaini and Shukor (2022), confirming H5. Age presented an inverse relationship with perceived SkillDev. However, the MLR analysis did not allow verification of whether this relationship holds across all age ranges or if other variables might affect it, which will be further detailed in the factorial analysis (FA) in the following subsection. Thus, the results are not entirely consistent with the evidence presented by Rahman et al. (2023).

Concerning the MLR results for psychological types in relation to SkillDev, as shown in Table 2, Extroverted attitude and the functions Thinking, Sensing, and Intuition are positively associated with higher perceived SkillDev, with statistical significance, confirming H6a, H7a, H8a, and H8b. Conversely, Introverted attitude and the Feeling function exhibit negative coefficients but are not statistically significant, meaning that H6b and H7b could not be confirmed.

As the psychological type profile showed a predominance of ITS, there is a greater preference for Introverted attitude and Thinking and Sensing functions. This finding presents a potential challenge for the sample profile, as the Extroversion/Thinking/Sensing and/or Intuition (ETS/N) profile better explains perceived SkillDev. Therefore, a predominantly introverted student sample may face difficulties in developing the set of skills required by the labor market to bridge the gap between education and professional demands.

Consequently, when an institution is aware that its students do not possess the market-preferred profile, it is necessary to adjust policies and plan teaching strategies more accurately to enhance performance, particularly for students who face challenges in developing these skills.

Although this is largely a behavioral issue, since no one "switches" from an introverted to an extroverted temperament overnight, it is possible that through self-awareness, students can recognize the benefits of engaging in activities such as seminars, oral presentations, group projects, and initiatives that cultivate creativity and participation in events, committees, or student councils. Alternatively, they may choose not to participate. The suggestion is to focus on competence development to enable students to acquire the skills required by the labor market.

As discussed in Jung (1991), the introvert's libido converges inward, making self-exposure and interaction with others more difficult, as introverts generally seek seclusion. Through self-awareness and the development of skills expected in accounting, introverted students can be guided toward roles that require less interpersonal interaction and fewer extroverted behaviors, as forcing such roles may lead to dissatisfaction or suboptimal performance.

In summary, the results suggest that the profession continues to attract individuals who do not fully meet current labor market demands, maintaining the traditional accountant stereotype, as noted by Wetmiller and Barkhi (2021). If educational institutions aim to align graduates with market requirements and bridge this gap, it may also be necessary to implement strategies to shift public perception of the profession.

### 4.3 ANALYSIS OF MEAN DIFFERENCES USING FACTORIAL ANOVA

To better understand the results, several tests were conducted to examine the extent to which the perceived levels of skill development differ across sociodemographic and psychological type profiles. Factorial ANOVA (4x2 and 4x3) tests were performed to compare the variable Qualification (4 levels) with the variables Modality, Gender, and Academic Period, each with 2 factors. Subsequently, comparisons were made between Qualification (4 factors) and the variables Income and Age, both with 3 factors. The factor descriptions are presented in Table 1.

Among the tests conducted, only the 4x2 ANOVA models, which examined mean differences and group interactions between Qualification and Teaching Modality, were considered satisfactory. Gender and Academic Period were excluded from the analysis due to lack of statistical significance. The 4x3 models, considering Qualification(4)-Income(3) and Qualification(4)-Age(3), did not yield statistically significant results between groups, although they provided reasonable insights regarding group factor interactions.

The ANOVA results indicated statistically significant effects for Qualification ($F(3,292)=2.854$, $p<0.05$, $\eta^2=0.28$) and Modality ($F(1,292)=6.961$, $p<0.01$, $\eta^2=0.23$), suggesting differences in mean scores between groups. No statistically significant effect was observed for the interaction between Qualification and Modality groups. However, when analyzing the interaction of group factors between Qualification and Modality, significance was identified at the 1% level, as shown in Table 3.

**Table 3**

*Comparisons of means between Qualification levels and Teaching Modality with Bonferroni Post-Hoc, after bootstrapping*

| Dependent variabel: SkillDev | | | Mean difference (I-J) | Bootstrap[a] | |
|---|---|---|---|---|---|
| Modality | Qualif. (I) | Qualif. (J) | | Confidence Interval BCa 95% | |
| | | | | Lower | Upper |
| EaD | Master's | High School / technical | 3,736*** | 1,281 | 6,044 |
| | | Bachelor's | 4,012*** | 1,602 | 6,417 |
| | | PostgraduateLS | 4,625*** | 1,614 | 7,384 |
| In-person | PostgraduateLS[c] | High School / technical | 9,499*** | 8,646[b] | 10,372[b] |
| | | Bachelor's | 7,437*** | 4,538[b] | 9,936[b] |

*Note: BCa – Bias Corrected and Accelerated (Bootstrap estimate); *** p < 0.01 / a. Unless otherwise stated, the bootstrap results are based on 1,000 samples / b. Based on 606 samples / c. Refers to postgraduate lato sensu*

Examining the 4x2 ANOVA of Qualification and Modality (Table 3), it was observed that in the group of participants with a Master's degree, differences were present for those in the EaD modality compared to other qualifications, indicating that higher qualification may have been an important factor for higher perceived SkillDev, in both EaD and in-person modalities. Regarding H2, which could not be confirmed in the MLR, the ANOVA indicates that only students in the in-person modality with Postgraduate qualification (LS) exhibit higher SkillDev than peers in the same modality with high school/technical or undergraduate qualifications, but it does not confirm that the in-person modality has higher SkillDev than the EaD modality.

The 4x3 ANOVA between Qualification and Income factors did not yield statistically significant results, indicating no differences in group means. However, after applying bootstrapping, an analysis of SkillDev scores across groups (Table 4) revealed that:

(i) participants with a Master's degree and income above R$2,424.00 have higher mean scores than all other qualification groups;

(ii) participants with Undergraduate and/or High School/Technical qualifications and income between R$1,213.00 and R$2,424.00 have higher mean scores than those with Postgraduate LS within the same income range; and

(iii) participants with High School/Technical qualifications and income up to R$1,212.00 have higher mean scores than those with Postgraduate LS in the same income bracket.

These findings are intriguing and warrant further investigation. While it is unsurprising that having a Master's degree and higher income corresponds to higher SkillDev, the observation that lower-qualified participants with lower income achieved higher mean scores than those with Postgraduate LS was unexpected. This group may exhibit greater motivation to qualify due to lower income levels; one of the reasons cited by this group for pursuing higher education was precisely financial necessity, indicating that the course is sought by individuals needing employment. This argument is reinforced by the fact that a substantial portion (34%) of this group, with high school/technical qualifications, was not yet employed.

**Table 4**

*Comparisons of Means Between Qualification Levels and Income with Bonferroni Post-Hoc, After Bootstrapping*

| Dependent variabel: SkillDev | | | Mean difference (I-J) | Bootstrap[a] | |
|---|---|---|---|---|---|
| Income | Qualif.(I) | Qualif.(J) | | Confidence Interval 95% | |
| | | | | Lower | Upper |

| | | | | | |
|---|---|---|---|---|---|
| Up to R$ 1.212 | High School / technical | PostgraduateLS | 2,405** | ,169[b] | 4,542[b] |
| From R$ 1.213 to 2.224 | High School / technical | PostgraduateLS | 2,339** | ,707[c] | 3,823[c] |
| | Bachelor's | PostgraduateLS | 3,411** | ,857[c] | 5,685[c] |
| Above R$ 2.224 | Master's | High School / technical | 2,725* | -,075 | 5,642 |
| | | Bachelor's | 3,500** | ,165 | 6,560 |
| | | PostgraduateLS | 4,156*** | ,875 | 7,297 |

Note: BCa – Bias Corrected and Accelerated (Bootstrap estimate); *** p < 0.01; ** p < 0.05; * p < 0.10 / a. Unless otherwise stated, bootstrap results are based on 1,000 samples / b. Based on 868 samples / c. Based on 638 samples.

Finally, the results of the mean difference test between Qualification and Age, using the 4x3 ANOVA, showed a statistically significant effect for Age ($F(2,287)=3.189$, $p<0.05$, $\eta^2=0.22$). As shown in Table 5, these results partially contradict those obtained from the MLR, indicating an inverse relationship between Age and SkillDev. However, when analyzing the interaction between Qualification and Age in the ANOVA, it is observed that higher age combined with higher qualification also corresponds to higher SkillDev. It is important to note that the perception of higher SkillDev among participants with a Master's degree and greater age may also be influenced by professional experience, involvement in extension activities, motivation, and ambition for professional growth, among other factors.

Nevertheless, it was observed that groups with high school/technical and undergraduate qualifications, aged 30 to 39, exhibited higher mean scores than postgraduates in the same age range. This finding can be explained by the fact that most undergraduate students (75%) are enrolled in the EaD modality and, when asked about professional activity in the accounting field and the main reasons for choosing the course, reported that: (i) they do not work in the accounting field (58%); and (ii) they pursue the course due to lack of time, career development opportunities, perceived academic quality, and financial constraints. In contrast, participants with high school/technical qualifications (43% EaD and 57% in-person) indicated, in addition to the reasons mentioned by undergraduates, proximity to the course/polyclinic location as a factor influencing their choice.

Moreover, what differentiates these groups, according to the survey data, is primarily financial motivation, suggesting that undergraduates are seeking qualification to improve employment opportunities. Overall, 58% of undergraduates work in another field, 25% work in accounting, and 17% are unemployed. Among high school/technical qualified participants, 37% work in another field, 30% in accounting, and 34% are unemployed. By contrast, among Postgraduate LS participants, 83% work in another field, 17% work in accounting, and all are employed, indicating that course enrollment is mainly driven by career advancement opportunities, as reported by respondents.

**Table 5**

*Comparisons of Means Between Qualification Levels and Age with Bonferroni Post-Hoc, After Bootstrapping*

| Dependent Variabel: SkillDev | | | Mean dif. (I-J) | Bootstrap[a] | |
|---|---|---|---|---|---|
| | | | | Confidence Interval BCa 95% | |
| Age | Qualif.(I) | Qualif.(J) | | Lower | Upper |
| From 18 to 29 year | High School / technical | Master's | -3,095* | -7,902[c] | ,096[c] |
| From 30 to 39 year | High School / | PostgraduateLS | 5,727*** | 2,240 | 9,155 |

| | | | | | |
|---|---|---|---|---|---|
| | technical | | | | |
| | Bachelor's | PostgraduateLS | 4,832*** | 1,585 | 7,967 |
| | Master's | PostgraduateLS | 3,727** | ,984[d] | 6,100[d] |
| | PostgraduateLS | High School / technical | 3,069** | ,070 | 6,379 |
| Above 40 year | Master's | High School / technical | 6,545*** | 3,782[e] | 10,000[e] |
| | | Bachelor's | 5,291*** | 2,000[e] | 8,575[e] |
| | | PostgraduateLS | 3,476** | 1,082[e] | 6,112[e] |

Note: BCa – Bias Corrected and Accelerated (Bootstrap estimate); *** p < 0.01; ** p < 0.05; * p < 0.10 / a. Unless otherwise stated, bootstrap results are based on 1,000 samples / b. Based on 956 samples / c. Based on 951 samples / d. Based on 632 samples / e. Based on 984 samples / f. Based on 909 samples.

When analyzing only the group of students aged 30 to 39 with high school/technical qualifications, the majority (88%) in the EaD modality, their mean scores are higher than those of students with other qualifications, suggesting that higher age in the EaD modality corresponds to higher SkillDev. Thus, when considering Age in conjunction with Qualification and Teaching Modality, the pattern changes, indicating that age may influence academic development, but at different levels depending on other variables. This aligns with Rahman et al. (2023), who found that students aged 23 and older exhibited better academic performance compared to those aged 19 to 22.

## 5. FINAL CONSIDERATIONS

This study aimed to analyze the psychological and sociodemographic characteristics of undergraduate Accounting students and their relationship with the level of development of essential employability skills. To this end, a Multiple Linear Regression (MLR) econometric model was proposed to examine which profiles (sociodemographic and psychological type) could better impact students' perceived skill development. In addition, mean variance analyses were conducted using Factorial ANOVA (4x3 and 4x2) to assess the extent to which skill development levels differed among various student profiles.

Overall, the findings indicated the impact of students' sociodemographic and psychological type characteristics on their perceived level of skill development. Positive (and negative) associations were observed between some sociodemographic profiles (Age and Income) and certain psychological type profiles (Extraversion, Thinking, Sensing, and Intuition), with psychological type profiles showing a stronger relational influence than the cited sociodemographic profiles. These latter profiles presented reduced coefficients, suggesting that behavioral factors may have a greater influence on the perception of skill development for some of the competencies most demanded by the labor market.

Although it was not possible to confirm hypotheses H1, H2, H4, and H6c through the MLR model. related to gender, teaching modality, qualification, Introversion, and Feeling, ANOVA results regarding the interaction among some groups indicated that certain levels of the factors qualification, modality, income, and age can, to some extent, influence and yield higher mean scores for perceived SkillDev. For instance, the highest scores were not determined solely by modality (EaD or in-person), but by the combination of Modality, Age, and/or Qualification. Therefore, these results suggest that a combination of factors may collectively contribute to better student performance and employability.

Furthermore, the study findings indicate that the psychological type profile aligns with the literature, with a predominance of the Introverted/Thinking/Sensing (ITS) profile among Accounting students. This group tends to direct energy inward, make more reserved decisions,

potentially experience difficulties in interpersonal relationships, and prefer written communication. Being essentially rational, their decisions are made through logical, objective processes, handling tasks requiring structured steps better than interpersonal interactions. They are more sensory-oriented, preferring practical knowledge, and tend to be detail-oriented and pragmatic in their actions.

These traits and functions reflect the conventional accounting professional, who prefers to remain isolated within a department and may be reluctant to interact with other areas. This result suggests that some Accounting programs in Brazil still predominantly attract introverted students who perceive the profession through a traditional lens. Even in more recent longitudinal studies, such as those by Briggs et al. (2007) and Wetmiller & Barkhi (2021), changes are minimal, and the profession continues to appeal more to introverted students, maintaining a traditionalist perspective. However, the labor market demands a new generation of accountants, dynamic professionals capable of timely decision-making, effective oral communication, and strong social interaction (Briggs et al., 2007; Wetmiller & Barkhi, 2021).

Therefore, it may be more effective to restructure teaching strategies to train and qualify students for new work environments rather than relying on campaigns to attract more extroverted and/or intuitive candidates. It remains unclear what truly attracts candidates to the profession, is it faster employment, financial gain, or other factors? Once employed and financially stable, would these individuals remain motivated to continue in the profession?

Additionally, introverted professionals may be attracted to workplaces with similar personalities, creating an attraction based on similarity. People generally feel comfortable in environments with like-minded individuals, for example, someone who enjoys slow, soft music would not feel comfortable in a setting dominated by heavy metal. Likewise, individuals preferring interactive, open, communicative environments might struggle in a closed, low-interaction setting.

To attract students aligned with the evolving demands of the profession, educational institutions must improve communication with potential candidates, clearly presenting the new professional profile required. Beyond curricular and pedagogical changes, institutions must employ highly qualified professionals who work beyond market needs, focusing on holistic student development. Teaching behavioral skills is part of life education, citizenship, empathy, and respect for diversity (Costa & Ferri, 2018).

The study contributes to accounting literature by highlighting the importance of understanding student profiles for institutional teaching planning. While theoretical and practical content may address a wide range of professional areas, teaching methodologies can be diversified to meet diverse student profiles.

In summary, understanding student profiles allows for strategies to improve teaching quality. Considering that dropout and employability are sensitive topics for students, the development of appropriate skills can enhance their professional image and, consequently, the value of the field.

With this knowledge, institutions can incentivize students to develop skills related to Extraversion and Intuition, encouraging active participation in group activities, including presentations, committee work, seminars, research, tutoring, debates, brainstorming, and other active learning methods. Moreover, students should be informed from their first year about market demands and develop self-awareness to understand their personal profile and make informed career choices in accounting.

It should be noted that the results have limitations regarding generalizability, as the study used a small, highly specific sample. Additionally, the development and validation of psychometric data collection instruments remain challenging. Although the instrument was developed following recommended psychometric specifications, further testing with larger,

more diverse samples is necessary to confirm replicability.

Future studies should consider larger student populations across different programs. It would also be valuable to investigate whether psychological types change over time during undergraduate studies, identifying whether students enter with a certain profile and exit with a different one. Similarly, it would be important to explore which sociodemographic and psychological characteristics differentially impact intrapersonal versus interpersonal skill development.

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