UNIVERSIDADE D
COIMBRA

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Academic motivation and career decidedness of STEM and HASS students during higher education

Dissertação no âmbito do Mestrado em Ciências da Educação orientada pelo Professor Doutor Carlos Francisco de Sousa Reis e apresentada à Faculdade de Psicologia e Ciências da Educação da Universidade de Coimbra.

Julho de 2024

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Abstract

Motivation shapes the actions of individuals, serving as a driving force behind behavior and decision-making. In education, motivation significantly impacts academic achievement, persistence, engagement, and emotional well-being. Motivated students are more likely to set high academic goals, persist despite challenges, and engage deeply in classroom activities, leading to better knowledge retention and satisfaction. Additionally, motivation fosters self-regulated learning strategies, essential for lifelong learning and adapting to new challenges.

This Master's thesis investigates the relationship between students' dominant academic motivation type and their level of career decidedness, grounded in Self-Determination Theory (Deci & Ryan, 1985). According to this theory, intrinsic motivation, associated with autonomy, is fundamental to personal self-regulation and effective behavior, showing strong associations with academic motivation and potentially, career clarity.

A sample of 458 students from the University of Coimbra, encompassing diverse faculties (STEM, Arts and Humanities, Social Sciences), study cycles, age groups, and genders, was utilized to explore this relationship. The study employed a quantitative methodology, using validated questionnaires to assess academic motivation (Academic Motivation Scale by Vallerand, 1992) and career decidedness (Career Decision Scale by Osipow, 1976).

The findings reveal that participants exhibited below-average levels of most types of academic motivation, while the general level of career decidedness among students was above average. Gender differences indicated that female students had slightly higher levels of Extrinsic Motivation - Introjected Regulation compared to male students. Students identifying as a gender "other" than male or female reported higher demotivation, although there were no significant differences in demotivation based on gender overall. Age-related differences showed that younger students (aged 18-25) exhibited lower intrinsic motivation and higher extrinsic motivation, while older students demonstrated the opposite dynamics, with no significant differences in demotivation based on age.

Regarding study cycles, Master's and Doctorate level students exhibited higher intrinsic motivation compared to Bachelor's students. Additionally, Bachelor's and Doctorate students exhibited higher levels of demotivation compared to Master's students. In terms of the field of study, intrinsic motivation was higher among students in the Humanities, Arts, and Social Sciences (HASS) compared to those in Science, Technology, Engineering, and Mathematics (STEM). STEM students demonstrated higher levels of extrinsic motivation and demotivation compared to HASS students.

Finally, the research found no significant correlation between academic motivation types and career decidedness, raising questions for further investigation on the applicability of Self-Determination Theory in the field of education. This study's findings hold potential for practical applications aimed at improving academic methodologies in higher education institutions, thereby fostering positive career outcomes for students.

Keywords: Academic Motivation, Career Decidedness, Self-Determination Theory, Higher Education, Quantitative Study, University of Coimbra

Resumo

A motivação molda as ações dos indivíduos, servindo como uma força motriz por trás do comportamento e da tomada de decisões. Na educação, a motivação impacta significativamente o desempenho académico, a persistência, o envolvimento e o bem-estar emocional. Alunos motivados são mais propensos a estabelecer metas académicas elevadas, persistir apesar dos desafios e envolver-se profundamente nas atividades em sala de aula, levando a uma melhor retenção do conhecimento e satisfação. Além disso, a motivação promove estratégias de aprendizagem autorregulada, essenciais para a aprendizagem ao longo da vida e adaptação a novos desafios.

Esta tese de Mestrado investiga a relação entre o tipo dominante de motivação académica dos alunos e o seu nível de decisão de carreira, fundamentada na Teoria da Autodeterminação (Deci & Ryan, 1985). De acordo com esta teoria, a motivação intrínseca, associada à autonomia, é fundamental para a autorregulação pessoal e comportamento eficaz, mostrando fortes associações com a motivação académica e, potencialmente, com a clareza de carreira. Uma amostra de 458 alunos da Universidade de Coimbra, abrangendo diversas faculdades (STEM, Artes e Humanidades, Ciências Sociais), ciclos de estudo, faixas etárias e géneros, foi utilizada para explorar esta relação. O estudo empregou uma metodologia quantitativa, utilizando questionários validados para avaliar a motivação académica (Escala de Motivação Académica de Vallerand, 1992) e a decisão de carreira (Escala de Decisão de Carreira de Osipow, 1976).

Os resultados revelam que os participantes exibiram níveis abaixo da média na maioria dos tipos de motivação académica, enquanto o nível geral de decisão de carreira entre os alunos foi acima da média. Diferenças de género indicaram que as alunas apresentaram níveis ligeiramente mais altos de Motivação Extrínseca - Regulação Introjetada em comparação com os alunos. Alunos que se identificam com um género "diferente" de masculino ou feminino relataram maior desmotivação, embora não tenham sido encontradas diferenças significativas na desmotivação com base no género em geral. Diferenças relacionadas à idade mostraram que os alunos mais jovens (com idades entre 18-25 anos) exibiram menor motivação intrínseca e maior motivação extrínseca, enquanto os alunos mais velhos demonstraram a dinâmica oposta, sem diferenças significativas na desmotivação com base na idade. Em relação aos ciclos de estudo, os alunos de Mestrado e Doutoramento exibiram maior motivação intrínseca em comparação com os alunos de Licenciatura. Além disso, os alunos de Licenciatura e Doutoramento exibiram níveis mais altos de desmotivação em comparação com os alunos de Mestrado. Em termos de área de estudo, a motivação intrínseca foi maior entre os alunos de Humanidades, Artes e Ciências Sociais (HASS) em comparação com aqueles de Ciência, Tecnologia, Engenharia e Matemática (STEM). Os alunos de STEM demonstraram níveis mais altos de motivação extrínseca e desmotivação em comparação com os alunos de HASS.

Finalmente, a pesquisa não encontrou correlação significativa entre os tipos de motivação académica e a decisão de carreira, levantando questões para investigação futura sobre a aplicabilidade da Teoria da Autodeterminação no campo da educação. As descobertas deste estudo têm potencial para aplicações práticas voltadas para a melhoria das metodologias académicas em instituições de ensino superior, promovendo assim resultados de carreira positivos para os alunos.

Palavras-chave: Motivação Académica, Decisão de Carreira, Teoria da Autodeterminação, Ensino Superior, Estudo Quantitativo, Universidade de Coimbra

Contents

Introduction

The current research is conducted within the framework of a Master's thesis investigation at the Faculty of Psychology and Educational Sciences, University of Coimbra, during the academic year 2023/2024. Supervised by Professor Doctor Carlos de Sousa Reis, this work will be presented to the jury at the same faculty.

The career aspirations of higher education students have become a significant issue in recent decades due to the rapidly changing labor market and evolving approaches to careers and working life. To analyze this important progression from higher education into the job market, the present research utilizes the theoretical basis of Self-Determination Theory to investigate higher education students' academic motivation and its correlation with their career decidedness. The main objectives of the research are to explore the current levels of students' academic motivation and career decidedness, examine how these variables change depending on students' age, gender, year, and field of study, and identify any potential correlations between the predominant type of academic motivation and the participants' level of career decidedness.

To achieve these objectives, an exploratory quantitative methodology was applied, using an online questionnaire survey to collect data on a set of dependent and independent variables: gender, age, field of study, year and cycle of study, as well as participants' levels of academic motivation (intrinsic, extrinsic in four regulations, and demotivation) and career decidedness. The sample consists of 458 current students from various courses at the University of Coimbra, chosen by convenience. The collected data was analyzed using *IBM SPSS Statistics* (versions 27 and 29 for *Windows*).

This thesis is divided into five main chapters, in addition to the introduction and conclusion. The first chapter focuses on the literature review, forming the foundational basis of the study. It includes a brief overview of career-related terminology, the phases individuals go through from choosing a degree to further education, and eventually committing to a certain career. This chapter also explores the factors influencing this specific path and the modern challenges faced by higher education in terms of employability. Additionally, it sets a theoretical foundation for the research by describing the basics of self-determination and how it influences academic motivation and career decidedness.The second chapter states the research objectives and the eleven hypotheses developed based on the literature and established theories.The third chapter addresses the research methodology, including a description of the subjects and sampling methods. It explains the methodological choices and data collection instruments, as well as justifies the research design and planning.The fourth chapter presents, analyzes, and discusses the research results through descriptive and inferential statistical analysis.The fifth chapter provides a critical analysis of the results, discusses the limitations of the study, and suggests areas for potential future research.

Chapter 1: Theoretical framework

1.1. From choosing a degree to committing to a career

The initial phase of this literature review involved a comprehensive and rigorous search of contemporary scientific research articles. This search was executed through prominent online platforms, namely Google Scholar, B-on.pt, and Elicit.org. A predefined set of keywords was systematically employed, encompassing terms such as motivation, higher education, career choice, professional orientation, career aspirations, and students.

The inclusion criteria for articles considered materials published after 2017 and exclusively in the English language. Subsequently, each article's abstract was thoroughly examined. Articles that did not align with the central theme of this investigation were excluded from further consideration. As a result, a total of 22 research articles were identified, representing a diverse array of studies conducted in various countries (Australia, Bangladesh, Finland, Germany, Hungary, Nigeria, Pakistan, Poland, Romania, Serbia, Slovakia, Spain, Türkiye, Ukraine, United Kingdom).

The *corpus* of Specialized Literature was systematically organized and articles were labeled according to their significance, categorized as "Essential Reading," "Literature Review," "Research Findings," "Methodology," and "Conceptual Contributions". During the reading process, the content of each article was transcribed into a visual representation in the form of a mind map, which facilitated the subsequent synthesis of information on the research topic. Moreover, it became also evident the need to take into consideration alternative theoretical and methodological references.

1.2. Higher education and employability

The majority of the addressed sources delve into the broader perspective of today's higher education landscape and its implications on students' employability. Employability is understood as “the possibility to access a suitable job or to remain employed, resulting from the dynamic and evolving interactions between governmental and educational policies, organizational strategies, individual characteristics, and the social, economic, cultural, and technological context” (Monteiro et al., 2023). A primary objective of contemporary higher education is to enable a seamless transition into the labor market, aligning employability with one's chosen field of study (Fényes et al., 2021; Monteiro et al., 2023). Such pursuit is driven by the persistent pressure on the educational system, promoted by the rapid pace of technological advancements and the enduring volatility of the labor market (Harari, 2019).

The predominant challenges of the modern transition to the labor market include a high level of unemployment, intense competition among graduates, an increase in temporary job contracts (Jagielska, 2023; Tuononen et al., 2019), a rise in part-time employment (Jackson & Wilton, 2017), and a shortage of job opportunities directly related to one's field of study (James et al., 2021). So, it appears with no surprise the urgency to enhance students' employability, underscored by the Bologna system (Fényes et al., 2021), particularly in situations where students must secure financial loans to pursue higher education (Fernández et al., 2023). Additionally, the formidable challenge of employment in the era of the fourth industrial revolution further compounds these difficulties (Harari, 2019). This era, characterized by computerization, the proliferation of artificial intelligence, a transformative approach to labor, and rapidly introduced changes is reshaping entire production and management systems (Jagielska, 2023). Consequently, the labor market's

demands are shifting towards highly qualified professionals and lower-skilled service workers, while middle-skilled roles are gradually being automated (Harari, 2019; Steiner et al., 2019). Moreover, the once-prevalent landscape of stable, long-term employment positions is steadily giving way to a prevalence of temporary roles and short-term project contracts (Jagielska, 2023; Tuononen et al., 2019).

In response to these pressing demands, higher education institutions are striving to adapt by promoting the development of adaptable skills and competencies, often encapsulated as the "big Cs": critical thinking, creativity, communication, and collaboration (Harari, 2019; Monteiro et al., 2023). Such skills are also refered to as supra-professional, and include emotional intelligence, stress control, empathy and personal development (Yeung, 2019). Furthermore, there is a growing emphasis on the endorsement of more generalized fields of study, such as Social and Humanitarian Sciences and the Bachelor of Arts (Jagielska, 2023; James et al., 2021). These expansive programs aim to provide students with a broader spectrum of employability options (Bobocea, 2023). However, recent research findings indicate that students within these vast fields often grapple with confusion and indecision when it comes to shaping their future career paths (Jagielska, 2023), facing difficulties in transitioning to working life and expressing lower satisfaction with their jobs (Fényes et al., 2021; Tuononen et al., 2019).

While some authors have characterized higher education institutions as "factories that manufacture skilled human resources" (Siddiky & Akter, 2021), and anticipate their role in reinforcing national economic and social prosperity through the provision of both short and long-term employment opportunities (Jackson & Wilton, 2017), it becomes imperative to question whether the exclusive aim of higher education should revolve solely around employability. Some scholars advocate for a paradigm shift, challenging the prevailing notion that education serves merely as an instrument for economic productivity and employability (Monteiro et al., 2023). Instead, they encourage a reevaluation of the very purpose of education, recommending a more holistic and democratic approach (Biesta, 2006; Harari, 2019; Lima, 2007). Biesta (2006) argues that the emergence of the learning economy has transformed learning from a right into an individual's duty and responsibility. This shift may adversely affect learners' motivation, especially in the context of "learning for earning" demanded by the modern economy. In a time of prevailing uncertainty and constant change, it is hardly possible to predict the needs of the labor markets within the next 15-20 years (Harari, 2019), so education providing solely predetermined hard and even soft skills suitable for immediate employment might not meet the demands of the future. According to Harari (2019), the highest demand will be on flexibility and the ability to “constantly reinvent oneself” and adapt to the changing social, economic, and cultural realities. Lima (2007) sees education as a balancing process between functionality and practicality on one side, and creativity and pure desire to learn on the other. The author warns that the dominance of the pragmatic and individualistic aspects of education, driven by the demands of the economy and society, may lead to the loss of capacity to reinvention and learn anew (Lima, 2007).

1.3. Career and career-related terminology

Discussing students' employability, we refer to the term of "career". Career, as defined by Fényes et al. (2021), encompasses "advancement within a workplace and, more broadly, movement between jobs". Career is also seen as an individually consious position and behavior assosiated with work experience and activity throughout a person’s working life (Yeung, 2019). To delve into the intricate subject of careers, it is crucial to grasp the various terms found in the literature, including career preparedness, career maturity,

career readiness, and career consciousness. These terms collectively reflect the complexity of the career landscape.

Career preparedness, according to Steiner et al. (2019), refers to an individual's readiness and capacity to enter the workforce or pursue a successful career path. This multidimensional construct encompasses attitudes, knowledge, competencies, and behaviors (Siddiky & Akter, 2021; Steiner et al., 2019), as well as the skills, education, and experiences required for excellence in a chosen career path.

Career maturity, as discussed by Monteiro et al. (2023) and Steiner et al. (2019), refers to an individual's psychological and emotional readiness to make informed career decisions and commitments. It involves a clear understanding of one's interests, values, and goals, aligning them with potential career choices (Fényes et al., 2021). Career maturity includes realistic planning, goal setting, and the ability to make informed choices and face career challenges (Steiner et al., 2019).

Career consciousness relates to the mindfulness and awareness individuals have about their careers and the choices they make professionally (Fényes et al., 2021). It entails a deep understanding of one's career values, interests, goals, and their impact on career decisions. Being career-conscious means actively reflecting on career choices and aligning them with personal values and aspirations.

Career readiness extends beyond academic or technical qualifications. It encompasses cognitive, interpersonal, and practical skills enabling success in the workplace. Career readiness, synonymous with maturity in terms of age-appropriate career decisions (Steiner et al., 2019), emphasizes a smooth transition from education to employment. It involves planning, exploration, and decision-making in one's chosen career field accompanied by self-awareness processes and effective self-talk (Siddiky & Akter, 2021; Steiner et al., 2019).

These career statuses are interconnected and collectively influence various psychological states, activities, and outcomes within individuals. Namely, including career decidedness or indecision, career choice, career behavior (whether proactive or passive), career management, career planning, career satisfaction, and career success.

Career decidedness and indecision lie at the core, representing the level of certainty or unclarity when making professional choices. Career decision-making is notably shaped by academic motivation and the duration of one's study. Recent research indicates that students in their third and fourth years of higher education exhibit greater levels of career decision-making (Koyuncuoglu, 2020). Moreover, career decidedness tends to be higher among students who have achieved high academic performance and those who are pursuing graduate education (Koyuncuoglu, 2020). Low career decidedness has been linked to higher education dropouts (Bargmann et al., 2022) and leads to a long-term feeling of incompetence (Koyuncuoglu, 2020).

Additionally, individuals can display either proactive or passive career behavior. Proactive behavior involves actively pursuing opportunities, setting clear goals, and taking decisive actions to advance one's career. Proactive career behavior manifests in activities such as career planning, seeking consultations, honing skills, and cultivating professional networks (Clements & Kamau, 2018; Jackson & Tomlinson, 2019). In contrast, passive behavior tends to be more reactive, characterized by limited engagement in career development activities and external locus of control (Kovach, 2018).

Career management and planning are interconnected aspects of an individual's professional journey. Career management includes overseeing one's career, making strategic choices, adapting to the work environment, analyzing the labor market, and building networks (Jackson & Wilton, 2017). Career planning involves setting short-term and long-term goals, considering skills and aspirations, and creating a roadmap to achieve those objectives (Ebeh et al., 2023). Construction of a career plan is influenced by individual's social status, intelligance, gender, values and interests, which also form individual's self-esteem (Dias, 2013). Career choice follows, representing the actual decisions individuals make regarding their career paths. This includes the selection of specific occupations, industries, or roles that align with personal aspirations, skills, and values and will be discussed in more detail in the following chapter. The quality of career choices and their alignment with personal values significantly impacts career satisfaction, which, in turn, influences overall well-being (Koyuncuoglu, 2020). Ultimately, these factors contribute to career success, encompassing professional achievements, financial rewards, and personal fulfillment (Fernández et al., 2023). Career success can be objective, describing employment and salary, or subjective, reflecting individual job satisfaction (Tuononen et al., 2019).

In essence, career statuses extend beyond decision-making, influencing psychological states, actions, and outcomes shaping an individual's professional journey. Navigating one's career path requires early decisions, adaptability, and ongoing adjustments, especially in our ever-changing socio-economic circumstances (Ebeh et al., 2023). Furthermore, individuals are increasingly expected to self-manage their careers, moving away from traditional, externally guided paths toward greater self-direction (Jackson & Tomlinson, 2019). This shift underscores the importance of actively shaping careers while considering individual interests and societal expectations (Bodrova et al., 2023).

In today's evolving career landscape, an authentic career path often balances personal aspirations and material success (James et al., 2021). Individuals seek meaningful work aligned with their interests, values, and strengths (Quinlan & Renninger, 2022). This highlights the significance of finding a career that not only offers financial rewards but also engages intrinsic motivations and aligns with broader life goals. Career is also viewed as a form of self-realization, requiring individuals to self-authenticate by embracing their authentic selves, discovering real passions, and staying true to their aspirations (Jagielska, 2023).

1.4. Career choice during higher education

Selecting a career is a crucial milestone in an individual's life, carrying profound implications for one's lifestyle, self-satisfaction, work-life balance, and overall quality of life (Ebeh et al., 2023). The journey of career choice begins with the decision-making process during one's educational journey, as the choice of a study program inherently equates to the selection of a future career path (Kazi & Akhlaq, 2017; Sharif et al., 2019). Opting for the right career path can have a multitude of positive effects on an individual's well-being, academic and professional performance, and the likelihood of pursuing a consistent career trajectory (Jackson & Wilton, 2017). Conversely, an ill-fated career choice can lead to a sense of failure, disappointment, diminished self-esteem, and decreased performance in both professional and academic spheres (Kazi & Akhlaq, 2017).

The career decision-making process is a dynamic journey that unfolds across various stages of education. It begins with the selection of a field of major following secondary education and continues through the course

of higher education study. During this educational journey, individuals may experience a range of outcomes. Some may find their initial interest and motivation deepening, while others may contemplate changing their major or even face the possibility of dropping out (Quinlan & Corbin, 2023). Ultimately, this journey culminates in the transition to the workforce after graduation.

Students at the stage of entering higher education institutions exhibit three distinct types of motivation: internal, external, and derivative (Fényes et al., 2021). Internal motivation stems from a genuine belief in the value of knowledge, a passion for learning, the anticipation of forming new social connections, and the desire for personal and professional growth, including career advancement and skill development. Certain fields, such as teaching and social work, encompass intrinsic motivation driven by altruistic factors. These factors involve a genuine desire to assist others and make a positive impact on the community (Bobocea, 2023). External factors, such as economic considerations and pressures from family and friends, drive external motivation. It often emphasizes financial stability and security as key incentives for pursuing higher education. Derivative motivation arises from the desire to avoid boredom and delay entry into the job market by continuing education beyond the primary level. This motivation reflects a preference for the opportunities provided by higher education over immediate employment prospects (Fényes et al., 2021). It is worth noting that students' initial motivations upon entry may not necessarily align with their subsequent career-oriented performance during their academic journey (Fényes et al., 2021).

Career-oriented performance during the educational process can be assessed through various indicators. These include successful progression through each level of education, the demonstration of resilience, achievement of high examination results, strong commitment to studies, and the acquisition of skills between enrollment and graduation. Additionally, career-oriented performance encompasses activities such as building a comprehensive CV, obtaining language certifications, participating in study trips abroad, engaging in academic competitions, and presenting research at conferences (Monteiro et al., 2023). Engaging in paid or voluntary work during their studies is also viewed as an investment in human capital, aligning with Human Capital Theory[1] as referenced by Fényes et al. (2021). Such involvement allows students to accumulate knowledge capital and social capital, which can subsequently translate into financial benefits in their future employment. Notably, voluntary work has been shown to reduce dropout rates and enhance overall academic performance (Fényes et al., 2021). Finally, work experience tends to increase career focus and improve professional networking abilities among students (Steiner et al., 2019).

Career interventions are among the important career resources for students during higher education studies (Jackson & Wilton, 2017). Different types of professional mentoring and career consulting help improve self-concept knowledge, explore available career options, deal with setbacks and obstacles, and commit to a career development implementation plan (Steiner et al., 2019). Career interventions and mentoring have also been shown to influence the development of self-esteem, self-efficacy, and vocational identity, as well as increase future job satisfaction and commitment to the workplace (Ebeh et al., 2023). Protean career

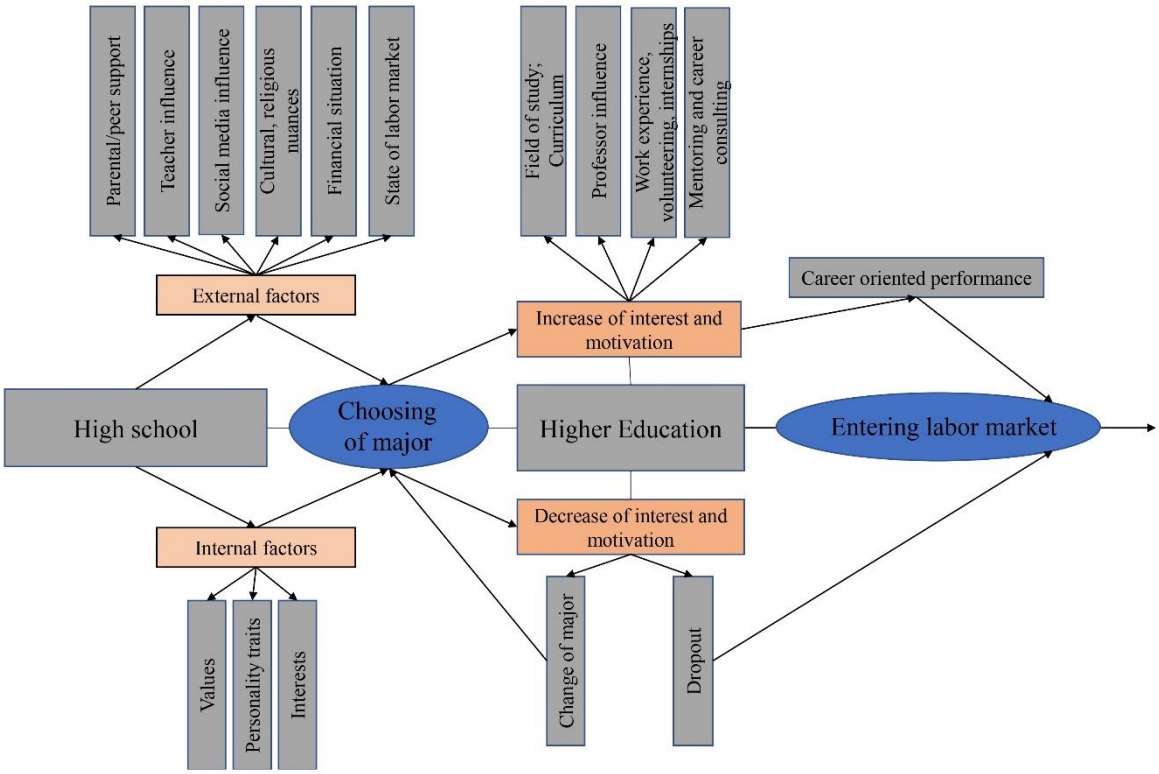
1 Human Capital Theory by Gary S. Becker (1964) posits that individuals can improve their economic outcomes by investing in education and skills. In education, this theory is applied by recognizing that students who acquire knowledge and skills become more productive and can expect higher earnings in the future. This underpins the value of education as an investment in one's human capital, leading to better employment prospects and financial well-being (Gillies, 2015).

orientations are self-directed and focused on intrinsic motivation and pursue of psychological happiness are proved to be positively related to career adaptability and career decision self-efficacy (Li et al., 2019).

The final phase involves transitioning from higher education to the labor market and securing employment after graduation while achieving workplace satisfaction and possessing work attitudes highly regarded by employers (Fényes et al., 2021). The success of this transition depends significantly on students' ability to apply their education and academic competencies in real-world work contexts (Tuononen et al., 2019). Generally, graduation has been shown to boost students' career development (Monteiro et al., 2023), which contrasts with the current emphasis on early career planning and decision-making during higher education (Jackson & Wilton, 2017). The illustration of career motivation progression during both high school and higher education is depicted in Figure 1.

Figure 1

Schemed Depiction of Career Motivation Development During High School and Higher Education



1.5. Factors influencing career choice

The decision-making process in career choice is influenced by a complex interplay of social, cultural, and economic factors (Siddiky & Akter, 2021). These include personal and cultural values, familial background, mentoring, expectations, career guidance, and parental support (Ebeh et al., 2023; Jagielska, 2023; Kazi & Akhlaq, 2017; Sharif et al., 2019; Steiner et al., 2019). Broadly, the determinants of career choice can be classified into two main categories: internal and external factors. Internal factors encompass the deeply personal and intrinsic elements that drive an individual's career decisions. These include individual

motivations, interests, and personality traits, such as self-determination, self-efficacy, and self-knowledge. On the other hand, external factors are shaped by the surrounding environment and include factors such as the prevailing state of the labor market, the geographical location or country of residence, cultural and religious nuances, financial situation, as well as the level of support and guidance from family, teachers, and peers (Sharif et al., 2019).

Career motivation is a crucial internal factor that significantly influences one's path. In this regard, there are several types of motivation to consider. Intrinsic motivation, for instance, is characterized by individual interests, preferences, and intrinsic desires. It is driven by personal goals and does not seek external rewards, representing a powerful determinant of career success and satisfaction (Jagielska, 2023). On the other hand, extrinsic motivation is not internally modified but rather influenced by external factors, often driven by the pursuit of rewards like high grades, wealth, popularity, or prestige (Jagielska, 2023). Additionally, achievement motivation reflects one's desire to overcome challenges and achieve specific goals, emphasizing task-oriented achievement and the pride that comes with goal attainment (Jagielska, 2023). Motivation also plays a pivotal role in determining one's commitment to work and its overall significance in life. This is influenced by factors such as career maturity, knowledge, goals, interests, and values (Kovach, 2018; Steiner et al., 2019).

Motivation is a driving force rooted in personal values, which not only guides career choices but also shapes an individual's goals, attitudes, beliefs, and approach to career management by creating an individual's own definition of career success (Jackson & Tomlinson, 2019). These values can also be categorized into intrinsic and extrinsic categories. Intrinsic values are associated with a deeper commitment to one's work, promoting proactive behavior and leading to favorable career outcomes and a strong person-job fit. In contrast, extrinsic values may result in higher employment rates, but weaker person-job fit, increased anxiety, and reduced job satisfaction (Jackson & Tomlinson, 2019).

Self-knowledge plays a vital role in the career development process. It involves a process of self-exploration aimed at gaining deep insights into one's vocational interests, strengths, values, and abilities (Steiner et al., 2019). Additionally, as per the Social Identity Approach, individuals tend to categorize themselves into social groups, and these group identities significantly shape their behavior and a desire to enhance their social status through their chosen career paths (Fernández et al., 2023). Moreover, personal authenticity is considered a foundational factor for achieving success and future happiness, as individuals seek career paths that align with their sense of self-realization (James et al., 2021). This journey of self-discovery is a dynamic process marked by ongoing self-identification and reflection, ultimately leading to the development of professional self-determination (Bodrova et al., 2023).

Professional self-determination entails recognizing oneself as an individual capable of pursuing socially significant professional activities and self-improvement in that domain (Bodrova et al., 2023). This sense of self-determination greatly influences the perceived significance of one's chosen profession, the development of professional self-esteem, the acquisition of professional abilities and skills, and the ability to seize professional opportunities. Self-determination also leads to better academic and work performance and contributes to the general sense of well-being (Bodrova et al., 2023). Further details about self-determination and its impact on career and academic achievements will be elaborated upon in the following chapter.

Interest in one's field of study has emerged as a crucial factor influencing career decisiveness and decision-making processes (Quinlan & Renninger, 2022). Academic interest not only supports the development of career interest (Quinlan & Corbin, 2023), but also triggers a cascade of motivational variables, including goals, self-efficacy, and self-regulation. This heightened interest not only enhances academic performance but also fuels the desire to extend that passion from academia into one's future career. This proactive exploration ultimately contributes to greater career decisiveness. According to the Four-Phase Model of interest development by Hidi & Renninger (2006), interest is not a static personality trait, it's a dynamic quality that can evolve over time through interactions with people and the environment. This suggests that the curriculum and educators play a pivotal role in shaping students' career perspectives and decisiveness by nurturing their interest in specific subjects (Quinlan & Corbin, 2023; Quinlan & Renninger, 2022). Furthermore, interest not only predicts an individual's career choice but also foretells future career performance and success (Su, 2020).

External factors play an important role in shaping career choices, and within this context, family members have distinct roles. Mothers often influence career choices by supporting preferred fields of activity and interests (Kazi & Akhlaq, 2017), while fathers tend to impact decision-related development, focusing on abilities, competencies, and skills (Sharif et al., 2019). Parental support, in general, plays a multifaceted role, encompassing both psychosocial and career-related aspects (Steiner et al., 2019). Families also commonly emphasize the importance of a stable salary and consistent employment, offering financial, moral, and emotional support (Ebeh et al., 2023).

Tutors hold significant influence over students' career decisiveness, particularly in STEM careers (Sharif et al., 2019), and contribute to the development of their academic interests (Quinlan & Corbin, 2023). Peer influence also plays a crucial role in career decisions, as some students may choose a major simply to stay with friends (Kazi & Akhlaq, 2017). Additionally, social media's impact on career decisions cannot be overlooked. It can improve and democratize access to career-related information, provide inspiring role models, and offer social support from online peers. However, it also has its downsides, potentially promoting the pursuit of quick wealth, leading to dissatisfaction with traditional career paths, and even encouraging risky behaviors (Ebeh et al., 2023). These external factors can serve as both positive influences and barriers to career development. For instance, family-related challenges, lack of support, job conditions that don't align with one's preferences, and cultural beliefs can all pose significant barriers to career development (Siddiky & Akter, 2021).

It is important to stress that the articulation of these internal and external factors together form a unique individual career journey. According to highly referenced in the literature Social Cognitive Career Theory (Lent et al., 1994) career decision is determined by both individual and environmental factors. Social Cognitive Career Theory (SCCT) explains career development as a dynamic process shaped by self-efficacy beliefs, outcome expectations, goals, interests, environmental factors, and learning experiences. Self-efficacy, a key component, influences career choices; those with higher self-efficacy in a career area are more likely to pursue it. Outcome expectations, or beliefs about the consequences of career actions, motivate individuals, particularly positive expectations like job satisfaction. Goals guide career choices and can be short-term or long-term. SCCT integrates vocational interests, stating that interests, self-efficacy, and outcome expectations interact to influence career choices. It acknowledges external factors' influence, such as family and peers, and underscores the role of learning experiences in shaping self-efficacy and expectation (Lent et al., 1994).

1.6. Self-determination, academic motivation and career decidedness

After conducting a comprehensive analysis of the current landscape of career motivation, the research has focused on more specific aspects. Career decidedness was identified as a primary indicator of career motivation, with self-determination emerging as critical variable within this context. The type of self-determination and self-regulation is also known to positively influence various aspects in educational framework, including academic performance and motivation (Köseoğlu, 2013; Koludrović & Ercegovac, 2015; Koyuncuoglu, 2020) . To enhance the understanding of the interplay of these factors, an additional literature search was performed using the following keywords: self-determination, academic motivation, career decidedness, and university students.

The level of career decidedness encompasses an individual's ability to make informed decisions about their chosen vocation (Guay et al., 2003), as well as their level of confidence and certainty regarding their intended career path (Li et al., 2019), which root in individual level of self-determination and self-regulation. Research has shown that career decidedness is positively influenced by rational decision-making, self-efficacy beliefs, and ego identity, while it is negatively impacted by factors like perfectionism, anxiety, and a fear of commitment (Guay et al., 2003). Furthermore, a high level of career decidedness is associated with improved overall well-being, an increased tendency to seize career opportunities within one's chosen domain, and higher levels of job and life satisfaction (Li et al., 2019).

Numerous studies have established a strong connection between career decidedness and an individual's self-determination (Deci et al., 1991; Guay et al., 2003; Paixão & Gamboa, 2017). According to Deci and Ryan's Self-Determination Theory (SDT) from 1985, which focuses on the social-contextual conditions that facilitate natural self-motivation and healthy psychological functioning, three fundamental human needs drive behavior and contribute to well-being. These universal needs include autonomy (the desire for choice in behavior initiation, maintenance, and regulation), competence (the pursuit of effectiveness in interactions with the environment), and relatedness (the establishment of meaningful social connections and a sense of belonging).

In this research, particular emphasis will be placed on autonomy, which is operationalized through motivational processes and self-regulation styles (Guay et al., 2003). Autonomy refers to an individual's level of self-determination and behavioral regulation (Deci et al., 1991), which, in turn, influences their career decidedness (Paixão & Gamboa, 2017). A high level of autonomy has been characterized by traits such as persistence, creativity, and elevated psychological functioning, while a low level of autonomy was associated with tendencies like depression, dropping-out behavior, and procrastination in job-seeking (Guay et al., 2003).

According to SDT (1985), an individual's level of autonomy is determined by the type of motivation they experience. Intrinsic motivation provides the highest degree of autonomy, while extrinsic motivation's impact on autonomy varies depending on the type of regulation. External regulation, where the initiation of actions lies outside of the individual, provides the least autonomy, often tied to performing activities for external rewards or due to fear of punishment. Introjected regulation involves internalizing the importance of an activity but still with external sources of control, falling closer to external control than self-determination. Identified regulation occurs when individuals engage in activities by choice, aligning with their values, indicating a more autonomous form of regulation. Integrated regulation reflects actions that are fully integrated into an individual's sense of self, harmonized with their values, needs, and identities, and it yields

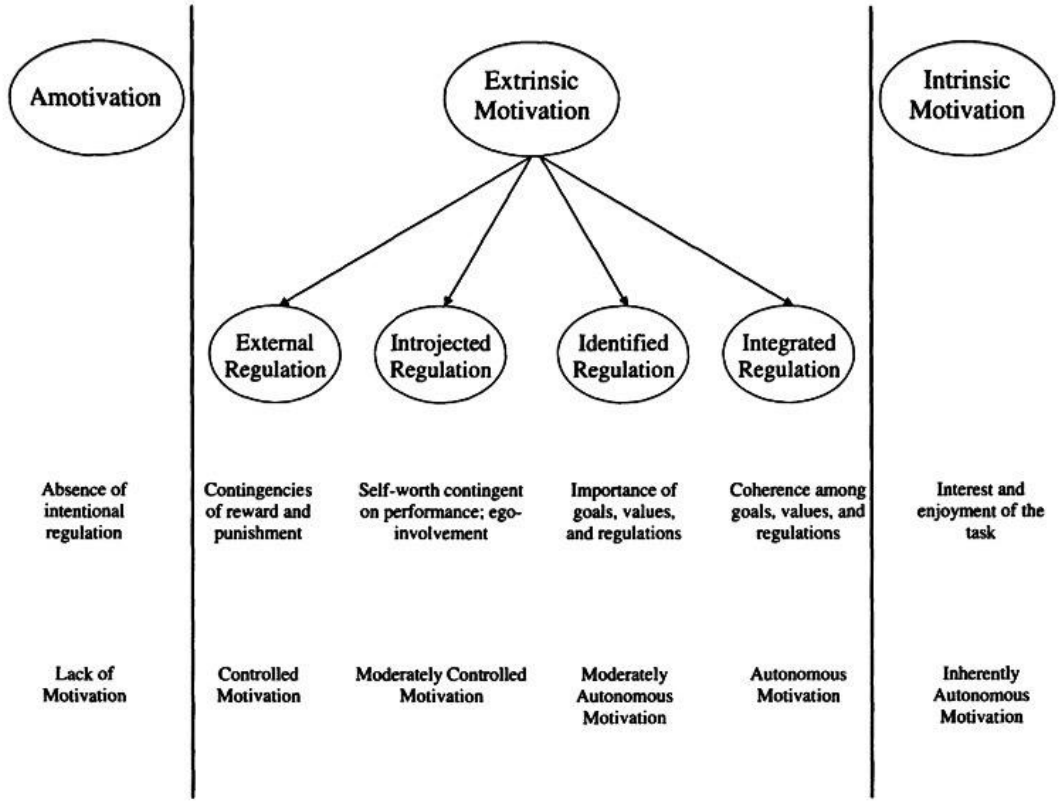
a high level of autonomy, although not quite equal to intrinsic motivation, as it is valued not solely for pure interest but also as a desired outcome (Deci et al., 1991). A visual representation of the motivation and autonomous regulation continuum is provided in Figure 2.

In line with the Self-Determination Theory, a study conducted by Paixão and Gamboa in 2017 focused on high school students and proposed that students tend to develop unique motivational profiles, predominantly driven by their level of autonomy. These profiles were characterized as follows: self-determined students exhibited the most favorable career behavior, marked by a high level of career exploration and a low level of indecision. Non-self-determined students displayed the lowest level of career exploration and a high level of indecision. Externally regulated students demonstrated both high motivation and exploration but also had a high level of career indecision, potentially due to external regulation. The research findings suggested that students who were intrinsically regulated, meaning they were internally motivated, tended to be less indecisive and displayed a greater sense of autonomy when making career decisions (Paixão & Gamboa, 2017).

Building on these insights, the current study aims to investigate whether similar patterns emerge among higher education students.

Figure 2

The Self-Determination Continuum (Gangé & Deci, 2005, p. 336)



Another essential variable for examination within higher education framework is academic motivation. Academic motivation encompasses an individual's desire regarding academic subjects, reflected in approach, persistance, and level of interest. It is composed of factors such as self-efficacy, determination, and resilience (Koyuncuoglu, 2020). Academic motivation yields a range of significant outcomes, including enhanced

academic achievement, increased academic engagement, improved stress-coping abilities, better study skills, the utilization of self-regulated learning strategies, and increased persistence in academic pursuits (Koyuncuoglu, 2020).

Education was among the early fields of application of the Self-Determination Theory (Deci et al., 1991). According to Deci and Ryan (1985), individuals have a natural drive for learning, and the extent to which this desire is realized depends on the fulfilment of already mentioned psychological needs: competence, autonomy, and relatedness. Further scholarly research has established connections between academic motivation and the principles of the SDT, demonstrating that an individual's level of academic motivation is influenced by their broader motivational orientation (Koludrović & Ercegovac, 2015; Köseoğlu, 2013), so highlighting the positive impact of the level of autonomy on students' basic psychological needs, and in turn - academic outcomes (Koenka, 2020). SDT refers to the quality of motivation ahead of its quantity, meaning the type and kind of motivation that underlines learning behavior, which is foreseen as being distributed along a continuum ranging from amotivation, passing through extrinsic motivation (expressed in four regulation types) and ending up in intrinsic motivation (Vansteenkiste et al., 2006).

As both career decidedness and academic motivation are positively connected to the self-deternimation, namely intrinsic motivation and autonomous forms of extrinsic motivation (Deci et al., 1991), it becomes imperative to investigate the interplay between academic motivation and career decidedness, and whether the type of academic motivation will determine the level of career decidedness in higher education students. The recent study by Koyuncuoglu (2020), involving 376 higher education students in Türkiye, revealed a positive effect of academic motivation on career decidedness ($\beta=0.43$; $p<0.01$). The current research aims to partially replicate Koyuncuoglu's investigation among higher education students in Portugal, considering the unique geographical context. The exploration will also encompass multiple factors, including students' gender, age, field of study (STEM, humanitarian, and social sciences), and educational level. Furthermore, this study seeks to expand on the existing research, drawing from the framework of Self-Determination Theory (Deci & Ryan, 1985), and emphasizing attention on determining the quality of academic motivation that most significantly influences career decidedness.

Chapter 2: Objectives and hypotheses

The general objective of present research is to explore the correlation between the type of academic motivation and the degree of career decidedness among students within the context of Portuguese higher education.

The specific research objectives are formulated as follows.

1. To examine the current level of students' academic motivation and career decidedness.

Based on the research of Koyuncuoglu (2020), the general score for students' academic motivation was 3.34 (SD=0.58), and for career decidedness – 3.35 (SD=0.75), indicating a medium level for both variables on a scale between 1-5. We may assume similar results to be obtained in the present research.

H_1: The students currently present medium level of academic motivation.

$H_{1.1}$: The students currently present medium level of intrinsic motivation.

$H_{1.2}$: The students currently present medium level of extrinsic motivation (external regulation, introjected regulation, identified regulation, integrated regulation).

$H_{1.3}$: The students currently present medium level of demotivation.

H_2: The students currently present medium level of career decidedness.

2. To determine the difference in the level of students' academic motivation and career decidedness based on the field of study.

Koyuncuoglu's research (2020) did not specifically delineate the differences in academic motivation and career decidedness among students based on their educational field. In contrast, other studies (Fényes et al., 2021; Jagielska, 2023; James et al., 2021; Tuononen et al., 2019) suggest that students from HASS (humanities, arts, and social sciences) often face challenges related to career decidedness. Additionally, research indicates that STEM (science, technology, engeneering, mathematics) students tend to exhibit higher levels of career decidedness and motivation during high school (Dominguez et al., 2020).

H_3: There are significant differences in the level of academic motivation between students from different areas.

$H_{3.1}$: There are significant differences in the level of intrinsic motivation between students from difference areas.

$H_{3.2}$: There are significant differences in the level of extrinsic motivation (external regulation, introjected regulation, identified regulation and integrated regulation) between students from difference areas.

$H_{3.3}$: There are significant differences in the level of demotivation between students from difference areas.

H_4: There are significant differences in the level of career decidedness between students from different areas.

3. To determine the difference in the level of students' academic motivation and career decidedness based on their year of study.

Recent research by Koyuncuoglu (2020) revealed a significant difference in students' scores of academic motivation and career decidedness based on their year of study. Specifically, students in the third and fourth years of higher education demonstrated higher scores compared to first and second-year students.

H_5: There are significant differences in the level of academic motivation based on students' year of study.

$H_{5.1}$: There are significant differences in the level of intrinsic motivation based on students' year of study.

$H_{5.2}$: There are significant differences in the level of extrinsic motivation (external regulation, introjected regulation, identified regulation, integrated regulation) based on students' year of study.

$H_{5.3}$: There are significant differences in the level of demotivation based on students' year of study.

H_6: There are significant differences in the level of career decidedness based on students' year of study.

4. To determine the difference in the level of students' academic motivation and career decidedness based on their gender.

In Koyuncuoglu's (2020) study, it was noted that female students demonstrated a higher level of academic motivation than their male counterparts. However, contrary to expectations, no significant difference emerged in the level of career decidedness between the two genders ($p>0.05$). This contradicts the assumption that a higher level of academic motivation correlates with a higher level of career decidedness. To shed light on this discrepancy, the present research will closely analyze the types of academic motivation, exploring whether certain types exhibit higher prevalence depending on students' gender.

H_7: There are significant differences in the level of academic motivation based on students' gender.

$H_{7.1}$: There are significant differences in the level of intrinsic motivation based on students' gender.

$H_{7.2}$: There are significant differences in the level of extrinsic motivation (external regulation, introjected regulation, identified regulation, integrated regulation) based on students' gender.

$H_{7.3}$: There are significant differences in the level of demotivation based on students' gender.

H_8: There are significant differences in the level of career decidedness based on students' gender.

5. To determine the difference in the level of students' academic motivation and career decidedness based on their age.

   Koyuncuoglu's research (2020) did not specifically delineate the differences in academic motivation and career decidedness among students based on their age. In the research conducted by Jackson and Wilton (2017), it was found that the mature age of students was positively related to their Career Choice Status.

   H_9: There are significant differences in the level of academic motivation based on students' age.

   $H_{9.1}$: There are significant differences in the level of intrinsic motivation based on students' age.

   $H_{9.2}$: There are significant differences in the level of extrinsic motivation (external regulation, introjected regulation, identified regulation, integrated regulation) based on students' age.

   $H_{9.3}$: There are significant differences in the level of demotivation based on students' age.

   H_{10}: There are significant differences in the level of career decidedness based on students' age.

6. To determine the difference between the types of academic motivation and the level of students' career decidedness.

Based on the application of Self-determination theory in the field of education (Deci et al., 1991; Vansteenkiste et al., 2006).

H_{11}: There are significant differences regarding career decidedness based on the level of academic motivation.

$H_{11.1}$: There are significant differences regarding career decidedness based on academic motivation of intrinsic type.

$H_{11.2}$: There are significant differences regarding career decidedness based on academic motivation of extrinsic type (external regulation, introjected regulation, identified regulation, integrated regulation).

$H_{11.3}$: There are significant differences regarding career decidedness based on academic demotivation.

Chapter 3: Research methodology

3.1. Subject and sampling

The subject of this research comprises students currently enrolled in higher education programs at the public educational institution of Portugal – the University of Coimbra. This includes students from all three educational levels: Bachelor's, Master's, and Doctoral programs. Given the focus of the study on academic motivation and career decidedness, this population provides a pertinent sample for examining these constructs within the context of higher education. To gather the data, a convenient sampling methodology was employed (Cohen et al., 2007). This approach allowed for the collection of data from a subset of the student population that was readily accessible and willing to participate.

In total, 458 complete responses were collected from the students. Of these, 193 respondents (42.14%) identified as male, 261 (56.99%) as female, and 4 students (0.87%) chose not to specify their sex.

The distribution of respondents' ages revealed that the majority (75.33%, N = 345) fell within the 18-25 year old age group. The 26-35 year old age group comprised 16.38% (N = 75) of participants, followed by the 36-45 year old group (4.80%, N = 22), the 46-55 year old group (3.06%, N = 14), and those over 56 years old (0.44%, N = 2).

Among the respondents, 88 students (19.21%) were participating in mobility programs. Additionally, 236 students (51.53%) were enrolled in Bachelor's programs, 163 (35.59%) in Master's programs, and 70 (15.29%) in Doctoral studies, considering that the same respondents could have been enrolled in more than one academic cycle.

Referring to the current study of the participants, a substantial majority – 327 (71.40%), were from the Faculty of Sciences and Technology. Meanwhile, the Faculty of Psychology and Educational Sciences had a representation of 85 students (18.56%). Lesser contributions came from the Faculty of Sports Sciences and Physical Education – 20 students (4.37%) and the Faculty of Pharmacy – 14 students (3.06%). Other faculties such as the Faculty of Letters, and the Faculty of Economics had minimal representation, each contributing 5 respondents (1.09%) and the Faculty of Medicine had minimal representation of 3 students (0.66%) respectively. Notably, the Faculty of Law had no participants in this dataset. A few participants, constituting 4 respondents (0.87%), were associated with other unspecified faculties.

The scientific literature does not present a consensus on the precise delineation of disciplines into STEM (an acronym for Science, Technology, Engineering, and Mathematics) and HASS (an acronym for Humanities, Arts, and Social Sciences) categories. Despite this lack of consensus, it is justifiable to categorize students based on their respective faculties for the purposes of this study. This categorization allows for a clearer analysis of academic motivation and career decision differences between students engaged in scientifically and technically oriented fields versus those in humanistic and socially oriented fields. The students participating in the study were categorized based on their respective faculties. The STEM category included the Faculty of Sciences and Technology, the Faculty of Medicine, and the Faculty of Pharmacy, collectively encompassing 344 students, which accounts for 75.12% of the total. On the other hand, the HASS studies were represented by the Faculty of Psychology and Educational Sciences, the Faculty of Sports Sciences and Physical Education, the Faculty of Letters, and the Faculty of Economics, together totaling 115 students or 25.11% of the participants.

The educational backgrounds of the participants prior to their current studies were distributed as follows: a significant portion, comprising 199 participants or 43.45%, completed secondary education. A smaller group of 11 participants, representing 2.40%, attended professional courses. Bachelor's degrees were held by 121 participants (26.42%) in the same field of study, while 37 participants (8.08%) obtained their degrees in different fields. Master's degrees were completed by 45 participants (9.83%) in the same field and 26 participants (5.68%) in a different field. Additionally, 17 students (3.71%) had previously completed integrated Master's programs. Lastly, 2 participants (0.44%) had earlier earned Doctoral degrees in fields different from their current area of study.

Table 1

Distribution of Students' Responses Based on Demographic Characteristics

		N	**%**
Educational institution	**The University of Coimbra**	**458**	**100%**
Gender	Male	193	42.14%
	Female	261	56.99%
	Other/Unspecified	4	0.87%
Age group	18-25	345	75.33%
	26-35	75	16.38%
	36-45	22	4.80%
	46-55	14	3.05%
	Over 56	2	0.44%
Cycle of study	1	236	51.53%
	2	163	35.59%
	3	70	15.29%
Field of study	**STEM**	**344**	**75.12%**
	FCTUC	327	71.40%
	FFUC	14	3.06%
	FMUC	3	0.66%
	HASS	**115**	**25.11%**
	FPCEUC	85	18.56%
	FCDEFUC	20	4.37%
	FLUC	5	1.09%
	FEUC	5	1.09%
	Other	**4**	**0.87%**
Students in Mobility	Yes	88	19.2 %
	No	370	80.8%
Prior Education	SE	199	43.4%
	PC	11	2.4%
	BS	121	26.4%
	BD	37	8.1%
	MS	45	9.8%
	MD	26	5.7%
	MI	17	3.7%
	DD	2	0.4%

Note. N=Number of respondents. Cycle 1= Bachelor level. Cycle 2=Master level. Cycle 3=Doctoral level. FCTUC=Faculty of Science and Technology. FFUC=Faculty of Pharmacology. FMUC=Faculty of Medicine. FPCEUC=Faculty of Psychology and Educational Sciences. FCDEFUC=Faculty of Sports Sciences and Physical Education. FLUC=Faculty of Letters. FEUC=Faculty of Economy. SE=Secondary Education. PC=Professional Cources. BS= Bachelor Degree Same Area. BD=Bachelor Degree Different Area. MS= Master Degree Same Area. MD=Master Degree Different Area. MI=Master Degree Integrated. DD=Doctoral Degree Different Area.

3.2. Instruments to collect data

As mentioned prior, the aim of present research is to investigate the relations between the dominating types of academic motivation and the level of career decidedness among university students. The quantitative approach was elaborated in order to assess these variables. Initially, a comprehensive demographic questionnaire was constructed to cover demographic essential information, such as students' age, gender, educational level, field of study, and prior education.

To assess students' academic motivation, the Academic Motivation Scale (AMS) was employed. Developed by Vallerand in 1992 to validate the Self-determination theory in an educational context, the AMS has been adapted for Portuguese higher education students by Guimarães and Bzuneck (2008) and validated by Ribeiro et al. (2019). The scale consists of 29 Likert-type items, theoretically organized into categories representing Intrinsic Motivation, Extrinsic Motivation by Integrated Regulation, Extrinsic Motivation by Identified Regulation, Extrinsic Motivation by Introjected Regulation, Extrinsic Motivation by External Regulation, and six items focused on Demotivation.

Following the methodology used by Koyuncuoglu (2020) and insights from Lopes et al.'s (2018) work, we decided to apply a 5-category Likert scale for the propositions, omitting subcategorizations in "Moderate correspondence."

Ribeiro et al.'s (2019) validation revealed strong correlations between dimensions such as Extrinsic Motivation by Integrated Regulation and Intrinsic Motivation. However, Extrinsic Motivation by Identified Regulation showed the lowest Cronbach's Alpha coefficient (.65). While acknowledging potential limitations and considering critics, the present research utilized the AMS scale adapted by Guimarães and Bzuneck (2008), as this scale has proven to be a valuable tool for assessing academic motivation in the context of Portuguese higher education.

Table 2

Academic Motivation Scale (AMS)

Item	Motivation type	Question
MA01_SQ002	Demotivation	1. Sinceramente, não sei porque venho à Universidade.
MA02_SQ001	Extrinsic - Identified	2. Venho à Universidade porque a frequência é obrigatória.
MA03_SQ001	Extrinsic - External	3. Venho à Universidade para não ter faltas.
MA04_SQ001	Intrinsic	4. Pelo prazer que tenho quando me envolvo em debates com professores interessantes.
MA05_SQ001	Extrinsic - Introjected	5. Venho à Universidade para provar a mim mesmo que sou capaz de terminar o curso.
MA06_SQ001	Extrinsic - External	6. Venho à Universidade para não ficar em casa.
MA07_SQ001	Demotivation	7. Sinto que estou a perder o meu tempo na Universidade.
MA08_SQ001	Extrinsic - Introjected	8. Venho porque é isso que esperam de mim.

MA09_SQ001	Demotivation	9. Eu já tive boas razões para ir à Universidade, mas, atualmente, tenho dúvidas sobre continuar.
MA010_SQ001	Extrinsic - Introjected	10. Para mostrar a mim mesmo que sou uma pessoa inteligente.
MA011_SQ001	Extrinsic - External	11. Venho à Universidade porque a presença é obrigatória.
MA012_SQ001	Extrinsic - Integrated	12. Porque a educação é um privilégio.
MA013_SQ001	Demotivation	13. Eu não percebo porque deva ir à Universidade.
MA014_SQ001	Extrinsic - External	14. Venho à Universidade para conseguir o diploma de conclusão.
MA015_SQ001	Extrinsic - Introjected	15. Venho à Universidade porque quando sou bem-sucedido sinto-me importante.
MA016_SQ001	Demotivation	16. Eu não sei, nem percebo o que estou a fazer na Universidade.
MA017_SQ001	Intrinsic	17. Porque para mim a Universidade é um prazer.
MA018_SQ001	Extrinsic - Integrated	18. Porque o acesso ao conhecimento faz-se na Universidade.
MA019_SQ001	Demotivation	19. Eu não percebo se faz alguma diferença frequentar a Universidade.
MA020_SQ001	Extrinsic - Introjected	20. Porque quero mostrar a mim mesmo que posso ser bem-sucedido nos estudos.
MA021_SQ001	Intrinsic	21. Porque gosto muito de ir à Universidade.
MA022_SQ001	Extrinsic - Identified	22. Porque considero que o registo das presenças é necessário para a aprendizagem.
MA023_SQ001	Extrinsic - Introjected	23. Quero evitar que as pessoas me vejam como um aluno desleixado.
MA024_SQ001	Extrinsic - Identified	24. Venho à Universidade porque a frequência das aulas é obrigatória.
MA025_SQ001	Extrinsic - Identified	25. Caso a frequência não fosse obrigatória poucos alunos assistiriam às aulas.
MA026_SQ001	Extrinsic - Integrated	26. Porque estudar amplia horizontes.
MA027_SQ001	Extrinsic - Integrated	27. Venho à Universidade porque foi isso que escolhi para mim.
MA028_SQ001	Extrinsic - External	28. Venho à Universidade porque enquanto estiver a estudar não preciso de trabalhar.
MA029_SQ001	Extrinsic - External	29. Os meus amigos são o principal motivo pelo qual venho à Universidade.

To assess students' career decidedness the Career Decision Scale (CDS) by Osipow et al. (1976) was employed in the adaptation for Portuguese higher education done by Maria Taveira (1997). The Career Decision Scale is a commonly used instrument for assessing vocational indecision. In its original version, the CDS (Osipow et al., 1976) comprises 19 items. The first two items assess the level of certainty in vocational choice, while the remaining sixteen items evaluate the level of vocational indecision. The final item follows an open-ended response format. Higher scores on the first two items indicate greater vocational certainty and, consequently, lower vocational indecision. Higher scores on the remaining items signify more indecision and, consequently, lower vocational certainty. In the version adapted for the Portuguese population (Taveira, 1997; 2000), four items were omitted due to critical results, thereby enhancing the internal consistency of the Portuguese version of the CDS to 0.90. As a result, the Portuguese version of CDS consists of 15 items in a 4-category Likert scale and one open-ended question. The decision to exclude the open-ended question aligns with the research's quantitative focus, ensuring a more structured analysis of career decidedness.

While selecting the Career Decision Scale (CDS) to assess participants' career decidedness, the issue of the scale's wording and its potential multidimensional and unidimensional applications arose. According to further analysis by Osipow and Winer (1996), various studies have validated both applications of the scale. For instance, Martin, Sabourin, Laplante, and Coallier in 1991 suggested the scale's use as unidimensional, while Shimizu, Vondracek, and Schulenberg in 1994 supported its factorial and multidimensional use, breaking career decidedness into three subscales: Support, Approach-Approach, and External Barriers (Osipow & Winer, 1996). Meanwhile, Osipow (1994) argued that the scale's item content is too brief for factorial scoring, recommending the use of a total scale score instead. This approach was adopted in the present investigation.

To address the issue of the Career Decision Scale over wording, it is important to consider the concerns raised by Osipow, Carney, and Barak (1976), who suggested that complex items might lead to multiple responses for individual items. Slaney in 1988 recommended that multi-sentence items be divided into multiple items to simplify the wording. However, he also noted that the CDS demonstrates satisfactory test-retest reliability and both construct and concurrent validity, despite its complex wording. Furthermore, a study by Damarin in 1981, which compared a reworded version of the CDS with the original, found no significant differences in the results, indicating that the complexity of the wording did not substantially impact the scale's effectiveness (Osipow & Winer, 1996). These findings suggest that while simplifying item wording could be beneficial, the original CDS remains a reliable and valid tool for assessing career decidedness.

Table 3

Career Decision Scale (CDS)

Item	Factor	Question
EDC01_SQ001	Career decidedness	1. Já decidi qual a profissão vou seguir, sinto-me bem e já sei o que vou fazer para que isso aconteça.
EDC02_SQ001	Career decidedness	2. Já decidi qual o curso que vou seguir, sinto-me bem e já sei o que vou fazer para que isso aconteça.
EDC03_SQ001	Career indecision	3. Várias profissões me atraem, mas tenho tido dificuldade em me decidir por uma delas.

EDC04_SQ001	Career indecision	4. Sei que terei de trabalhar, mas nenhuma das profissões que conheço me atrai.
EDC05_SQ001	Career indecision	5. Ainda não pensei muito numa profissão. Sinto-me um pouco perdido(a) quando penso nisso, porque não tenho experiência de fazer escolhas sozinho(a) e não me sinto suficientemente informado(a) para fazer essa escolha agora.
EDC06_SQ001	Career indecision	6. A escolha de uma profissão parece depender de tanta coisa e ser tão incerta que às vezes me sinto sem coragem, mas gostaria que tomar uma decisão logo que possível.
EDC07_SQ001	Career indecision	7. Já me tinha decidido por uma profissão, mas entretanto verifiquei que é difícil atingir o que queria e agora tenho que voltar ao início e ver outras alternativas.
EDC08_SQ001	Career indecision	8. Quero ter a certeza absoluta que a minha escolha é acertada, mas nenhuma das profissões que conheço parece ser a ideal.
EDC09_SQ001	Career indecision	9. Ter de me decidir por uma profissão chateia-me. Gostaria de tomar rapidamente uma decisão e andar para a frente. Gostaria de fazer um teste que me indicasse qual a profissão a seguir.
EDC010_SQ001	Career indecision	10. Sei que gostaria de me formar, mas não sei que curso me satisfaria.
EDC011_SQ001	Career indecision	11. Neste momento é difícil tomar uma decisão, porque não conheço muito bem as minhas capacidades.
EDC012_SQ001	Career indecision	12. Não tenho interesses definidos. Há várias coisas que me atraem, mas não tenho a certeza se estão de acordo com as minhas possibilidades.
EDC013_SQ001	Career indecision	13. Interesso-me por várias coisas e acho que sou capaz de fazê-las, independentemente do que vier a seguir. O que me custa é escolher precisamente uma delas
EDC014_SQ001	Career indecision	14. Preciso de mais informações sobre as profissões antes de tomar uma decisão.
EDC015_SQ001	Career indecision	15. Acho que sei o que quero seguir, mas sinto que preciso de mais ajuda para fazer uma escolha.

3.3. Plan and procedures

This study employs a quantitative exploratory research design to investigate the correlations between academic motivation, career decidedness, and various factors such as participants' age, gender, educational cycle, the fields of study, prior education, and student mobility, with a particular focus on the relationship between higher education students' academic motivation type and level of career decidedness. Although these correlations have been previously studied (Koyuncuoglu, 2020), this research applies different analytical tools to provide new insights and potentially validate or challenge existing findings (Fortin, 1999). Quantitative exploratory research aims to discover patterns and relationships without necessarily

establishing causality, making it particularly useful for understanding how different variables correlate within a given population (Cohen et al., 2007). In this study, we utilize descriptive statistics, correlation analyses, and regression models to explore these relationships. Additionally, the study adopts elements of causal-comparative research, which attempts to identify cause-and-effect relationships by comparing groups that differ on specific variables. While this study does not manipulate variables directly, it examines existing differences in academic motivation among groups defined by age, gender, educational cycle, field of study, prior education, and mobility status, aiming to infer potential causal relationships (Fortin, 1999). The innovative aspect of this research lies in its application of different analytical tools, incorporating advanced statistical techniques and software (e.g., IBM SPSS Statistics version 27, LimeSurvey statistics tools) to re-examine the correlations. This approach allows for a more robust and comprehensive analysis, potentially uncovering new insights and nuances in the data (Cohen et al., 2007).

The research design for this study was initially submitted to and approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences at the University of Coimbra on February 21, 2024. Subsequently, the survey questions, demographic questionnaire, and informed consent statement were uploaded to the *LimeSurvey* platform for dissemination.

Following this, the survey underwent minor modifications as recommended by the Division of Data Protection and Administrative Information. These adjustments included changing the public email address of the responsible researcher to an institutional one within the informed consent text. Additionally, to ensure the anonymity of respondents, university departments with a smaller number of students were consolidated into a single category in the demographic questionnaire. After these changes were implemented, the modified survey received approval from the Division of Data Protection and Administrative Information on March 12, 2024.

The survey was accessible to students from March 12 until May 8, 2024. Initially, it was disseminated by the Quality @ UC department through an announcement posted on the University of Coimbra's website. Additionally, the survey was distributed electronically by the researchers to various student units, the Academic Association of Coimbra, the Student Hub Employment Department, the directors of the University Faculties, the University of Coimbra's newspaper publisher *"A Cabra",* and also shared within student groups on social media. This multi-channel approach ensured widespread reach across the student body, facilitating a comprehensive collection of responses. The dissemination of the survey was mutually halted by the researcher and supervisor once a sufficiently large number of responses had been gathered. This decision was made to ensure there was ample time allocated for thorough data analysis.

3.4. Data analysis strategy

The research results were obtained through statistical analyses conducted using *IBM SPSS Statistics* (versions 27 and 29 for *Windows*). Initially, preliminary statistical calculations were performed to describe the survey results across various variables. Measures of central tendency (e.g., mean) and data dispersion (e.g., standard deviation) were analyzed to understand participants' types of academic motivation and level of career decidedness or indecision. These analyses were conducted considering factors such as gender, age, field of study, year of study, involvement in mobility program, and prior education. Comparisons of means in SPSS facilitated this analysis (Pallant, 2011).

To extract a General Academic Motivation (GAM) score, individual motivation variables were recalculated with specific weights reflecting their importance based on SDT (Deci & Ryan, 1985; Gangé & Deci, 2005). The variables and their weights were: Academic Demotivation = 1, Extrinsic Motivation External Regulation = 2, Extrinsic Motivation Introjected Regulation = 3, Extrinsic Motivation Identified Regulation = 4, Extrinsic Motivation Integrated Regulation = 5, and Intrinsic Motivation = 6. In SPSS, new weighted variables were created by multiplying the original scores by their respective weights. These were then combined to calculate a composite GAM score and remeasured on a 1-5 scale, as in the original AMS.. This weighted mean approach accurately represented participants' overall motivation, considering the varying significance of each type of motivation.

The General Career Decidedness (GCD) score was combined by transforming the career decidedness and career indecision scores into a single mean score for career decidedness. This process involved reversing the career indecision scores and then averaging them with the career decidedness scores to create a combined mean representing overall career decidedness (Pallant, 2011).

To validate the research hypotheses, a one-sample T-test, an Independent Samples T-test, and a one-way ANOVA were employed. The one-sample T-test was used to determine whether the mean score of a single sample significantly differs from a calculated medium score for each mean. The Independent Samples T-test was used to compare the means of two independent groups to determine if there was a statistically significant difference between them (Pallant, 2011). The one-way ANOVA was employed to compare the means across three or more independent groups to see if there are statistically significant differences among them. The significance of the variables was assessed according to the p-value, with a threshold of $p \leq 0.05$ indicating statistical significance, meaning the observed results are unlikely to have occurred by chance, and $p > 0.05$ considered not significant, suggesting no strong evidence (Cohen et al., 2007).

The post hoc Tukey HSD (Honestly Significant Difference) test was used in SPSS analysis following the one-way ANOVA to identify specifically which groups' means are significantly different from each other. While the one-way ANOVA can indicate whether there are any overall differences among the groups, it does not tell us exactly where these differences lie. The Tukey HSD test addresses this by conducting multiple pairwise comparisons between the group means (Pallant, 2011).

To validate the correlation and significant dependence between the level and type of academic motivation and participants' level of career decidedness, a linear regression analysis was conducted. In this analysis, career decidedness was treated as the dependent variable, while academic motivation served as the independent variable (Cohen et al., 2007). This approach allowed us to examine the extent to which variations in academic motivation could predict differences in career decidedness, thereby providing insights into the relationship between these two constructs.

Chapter 4: Results

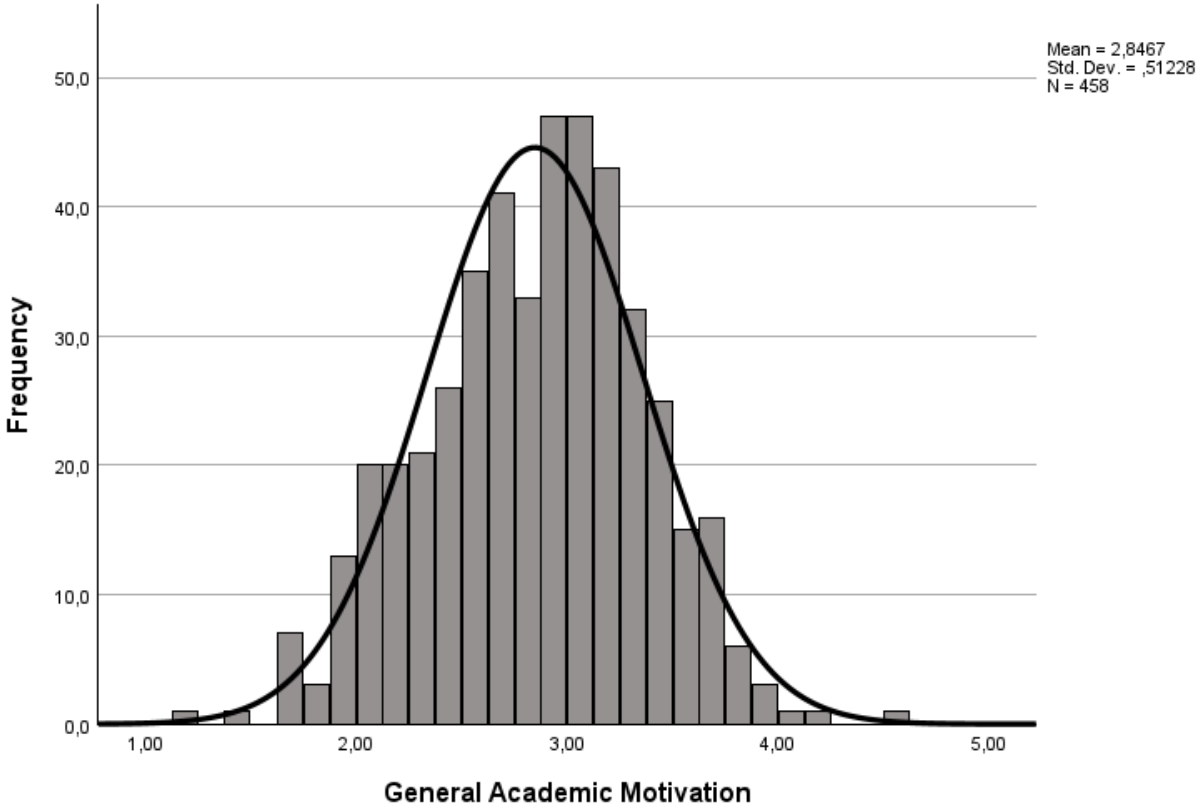
4.1. Academic motivation

The descriptive statistics analysis was conducted to evaluate the respondents' results for the leading types of academic motivation according to the Academic Motivation Scale (AMS), using a 5-point Likert scale. To measure the reliability coefficient of the inter-item correlations within the scale, the Cronbach's alpha test was conducted in SPSS (Pallant, 2011). With a Cronbach's alpha of 0.79, the results of the Academic Motivation Scale in this research are considered reliable (Cohen et al., 2007).

The descriptive statistics illustrate the distribution of motivation types among the respondents (N = 458), showing varied levels of engagement across different motivational frameworks. The findings indicate that self-determined forms of motivation predominate among the participants, with Extrinsic Motivation - Integrated Regulation having the highest mean (M = 3.75, SD = 0.83) and Intrinsic Motivation also showing a relatively high mean (M = 2.89, SD = 1.06). In contrast, other motivational types such as Extrinsic Motivation - Identified Regulation (M = 2.28, SD = 0.04), Extrinsic Motivation - Introjected Regulation (M = 2.28, SD = 0.96), Extrinsic Motivation - External Regulation (M = 2.25, SD = 0.81), and Demotivation (M = 1.7, SD = 0.83) demonstrated lower mean values. The distribution of General Academic Motivation (composite) can be seen in Figure 3 and Table 4.

Figure 3

Histogram for the Distribution of General Academic Motivation



Distribution of academic motivation among genders

Among male respondents (N = 193), the analysis revealed a low level of demotivation (M = 1.65, SD = 0.76) and a more favorable level of intrinsic motivation (M = 2.91, SD = 1.11), suggesting diverse intrinsic motivational levels within this group. Extrinsic motivation varied, with Integrated Regulation being the highest (M = 3.72, SD = 0.85), followed by Introjected Regulation (M = 2.67, SD = 0.98), Identified Regulation (M = 2.22, SD = 0.85), and External Regulation (M = 2.21, SD = 0.81). Female respondents (N = 261) showed slightly higher demotivation (M = 1.75, SD = 0.87) and similar intrinsic motivation (M = 2.88, SD = 1.03). Their highest engagement was in Extrinsic Motivation - Integrated Regulation (M = 3.79, SD = 0.82), with other forms of extrinsic motivation, such as Identified Regulation (M = 2.31, SD = 0.83), Introjected Regulation (M = 2.88, SD = 0.94), and External Regulation (M = 2.25, SD = 0.81), showing comparable variability.

For the category of respondents who preferred not to specify their gender or identified as other (N = 4), motivation scores varied notably. This group had the highest demotivation (M = 2.79, SD = 0.58) and lower intrinsic motivation (M = 2.00, SD = 0.72). Extrinsic Motivation Integrated Regulation and Identified Regulation reported means of 3.38 and 2.50, respectively, with relatively low variability, while Introjected Regulation (M = 2.63) and External Regulation (M = 2.96) were somewhat higher. This data is represented in Table 4.

Distribution of academic motivation age groups

Analysis across age groups revealed distinct motivational patterns. The 18-25 age group exhibited low demotivation (M = 1.68, SD = 0.79) and moderate levels of intrinsic and extrinsic motivations, with the highest mean score for extrinsic motivation (integrated) at 3.67. The 26-35 age group showed slightly higher intrinsic motivation (M = 3.32, SD = 0.98) and the highest extrinsic motivation (integrated) score at 3.97, with external motivation being the least influential (M = 1.96). The 36-45 age group maintained high extrinsic motivation (integrated) (M = 3.97) and elevated intrinsic motivation (M = 3.25, SD = 1.35). The 46-55 cohort presented the highest intrinsic motivation (M = 3.79, SD = 1.12) and extrinsic motivation (integrated) (M = 4.02), with lower scores for identified and external regulations, indicating mature motivational autonomy. Although the 56+ age group had a small sample size (N = 2), they exhibited exceptionally high intrinsic motivation (M = 4.83, SD = 0.24) and integrated extrinsic motivation (M = 4.13). This data is depicted in Figures 4 and 5, as well as in Table 4.

Figure 4

Boxplot for the Distribution of Intrinsic Motivation by Age Groups

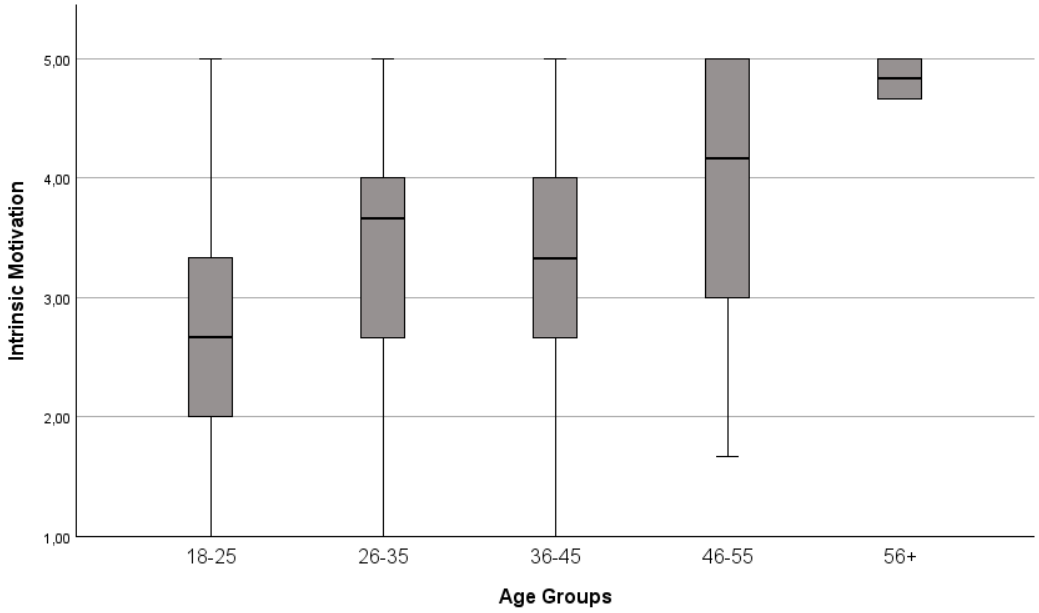
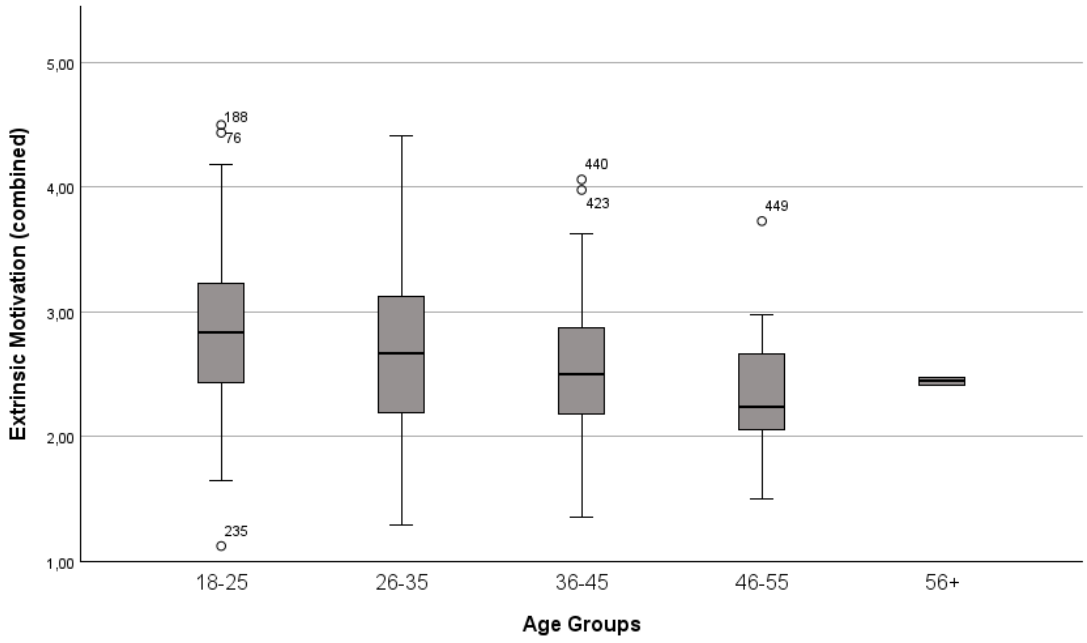


Figure 5

Boxplot for the Distribution of Extrinsic Motivation (combined) by Age Groups

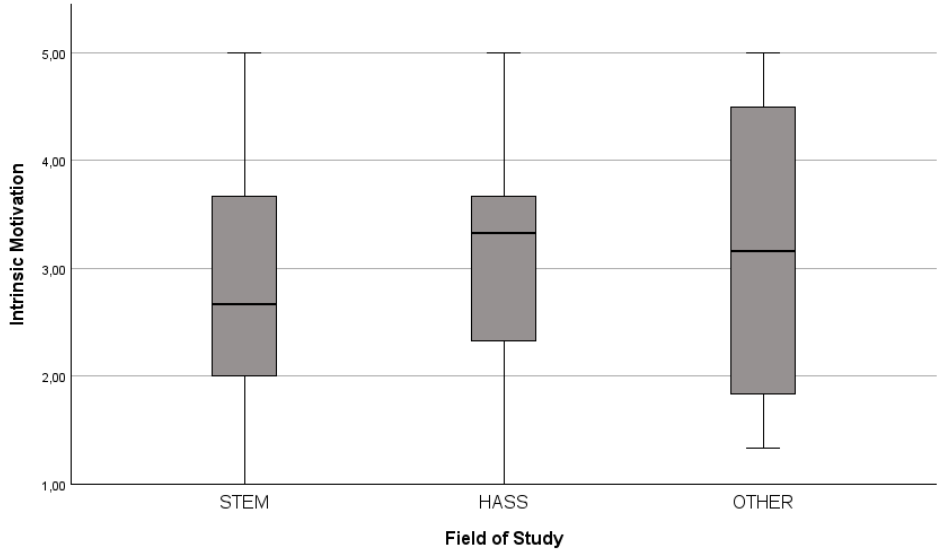


Distribution of academic motivation among fields of study

When analyzing motivation across different fields of study, STEM students (N = 344) showed moderate intrinsic motivation (M = 2.80) and integrated regulation (M = 3.74), with lower identified (M = 2.39), introjected (M = 2.84), and external regulation (M = 2.35). HASS students (N = 115) had higher intrinsic motivation (M = 3.14) and integrated regulation (M = 3.78), but lower identified (M = 1.93), introjected (M = 2.62), and external regulation (M=1.93). Students in non-identified fields (N = 4) had the highest integrated regulation (M = 4.00) and introjected regulation (M = 3.58), with intrinsic motivation comparable to HASS students (M = 3.17) and external regulation similar to STEM students (M = 2.21). The distribution of participants' Intrinsic Motivation based on the field of study is depicted in Figure 6.

Figure 6

Boxplot for the Distribution of Intrinsic Motivation by Field of Study



Distribution of academic motivation among educational cycles

Motivation across different educational cycles showed that Cycle 1 students (N = 236) had moderate intrinsic motivation (M = 2.64) and integrated regulation (M = 3.70). Cycle 2 students (N = 163) displayed higher intrinsic motivation (M = 3.03) and integrated regulation (M = 3.78), while Cycle 3 students (N = 70) had the highest intrinsic motivation (M = 3.36) and integrated regulation (M = 3.87). The analysis also indicated varied motivational profiles across different years of study within these cycles. The distribution of students' intrinsic and extrinsic motivation by the year of study is depicted in detail in Figures 7 and 8.

Additionally, mobility students (N = 88) exhibited higher demotivation (M = 1.89) and lower intrinsic motivation (M = 2.75) compared to non-mobility students (N = 370). However, mobility students showed higher identified regulation (M = 2.56 vs. M = 2.21) and introjected regulation (M = 2.97 vs. M = 2.75), while non-mobility students had slightly higher intrinsic motivation (M = 2.92). This data is represented in Table 4.

Regarding prior education, students coming from professional courses exhibited higher intrinsic motivation (M = 3.52) compared to those from secondary education (M = 2.60). Those with a Master's degree in a different area showed higher intrinsic motivation (M = 3.64) compared to those with a Master's in the same

area (M = 3.29) (See Table 4). The data highlights that students with higher levels of prior education, particularly those with diverse educational backgrounds, tend to exhibit higher intrinsic motivation.

Figure 7

Boxplot for the Distribution of Intrinsic Motivation by the Year of Study

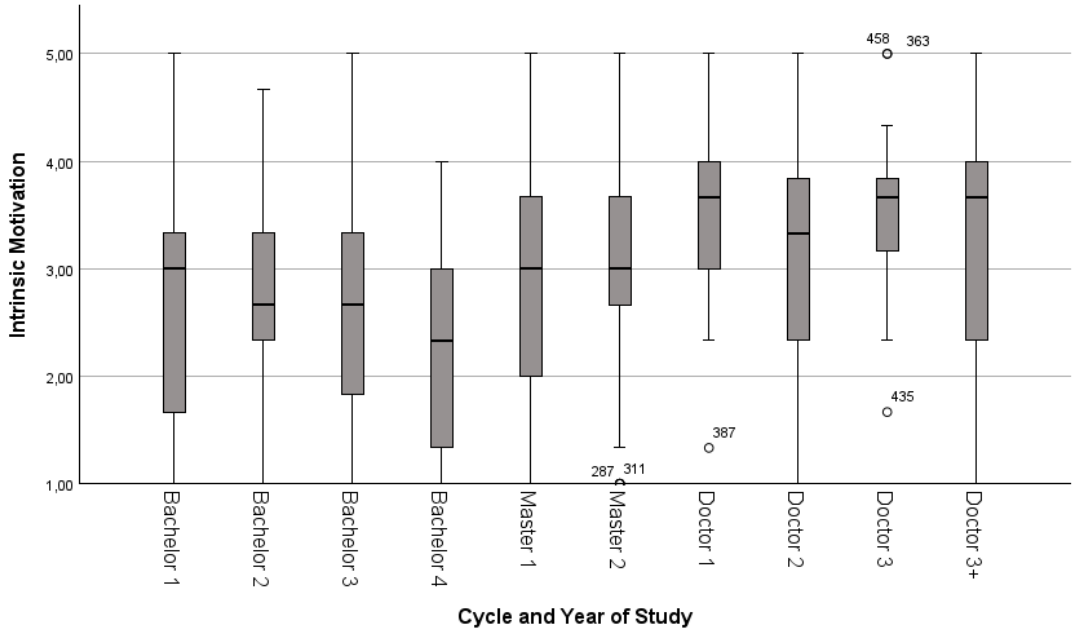


Figure 8

Boxplot for the Distribution of Extrinsic Motivation (combined) by the Year of Study

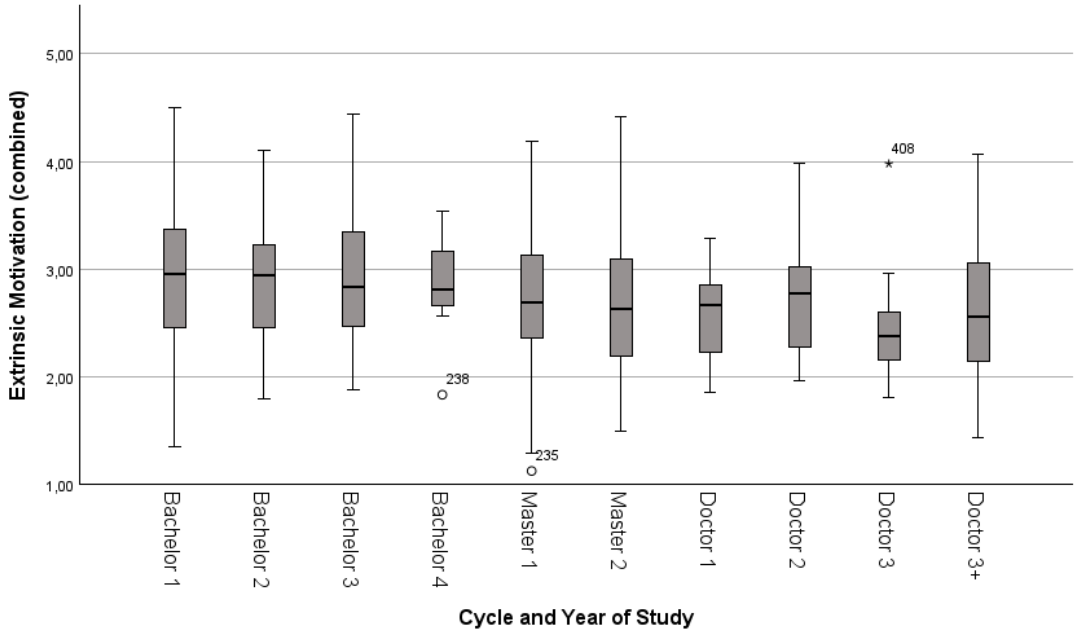


Table 4

Distribution of Respondents' Academic Motivation

Category	1 Mean(SD)	2 Mean(SD)	3 Mean(SD)	4 Mean(SD)	5 Mean(SD)	6 Mean(SD)	GAM Mean(SD)	N
Gender								
Male	1.65 (.76)	2.91(1.11)	3.71 (.85)	2.22 (.85)	2.67 (.98)	2.21 (.81)	2.81 (.54)	193
Female	1.74 (.865)	2.88(1.02)	3.78 (.82)	2.31 (.83)	2.88 (.94)	2.25 (.81)	2.87 (.49)	261
Other	2.79 (.583)	2.00 (.72)	3.37 (.48)	2.50 (.45)	2.62(1.14)	2.95 (.67)	2.64 (.15)	4
Age								
18-25	1.68 (.79)	2.96 (.95)	3.67 (.77)	2.38 (.84)	2.85 (.92)	2.29 (.77)	2.82 (.48)	345
26-35	1.68 (.88)	3.32 (.98)	3.97 (.66)	2.16 (.82)	2.65 (.85)	1.96 (.73)	2.92 (.57)	75
36-45	1.82 (.92)	3.25(1.35)	3.97 (.84)	2.03 (.81)	2.36 (.91)	1.88 (.78)	2.84 (.64)	22
46-55	1.64 (.75)	3.79(1.12)	4.02 (.72)	1.77 (.85)	2.21 (.97)	1.64 (.68)	2.94 (.48)	14
56+	1.50 (1.0)	4.83 (.24)	4.13 (.25)	1.50 (.35)	2.75 (.35)	1.42 (.06)	3.24 (.19)	2
Field of study								
STEM	1.78 (.85)	2.80(1.04)	3.74 (.83)	2.39 (.85)	2.84 (.93)	2.35 (.80)	2.86 (.50)	344
HASS	1.52 (.72)	3.14(1.08)	3.78 (.84)	1.93 (.71)	2.62(1.03)	1.93 (.76)	2.79 (.52)	115
Other	1.75 (.55)	3.17(1.64)	4.00 (.98)	2.75 (.35)	3.58(1.17)	2.21 (.76)	3.1 (.82)	4
Cycle of study								
1	1.76 (.84)	2.64(1.0)	3.70 (.87)	2.49 (.81)	2.92 (.92)	2.40 (.78)	2.84 (.50)	236
2	1.70 (.83)	3.03(1.08)	3.78 (.81)	2.09 (.82)	2.67(1.01)	2.20 (.85)	2.83 (.53)	163
3	1.61 (.75)	3.36(1.03)	3.87 (.76)	1.99 (.77)	2.62 (.94)	1.85 (.67)	2.88 (.49)	70
Mobility								
Yes	1.89 (.86)	2.75(1.07)	3.71 (.84)	2.55 (.81)	2.97 (.92)	2.47 (.81)	2.90 (.53)	88
No	1.67 (.81)	2.91(1.06)	3.76 (.82)	2.21 (.82)	2.74 (.96)	2.18 (.80)	2.83 (.50)	370
PE								
SE	1.74 (.81)	2.59 (.98)	3.07 (.85)	2.49 (.79)	2.92 (.91)	2.42 (.75)	2.83 (.48)	199
PC	1.56 (.79)	3.51 (.97)	3.97 (.83)	2.65(1.16)	3.00(1.00)	2.15(1.04)	3.16 (.65)	11
BS	1.74 (.80)	2.91(1.06)	3.76 (.81)	2.10 (.82)	2.70(1.01)	2.24 (.82)	2.81 (.50)	121
BD	1.83 (1.14)	2.83(1.14)	3.57 (.90)	2.35 (.81)	2.66 (.93)	2.13 (.95)	2.78 (.61)	37
MS	1.63 (.79)	3.28(1.02)	3.83 (.75)	2.11(.80)	2.66(1.00)	1.92 (.66)	2.89 (.49)	45
MD	1.71 (.65)	3.64 (.86)	3.82 (.85)	1.77 (.64)	2.75 (.98)	1.92 (.73)	2.94 (.54)	26
MI	1.34 (.68)	3.31 (.91)	4.04 (.66)	1.82 (.77)	2.23 (.76)	1.69 (.87)	2.80 (.45)	17
DD	1.08 (.11)	4.83 (.23)	4.12 (.53)	2.12(1.23)	4.00(1.17)	1.83 (.47)	3.56 (.64)	2
Total	1.71 (.82)	2.88(1.06)	3.75 (.83)	2.27 (.83)	2.79 (.96)	2.24 (.81)	2.84 (.51)	**458**

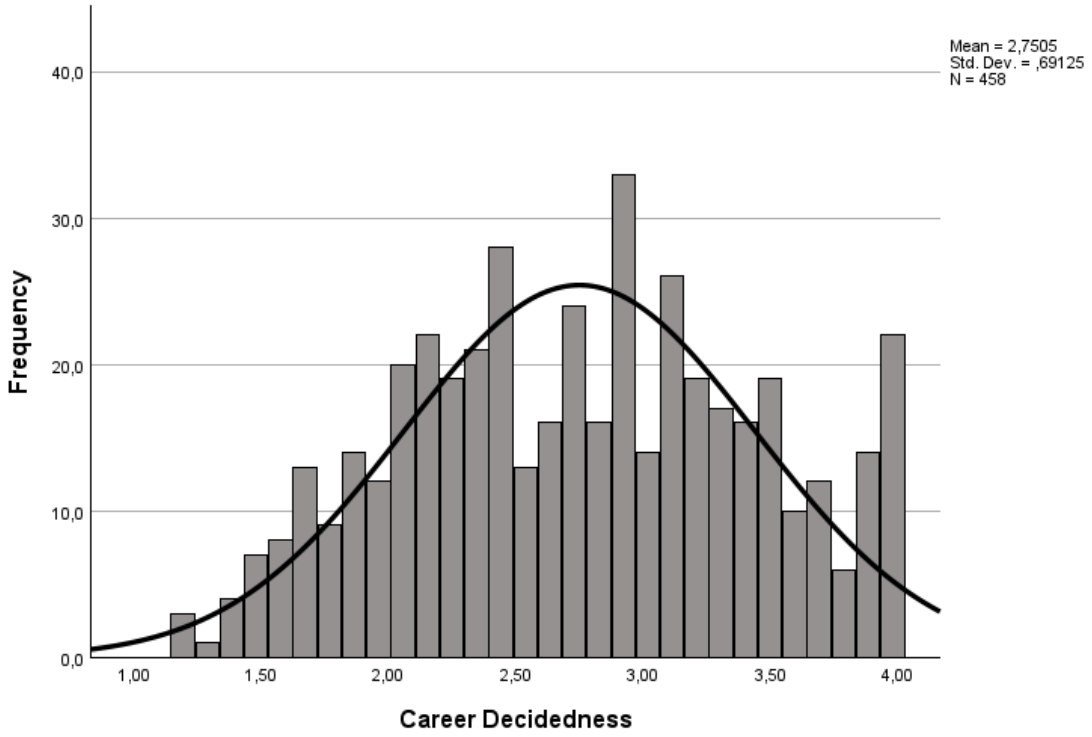
Note. SD=Standard deviation. 1=Demotivation. 2=Intrinsic Motivation. 3=Extrinsic Motivation (Integrated Regulation). 4=Extrinsic Motivation (Identified Regulation). 5=Extrinsic Motivation (Introjected regulation). 6=Extrinsic Motivation (External Regulation). GAM=General Academic Motivation score (combined). N=number of respondents. Cycle 1= Bachelor level. Cycle 2=Master level. Cycle 3=Doctoral level. PE=Prior Education. SE=Secondary Education. PC=Professional Cources. BS= Bachelor Degree Same Area. BD=Bachelor Degree Different Area. MS= Master Degree Same Area. MD=Master Degree Different Area. MI=Master Degree Integrated. DD=Doctoral Degree Different Area.

4.2. Career decidedness

The descriptive statistics analysis was conducted to evaluate the respondents' levels of career decidedness and indecision according to the Career Decidedness Scale (CDS), using a 4-point Likert scale. To measure the reliability coefficient of the inter-item correlations within the scale, the Cronbach's alpha test was conducted in SPSS (Pallant, 2011). With a Cronbach's alpha of 0.81, the results of the Career Decidedness Scale in this research are considered highly reliable (Cohen et al., 2007). These statistics illustrate the distribution of career decisiveness and indecision among the respondents (N = 458), revealing varied levels across different demographics. Overall, the mean score for career decidedness is 2.61 (SD = 0.86), and for career indecision is 2.11 (SD = 0.67). The distribution of combined Career Decidedness can be seen in Figure 9 and Table 5.

Figure 9

Histogram for the Distribution of Career Decidedness (combined)



Distribution of career decidedness among genders

Among male respondents (N = 193), the mean score for career decidedness is 2.51 (SD = 0.88), and for career indecision is 2.13 (SD = 0.68). Female respondents (N = 261) have a higher mean score for career decidedness at 2.68 (SD = 0.83) and a lower mean score for career indecision at 2.08 (SD = 0.66). Respondents who preferred not to specify their gender or identified as other (N = 4) show a mean score of 2.50 (SD = 1.08) for career decidedness and 2.29 (SD = 0.84) for career indecision, indicating the highest variability among this small group. The data is depicted in Table 5.

Distribution of career decidedness among age groups

When analyzed by age group, the data reveals that respondents aged above 56 years (N = 2) exhibit the highest mean score for career decidedness at 3.50 (SD = 0.00) and the lowest for career indecision at 1.81 (SD = 0.00). The largest age group, 18-25 (N = 345), has a mean score of 2.62 (SD = 0.84) for career

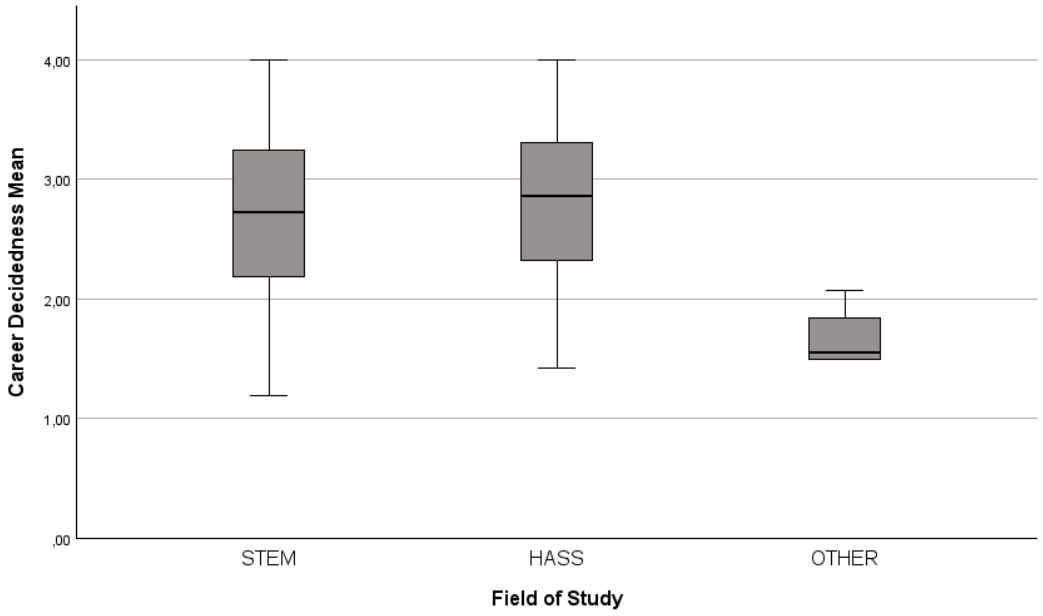
decidedness and 2.08 (SD = 0.65) for career indecision, indicating moderate levels. The 26-35 age group (N = 75) has a mean score of 2.55 (SD = 0.83) for career decidedness and 2.18 (SD = 0.73) for career indecision. The 36-45 age group (N = 22) shows similar scores for career decidedness (M = 2.55, SD = 0.62) but higher indecision (M = 2.20, SD = 0.50). Respondents aged 46-55 (N = 14) have a mean score of 2.64 (SD = 0.76) for career decidedness and 2.18 (SD = 0.49) for career indecision. These findings suggest that older respondents tend to have higher career decisiveness and lower indecision compared to younger cohorts.

Distribution of career decidedness among fields of study

Analysis by field of study indicates significant variations. STEM students (N = 344) show moderate levels of career decidedness (M = 2.59, SD = 0.87) and indecision (M = 2.13, SD = 0.66). HASS students (N = 115) have slightly higher career decidedness (M = 2.70, SD = 0.78) and lower career indecision (M = 2.02, SD = 0.69). Students in the "Other" category (N = 4) exhibit the lowest career decidedness (M = 1.25, SD = 0.50) and the highest career indecision (M = 2.90, SD = 0.12), despite the small sample size indicating significant levels of career indecision. The distribution of Career Decidedness among the study fields in depicted in Figure 10.

Figure 10

Bloxplot for Career Decidedness Distribution by the Field of Study



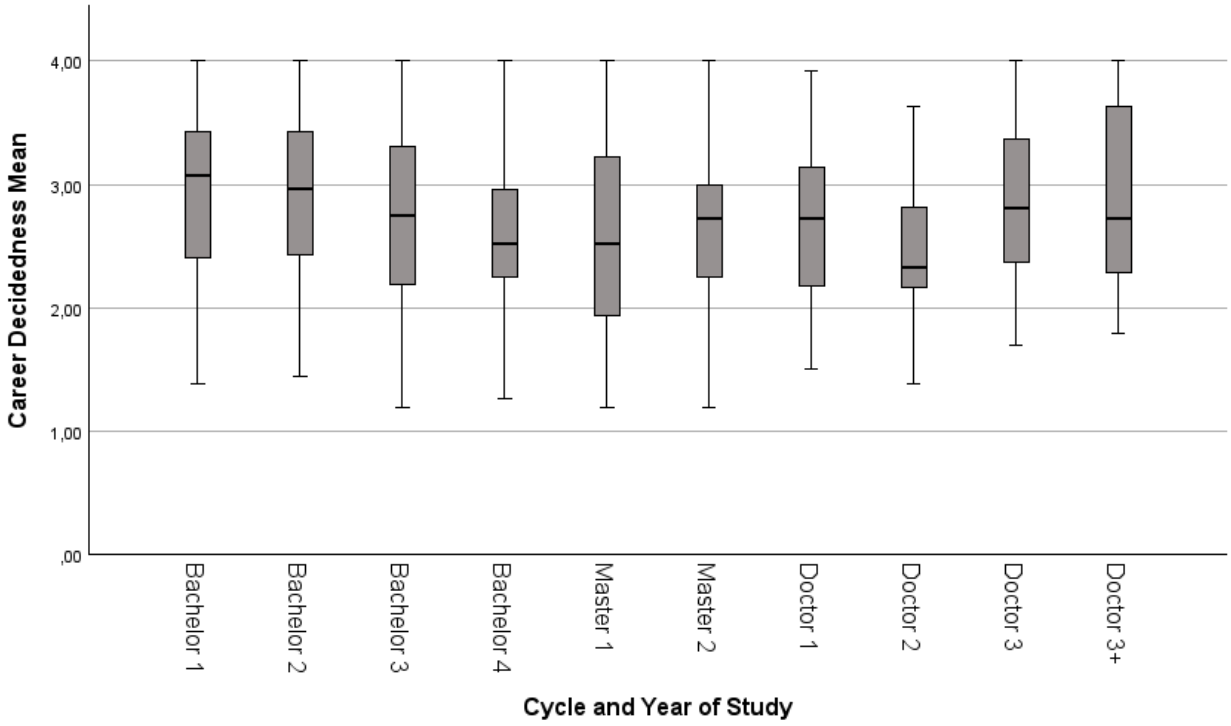
Distribution of career decidedness among educational cycles

When analyzed by educational cycle, Bachelor's students (Cycle 1, N = 236) exhibit moderate career decidedness (M = 2.71, SD = 0.88) and indecision (M = 2.02, SD = 0.66). First-year Bachelor's students show the highest career decidedness (M = 2.76, SD = 0.84) and the lowest indecision (M = 1.94, SD = 0.63), while fourth-year students show the lowest decidedness (M = 2.43, SD = 1.00) and highest indecision (M = 2.50, SD = 0.69). Master's students (Cycle 2, N = 163) show slightly lower career decidedness (M = 2.44, SD = 0.81) and higher indecision (M = 2.20, SD = 0.67). Doctoral students (Cycle 3, N = 70) exhibit a mean career decidedness of 2.63 (SD = 0.82) and career indecision of 2.17 (SD = 0.69). This suggests Doctoral students experience fluctuations in career decisiveness and indecision throughout their studies, with increasing

confidence as they progress beyond the second year. The distribution of Career Decidedness based on the year of study is depicted in Figure 11 and Table 5.

Figure 11

Bloxplot for Career Decidedness Distribution by the Study Year



Mobility students (N = 88) have a slightly higher career decidedness (M = 2.63) compared to non-mobility students (M = 2.60, N = 370) and lower career indecision (M = 2.03 vs. M = 2.12), suggesting marginally more decided and less indecisive career paths among mobility students. Regarding prior education, students from professional courses exhibit higher career decidedness (M = 3.00) and lower indecision (M = 1.90) compared to those from secondary education (M = 2.68 for decidedness and M = 2.03 for indecision). Those with a Bachelor's degree in the same area show lower career decidedness (M = 2.42) compared to those with a Bachelor's in a different area (M = 2.69). The overall mean for career decidedness across all groups is 2.61 and the mean for career indecision is 2.11 (See Table 5). This data highlights that students with professional courses and advanced degrees in different areas tend to exhibit higher career decidedness and lower indecision.

Table 5

Distribution of Respondents' Career Decidedness

Category	Career Decidedness Mean (SD)	Career Indecision Mean (SD)	GCD	N
Gender				
Male	2.51 (.88)	2.13 (.68)	2.68 (.72)	193
Female	2.68 (.83)	2.08 (.66)	2.79 (.66)	261
Other	2.50 (1.08)	2.29 (.84)	2.60 (.95)	4
Age				
18-25	2.62 (.84)	2.08 (.65)	2.76 (.69)	345
26-35	2.55 (.83)	2.18 (.73)	2.68 (.71)	75
36-45	2.55 (.62)	2.20 (.50)	2.67 (.61)	22
46-55	2.64 (.76)	2.18 (.49)	2.73 (.64)	14
56+	3.50 (-)	1.81 (-)	3.34 (.87)	2
Field of study				
STEM	2.59 (.87)	2.13 (.66)	2.73 (.69)	344
HASS	2.70 (.78)	2.02 (.69)	2.84 (.65)	115
Other	1.25 (.50)	2.90 (.12)	1.67 (.27)	4
Cycle of study				
1	2.71 (.88)	2.02 (.66)	2.85 (.70)	236
2	2.44 (.81)	2.20 (.67)	2.61 (.66)	163
3	2.63 (.82)	2.17 (.69)	2.72 (.67)	70
Mobility				
Yes	2.63 (.89)	2.03 (.68)	2.79 (.72)	88
No	2.60 (.84)	2.12 (.66)	2.73 (.68)	370
PE				
SE	2.67 (.89)	2.03 (.65)	2.82 (.71)	199
PC	3.00 (.63)	1.89 (.76)	3.05 (.65)	11
BS	2.42 (.87)	2.21 (.67)	2.60 (.69)	121
BD	2.68 (.62)	2.05 (.62)	2.81 (.56)	37
MS	2.67 (.77)	2.03 (.63)	2.82 (.61)	45
MD	2.48 (.83)	2.16 (.63)	2.65 (.68)	26
MI	2.67 (.76)	2.55(.76)	2.56 (.69)	17
DD	2.75 (1.76)	1.92 (1.19)	2.91 (1.48)	2
Total	2.61 (.86)	2.11 (.67)	2.75 (.69)	**458**

Note. SD=Standart deviation. GCD = General Career Decidedness score (combined). N=number of respondents. Cycle 1= Bachelor level. Cycle 2=Master level. Cycle 3=Doctoral level. PE=Prior Education. SE=Secondary Education. PC=Professional Cources. BS=Bachelor Degree Same Area. BD=Bachelor Degree Different Area. MS= Master Degree Same Area. MD=Master Degree Different Area. MI=Master Degree Integrated. DD=Doctoral Degree Different Area.

4.3. Inferential analysis and hypotheses validation

In this chapter, we present the inferential data analyses conducted to validate the significance of the findings and to confirm or refute the research hypotheses.

Hypotheses 1, 2 aimed to determine if the survey participants presented medium levels of academic motivation and career decidedness. To test this, a one-sample t-test was conducted to compare the students' mean scores against a medium level (score of 3 on a 1-5 scale for academic motivation and 2.5 on a 1-4 scale for career decidedness). The analysis revealed that the general academic motivation score of 2.84 was significantly lower than the medium level ($p < 0.001$), indicating slightly below the medium level of academic motivation. Similarly, the mean intrinsic motivation score of 2.88 ($p = 0.024$), as well as the extrinsic motivation score ($M = 2.77$, $SD = 0.58$, $p < 0.001$) were below medium. Conversely, extrinsic motivation (integrated regulation) was significantly higher than 3 ($M = 3.75$, $p < 0.001$), while students' demotivation was significantly lower than the medium level ($M = 1.71$, $p < 0.001$). For career decidedness, the one-sample t-test showed that the mean score of 2.75 was significantly higher than the medium level ($p < 0.001$), suggesting a slightly above medium level of career decidedness.

Resolution: H_1 ($H_{1.1}$; $H_{1.2}$; $H_{1.3}$) and H_2 are rejected.

Table 6

Descriptive Values of Scores

Variable	Mean	SD	MD	p	Result
General Academic Motivation	2.84	.512	-.153	< 0.001	Below medium
Intrinsic Motivation	2.88	1.06	-.112	.024	Below medium
Extrinsic Motivation	2.76	.575	-.233	< 0.001	Below medium
EM External Regulation	2.24	.812	-.756	< 0.001	Below medium
EM Introjected Regulation	2.79	.963	-.207	< 0.001	Below medium
EM Identified Regulation	2.27	.836	-.722	< 0.001	Below medium
EM Integrated Regulation	3.75	.831	.753	< 0.001	Above medium
Demotivation	1.71	.827	-1.128	< 0.001	Below medium
General Career Decidedness	2.75	.691	.250	< 0.001	Above medium

Note. SD=Standart Deviation. MD=Mean Difference.

Hypotheses 3, 4 aimed to determine if there is a significant difference in students' academic motivation and career decidedness based on their field of study. The ANOVA test result shows no significant differences in general academic motivation between fields of study ($p = 0.203$). At the same time, HASS students show higher intrinsic motivation than STEM students ($p = 0.009$), while STEM students present higher general extrinsic motivation ($p < 0.001$) and extrinsic motivation (external regulation) ($p < 0.001$) in comparison with HASS students. Significant differences were found also in demotivation, with STEM students being more demotivated than HASS students ($p = 0.010$). Meanwhile, career decidedness does not significantly differ between STEM and HASS students ($p = 0.317$). However, students in the "Other" group have significantly lower career decidedness than both STEM and HASS students ($p = 0.003$).

Resolution: H_3 rejected; $H_{3.1}$, $H_{3.2}$, $H_{3.3}$, and H_4 - partly accepted.

Hypotheses 5, 6 aimed to determine if there is a significant difference in students' academic motivation and career decidedness based on the year of study. The ANOVA test results indicate no significant differences in general academic motivation based on the year of study ($p = 0.981$), suggesting that academic motivation remains stable across study cycles. At the same time, there are significant differences in intrinsic motivation across study cycles ($p < 0.001$). Post hoc comparisons show that Cycle 1 students ($M = 2.63$) have significantly lower intrinsic motivation compared to Cycle 2 ($M = 3.03$) and Cycle 3 ($M = 3.36$) students, indicating an increase in intrinsic motivation with advancing study cycles. The results also show significant differences in extrinsic motivation between cycles ($p < 0.001$), with Cycle 1 students having significantly higher extrinsic motivation compared to Cycle 2 and Cycle 3 students. Extrinsic motivation (identified regulation) is significantly higher in Cycle 1 compared to Cycles 2 and 3 ($p < 0.001$); extrinsic motivation (introjected regulation) also differs significantly ($p = 0.026$), with Cycle 1 students being more motivated; while extrinsic motivation (external regulation) shows significant differences ($p < 0.001$), with Cycle 1 students having higher motivation level. The data show no significant differences in demotivation across study cycles ($p = 0.357$), indicating consistent demotivation levels regardless of study cycle.

Regarding career decidedness, results show significant differences in the scores among study cycles ($p = 0.003$), specifically Cycle 1 students have higher career decidedness ($M = 2.85$) compared to Cycle 2 students ($M = 2.61$, $p = 0.002$). However, there is no significant difference between Cycle 1 and Cycle 3 ($M = 2.72$, $p = 0.356$) and Cycle 2 and Cycle 3 ($p = 0.491$), indicating that the primary variation in career decidedness occurs between the Bachelor's and Master's levels, while Doctoral students' scores do not significantly differ from either group.

Resolution: H_5 rejected ($H_{5.1}$,$H_{5.2}$- accepted, $H_{5.3}$ - rejected) and H_6 partly accepted.

Hypotheses 7, 8 aimed to determine if there are significant differences in students' academic motivation and career decidedness based on their gender. The ANOVA results show no significant differences in general academic motivation between gender groups ($p = 0.314$). Female students have a slightly higher mean score ($M = 2.87$) compared to male students ($M = 2.81$) and students who did not identify their gender ($M = 2.64$), but these differences are not statistically significant. No significant differences in intrinsic motivation and general extrinsic motivation ($p = 0.162$) were found among gender groups. However, introjected extrinsic motivation shows marginally significant differences between genders ($p = 0.065$), with a slight difference between male and female students ($p = 0.054$). Significant differences in demotivation between gender categories were found, with individuals who prefer not to disclose their gender showing higher demotivation compared to males ($p = 0.017$) and females ($p = 0.032$). There are also no significant differences in career decidedness based on gender ($p = 0.237$). Female students have slightly higher career decidedness ($M = 2.80$) compared to male students ($M = 2.69$) and those who did not disclose their gender ($M = 2.61$), but these differences are not statistically significant.

Resolution: H_7 rejected ($H_{7.1}$ – rejected; $H_{7.2}$, $H_{7.3}$ – partly accepted) and H_8 rejected.

Hypotheses 9, 10 aimed to determine if there are significant differences in students' academic motivation and career decidedness based on age. The results show no significant differences in general academic motivation across age groups ($p = 0.377$). However, younger students (aged 18-25) have lower intrinsic motivation compared to older age groups ($p < 0.001$), with the highest levels observed in students aged 56

and above (p = 0.029), suggesting intrinsic motivation increases with age. Significant differences in extrinsic motivation scores also exist across age groups, with students aged 18-25 having higher extrinsic motivation compared to those aged 46-55 (p = 0.043). Identified and external extrinsic motivations are higher in younger students (18-25) compared to older age groups (p < 0.001). No significant differences in demotivation levels were found across age groups (p = 0.955), indicating age does not affect demotivation. Additionally, ANOVA results show no significant differences in career decidedness among age groups (p = 0.619). All age groups exhibit similar levels of career decidedness, indicating age is not a determining factor in students' career decidedness. The slightly higher mean for the 56+ age group is not statistically significant, likely due to the small sample size (N = 2).

Resolution: H_9 rejected ($H_{9.1}$, $H_{9.2}$ – accepted; $H_{9.3}$ – rejected) and H_{10} rejected.

Table 7

Comparison of Scores by Various Parameters

Variables	Field of study	Year of study	Gender	Age	Mobility**	Prior education**
General Academic Motivation	.203	.773	.314	.377	.211	.133
Intrinsic Motivation	**.012***	**< .001***	.234	**< .001***	.191	**< .001***
Extrinsic Motivation	**< .001***	**< .001***	.162	**.005***	**.003***	**.001***
EM External Regulation	**< .001***	**< .001***	.183	**< .001***	**.003***	**< .001***
EM Introjected Regulation	**.026***	**.007***	0.65	.197	**.050***	**.028***
EM Identified Regulation	**< .001***	**< .001***	.448	**.001***	**< .001***	**< .001***
EM Integrated Regulation	.771	.278	.457	.326	.590	.510
Demotivation	**.014***	.357	**.015***	.955	**.028***	.483
General career decidedness	**.003***	**.003***	.237	.619	.471	.085

Note. *p ≤ .05; **outside of hypothesis

The data analysis done outside of the hypothesis shows that students in mobility programs exhibit significantly higher levels of demotivation (p = 0.028), identified extrinsic motivation (p < 0.001), introjected extrinsic motivation (p = 0.050), and external extrinsic motivation (p = 0.003) compared to their peers not in mobility. Conversely, there are no significant differences in intrinsic motivation (p = 0.191) and integrated extrinsic motivation (p = 0.590) between the two groups. This suggests that while mobility students are more driven by external factors and may experience higher demotivation, their intrinsic motivation and integrated regulation remain similar to those not in mobility.

The analysis also reveals significant differences in intrinsic motivation, identified extrinsic motivation, and external extrinsic motivation across participants with different educational backgrounds. Specifically, students with lower levels of education (Secondary Education) tend to have lower motivation compared to those with higher levels of education (Master's and Doctorate). For intrinsic motivation, the differences are particularly notable with p-values of 0.001 and < 0.001 when comparing Secondary Education with a Master's in the same field and a Master's in another field, respectively. Additionally, there is a significant difference between Secondary Education and a Doctorate in another field (p = 0.043), and between a Bachelor's in the same field and a Master's in another field (p = 0.022). In terms of identified extrinsic motivation, significant differences are evident with p-values of 0.001 and 0.025 when comparing Secondary Education with Bachelor's in the same field and Integrated Master's, respectively, and a p-value of 0.001 when comparing

Secondary Education with Master's in another field. For external extrinsic motivation, significant differences are found with p-values of 0.003 and 0.007 when comparing Secondary Education with a Master's in the same field and an Integrated Master's, respectively.

Hypothesis 11 aimed to determine if there are significant differences in career decidedness based on the level of academic motivation. The linear regression analysis shows that academic motivation does not significantly predict career decidedness. The model's correlation coefficient (R) is 0.030, with an R-squared value of 0.001, indicating a very weak relationship. The ANOVA results ($p = 0.515$) also suggest no significant effect of academic motivation on career decidedness. Additionally, intrinsic motivation is not a significant predictor of career decidedness ($R = 0.050$, $R^2 = 0.003$, $p = 0.285$), nor is extrinsic motivation ($p = 0.711$) or demotivation ($R^2 = 0.000$, $p = 0.914$). Overall, changes in academic motivation levels did not predict changes in career decidedness within this data setting.

Table 8

Regression Analysis of The Effect of Academic Motivation on Career Decidedness

Variable	R	R^2	β	F	p
General Academic Motivation	.030	.001	-.030	.424	.515
Intrinsic Motivation	.050	.003	-.050	1.145	.285
Extrinsic Motivation	.017	.000	.017	.138	.711
Demotivation	.005	.000	-.005	.012	.914

Note. The dependent variable = Career Decidedness.

Considering the contradiction between this result and the main hypothesis of the study, as well as the reference literature, the reliability of the applied surveys was further analyzed using Cronbach's alpha coefficients for each survey item (Cohen et al., 2007). Despite the overall "reliable" and "highly reliable" α coefficients of the surveys, the detailed analysis revealed a few negative scores within specific survey items.

Specifically, in the Academic Motivation Scale, all three items representing Intrinsic Motivation showed negative scores (see Table 9), which are considered unreliable (Cohen et al., 2007). To address this issue, these unreliable items were removed from the test, and Cronbach's alpha was recalculated. This subsequent analysis identified three negative items out of four for Extrinsic Motivation Integrated Regulation (see Table 10). For clear hypothesis testing, these items were also excluded from the final analysis.The remaining items, which signify Demotivation, Extrinsic Motivation External Regulation, Extrinsic Motivation Introjected Regulation, and Extrinsic Motivation Identified Regulation, demonstrated positive α coefficients and were retained for the final analysis.

Table 9

Detailed Cronbach Alpha Analysis of the Academic Motivation Scale (p.1.)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
MA01_SQ002	71,55	183,649	,253	,794
MA02_SQ001	71,47	176,691	,461	,785
MA03_SQ001	71,36	175,261	,489	,783
MA04_SQ001	70,59	192,167	**-,041**	,807
MA05_SQ001	69,95	172,545	,499	,782
MA06_SQ001	71,05	176,696	,387	,788
MA07_SQ001	71,40	182,350	,278	,793
MA08_SQ001	70,88	170,901	,524	,780
MA09_SQ001	71,31	181,711	,260	,794
MA010_SQ001	70,72	171,450	,512	,781
MA011_SQ001	71,52	177,397	,441	,786
MA012_SQ001	69,75	179,894	,298	,792
MA013_SQ001	71,92	185,534	,281	,793
MA014_SQ001	69,99	175,707	,393	,787
MA015_SQ001	70,20	175,445	,433	,785
MA016_SQ001	71,72	182,563	,325	,791
MA017_SQ001	70,27	193,016	**-,064**	,807
MA018_SQ001	70,12	189,385	,044	,803
MA019_SQ001	71,59	182,828	,308	,792
MA020_SQ001	70,10	172,757	,498	,782
MA021_SQ001	70,37	191,564	**-,020**	,805
MA022_SQ001	71,21	180,693	,279	,793
MA023_SQ001	71,20	172,520	,537	,781
MA024_SQ001	71,46	176,665	,453	,785
MA025_SQ001	69,95	180,525	,266	,794
MA026_SQ001	69,20	188,565	,097	,799
MA027_SQ001	71,31	179,106	,352	,789
MA028_SQ001	69,12	190,885	,019	,802
MA029_SQ001	71,10	179,770	,314	,791

Table 10

Detailed Cronbach Alpha Analysis of the Academic Motivation Scale (p.2.)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
MA01_SQ002	62,89	186,644	,322	,827
MA02_SQ001	62,80	179,414	,535	,820
MA03_SQ001	62,70	177,868	,564	,818
MA05_SQ001	61,29	178,303	,474	,821
MA06_SQ001	62,38	180,999	,405	,824
MA07_SQ001	62,74	183,943	,389	,825
MA08_SQ001	62,21	173,337	,593	,816
MA09_SQ001	62,65	183,371	,359	,826
MA010_SQ001	62,06	177,564	,477	,821
MA011_SQ001	62,86	180,393	,506	,821
MA012_SQ001	61,09	187,465	,225	,831
MA013_SQ001	63,26	188,961	,356	,827
MA014_SQ001	61,33	178,453	,453	,822
MA015_SQ001	61,53	182,372	,375	,825
MA016_SQ001	63,06	185,000	,423	,824
MA018_SQ001	61,45	198,603	**-.075**	,842
MA019_SQ001	62,93	186,339	,364	,826
MA020_SQ001	61,43	179,323	,450	,822
MA022_SQ001	62,54	187,443	,229	,831
MA023_SQ001	62,54	177,558	,533	,819
MA024_SQ001	62,80	179,963	,507	,820
MA025_SQ001	61,29	184,067	,306	,828
MA026_SQ001	60,53	196,652	**-.007**	,837
MA027_SQ001	60,46	198,918	**-.086**	,839
MA028_SQ001	62,65	183,139	,381	,825
MA029_SQ001	62,44	183,757	,344	,827

The detailed Cronbach's alpha analysis was also applied to the items of the Career Decision Scale, identifying two negative items which were the only items representing Career Decidedness (see Table 11). These two items were removed from the test. Consequently, only the items signifying Career Indecision, which demonstrated positive α coefficients, were retained for further analysis.

Table 11

Detailed Cronbach alpha analysis of the Career Decidedness Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EDC01_SQ001	30,14	68,723	**-,599**	,867
EDC02_SQ001	29,86	66,559	**-,477**	,860
EDC03_SQ001	30,26	52,940	,447	,806
EDC04_SQ001	30,85	52,326	,548	,800
EDC05_SQ001	30,63	49,157	,672	,789
EDC06_SQ001	30,28	48,848	,692	,787
EDC07_SQ001	30,81	53,225	,440	,807
EDC08_SQ001	30,57	49,730	,712	,788
EDC09_SQ001	30,53	48,884	,690	,788
EDC010_SQ001	30,98	51,916	,623	,796
EDC011_SQ001	30,71	50,599	,647	,793
EDC012_SQ001	30,55	49,552	,679	,789
EDC013_SQ001	30,12	52,437	,470	,804
EDC014_SQ001	29,98	50,932	,574	,797
EDC015_SQ001	30,26	51,363	,571	,798

Based on the Cronbach's alpha test results, Hypothesis 11 was tested using linear regression to determine if there is a correlation between participants' academic motivation (specifically Demotivation, Extrinsic Motivation External Regulation, Extrinsic Motivation Introjected Regulation, and Extrinsic Motivation Identified Regulation) and their career indecision. The analysis revealed that motivation does not significantly predict career indecision. The model's correlation coefficient (R) is 0.055, with an R-squared value of 0.003, indicating a very weak relationship. The ANOVA results (p = 0.851) further suggest no significant effect of motivation on career indecision. Therefore, changes in the levels of motivation do not predict changes in career indecision within this data set, indicating that none of the motivation variables have a statistically significant impact on career indecision among the respondents.

Resolution: H_{11} ($H_{11.1}$, $H_{11.2}$, $H_{11.3}$) rejected.

Table 12

Regression Analysis of The Effect of Academic Motivation on Career Indecision

Variable	R	R^2	β	t	p
Identified Regulation	.036	.001	-.025	-.428	.669
Introjected Regulation	.050	.0025	-.045	-.825	.410
External Regulation	.002	.000	.004	.057	.955
Demotivation	.003	.000	.004	.079	.937

Note. The dependent variable = Career Indecision.

Figure 12

Histogram for Regression Standardized Residual Dependent Variable Career Indecision

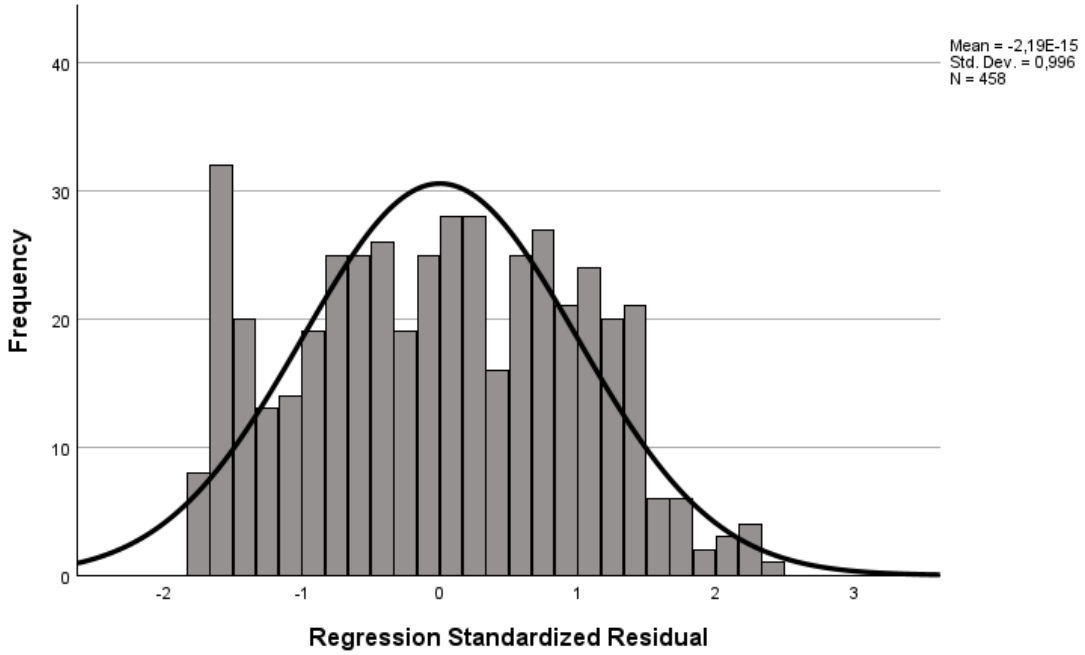
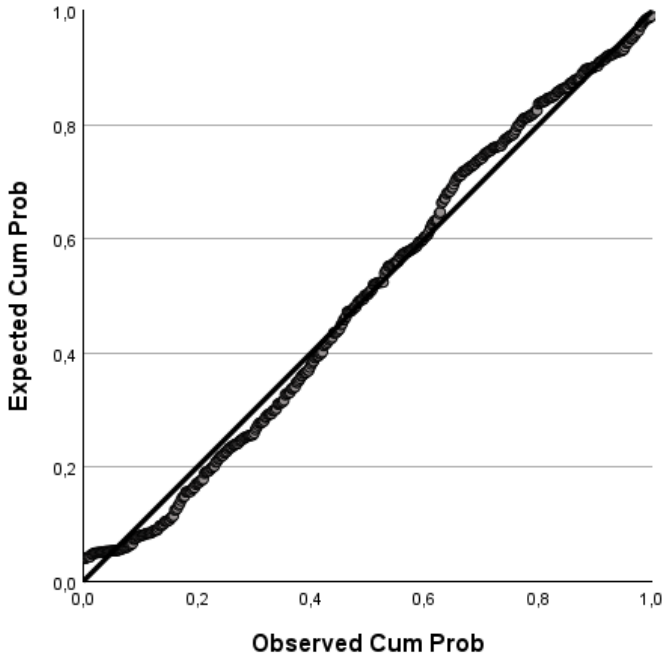


Figure 13

Normal P-P Plot of Regression Standardized Residual Dependent Variable Career Indecision



Chapter 5: Discussion

The purpose of this research was to examine the correlation between the predominant type of academic motivation and the level of career decidedness among higher education students. Additionally, the study aimed to explore how these factors relate to students' gender, age, year of study, and field of study.

The findings from the research reveal that participants exhibited below-average levels of all types of academic motivation, except for Extrinsic Motivation Integrated regulation, which was above average, that makes it a leading motivation type among the participants. In accordance with the Self-Determination Theory (Deci & Ryan, 1985) and the Self-Determination continuum (Gangé & Deci, 2015), this motivation type is characterized by a high level of autonomy and involves actions that are fully aligned with an individual's sense of self, harmonized with their values, needs, and identities. According to the research findings, the level of career decidedness among students was generally above average.

Regarding the influence of gender on academic motivation, the findings suggest that female students exhibit slightly higher levels of Extrinsic Motivation Introjected regulation compared to male students. This indicates that female students tend to internalize the importance of the activity while still being influenced by external sources of control (Gagné & Deci, 2015). This aligns with the impact of socio-economic expectations and gender pressures on females (Fernández et al., 2023; Kovach, 2018), although it contradicts Koyuncuoglu's (2020) study, which found that female students have significantly higher levels of general academic motivation than their male peers. Additionally, students who preferred not to disclose their gender exhibited higher levels of demotivation. This observation suggests a potential link between gender identity and motivational challenges, warranting further exploration into the social and psychological factors affecting these students.

No significant correlation was found between students' career decidedness in relation to their gender. This finding supports similar results from Koyuncuoglu (2020) and Siddiky & Akter (2021), yet it contradicts Fényes et al. (2021), who posited that female students are more decided and career-oriented, and Dias (2012), who sees gender as a prominent factor in career planning, or Yaşar & Sunay (2020), whose research showed that gender plays a significant role, with male students showing higher levels of career decidedness. This contradiction might be due to different cultural contexts or sample characteristics that influence career decidedness among genders.

The analysis of age-related differences in academic motivation shows that younger students (aged 18-25) demonstrated lower levels of intrinsic motivation and higher levels of extrinsic motivation, particularly in Identified and External regulation types. In contrast, older students (aged 56 and above) exhibited higher levels of intrinsic motivation and the lowest levels of extrinsic motivation, especially within the 46-55 age group. This aligns with the notion that life experience and maturity may enhance intrinsic motivational factors while diminishing the reliance on external rewards (Deci et al., 1991). There were no significant differences observed in levels of demotivation and career decidedness among the various age groups. This finding contradicts Jackson & Wilton (2017), who suggest that career choice status depends on age, and Fényes et al. (2021), who found older students to be more career decided, as well as Yaşar & Sunay (2020), who insist that career decidedness tends to increase with age.

The comparison of academic motivation levels across different educational cycles (Bachelor's, Master's, Doctoral) is well-articulated. Bachelor's level students (Cycle 1) exhibited lower levels of intrinsic motivation

compared to those at the Master's and Doctoral levels (Cycles 2 and 3). They also demonstrated higher levels of extrinsic motivation, particularly in Identified, Introjected, and External regulations. These findings support Koyuncuoglu's (2020) research, which shows an increase in academic motivation as students progress through their studies, as well as Koludrović & Ercegovac (2015), whose study shows significantly higher level of intrinsic motivation at the graduate level students, and the opposite pattern for external motivation. There were no significant differences in levels of demotivation among the students.

Regarding career decidedness, Bachelor's students showed higher levels than Master's students, with no significant difference observed when compared to Doctoral students. This suggests that the greatest variation in career decidedness occurs between the Bachelor's and Master's levels of education. This finding contradicts Koyuncuoglu's (2020) research, which reported higher levels of career decidedness in the advanced stages of education, as well as Bargmann et al. (2022), which found Bachelor's students to be the most undecided in terms of career. Possible reasons for this contradiction might include variations in the availability and quality of career support services for students at different stages of their studies.

The analysis of academic motivation levels across different fields of study reveals distinct patterns between HASS (Humanities, Arts, and Social Sciences) and STEM (Science, Technology, Engineering, and Mathematics) students. HASS students exhibited higher levels of intrinsic motivation, driven by their passion for their subjects and the intellectual freedom these fields offer. Conversely, STEM students showed higher levels of extrinsic motivation, particularly in terms of external regulation, and also displayed higher levels of demotivation compared to their HASS counterparts. This trend can be attributed to the highly structured and competitive nature of STEM fields, which often prioritize external rewards such as grades, job prospects, and financial incentives. These factors can foster extrinsic motivation over intrinsic motivation. This finding aligns with existing research, which indicates that STEM students are more likely to be extrinsically motivated (Stolk et al., 2021; Fényes et al., 2021).

No significant differences were found in the levels of career decidedness between STEM and HASS students. This contradicts the findings of Fényes et al. (2021), which indicate higher career decidedness among HASS students in comparison to the ones in STEM studies. However, students in other or unidentified fields demonstrated lower career decidedness, which might reflect a lack of clear career paths or less defined professional outcomes.

Finally, no significant correlation was found between the types of academic motivation and career decidedness among students. This indicates that the levels of intrinsic motivation, extrinsic motivation, and demotivation do not predict the level of career decidedness. This finding contradicts Koyuncuoglu's (2020) study, which found a significant positive relationship between academic motivation and career decidedness, as well as Guay's (2005) research, which states that intrinsically regulated students are less career indecisive. This major contradiction might exist due to differences in methodological approaches, sample populations, and contextual factors influencing the studies.

Additionally, this result contradicts the logic of the Self-Determination Theory (Deci & Ryan, 1985), which posits that individuals' level of autonomy (motivation) impacts their interest, behavior, and persistence in specific areas. These unexpected results necessitate further research to assess the applicability of SDT in the educational context. They may also require a 1st order epistemological jump to refine the current theoretical framework, taking into account the newly emerging tendencies and factors influencing higher education students' career decidedness.

5.1. Limitations and further research

This study has several limitations that should be addressed in future research. Firstly, certain categories within the sample size were underrepresented, such as students over the age of 56 (N=2), those identifying their gender as “Other” (N=4), and students from fields of study outside HASS or STEM (N=4). These small sample sizes may not be representative and require further investigation. Future research should consider larger and more diverse samples to enhance representativeness. Specifically, students who identified their gender as "Other" exhibited the highest levels of demotivation compared to both male and female students. From a pedopsychological perspective, it is important to investigate this matter further with a larger sample of participants. Such research will enable the development of tailored academic support systems to better address the needs of these students in the future.

Additionally, cultural and institutional differences may have influenced the findings, as all the participants were students of the University of Coimbra, in Portugal. Variations in educational systems, cultural attitudes toward education, and institutional support services can impact student motivation and career decidedness. To provide a more comprehensive understanding, future studies should examine these variables in different cultural and institutional contexts for effective cross-cultural comparisons.

Ensuring the reliability and effectiveness of the instruments used in this research is also essential. Within the sample, the Academic Motivation Scale (Vallerand, 1992) exhibited a negative Cronbach's alpha for the measurements of Intrinsic Motivation and Extrinsic Motivation Integrated Regulation, both of which represent the highest levels of autonomy according to the Self-Determination Theory (Deci & Ryan, 1985). For clear and accurate results, it is crucial to adapt these variables to ensure their reliability in future studies. Additionally, the Career Decision Scale (Osipow, 1976) does not meet current standards for quantitative Likert questionnaires due to its wordiness. Updating the CDS to align with modern survey practices will enhance its applicability and reliability in contemporary research contexts.

The reliance on self-reported data for measuring academic motivation and career decidedness could also have introduced bias, as students might overestimate or underestimate their motivation levels or career certainty. Utilizing a combination of self-reports and objective measures, such as academic performance or career counseling outcomes, as well as conducting focus groups and observations, could mitigate this bias in future studies. The cross-sectional design of the study limits the ability to draw causal inferences; thus, longitudinal studies tracking changes in motivation and career decidedness over time might provide deeper insights into how these variables evolve and interact.

Additionally, a decline in career decidedness was observed among Master’s level students compared to their Bachelor’s and Doctoral counterparts. This finding highlights the need for further investigation into the underlying causes of this decline. Developing customized approaches for career orientation during the Master’s study cycle will be crucial in supporting students' career decidedness. Additionally, HASS students are more intrinsically motivated than their STEM counterparts, raising the question of the underlying factors contributing to these differences. This suggests the need for further investigation into the specific elements of HASS and STEM curricula, teaching methods, and learning environments that may influence students' intrinsic motivation. Understanding these factors could inform targeted interventions to enhance intrinsic motivation across different fields of study.

Conclusion

Career and employability are essential outcomes of higher education. While these outcomes are influenced by numerous external factors such as labor market conditions, geographical location, family traditions, cultural differences, curriculum, and career guidance, an individual's career is significantly shaped by their choices and persistence in a particular field, demonstrated through genuine interest and behavior. Motivation, a complex psychological construct, plays a cornerstone role in forming these interests and behaviors, positioning itself at the heart of career progression and readiness of higher education students.

Despite finding no significant correlation between the level of career decidedness and the predominant type of academic motivation within the study sample, the research provides key insights into the development of individual academic motivation and career decidedness across various study fields, educational cycles, ages, and genders. The study results support previous research showing an increase in intrinsic motivation with students' age and progression through study cycles. Notable issues raised by the findings include the decline in career decidedness among Master's students and the higher levels of extrinsic motivation and demotivation in STEM students. These results create a robust platform for future investigation, offering valuable directions for exploring the underlying causes and potential interventions to enhance academic motivation and career clarity among higher education students.

On a theoretical level, the research underscores the necessity of adapting existing research instruments, specifically the Academic Motivation Scale and Career Decision Scale, to align with contemporary scientific standards. This adaptation is crucial for enhancing the reliability and validity of these quantitative questionnaires, ensuring they meet modern research demands and provide more accurate results. Additionally, the research findings highlight the need to reanalyze the Self-Determination Theory and its application within specific educational and cultural contexts. This reevaluation is essential as it reveals gaps in the current understanding and applicability of the theory in diverse settings. The study emphasizes the necessity for the educational system to seek new answers to the rapidly emerging questions surrounding academic motivation and career decidedness and highlights the path to innovative approaches and strategies that cater to the evolving needs of students in a dynamic educational and vocational landscape.

However, the study has several limitations, such as underrepresentation of certain categories within the sample size, potential cultural and institutional influences, and reliance on self-reported data, all of which should be addressed in future research to enhance the generalizability and accuracy of the results.

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Annexes

Annex A: *Extract from the Deliberations of the Research Ethics and Deontology Committee*

Extrato das Deliberações da Comissão de Ética e Deontologia da Investigação

Reunião de 21 de fevereiro de 2024

Código: CEDI/FPCEUC: 84/2

Aos vinte e um dias do mês de fevereiro de 2024, pelas 14 horas e 30 minutos, reuniu, na Sala dos Conselhos, a Comissão de Ética e Deontologia da Investigação da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra. Relativamente ao pedido de apreciação do projeto intitulado: "Motivação académica e decisão de carreira de estudantes de STEM e HASS durante o ensino superior", apresentado por Tetyana Masliyenko, sob a orientação de Carlos Sousa Reis, a CEDI deu **"Parecer favorável"**.

Coimbra, 21 de fevereiro de 2024.

A Presidente da CEDI/FPCEUC

Assinado por: **CARLA MARIA SANTOS DE CARVALHO**
Num. de Identificação: 08210398
Data: 2024.02.22 13:54:27+00'00'

Prof. Doutora Carla Carvalho

CARTÃO DE CIDADÃO

Annex B: *Validation from the Data Protection Officer*

Gmail Tetyana Masliyenko <t.masliyenko@gmail.com>

EPD-UC

Paulo Simões Lopes <epd@uc.pt> 13 марта 2024 г. в 15:00
Кому: Tetyana Masliyenko <uc2022207190@student.uc.pt>
Копия: Carlos Francisco de Sousa Reis <csreis@uc.pt>

Cara Tetyana Masliyenko,
boa tarde.

Verifiquei nesta data que o estudo não recolhe diretamente qualquer informação suscetível de ser razoavelmente utilizada para identificar uma pessoa singular. Indiretamente, o LimeSurvey 135817, a operar nos servidores da UC (FPCE), está no presente momento configurado para não recolher dados pessoais do respondente, incluindo o seu IP ou o URL de referência, nem utiliza tokens (chaves eletrónicas) que permitam a identificação do respondente.

Assim, concluo no seguinte:
- As operações de tratamento que se pretendem efetuar, estão isentas do âmbito de aplicação material do RGPD;
- O estudo afigura-se com um nível de criticidade mínimo para os respetivos participantes, i.e., os impactos na sua privacidade são tendencialmente pouco significativos e não existe exposição ao risco, pelo que, do ponto de vista da proteção de dados, a requerente poderá prosseguir com a sua realização, sem necessidade de outros formalismos.

Contudo, deixo uma sugestão à informação inicial: substituição do endereço de contacto "gmail", por "uc2022207190@student.uc.pt".
Se assim o entender, na mesma informação, poderá utilizar o contacto do EPD, para eventual contato e até para garantia do que aqui vai atestado.

PS: Poderá utilizar esta informação para comunicação à Qualidade do meu entendimento. Caso pretenda alterar o inquérito, por exemplo para divulgação externa, terá de solicitar nova análise e emissão de parecer para entidades externas à UC.

Votos de bom trabalho,

Paulo Simões Lopes
Encarregado de Proteção de Dados

Universidade de Coimbra • Reitoria • Administração • SAG
Divisão de Proteção de Dados e Informação Administrativa
Edifício Faculdade de Medicina, Rua Larga
3004-504 COIMBRA • PORTUGAL
239 855 222 (262850) | 963 358 zero quatro três
epd[at]uc.pt | www.uc.pt/protecao-de-dados

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Annex C: *LimeSurvey Research Questionnaire*

LimeSurvey

Estimado/a Estudante,

Está a ser convidado/a a participar num estudo "*Motivação académica e decisão de carreira de estudantes de STEM e HASS durante o ensino superior*", que tem como objetivo explorar a motivação de carreira entre estudantes universitários, com especial enfoque na correlação entre motivação académica e decisões de carreira, com atenção particular aos estudantes de diferentes áreas de estudo. Todos os estudantes universitários são convidados a participar caso sintam que possuem um nível suficiente de proficiência em português. Esta investigação é conduzida como parte do programa de Mestrado na Faculdade de Psicologia e Ciências da Educação da Universidade de Coimbra. A investigadora responsável é Tetyana Masliyenko, supervisionada pelo Professor Doutor Carlos S. Reis. O estudo recebeu aprovação do Comissão de Ética e Deontologia da Investigação da FPCE-UC, datada 21.02.2024.

Esse questionário deve ser respondido online e inclui um breve levantamento sociodemográfico e dois inquéritos de atitudes, com 29 e 15 perguntas, respetivamente. O tempo estimado para conclusão é de 15 minutos.

Ao participar neste inquérito, terá a oportunidade de refletir sobre si mesmo/a e analisar mais profundamente a sua situação académica e profissional, envolvendo apenas riscos mínimos inerentes a qualquer acesso à internet.

A sua participação é estritamente anónima, não é necessário fornecer o seu nome nem quaisquer dados pessoais confidenciais. A plataforma online utilizada para recolher os questionários não permite a identificação de nenhum dos participantes. Toda a informação obtida será utilizada exclusivamente para este estudo e estará sob a responsabilidade da investigadora, T. Masliyenko. Os dados serão armazenados no computador pessoal e em discos externos durante o período da pesquisa e elaboração da tese de mestrado. Os resultados da pesquisa serão elaborados na forma de dissertação de mestrado e artigos científicos. Você não será notificado pessoalmente sobre os resultados do estudo.

A sua participação é voluntária, e pode optar por não participar ou retirar-se a qualquer momento fechando o questionário. Apenas respostas totalmente preenchidas serão incluídas na pesquisa. A participação não implica qualquer pagamento.

Se tiver alguma dúvida durante ou após o inquérito, não hesite em contactar a investigadora, Tetyana Masliyenko, através do e-mail: uc2022207190@student.uc.pt.

Ao prosseguir para responder às questões do inquérito, declara que leu e compreendeu a declaração de consentimento informado, concorda com os seus termos e confirma que a sua participação é voluntária.

LimeSurvey

Secção A: Por favor, responda às seguintes perguntas.

A1. Indique a sua idade.

A2. Indique o seu sexo.

- ☐ Masculino
- ☐ Feminino
- ☐ Outro/Não quero dizer

A3. Identifique a Faculdade da Universidade de Coimbra onde estuda.

- ☐ Faculdade de Letras
- ☐ Faculdade de Direito
- ☐ Faculdade de Medicina
- ☐ Faculdade de Ciências e Tecnologia
- ☐ Faculdade de Farmácia
- ☐ Faculdade de Economia
- ☐ Faculdade de Psicologia e Ciências da Educação
- ☐ Faculdade de Ciências do Desporto e Educação Física
- ☐ Outro

A4. Indique se é estudante a realizar mobilidade.

- ☐ Sim
- ☐ Não

A5. Identifique o ano atual que frequenta.

- ☐ Licenciatura: 1°ano
- ☐ Licenciatura: 2° ano
- ☐ Licenciatura: 3° ano
- ☐ Licenciatura: 4° ano
- ☐ Mestrado: 1° ano
- ☐ Mestrado: 2° ano
- ☐ Doutoramento: 1° ano
- ☐ Doutoramento: 2° ano
- ☐ Doutoramento: 3° ano

Doutoramento: Mais de 3 anos ☐

A6. **Indique o tipo de ensino anterior que frequentrou antes do curso atual.**

Ensino secundario ☐
Cursos Profissionais ☐
Licenciatura da mesma area ☐
Licenciatura da outra area ☐
Mestrado da mesma area ☐
Mestrado da outra area ☐
Mestrado Integrado ☐
Doutoramento da mesma area ☐
Doutoramento da outra area ☐

Secção B: Escala de motivação académica

B1. **Identificação das razões por que frequenta a Universidade.**

Com base na escala abaixo indique em que medida cada um dos itens corresponde, atualmente, a uma razão para vir à Universidade.

- Nenhuma correspondência - Pouca correspondência - Moderada correspondência - Muita correspondência - Total correspondência

1. Sinceramente, não sei porque venho à Universidade.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

B2. **2 .Venho à Universidade porque a frequência é obrigatória.**

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

B3. **3. Venho à Universidade para não ter faltas.**

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

B4. **4. Pelo prazer que tenho quando me envolvo em debates com professores interessantes.**

1 2 3 4 5

B5. **5. Venho à Universidade para provar a mim mesmo que sou capaz de terminar o curso.**

1 2 3 4 5

B6. **6. Venho à Universidade para não ficar em casa.**

1 2 3 4 5

B7. **7. Sinto que estou a perder o meu tempo na Universidade.**

1 2 3 4 5

B8. **8. Venho porque é isso que esperam de mim.**

1 2 3 4 5

B9. **9. Eu já tive boas razões para ir à Universidade, mas, atualmente, tenho dúvidas sobre continuar.**

1 2 3 4 5

B10. **10. Para mostrar a mim mesmo que sou uma pessoa inteligente.**

1 2 3 4 5

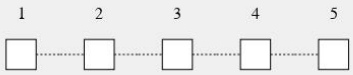
B11. **11. Venho à Universidade porque a presença é obrigatória.**

1 2 3 4 5

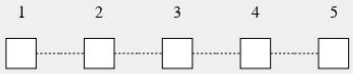
B12. **12. Porque a educação é um privilégio.**

1 2 3 4 5

B13. **13. Eu não percebo porque deva ir à Universidade.**

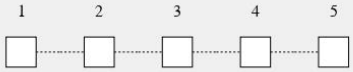


B14. **14. Venho à Universidade para conseguir o diploma de conclusão.**



B15. **15. Venho à Universidade porque quando sou bem-sucedido sinto-me importante.**

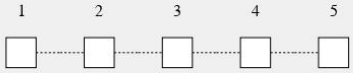
B16. **16. Eu não sei, nem percebo o que estou a fazer na Universidade.**



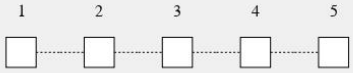
B17. **17. Porque para mim a Universidade é um prazer.**

B18. **18. Porque o acesso ao conhecimento faz-se na Universidade.**

B19. **19. Eu não percebo se faz alguma diferença frequentar a Universidade.**

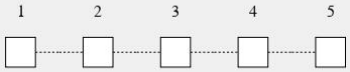


B20. **20. Porque quero mostrar a mim mesmo que posso ser bem-sucedido nos estudos.**



B21. **21. Porque gosto muito de ir à Universidade.**

B22.	**22. Porque considero que o registo das presenças é necessário para a aprendizagem.**
B23.	**23. Quero evitar que as pessoas me vejam como um aluno desleixado.**
B24.	**24. Venho à Universidade porque a frequência das aulas é obrigatória.**
B25.	**25. Caso a frequência não fosse obrigatória poucos alunos assistiriam às aulas.**
B26.	**26. Porque estudar amplia horizontes.**
B27.	**27. Venho à Universidade porque foi isso que escolhi para mim.**
B28.	**28. Venho à Universidade porque enquanto estiver a estudar não preciso de trabalhar.**
B29.	**29. Os meus amigos são o principal motivo pelo qual venho à Universidade.**



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Secção C: Escala de Decisão da Carreira

C1. **Neste questionario deve decidir até que ponto cada afirmação traduz realmente o seu modo de pensar sobre os projetos educativas e profissionais, de acordo com uma escala de concordância de 4 pontos.**

1. Já decidi qual a profissão vou seguir, sinto-me bem e já sei o que vou fazer para que isso aconteça.

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C2. **2. Já decidi qual o curso que vou seguir, sinto-me bem e já sei o que vou fazer para que isso aconteça.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C3. **3. Várias profissões me atraem, mas tenho tido dificuldade em me decidir por uma delas.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C4. **4. Sei que terei de trabalhar, mas nenhuma das profissões que conheço me atrai.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C5. **5. Ainda não pensei muito numa profissão. Sinto-me um pouco perdido(a) quando penso nisso, porque não tenho experiência de fazer escolhas sozinho(a) e não me sinto suficientemente informado(a) para fazer essa escolha agora.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C6. **6. A escolha de uma profissão parece depender de tanta coisa e ser tão incerta que às vezes me sinto sem coragem, mas gostaria que tomar uma decisão logo que possível.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C7. **7. Já me tinha decidido por uma profissão, mas entretanto verifiquei que é difícil atingir o que queria e agora tenho que voltar ao início e ver outras alternativas.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C8. **8. Quero ter a certeza absoluta que a minha escolha é acertada, mas nenhuma das profissões que conheço parece ser a ideal.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C9. **9. Ter de me decidir por uma profissão chateia-me. Gostaria de tomar rapidamente uma decisão e andar para a frente. Gostaria de fazer um teste que me indicasse qual a profissão a seguir.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

C10. **10. Sei que gostaria de me formar, mas não sei que curso me satisfaria.**

- ☐ 1- Nada parecido comigo
- ☐ 2- Pouco parecido comigo
- ☐ 3- Muito parecido comigo
- ☐ 4- Exactemente como eu

C11. **11. Neste momento é difícil tomar uma decisão, porque não conheço muito bem as minhas capacidades.**

- ☐ 1- Nada parecido comigo
- ☐ 2- Pouco parecido comigo
- ☐ 3- Muito parecido comigo
- ☐ 4- Exactemente como eu

C12. **12. Não tenho interesses definidos. Há várias coisas que me atraem, mas não tenho a certeza se estão de acordo com as minhas possibilidades.**

- ☐ 1- Nada parecido comigo
- ☐ 2- Pouco parecido comigo
- ☐ 3- Muito parecido comigo
- ☐ 4- Exactemente como eu

C13. **13. Interesso-me por várias coisas e acho que sou capaz de fazê-las, independentemente do que vier a seguir. O que me custa é escolher precisamente uma delas.**

- ☐ 1- Nada parecido comigo
- ☐ 2- Pouco parecido comigo
- ☐ 3- Muito parecido comigo
- ☐ 4- Exactemente como eu

C14. **14. Preciso de mais informações sobre as profissões antes de tomar uma decisão.**

- ☐ 1- Nada parecido comigo
- ☐ 2- Pouco parecido comigo
- ☐ 3- Muito parecido comigo
- ☐ 4- Exactemente como eu

C15. **15. Acho que sei o que quero seguir, mas sinto que preciso de mais ajuda para fazer uma escolha.**

- 1- Nada parecido comigo ☐
- 2- Pouco parecido comigo ☐
- 3- Muito parecido comigo ☐
- 4- Exactemente como eu ☐

Obrigado pela sua participação!