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Linking Decision-Making Styles and Entrepreneurial Competences: Insights from the EntreComp Framework

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Abstract

Background: The increasing entrepreneurial activity among young people highlights the importance of understanding the competences and decision-making styles that influence their success. The European Union emphasizes the development of entrepreneurial competences, as outlined in the EntreComp framework, which comprises Ideas and Opportunities, Resources, and Into Action. Decision-making in entrepreneurship occurs under conditions of uncertainty, requiring adaptive cognitive approaches.

Purpose: This study examines the relationship between entrepreneurial competences and decision-making styles among university students, aiming to identify patterns that contribute to effective entrepreneurial behaviour.

Study design/methodology/approach: The research involved 245 university students (aged 19–25) who completed questionnaires assessing their perceived entrepreneurial competences and decision-making styles. EntreComp competences were measured using a validated scale, while decision-making styles were categorized as rational, intuitive, dependent, avoidant, or spontaneous. Statistical analyses included Spearman correlations and multiple linear regression to explore associations and predictive relationships.

Findings/conclusions: The results demonstrate that rational and intuitive decision-making styles positively predict higher self-perceived entrepreneurial competencies. These styles align with analytical and adaptive approaches essential for recognizing opportunities and managing uncertainty. In contrast, avoidant and spontaneous decision-making styles are negatively associated with entrepreneurial competences, reflecting tendencies toward impulsivity or inaction that hinder effective entrepreneurship. Dependent styles show weaker, positive relationships with some competences.

Limitations/future research: The study relies on self-reported data, which may be influenced by social desirability or subjective biases. Future research should explore objective measures of entrepreneurial competences and investigate the role of cognitive factors, such as time orientation and perfectionism, in decision-making and entrepreneurial success.

Keywords

Entrepreneurship, entrepreneurial competence, youth entrepreneurship, decision-making style, European Union

Introduction

According to reports by the Global Entrepreneurship Monitor, the average age of entrepreneurs is decreasing by approximately one year annually, with an increasing number of young people choosing to start their entrepreneurial journeys (Barrientos-Báez et al., 2022). Some sources even suggest that generations born in the 21st century are the most entrepreneurial in history. According to the Global Entrepreneurship Monitor report published in 2015, which analysed data from 2012 to 2014, young people aged 18–34 showed higher levels of entrepreneurial intention than adults. During the period between 2012 and 2016, 4.9% of young people in the European Union were actively involved in starting a business, while this proportion was 6.6% in OECD countries. Notably, one in five young entrepreneurs during this timeframe began their business in collaboration with others, exceeding the average rate for the adult population (OECD/European Union, 2017b, p. 58).

The most recent estimates indicate a high level of entrepreneurial interest among young people, with 39% of individuals aged 15–30 in the European Union preferring self-employment over traditional employment (OECD/European Commission, 2023, p. 42). However, data from 2018–2022 reveal that only 5% of young people aged 18–30 in the European Union reported working on a start-up, and an additional 4% were running their own business (OECD/European Commission, 2023, p. 23). In OECD countries, young people displayed slightly higher entrepreneurial activity, with 9% involved in start-ups and another 5% managing their own businesses. From the perspective of the European Union and OECD, this level of engagement remains insufficient and is seen as an underutilization of the potential of young people. It is estimated that if young individuals were as entrepreneurial as the core generation (those aged 30–49), this could translate into approximately 812,000 "missing" young entrepreneurs in the European Union and 3.6 million in the OECD (OECD, 2023, p. 102).

A key priority for the European Union has thus become the development of entrepreneurial competences among young people, enabling them to make critical decisions in uncertain, stressful, and interpersonally challenging environments. The present study focuses on exploring the relationships between entrepreneurial competences and various decision-making styles.

In the present study, the term *youth* refers specifically to individuals aged 19 to 25 years. While the European Union defines youth as persons aged 18 to 30 (European Union, 2018) and the OECD often uses a broader range, such as 15 to 29 years (OECD, 2022), this study adopts a narrower definition. The focus on university students reflects both a practical and a conceptual rationale. From a developmental perspective, the age group 19–25 represents a period of emerging adulthood, in which individuals actively engage in decisions related to education, identity, and career (Murphy et al., 2010)—factors closely linked to entrepreneurial development.

1. Entrepreneurial competence

In the context of the European Union, entrepreneurship is recognized as one of the eight key competences for lifelong learning (European Union, 2018). Entrepreneurial competence refers to the ability to identify and utilize opportunities and ideas, transforming them into value for others. It is grounded in creativity, critical thinking, problem-solving, initiative, perseverance, and the capacity for collaborative work aimed at planning and managing projects that generate cultural, social, or financial value (European Union, 2019, p. 13).

The development of entrepreneurial competences among young people is a key priority for the European Union (2018), as it directly aligns with broader goals of economic growth, social inclusion, and political stability. In 2015, the concept of entrepreneurial competence was formalized into the EntreComp framework (McCallum et al., 2018), designed to systematize the support for developing entrepreneurial competences across the European population. This framework not only defines entrepreneurship as a lifelong learning competence but also provides universal guidelines for implementing its development in various contexts, including formal education, non-formal learning, and workplace training. It was developed as a potential common reference framework intended to guide all types of educational and training programs, equipping citizens with competencies considered applicable across all areas of life (Armuña et al., 2020). The framework outlines and explains the specific knowledge, skills, and attitudes that need to be cultivated to enable individuals to recognize opportunities in their surroundings, identify resources, and take action to create value. Importantly, this value is not limited to business contexts; it may also encompass social, cultural, or environmental contributions (Komarkova et al., 2015; McCallum et al., 2018).

Within the EntreComp framework, entrepreneurship is regarded as a key transversal competence, applicable to individuals and groups across various areas of life. It is defined as the ability to transform opportunities and ideas into value for others, with this value being financial, cultural, or social (Vestergaard et al., 2012). This definition emphasizes value creation irrespective of its type or context, encompassing activities across all sectors and value chains—whether in the private, public, or third sector, or combinations thereof. As such, it includes diverse forms of entrepreneurship, such as intrapreneurship, social entrepreneurship, green entrepreneurship, and digital entrepreneurship.

The EntreComp framework is built on the premise that entrepreneurship can be applied in every sphere of life. This enables individuals to foster their personal development, actively contribute to societal progress, enter the labour

market as employees or self-employed professionals, and establish or grow businesses with cultural, social, or commercial orientations.

The EntreComp framework consists of three core competence areas: Ideas and Opportunities, Resources, and Into Action. Each of these stages in the process is characterized by five specific competencies, resulting in a total of 15 competencies (Bacigalupo et al., 2016, p. 10):

1. Ideas and Opportunities – spotting opportunities, creativity, vision, valuing idea, ethical & sustainable thinking
2. Resources – mobilising others, financial & economical literacy, mobilising resources, motivation & perseverance, self-awareness & self-efficacy
3. Into Action – taking initiative, planning & management, coping with ambiguity, uncertainty & risk, working with others, learning through experience

Each of these 15 competencies is further enriched by two to six sub-competencies, resulting in a total of 60 sub-competencies, referred to as threads. It is important to note that these competencies do not operate in isolation but are interconnected. They are also considered equally significant, meaning no single competency dominates as more critical to entrepreneurship than the others. Additionally, the framework does not aim for individuals to develop all competencies equally or to their maximum potential, as every entrepreneurial activity and individual requires a unique combination of skills (McCallum et al., 2018).

2. Youth entrepreneurship

By supporting young entrepreneurs, the European Union can stimulate the creation of new businesses, which naturally leads to job creation, increased productivity, and economic diversification. Young people often spearhead innovative industries that enhance the EU's competitiveness in the global market. Their openness to innovation fosters the development of new products, services, and business models, which can disrupt traditional sectors and generate new opportunities for sustained economic growth. Furthermore, promoting entrepreneurship among young people plays a pivotal role in addressing unemployment, which remains a significant challenge in many EU member states (Ghazy et al. 2022). Since young entrepreneurs create jobs not only for themselves but also for others, their activities contribute to broader economic stability and social cohesion (Halabisky, 2012). Moreover, fostering an entrepreneurial culture among young people encourages initiative, innovation, and the courage to pursue their goals. These entrepreneurs are more adaptable to change and resilient during crises, as they can identify and implement novel solutions to emerging challenges. Equally significant is the role of young entrepreneurs in promoting social inclusion and reducing inequalities. By supporting entrepreneurship in economically less developed regions, the EU can stimulate local economies and help reduce regional disparities (Kim et al., 2020).

In recent years, the traditional approach to business has been challenged by the need for greater environmental and social responsibility (Krstić, et al., 2025). The EU also aims to inspire young people to engage in social entrepreneurship, which provides not only financial but also social and environmental benefits, particularly in areas such as sustainability (economic, environmental, social; Milenković et al., 2025), social justice, and community development. The socio-psychological traits of Generation Z (1996–2010) align with these goals, as this generation is particularly attuned to issues of sustainability and social responsibility (Bresler et al., 2020). Supporting youth entrepreneurship is therefore not only a means to address current economic challenges but also a strategy to secure a prosperous, inclusive, and sustainable future for Europe.

The European Union has developed several policies addressing the promotion of youth entrepreneurship. One of these is the EU Youth Strategy, which sets the following objectives: (1) addressing youth concerns in employment strategies; (2) investing in skills sought by employers; (3) enhancing career guidance and advisory services; (4) supporting opportunities for work and education abroad; (5) promoting quality internships; (6) improving childcare and shared family responsibilities; and (7) fostering entrepreneurship. The prioritization of youth entrepreneurship within the EU's political agenda is evident, positioning it as a tool to combat youth unemployment and social exclusion while fostering innovation among young people. For example, promoting youth entrepreneurship is one of the objectives of the Europe 2020 strategy ("Youth on the Move"). Employment and entrepreneurship are also among the eight areas of action supported by the EU Youth Strategy (2010–2018). Additionally, entrepreneurship is identified

as a key competence within the European Reference Framework of Key Competences for Lifelong Learning (European Union, 2018).

Youth work and non-formal education play a crucial role in developing the creative and innovative potential of young people, including their entrepreneurial competencies. Training programs in entrepreneurship, coaching, and mentoring initiatives are among the most common types of support offered by governments to foster youth entrepreneurship (OECD, 2021). This underscores the fact that education at all levels is vital for the development of entrepreneurial competencies (OECD/European Commission, 2020).

The European Higher Education Area (EHEA) has placed the concept of competence at the centre of the educational process (Ferreras-Garcia et al., 2021). As noted by Barrientos-Báez et al. (2022), universities are uniquely positioned to quickly adapt to societal changes and implement improvements to optimize educational activities. Universities therefore play a pivotal role in developing entrepreneurial competencies by providing students with essential education, resources, and support systems to enhance their entrepreneurial skills (Stephens et al., 2021).

Through specialized courses, workshops, and experiential learning opportunities, universities help students acquire critical entrepreneurial knowledge and practical skills such as financial management, marketing, and innovation (OECD, 2019). Additionally, many universities host incubators, accelerators, and entrepreneurship competitions, offering students mentorship, funding opportunities, and real-world experience in launching and managing a business (OECD/European Union, 2017a).

Universities also foster an entrepreneurial culture by encouraging interdisciplinary collaboration, where students from diverse fields come together to develop innovative solutions to complex problems (Hintikka et al., 2022; Ligonenko et al., 2023). This environment not only promotes creativity and problem-solving but also instils a proactive mindset in students, motivating them to take initiative and engage in entrepreneurial activities.

By providing a supportive ecosystem, universities enable students to explore and test their entrepreneurial ideas in a safe and resource-rich environment, which is crucial for the growth and development of young entrepreneurs. College and university graduates are more likely to establish new businesses compared to non-graduates, employ more people, and make significantly greater investments in their companies than entrepreneurs without academic education (Huang et al., 2021; Huňady et al., 2018).

The development of entrepreneurial competencies is particularly crucial for university students, who, compared to high school students, are at a more advanced stage of personal and academic development. This enables them to better understand and engage with complex entrepreneurial concepts. University students often possess more specialized knowledge in their chosen fields, allowing them to identify specific markets and innovative opportunities within these areas. This deeper academic foundation equips them with analytical and critical thinking skills essential for addressing the challenges of starting and managing a business (Crespí et al., 2022). The university environment typically offers a greater array of resources and entrepreneurship-focused opportunities, such as access to business incubators, accelerators, mentoring programs, and professional networks (OECD, 2019). These resources provide university students with practical experience and support, which are vital for launching and sustaining a business.

3. Entrepreneurial competence and decision-making

The entrepreneurial environment is inherently unpredictable, characterized by rapidly changing markets, shifting customer preferences, and technological advancements. Entrepreneurs must constantly make decisions with incomplete information, manage risks, and adapt to new challenges. They are frequently under pressure to make quick decisions that can have significant long-term consequences, whether it involves launching a product, entering a new market, or responding to a crisis (Shepherd et al., 2015). The ability to make sound decisions under pressure is therefore critical. Entrepreneurial decision-making often takes place in contexts of high uncertainty and complexity. Entrepreneurs must navigate environments where information is incomplete, outcomes are unpredictable, and the stakes are high. Such uncertainty demands decision-making approaches that are both adaptive and resilient. Entrepreneurial decision-making often takes place in contexts of high uncertainty and complexity. In the context of entrepreneurship education, Ilonen, Heinonen, and Stenholm (2018) identified four

decision-making logics—causal, effectual, hybrid, and coping—among university students participating in business creation projects. Their study revealed that students often shift between these logics depending on situational factors such as uncertainty, team dynamics, and perceived failure. Although some student teams did not establish viable ventures, the process itself led to a deeper understanding of entrepreneurship and self-perception as potential entrepreneurs.

Cohen and Wirtz (2022) identify two decision-making styles in the context of entrepreneurship. The control-oriented decision-making style is based on the belief that entrepreneurs can shape their future through their actions. Rather than attempting to predict the future, these individuals focus on controlling variables and creating opportunities by leveraging their resources and networks. Entrepreneurs who adopt a control-oriented approach are more likely to employ innovative and flexible financial strategies. However, this decision-making style involves higher risks, as it often entails acting without extensive forecasting or planning. Entrepreneurs who adopt a predictive decision-making style heavily rely on forecasting, planning, and analysing market trends to guide their financial decisions. This style operates on the assumption that the future can be predicted with reasonable accuracy based on available data and trends. Predictive approaches are often associated with more structured financial planning and cautious growth strategies. Entrepreneurs using this style tend to seek stability and are more likely to follow traditional financing paths, such as bank loans or equity investments. However, this approach may limit their ability to quickly adapt to unforeseen changes or seize unexpected opportunities.

The study by De Winnaar and Scholtz (2020) highlights the interplay between cognitive (rational) and emotional (irrational) factors in entrepreneurial decision-making. According to the authors, entrepreneurs often rely on a combination of logic, intuition, and emotional intelligence when making decisions (De Winnaar & Scholtz, 2020; Sanda & Sallama, 2023).

Several studies have demonstrated a positive relationship between the rational decision-making style and entrepreneurial intentions. The emphasis of this style on thorough analysis and planning aligns with calculated risk-taking and strategic thinking, which are often essential in entrepreneurship (Krasniqi et al., 2019). Entrepreneurs with a rational decision-making style excel at recognizing opportunities due to their meticulous analysis of market data, trends, and potential risks. This cautious approach enables them to identify viable opportunities that others might overlook. The rational decision-making style is closely linked to effective risk management. Entrepreneurs who adopt this style are typically more diligent in assessing potential risks before making decisions, leading to more calculated and less risky entrepreneurial activities. While rational decision-makers can also be innovative, their innovations tend to be more structured and methodical, focusing on incremental improvements rather than radical changes (Yener, 2020). Moreover, individuals who employ a rational approach are more likely to engage in social entrepreneurship. They systematically identify social problems, analyse potential solutions, and implement innovative projects to address these challenges (Cohen & Wirtz, 2022).

The rational decision-making style is often closely associated with the analytical decision-making style, which is characterized by a focus on data, systematic analysis, and structured approaches. Entrepreneurs with an analytical cognitive style tend to delve deeply into research and information gathering, using detailed data analysis to inform their decisions (Sassetti et al., 2022). This style is marked by thorough research, careful consideration of various options, and a strong emphasis on minimizing risks. Wang, Liu, and Wang (2019) identified key cognitive dimensions—such as task division, monitoring ability, and consensus-building—that significantly influence the speed and effectiveness of decision-making among student entrepreneurs. Their findings suggest that structured cognitive strategies, especially professional task allocation and monitoring, enhance decision quality, which aligns with the core characteristics of rational and analytical styles. Research shows that students who self-select into entrepreneurship programs tend to exhibit higher risk tolerance and specific cognitive patterns that influence their entrepreneurial decision-making. These characteristics should be considered when interpreting their intentions and designing effective training (Zichella & Reichstein, 2023).

Entrepreneurs employing an analytical decision-making style are more likely to engage in detailed financial planning. They tend to create comprehensive business plans, seek external sources of funding, and carefully manage cash flows. This approach often results in more stable

financial management; however, it may also slow down decision-making processes in rapidly changing environments.

Entrepreneurs who adopt an analytical decision-making style often achieve sustainable and stable growth. Their emphasis on meticulous planning and aversion to risk helps them avoid major financial setbacks, contributing to long-term success. However, the same cautious approach may also slow down growth, as decisions are made more conservatively (Cohen & Wirtz, 2022).

Interestingly, this conservative profile contrasts with recent findings by Ma, Fiet, and Dubofsky (2023), who compared entrepreneurs and non-entrepreneurs under risk conditions. They observed that entrepreneurs tend to rely more on intuition and are less influenced by how opportunities are framed, while non-entrepreneurs display more caution and are more affected by cognitive biases. These results suggest that intuitive decision-making may offer a competitive edge in environments characterized by uncertainty and rapid change.

Indeed, individuals with an intuitive decision-making style typically draw upon their instincts, past experiences, and situational alertness, rather than engaging in extensive data collection. This approach enables quicker decisions, though sometimes at the expense of thoroughness (Sassetti et al., 2022). Nevertheless, intuitive decision-makers are often highly adept at spotting entrepreneurial opportunities, particularly in volatile or ambiguous contexts (Yener, 2020).

Intuitive decision-making is also a strong predictor of entrepreneurial intentions. Individuals who trust their instincts and experiences are more likely to engage in entrepreneurial activities, as this style supports opportunity recognition and decision-making in uncertain and dynamic settings. Their ability to quickly perceive and react to emerging opportunities, coupled with their willingness to trust their instincts and explore unconventional ideas, allows them to innovate rapidly and adapt to changing market conditions, giving them a competitive advantage in fast-moving markets (Yener, 2020).

However, this style is often less structured, with decisions made quickly based on perceived opportunities or threats rather than detailed analysis (Cohen & Wirtz, 2022).

Intuitive decision-making is also strongly associated with social entrepreneurship. Individuals who rely on intuition excel at recognizing social needs and opportunities for innovation, often making quick decisions that lead to the realization of social entrepreneurial initiatives (Akdeniz & Korkmaz, 2023). Intuitive decision-makers tend to be more flexible and adaptive in their financial strategies, enabling them to seize new opportunities, adjust when necessary, and make rapid decisions aligned with emerging market trends. However, this style can also lead to higher financial risks if decisions are made without sufficient data or planning (Cohen & Wirtz, 2022). While both spontaneous and intuitive decision-makers may be more willing to take risks, and their ability to quickly adapt and capitalize on opportunities can result in significant short-term gains, this approach has a dual edge. The lack of thorough analysis can expose them to unforeseen risks, yet it also allows them to pursue high-risk, high-reward opportunities (Yener, 2020). Additionally, the absence of detailed financial planning can lead to instability and potential challenges if market conditions change unexpectedly (Cohen & Wirtz, 2022).

Some entrepreneurs adopt a heuristic decision-making style, where they apply rules of thumb, shortcuts, or past experiences to make financial decisions. This style combines analytical and intuitive approaches, aiming to simplify complex decisions in uncertain environments. Entrepreneurs using heuristics rely on practical, experience-based guidelines to inform their financial choices, which can be particularly effective when quick decision-making is essential. This style fosters agility while maintaining a degree of risk management. Entrepreneurs employing heuristics tend to achieve growth that is both adaptive and resilient. By leveraging practical rules, they navigate uncertain environments effectively, balancing the need for speed with the necessity of managing risks (Cohen & Wirtz, 2022). Students with higher entrepreneurial tendencies may prefer faster and less analytical decision-making, while those with lower entrepreneurial inclinations are more likely to rely on a systematic approach and thorough analysis (Deprez et al., 2021; Kolvereid & Moen, 1997).

The relationship between the spontaneous decision-making style and entrepreneurial intentions is mixed. While the ability to make quick decisions can be advantageous in rapidly changing entrepreneurial environments, a lack of thorough consideration can result in impulsive and high-risk decisions that may not be sustainable in the long term (Krasniqi et al., 2019). Spontaneous decision-makers can be effective leaders in situations

requiring quick decisions and immediate responses. Their decisiveness can inspire confidence within their teams; however, it may also lead to impulsive choices if not balanced with careful deliberation (Yener, 2020). Individuals with a dependent decision-making style are less likely to exhibit entrepreneurial intentions (Krasniqi et al., 2019). Entrepreneurs displaying this style tend to seek advice, reassurance, and input from others before making decisions. This reliance may present challenges in leadership, as they often depend on others for guidance. However, this style can be beneficial in team-oriented environments where collaboration is essential (Yener, 2020). Dependence on others' input during decision-making can hinder independence and proactive thinking, which are typically associated with entrepreneurial behaviour (Krasniqi et al., 2019). The dependent decision-making style also shows weaker correlations with social entrepreneurship. While such individuals may engage in social entrepreneurial activities, their reliance on others can limit their ability to act independently and take the initiative required for driving social innovation (Akdeniz & Korkmaz, 2023).

The avoidant decision-making style is negatively associated with entrepreneurial intentions. Individuals who tend to procrastinate or avoid making decisions are less likely to engage in entrepreneurship, which often requires decisive action and a willingness to confront risks and uncertainties head-on (Krasniqi et al., 2019). This decision-making style is also negatively linked to social entrepreneurship, as avoidance behaviour conflicts with the proactive and solution-oriented mindset necessary for addressing social challenges (Akdeniz & Korkmaz, 2023).

4. Present study

Decision-making styles play a crucial role in how individuals identify opportunities, mobilize resources, and execute entrepreneurial activities. Given the entrepreneurial environment's inherent dynamism, uncertainty, and information asymmetry, decision-making strategies become critical determinants of entrepreneurial competence (Cohen & Wirtz, 2022).

Identifying entrepreneurial opportunities requires strategic thinking, responsiveness, and openness to new approaches. The rational decision-making style supports systematic evaluation of information (Krasniqi et al., 2019; Yener, 2020), the intuitive style facilitates swift adaptation in dynamic contexts (Sassetti et al., 2022), and the dependent style may enhance idea generation through consultation and feedback (Yener, 2020).

Hypothesis 1: Rational, intuitive, and dependent decision-making styles positively predict the level of competence in the Ideas and Opportunities dimension.

In contrast, decision-making styles marked by avoidance or impulsivity may hinder opportunity recognition and development. Avoidant decision-makers show reduced initiative and decisiveness (Akdeniz & Korkmaz, 2023), while spontaneous decision-makers may engage in uncoordinated or ethically questionable decision-making (Cohen & Wirtz, 2022).

Hypothesis 2: Avoidant and spontaneous decision-making styles negatively predict the level of competence in the Ideas and Opportunities dimension.

Effective use of personal, material, and social resources is central to entrepreneurial performance. The rational style supports planning and organizational efficiency (Sassetti et al., 2022), while the intuitive style is associated with flexibility and self-confidence (Yener, 2020).

Hypothesis 3: Rational and intuitive decision-making styles positively predict the level of competence in the Resources dimension.

Conversely, avoidant decision-making, characterized by procrastination and low motivation, may undermine one's ability to manage resources effectively (Akdeniz & Korkmaz, 2023).

Hypothesis 4: The avoidant decision-making style negatively predicts the level of competence in the Resources dimension.

The translation of ideas into action requires initiative, planning, risk management, teamwork, and learning from experience. The rational style supports structured decision-making and risk tolerance (Cohen & Wirtz, 2022), the intuitive style enhances adaptability and responsiveness (Yener, 2020), and the dependent style may facilitate collaboration and organization (Yener, 2020).

Hypothesis 5: Rational, intuitive, and dependent decision-making styles positively predict the level of competence in the Into Action dimension.

In contrast, avoidant tendencies may act as barriers to entrepreneurial initiative, particularly under conditions of ambiguity and risk (Krasniqi et al., 2019; Akdeniz & Korkmaz, 2023).

Hypothesis 6: The avoidant decision-making style negatively predicts the level of competence in the Into Action dimension.

5. Methodology

5.1. Sample

The study involved 245 university students aged 19–25 years (M = 21.82 years; SD = 1.71). The sample comprised 145 females (59.20 %) aged 19–25 years (M = 21.77 years; SD = 1.65) and 100 males (40.80 %) aged 19–25 years (M = 21.90 years; SD = 1.80). Most participants were enrolled in bachelor's degree programs (N = 174, 71.0%), while the remaining 29.0 % (N = 71) were pursuing master's or engineering degrees. Regarding fields of study, 42.4 % of respondents (N = 104) were studying economics or related disciplines, while 57.6 % (N = 141) were enrolled in non-economics programs.

5.2. Measures

Sociodemographic Questionnaire. The first section of the questionnaire focused on basic demographic information, including age, gender, nationality, level of study, field of study, and place of origin. The second section was dedicated to the respondents' social background, specifically addressing: family structure ("complete/incomplete"), parental entrepreneurial experience ("at least one parent was an entrepreneur in the past but is no longer active/parents are non-entrepreneurs/neither parent has ever been an entrepreneur/at least one parent is currently an active entrepreneur"), perceived socioeconomic status of parents ("lower/middle/upper"), respondent's future entrepreneurial intentions ("I haven't thought about it yet/yes/no").

The EntreComp questionnaire (Čopková et al., 2023) consists of 60 items that measure three dimensions of entrepreneurial competence: Ideas and Opportunities *("I can identify ways in which I could be useful to others."*), Resources *("I am determined and persistent in achieving my own goal or my team's goal."*), and Into Action *("I can clarify what my goals are when creating a simple value."*). Each of the three dimensions is further divided into five subdimensions, with the number of items per subdimension ranging from two to six. Respondents assess their competencies on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The internal consistency of the scales was as follows: Ideas and Opportunities ω = 0.858, Resources ω = 0.872, and Into Action ω = 0.897.

General Decision-Making Styles Questionnaire (Scott & Bruce, 1995; Bavoľár & Orosová, 2015). The questionnaire consists of 25 items divided into five subscales, each representing a specific decision-making style and containing five items. The authors identified the following five decision-making styles: Rational (*"I make decisions in a logical and systematic way."*), Intuitive (*"When making decisions, I tend to rely on my intuition."*), Dependent (*"I rarely make important decisions without consulting other people."*), Avoidant (*"I often consciously delay making important decisions.*"), Spontaneous (*"I often make impulsive decisions."*). Respondents rate their agreement on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The sum of scores for each subscale indicates the preference for a specific decision-making style. The internal consistency (McDonald's omega) for the scales was as follows: Rational ω = 0.769, Intuitive ω = 0.552, Dependent ω = 0.586, Avoidant ω = 0.843, and Spontaneous ω = 0.697.

5.3. Procedure

Data collection took place in the spring of 2024. The questionnaire sets were distributed to respondents exclusively in electronic form via Google Docs-Form. Participants were informed about the anonymity and voluntary nature of the research, as well as their right to withdraw at any time by simply closing the application. They were also assured that the data collected would be used solely for research purposes.

The collected data were analysed using Jamovi 2.4.11 statistical software. The reliability of the applied instruments was estimated using McDonald's omega. A test of normality using the Shapiro-Wilk test revealed that the data did not follow a normal distribution across all datasets ($p < 0.05$). Consequently, non-parametric statistical methods were applied where necessary.

The datasets contained no missing data. Descriptive analysis was conducted across all parts of the study using basic statistical measures, including arithmetic mean, standard deviation, median, minimum, maximum.

The nature and significance of relationships between variables were examined using

Spearman's correlation coefficient (Spearman ρ). To test the predictive models, multiple linear regression analysis was applied. Before conducting the regression analysis, the necessary assumptions were verified: a sufficient number of cases based on the formula (8/f2) + (m−1)(8/f^2) + (m-1)(8/f2) + (m−1), the linearity of relationships using scatterplots, the absence of outliers assessed through Cook's distance, the multicollinearity checked with Variance Inflation Factor (VIF), normality, linearity, and homoscedasticity of residuals evaluated using scatterplots (Bavoľár et al., 2021).

6. Results

The aim of the study was to explore the relationships between entrepreneurial competences and decision-making styles. The following section of the results presentation includes the descriptive analysis of the variables (Table 1).

Table 1 Descriptive analysis of decision-making styles and entrepreneurial competence according to EntreComp (N = 245)

	M	Me	SD	Min	Max
DECISION-MAKING STYLES					
rational	17.13	17.00	3.14	8.00	25.00
intuitive	16.50	16.00	2.47	9.00	24.00
dependent	16.14	16.00	2.76	7.00	24.00
avoidant	15.65	17.00	3.86	5.00	25.00
spontaneous	16.00	17.00	2.99	6.00	23.00
IDEAS & OPPORTUNITIES	73.95	73.00	11.19	43.00	117.00
spotting opportunities	15.69	16.00	2.90	4.00	24.00
creativity	20.38	20.00	3.76	11.00	34.00
vision	12.79	13.00	2.59	7.00	21.00
valuing ideas	8.18	8.00	1.75	4.00	14.00
ethical & sustainable thinking	16.91	17.00	3.34	9.00	28.00
RESOURCES	88.75	87.00	13.53	50.00	139.00
self-awareness & self-efficacy	16.67	16.00	3.54	9.00	28.00
motivation & perseverance	21.15	20.00	4.34	5.00	35.00
mobilising resources	17.25	17.00	3.49	8.00	28.00
financial & economic literacy	16.91	17.00	3.21	9.00	28.00
mobilising others	16.77	17.00	3.00	9.00	27.00
INTO ACTION	87.50	85.00	14.20	55.00	146.00
taking initiative	12.69	12.00	2.76	3.00	21.00
planning & management	24.83	25.00	4.54	8.00	42.00
coping with ambiguity, uncertainty & risk	12.45	12.00	2.59	6.00	21.00
working with others	25.06	25.00	4.97	12.00	42.00
learning through experience	12.47	12.00	2.71	3.00	21.00

Note: M = mean; SD = standard deviation; Me = median; Min = minimum; Max = maximum

Source: the author

To identify significant associations between decision-making styles and the entrepreneurial competence factor Ideas and Opportunities, we conducted a correlation analysis using the non-parametric Spearman's correlation coefficient. This analysis revealed several statistically significant relationships between the subdimensions of entrepreneurial competence and specific decision-making styles. Based on the results presented in Table 2, individuals exhibiting rational and intuitive decision-making styles perceive themselves as more capable in recognizing opportunities, identifying needs, defining problems, demonstrating innovativeness, envisioning the future, sharing and protecting ideas, ethical behaviour, and sustainable thinking. The dependent decision-making style was also positively associated with recognizing

opportunities, creativity, and vision. In contrast, individuals with an avoidant decision-making style tend to lack initiative in seeking opportunities, curiosity, openness, strategic thinking, and ethical and sustainable thinking. Similarly, individuals with a spontaneous decision-making style demonstrated negative associations, indicating lower initiative in addressing challenges, identifying opportunities, recognizing the value of ideas, and engaging in ethical and sustainable thinking.

Table 2 Spearman's correlation (**ρ**) of decision-making styles and entrepreneurial competence Ideas & Opportunities (N = 245)

	rational	intuitive	dependent	avoidant	spontaneous
IDEAS & OPPORTUNITIES	0.377***	0.264***	0.217***	-0.172**	-0.175**
spotting opportunities	0.354***	0.152*	0.177**	-0.166**	-0.148**
creativity	0.342***	0.247***	0.150*	-0.186**	-0.105
vision	0.217***	0.244***	0.138*	-0.129*	-0.111
valuing ideas	0.192***	0.182**	0.060	-0.037	-0.173**

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

In the domain of Resources, numerous significant associations with specific decision-making styles were identified (Table 3). The rational decision-making style was positively correlated with all subdimensions of Resources. Individuals employing a rational style perceive their competencies in managing internal, personnel, and material resources positively. A similar pattern was observed for the intuitive decision-making style, except for mobilizing human resources through effective communication, inspiration, or persuasion, where the correlation coefficient did not reach statistical significance. In this subdimension, along with motivation and perseverance, no significant relationships were identified for the dependent decision-making style. However, the dependent style was positively associated with the management of internal resources, such as self-confidence and the recognition of strengths and weaknesses, as well as the management of material, non-material, and financial resources. On the other hand, individuals with avoidant and spontaneous decision-making styles perceive themselves as less competent in self-awareness, belief in their abilities, motivation, and determination to persist despite obstacles. They also report lower competency in managing both material and non-material resources.

Table 3 Spearman's correlation (**ρ**) of decision-making styles and entrepreneurial competence Resources (N = 245)

	rational	intuitive	dependent	avoidant	spontaneous
RESOURCES	0.398***	0.228***	0.172**	-0.205**	-0.176**
self-awareness & self-efficacy	0.351***	0.243***	0.154*	-0.233***	-0.207**
motivation & perseverance	0.279***	0.195**	0.081	-0.243***	-0.160*
mobilising resources	0.402***	0.265***	0.177**	-0.157*	-0.217***
financial & economic literacy	0.245***	0.157*	0.147*	-0.039	-0.105

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

Decision-making styles were significantly correlated with the Into Action factor (Table 4). Like the previous two factors, individuals with a rational decision-making style perceived themselves as more competent in taking initiative, working independently, managing uncertainty and risk, embracing diversity within a team, and learning from experience.

However, while individuals with an intuitive decision-making style were also associated with competencies under the Into Action factor, they did not exhibit significant associations with goal setting, planning, and organization. The dependent decision-making style showed positive correlations with only two subdimensions: planning and organizing, including goal and priority setting, and collaboration with others.

In contrast, individuals with avoidant and spontaneous decision-making styles perceived themselves as less competent in taking

responsibility, planning and organizing, collaborating with others, and learning from experience. The key difference between these two styles lies in the subdimension of managing uncertainty, ambiguity, and risk. This subdimension was negatively associated with the avoidant style, while no significant relationship was observed for the spontaneous style.

Table 4 Spearman's correlation (**ρ**) of decision-making styles and entrepreneurial competence Into Action (N = 245)

	rational	**intuitive**	**dependent**	**avoidant**	**spontaneous**
INTO ACTION	0.410***	0.132*	0.148*	-0.279***	-0.170**
taking initiative	0.330***	0.192**	0.074	-0.138*	-0.150*
planning & management	0.375***	0.069	0.128*	-0.271***	-0.185**
coping with ambiguity, uncertainty & risk	0.304***	0.160*	0.022	-0.202**	-0.095
working with others	0.236***	0.192**	0.201**	-0.234***	-0.145*

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

We also analysed more complex relationships between entrepreneurial factors and decision-making styles using multiple linear regression analysis. Three models were developed and described. On the predictor side, all five decision-making styles were included, while the dependent variables were represented by the individual entrepreneurial factors.

The first model (Table 5) significantly explained 45.0% of the variance in Ideas and Opportunities ($F(5,239) = 39.164$, $p<0.001$). In this model, all decision-making styles significantly predicted the dependent variable. The rational decision-making style ($\beta = 0.280$), the intuitive decision-making style ($\beta = 0.244$), and the dependent decision-making style ($\beta = 0.135$) were positive predictors. Conversely, the avoidant decision-making style ($\beta = -0.325$) and the spontaneous decision-making style ($\beta = -0.174$) were negative predictors.

Table 5 Multiple linear regression of decision-making styles and entrepreneurial competence Ideas & Opportunities (N = 245)

	IDEAS & OPPORTUNITIES				
	b	**SE**	**β**	**t**	**p**
rational	0.998	0.200	0.280	4.984	<0.001***
intuitive	1.104	0.241	0.244	4.585	<0.001***
dependent	0.548	0.213	0.135	2.570	0.011*
avoidant	-0.942	0.172	-0.325	-5.488	<0.001***
spontaneous	-0.653	0.237	-0.174	-2.755	0.006**
R^2	0.450				
F	39.164				
p	<0 .001***				

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

The second model was also significant ($F(5,239) = 38.786$; $p<0.001$) and explained 44.8 % of the variance in Resources (Table 6). In this case, only three decision-making styles emerged as significant predictors: the rational decision-making style ($\beta = 0.354$) and the spontaneous decision-making style ($\beta = 0.249$) were positive predictors, while the avoidant decision-making style ($\beta = -0.316$) was a negative predictor.

Table 6 Multiple linear regression of decision-making styles and entrepreneurial competence Resources (N = 245)

	RESOURCES				
	b	**SE**	**β**	**t**	**p**
rational	1.524	0.243	0.354	6.281	<0 .001***
intuitive	1.362	0.292	0.249	4.671	<0 .001***
dependent	0.376	0.258	0.077	1.456	0.147
avoidant	-1.110	0.208	-0.316	-5.338	< 0.001***
spontaneous	-0.367	0.287	-0.081	-1.281	0.202
R^2	0.448				
F	38.786				
p	< 0.001***				

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

In the final model (Table 7), Into Action was significantly explained by decision-making styles ($F(5,239) = 43.247$; $p<0.001$), accounting for 47.5 % of the variance. Into Action was significantly and positively predicted by the rational decision-making style (β = 0.309), the intuitive decision-making style (β = 0.185), and the dependent decision-making style (β = 0.135). It was negatively predicted by the avoidant decision-making style (β = −0.446).

Table 7 Multiple linear regression of decision-making styles and entrepreneurial competence Into Action (N = 245)

	INTO ACTION				
	b	**SE**	**β**	**t**	**p**
rational	1.397	0.248	0.309	5.626	< 0.001***
intuitive	1.065	0.299	0.185	3.565	<0 .001***
dependent	0.693	0.264	0.135	2.620	0.009**
avoidant	-1.642	0.213	-0.446	-7.714	< 0.001***
spontaneous	-0.180	0.294	-0.038	-0.614	0.540
R^2	0.475				
F	43.247				
p	<0.001***				

Note: *p < 0,05; **p < 0,01; ***p < 0,001

Source: the author

Conclusion

Young entrepreneurs play a vital role in driving innovation, job creation, and economic growth, which are particularly significant for the European Union. The EU emphasizes fostering entrepreneurship among young people as part of its broader goals to enhance competitiveness, reduce unemployment, and promote social cohesion. According to the EU's strategies, supporting young entrepreneurs not only addresses current economic challenges but also contributes to a sustainable and inclusive future.

University students, as potential future entrepreneurs, are often at the forefront of innovative industries, and their openness to new ideas positions them as key contributors to economic and social development. By understanding how their decision-making styles interact with entrepreneurial competencies, educators and policymakers can better design programs that nurture entrepreneurial intentions and prepare students to successfully launch and manage their ventures.

The central aim of this study was to examine how university students' decision-making styles relate to their self-perceived entrepreneurial competences. This focus stems from the recognition that the entrepreneurial environment is inherently uncertain, complex, and risk-laden—conditions that require individuals to rely on distinct cognitive strategies when making decisions. Our findings indicate that among the decision-making styles assessed, rational and intuitive styles were the most positively associated with higher self-assessments of entrepreneurial competences, while dependent, spontaneous, and avoidant styles were either weakly or negatively related.

The strong association between the rational decision-making style and entrepreneurial competence suggests that structured, analytical thinking supports students' confidence in their entrepreneurial abilities. This is consistent with existing literature, which links rationality with strategic thinking, risk assessment, and goal-oriented planning—all of which are foundational to entrepreneurial success (Krasniqi et al., 2019; Cohen & Wirtz, 2022; Yener, 2020). Rational thinkers are more likely to evaluate opportunities thoroughly and respond with deliberate, informed action, which in turn may enhance their perceived readiness to engage in entrepreneurial tasks.

Similarly, the intuitive decision-making style was positively related to students' perceived entrepreneurial competences. This style is especially advantageous in dynamic and fast-paced environments, where swift, experience-based judgments are often necessary. The ability to act on instinct, grounded in prior knowledge and tacit learning, may give intuitive individuals a sense of confidence and adaptability in navigating complex entrepreneurial challenges (Yener, 2020).

In contrast, the dependent decision-making style showed only weak associations with entrepreneurial competence. This suggests that reliance on external validation or guidance may undermine self-confidence in one's ability to act independently—an essential trait for entrepreneurs (Krasniqi et al., 2019). While collaboration and feedback are valuable, excessive dependence may signal a lack of autonomy, which could impede entrepreneurial initiative.

Finally, spontaneous and avoidant decision-making styles were negatively associated with perceived entrepreneurial competences. Individuals with a spontaneous style may make impulsive, poorly considered decisions, increasing the likelihood of mistakes and reducing perceived effectiveness (Yener, 2020). Those with an avoidant style tend to procrastinate or withdraw from decision-making altogether—traits fundamentally incompatible with the proactive and decisive nature of entrepreneurial activity (Shepherd & Patzelt, 2017; Gans et al., 2019). These findings highlight that not all decision-making styles equally support entrepreneurial development, and some may actively hinder it.

This study contributes to the growing body of literature on entrepreneurship by exploring how distinct decision-making styles predict the self-perception of entrepreneurial competences among university students. While previous research has often focused on entrepreneurial intentions or behaviours in isolation (Djordjevic et al., 2021), our findings emphasize the psychological mechanisms that may underpin the acquisition of entrepreneurial skills—particularly during the formative years of early adulthood.

From a theoretical perspective, the study supports the relevance of cognitive and affective styles in entrepreneurship research and illustrates how are decision-making tendencies such as rationality, intuition, or avoidance associated with self-perceived competences within the EntreComp framework. These insights expand our understanding of the psychological foundations of entrepreneurship and offer new directions for future research, particularly in investigating how these styles evolve over time or vary across cultural and educational contexts.

Practically, the results can inform educators and curriculum designers about the importance of tailoring entrepreneurship education to individual cognitive profiles. For example, students with a rational decision-making style may benefit from strategy-based training, while those with intuitive tendencies might excel in dynamic, real-world simulations. Integrating such psychological considerations into educational practice may enhance the effectiveness of entrepreneurship programs and better prepare young adults for decision-making in complex and uncertain environments.

There are several limitations in our study. Although the participants in this study were not entrepreneurs at the time of data collection, the sample is appropriate for investigating the relationship between decision-making styles and entrepreneurial competences for several reasons. The EntreComp framework is designed not only to assess entrepreneurial performance but also to support the development of entrepreneurial potential in individuals, particularly in educational contexts (Bacigalupo et al., 2016). The framework explicitly targets learners and aspiring entrepreneurs, making students a highly relevant population for early-stage assessment of entrepreneurial competences. Numerous studies have shown that entrepreneurial competences and intentions are often shaped before the actual launch of a business, especially during late adolescence and early adulthood (Kolvereid & Moen, 1997; Nabi et al., 2017). University students are typically in a developmental phase characterized by increased autonomy, decision-making responsibility, and exploration of career

pathways—all of which are strongly related to entrepreneurial thinking. Decision-making styles are relatively stable cognitive tendencies that can influence how individuals perceive, evaluate, and act upon opportunities—regardless of their current entrepreneurial status (Scott & Bruce, 1995). Examining these styles in students enables us to better understand how individual predispositions may facilitate or hinder the future development of entrepreneurial behaviour.

It is important to note that we did not assess the objective level of entrepreneurial competencies but rather their subjective perception by the respondents. This introduces potential biases, such as socially desirable responses, answers influenced by current mood, perception, or memories (Rabbitt & Abson, 1990). While this is a natural limitation of self-report methodologies, other experts have emphasized that self-report tools in this context can promote self-awareness, which is essential for further personal development (London et al., 2022). Therefore, when interpreting the results, it is crucial to keep in mind that they reflect perceived, rather than actual, competency levels.

In the future, examining irrational work-related beliefs, such as perfectionism, and time perspectives (whether entrepreneurs are more future- or present-oriented) could reveal how these cognitive frameworks influence decision-making and strategic planning.

Declarations

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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