

Unlocking Entrepreneurial Spirit: Students' Views on University Support for Business Ventures

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Abstract

Despite existing research on student entrepreneurial potential, opportunities for further exploration persist. On the one hand, this paper is part of the current research on student entrepreneurship. On the other hand, the article attempts to provide an answer to the question of how entrepreneurial potential is shaped in the cross-section of different fields of study, in relation to Polish- and English-language studies as well as full-time and part-time students. The added value of this article is the development of a fully proprietary questionnaire form calibrated both in terms of its scale and psychometric properties. The results reveal the entrepreneurial potential of the surveyed students and show how it varies by field and mode of study, as well as between Polish- and English-language students. The study also offers recommendations for university policies to better support and promote student entrepreneurship.

Key words

students' entrepreneurial potential, entrepreneurship dimensions, entrepreneurship education.

Cite as:

Cywinski, L., Skica, T., & Hancock, A. (2025). Unlocking Entrepreneurial Spirit: Students' Views on University Support for Business Ventures. *Forum Scientiae Oeconomia*, 13(4), 50–81.

https://doi.org/10.23762/FSO_V_OL13_NO4_3

Received: 25 July 2025

Revised: 20 September 2025

Accepted: 23 November 2025



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Introduction

Entrepreneurial potential is a broad, expansive, and multifaceted topic (Krueger Jr & Brazeal, 1994; Santos et al., 2013; Jayawarna et al., 2014; Sanetra-Półgrabi, 2017). By encompassing personal characteristics and environmental influences, it plays a key role in explaining individuals' aspirations to engage in entrepreneurial activity (Ward et al., 2019). Understanding factors describing entrepreneurial potential requires research focusing on cognitive attributes (Baron, 1998), behavioural tendencies (Baron, 2007), and external conditions that support or hinder the development of entrepreneurship (Kurdyś-Kujawska & Wojtkowska, 2023). The identification of entrepreneurial potential is therefore often based on recognising key characteristics of individuals,

such as creativity, risk-taking, autonomy, and motivation to achieve goals (Curral et al., 2013). Social and institutional factors (Liu & Yao-Ping Peng, 2025) also contribute to the formation of entrepreneurial mindsets, including access to role models, education (Virk & Gambhir, 2024; Ogunsade et al., 2021), and economic opportunities (Galloway et al., 2006).

Researchers from the field of social psychology show that direct entrepreneurial effects are related to so-called entrepreneurial intentions (Liñán & Fayolle, 2015). These strands of research are separated into two main paradigms: a) cognitive (regarding personal aspects), and b) contextual or environmental factors (Franco et al., 2010); as well as myriads of other strands that describe entrepreneurial potential based on associated circumstances or traits (Galloway et al., 2006). The intent described by Liñán et al. (2011), the split described by Franco et al. (2010), as well as the empirical research conveyed by Zhang et al. (2015), stress the importance of entrepreneurial intentions in understanding entrepreneurial potential. The influence of personal (demographic, attitudes, experience) or external (supports, barriers) factors also support the above approach, arguing that factors such as aptitudes, past learning experiences, social norms, support, and barriers may directly or indirectly lead to changes in entrepreneurial intentions (Pfeifer et al., 2016; Kosharnaya et al., 2019).

It is worth noting that Galloway et al. (2006), find that entrepreneurial role models are linked to entrepreneurial intent, urgency, and economic autonomy, with the coexistence of these traits indicating entrepreneurial potential. Moreover, entrepreneurial characteristics such as calculated risk-taking, creative tendency, high need for achievement and autonomy, as well as an internal locus of control are used to determine entrepreneurial tendencies (Holienka et al., 2013). The researchers also explored how neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Zhao & Seibert, 2006) influence entrepreneurial potential. According to Liñán et al. (2011), entrepreneurial potential results not only from individual motivation but also from the broader environment and situational conditions, highlighting the need to jointly consider motivational, environmental, and situational determinants. Based on this, Santos et al. (2013) describes entrepreneurial potential in four dimensions: entrepreneurial motivations, management competencies, psychological competencies, and social competencies. Athayde (2009) argues that attitudes – cognitive (beliefs), affective (emotions), and behavioural (actions) – are instrumental dimensions describing entrepreneurship and entrepreneurial potential.

Researchers also analysed how the education system and the way entrepreneurship is taught (Ho et al., 2014; Küttim et al., 2014; Wilson, 2008) stimulate entrepreneurial potential, which consequently influences the presence of entrepreneurship among students. Notable research explaining entrepreneurial potential at the intersection of education and business ventures includes the role of organisational and institutional factors (Saeed et al., 2015), the propensity for business start-ups among alumni (Gerry et al., 2008), as well as links to a broad range of fields of education (Teixeira, 2008).

There is a huge variety of ways to identify and describe entrepreneurial potential, including its diverse (i.e. lacking a universal pattern) and multi-channel impact on the likelihood of individuals deciding to enter a business (Turker & Sonmez Selcuk, 2009). As a result, this topic is interesting and as yet insufficiently investigated. Universities and the academic community remain a special space for this type of exploration. This served as inspiration to develop an original survey questionnaire, enabling the diagnosis of the entrepreneurial potential of students of one of the oldest and largest non-public universities in Poland. The research was embedded in the current literature, and the tool used for the study was designed by an interdisciplinary research team consisting of economists, a statistician and methodology expert, a psychologist, and a management specialist. The use of a unique (fully original) tool, the large size of the research sample (over 1,500 people), as well as the coverage of all fields of study offered by the university (in native and English languages), make the research unique not only on a national level but also on a multinational scale.

The empirical analysis presented in this paper offers evidence that personal attributes play a pivotal role in driving business ownership. The modelling results show that a strong internal locus of control, creativity, and motivation significantly increases the likelihood of a student owning a business. In contrast, the willingness to take risks does not emerge as a significant predictor, suggesting that in our context (which is a relatively young group of respondents), confidence, innovation, and drive matter more than risk propensity. These findings reinforce the idea that cognitive and motivational factors are central to entrepreneurial potential, providing a strong empirical foundation that connects theoretical insights with real-world outcomes.

This paper primarily aims to enrich the existing literature by offering robust empirical evidence based on data collected from a large and diverse group of students. Using a fully original survey tool and a comprehensive modelling approach, the study extends previous findings and provides a deeper understanding of how personal attributes shape entrepreneurial potential. Rather than introducing a new conceptual framework, the contribution lies in the methodological rigor and empirical scope of the research, which together offer valuable insights for both the national and international academic community.

The paper is structured in five sections. The next section discusses the theoretical foundations. In the third section, we present our data and methodology. Then, we describe the results. Finally, we discuss the findings and conclude the article.

1. Literature review

1.1 *Students' entrepreneurial potential*

Although entrepreneurial potential is linked with entrepreneurial intentions (Bela et al., 2021), these concepts must be clearly distinguished. Entrepreneurial potential is latent and precedes entrepreneurial intentions both causally and temporally (Krueger & Brazeal, 1994). Intentions are thus secondary to entrepreneurial potential (Varamäki et al., 2015), and do not always transform into decisions to start a business (Krueger Jr & Brazeal, 1994).

Entrepreneurial potential represents a combination of knowledge and skills related to entrepreneurship, finance, and cooperative relationships aimed at building new businesses (Pauli & Osowska, 2019). It consists of entrepreneurial personality traits and environmental variables that influence an individual's intentions to establish a business (Ward et al., 2019). This viewpoint is also supported by Santos et al. (2013). Entrepreneurial potential is therefore complex, relying both on genetic and social factors (Menshikov et al., 2021), encompassing innate as well as acquired characteristics. Krueger and Brazeal (1994) further elaborate on this topic, proposing a model of entrepreneurial potential viewed as an interactive process involving perceived desirability (including social norms and attitudes), perceived feasibility (self-efficacy), and propensity to act. However, their standpoint lacks precision; the authors restrict themselves to constructing a theoretical model without explicitly defining entrepreneurial potential. This gap is addressed by Raab et al. (2005), who define entrepreneurial potential as the extent to which an individual possesses traits commonly associated with successful entrepreneurs. Within this approach, entrepreneurial potential can be defined at both national (Harada, 2005; Mueller, 2004; Nguyen et al., 2009) and individual levels (Athayde, 2009; Wong et al., 2005). Considering the specific nature and subject of this research (university students), the individual-level approach has been adopted in this paper.

When analysing determinants influencing entrepreneurial potential among young individuals (including students), numerous individual and social factors should be considered (Mitrovic Veljkovic et al., 2019). Role models, socio-psychological support, and material resources are crucial for the development of entrepreneurial potential (Shapero & Sokol, 1982). Entrepreneurship education occupies a particularly important place in this context (Ghanem, 2020; Küttim et al., 2014). Ibicioglu et al. (2008) demonstrated that students attending entrepreneurship-related courses exhibit greater courage, activity, and willingness to take risks compared to their peers. Despite the objective benefits derived from entrepreneurship education, approaches vary depending on the cultural and

economic context. Consequently, entrepreneurship courses remain underrepresented at European universities (Klandt & Volkmann, 2006), whereas the situation in the U.S. is significantly different due to deeply ingrained entrepreneurial traditions (Lee et al., 2005).

Students' entrepreneurial potential also varies across fields of study. Importantly, this advantage does not always favour business-related programs. Teixeira (2008) demonstrated that pharmacy students, compared to others, display higher entrepreneurial potential. Similar results were obtained by Palimaka and Rodzinka (2018), who found that journalism students were almost twice as likely as economics and finance students to plan to start a business during their studies, with psychology in management students exhibiting the least entrepreneurial tendencies.

Salamzadeh et al. (2014) showed that humanities, fine arts, and psychology students possess better entrepreneurial traits compared to those in engineering, basic sciences, and medical disciplines. Similarly, Swarupa and Goyal (2020) found entrepreneurial potential among students in creative and recreational fields (arts, humanities – specifically literature, linguistics, history, archaeology, audiovisual techniques, media production, sports, architecture, and urban planning), as well as law and health (pharmacy and veterinary studies).

The presented evidence indicates that the issue of students' entrepreneurial potential remains incompletely understood. Moreover, recent studies underline the necessity of moving beyond stereotypical assumptions that students in business-related programs inherently possess greater entrepreneurial potential. This paper aligns with this narrative while shedding new light on the identification and evaluation of entrepreneurial potential. It emphasizes differentiation not only based on fields of study but also by degree level (undergraduate and graduate), mode of study (full-time and part-time), and finally, the language in which students pursue their studies.

These observations justify formulating the following research questions:

RQ1: Does high entrepreneurial self-assessment lead students to engage more frequently in business activities compared to their peers?

RQ2: Students from which fields of study exhibit higher entrepreneurial potential?

RQ3: Is there a relationship between the language in which students acquire knowledge and their entrepreneurial potential for starting own businesses?

1.2 Entrepreneurial dimensions

Entrepreneurial potential, discussed in the previous section as a combination of personality traits (Sexton & Bowman, 1983), individual predispositions (Samer Ali & Rashid, 2024), and acquired experiences (Jayawarna et al., 2014), are typically presented in the literature through various dimensions that constitute it. However, the number of these dimensions is not fixed; instead, individual authors propose distinct, original approaches to identifying and naming them.

Fillis and Rentschler (2010) state that entrepreneurial potential comprises three dimensions (groups of traits): innovativeness, risk-taking, and proactiveness. Individuals who exhibit these traits are more inclined to start their own business compared to those lacking them. Yan (2010) similarly argues that entrepreneurial potential is determined by three dimensions, two of which overlap with the classification proposed by Fillis & Rentschler (2010): internal locus of control, risk-taking propensity, and proactiveness. In contrast, Curral et al. (2013) identify four dimensions of entrepreneurial potential: entrepreneurial motivations, psychological competencies, social competencies, and management competencies. Rajković et al. (2021) also describe entrepreneurial potential through four dimensions: leadership, creativity, achievements, and personal control. Dhas and Balaji (2023) suggest that entrepreneurial potential consists of entrepreneurial education, decision-making abilities, risk-taking propensity, proactive personality, and creativity. Meanwhile, Mitrovic Veljkovic et al. (2019) propose a broader range of dimensions shaping entrepreneurial potential, including intellectual abilities, self-confidence, motivation, social relations, constitutions, emotionality, extroversion, and organizational skills.

Considering the diverse yet frequently overlapping perspectives mentioned above, the authors of this article align themselves with Caird's (1991) viewpoint, which advocates narrowing the

dimensions of entrepreneurial potential down to locus of control, motivation, creativity, and propensity to take risks. Several arguments support adopting Caird's (1991) classification for further research. First, this classification incorporates all key aspects of entrepreneurial potential appearing across other models, including locus of control, risk-taking propensity, creativity, proactiveness, and social skills. These categories appear in the models proposed by Fillis and Rentschler (2010), Curral et al. (2013), and Dhas and Balaji (2023), suggesting that Caird's (1991) approach effectively integrates various research perspectives into a coherent whole. Secondly, Caird's (1991) model not only addresses psychological traits such as motivation, personal control, or extraversion, but also entrepreneurial competencies (organizational skills) and risk-taking propensity. This holistic perspective, combining personality attributes with practical skills, renders Caird's (1991) classification the most comprehensive among alternatives. Moreover, Caird's (1991) perspective aligns well with both earlier entrepreneurial studies and subsequent academic approaches. The dimensions included in this model correspond closely with the findings of Rajković et al. (2021) on proactiveness and decision-making abilities, as well as with Dhas and Balaji's (2023) emphasis on psychological and social competencies. Thus, Caird's (1991) classification most accurately captures the dimensions of entrepreneurial potential, providing extensive coverage of key attributes, integrating psychological and managerial competencies, and aligning with other scholarly frameworks, making it both comprehensive and universally applicable.

The first characteristic trait to be explored is locus of control. It is defined (in this research) and said to be represented in an individual that takes responsibility for successes and failures, attributing outcomes to their own ability and effort (Caird, 1991). This is an internal perception of locus of control as mentioned by Mueller and Thomas (2001). "It is an 'internal' believes that one has influence over outcomes through ability, effort, or skills while an 'external' believes that forces outside the control of the individual determine outcomes" Mueller and Thomas (2001). Schjoedt and Shaver (2012) similarly refers to people believing that the outcomes of their actions are under (internal) or beyond (external) their control, stating it is unidimensional though generalized. The link to entrepreneurial potential becomes apparent when considering the trait as favourable to working with complex information by a person's own initiative (Raab et al., 2005). This link emphasizes the tendencies that may be presented in a person with entrepreneurial potential (Brandstätter, 2011). People with a high internal locus of control demonstrate a stronger achievement orientation. This being emotional intelligence competency that involves an individual seeking assessment and feedback to further improve in line with their personal standard of excellence (Elliot & Harackiewicz, 1994). A trait which isn't commonly mentioned in the pursuit of entrepreneurial potential in a person, however, not dissimilar to locus of control. Botezat and Borza (2016), informs that it is reasonable for individuals that do not demonstrate internal locus of control to possess the ability to transfer failure and hence success into their work. Finally, positive correlations have been found between internal locus of control and entrepreneurial intention (Hsiung, 2018).

The second characteristic trait of entrepreneurial potential is motivation. This is a complex trait to measure, and it can be distinguished between outcome-focused (to complete a goal) and process-focused (elements related to the process of goal pursuit, with less of an emphasis on the outcome) (Touré-Tillery & Fishbach, 2014). Motivation could be analysed as stimulation when there is competition with a standard of excellence in situations where performance may be assessed for success or failure (Caird, 1991). It's the process-focused view of striving for specifically difficult and challenging goals, supported by high personal standards of excellence. References to this need for achievement or drive for success are mentioned by other authors in studies on entrepreneurial potential (Zeffane, 2013). Ward et al. (2019), looks at entrepreneurial potential and recognises that intrinsic motivation to achieve personal goals pushes individuals to act upon that goal. This being particularly interesting when looking at perceived controllability and efficacy, knowledge, and skills that could influence an individual's motives to pursue business, as it may signal venture creation as an achievable goal. González-Tejero et al. (2022) tries to understand entrepreneurial motivation and

consequently finds it to be observed in individuals that can find opportunities based on their current needs, stating that this gives rise to entrepreneurial or intra-entrepreneurial actions. Finally, it seems possible that these driving motivations work as an impetus for entrepreneurial passion (Saif & Ghania, 2020) and therefore a trait by which potential can be determined.

The third characteristic trait of entrepreneurial potential is creativity. It is operationally defined as the tendency to be imaginative, innovative, curious, and versatile (Caird, 1991). The measure of creativeness attempts to assess the respondent's subjective evaluation of their creative ability in terms of fluency (ability to produce a large number of ideas), originality (ability to produce uncommon, new, imaginative, or unusual ideas), flexibility (ability to shift from one approach to another), and innovation (ability to perceive in a way that is different to the usual/established obvious way). Other views on creativity are presented by (Eysenck, 1983; Rhodes, 1961) who splits the trait into person, process, product and press, where the person approach includes research on personal characteristics and traits. Process research is more behavioural and involves creative thinking and techniques. Research on creative products assumes that products can be investigated through measures of their quality and quantity and press refers to factors within and especially outside individuals which affect the creativity. Simpler views are presented by Thompson (2004), who names creativity as the source of ideas and opportunities, presenting the trait as one of the facets of an entrepreneur. This link to entrepreneurs is strengthened by (Mitrovic Veljkovic et al., 2019) who names creativity as an essential trait. Berglund and Wennberg (2006) observe creativity among entrepreneurship students and interestingly defines the trait as a mix between novelty and appropriateness that associates problem-solving. This broadens creativity, encompassing adaptive behaviours that help an individual get through, as stated by Berglund and Wennberg (2006), turbulent environments. This kind of creativity opens the capacity for observing entrepreneurial mindsets in individuals branching off the work conducted by (Sánchez-López & Pedraza, 2020) which ties in comfortably to entrepreneurial potential and what this paper is trying to establish within individuals.

The last trait of entrepreneurial potential is the propensity to take risks. It appears that sensitivity to risk characterises entrepreneurial behaviour, and it manifests as risk-avoidance or risk-taking in different reward situations. The term in the literature is operationally defined as the ability to deal with incomplete information and act on a risky option, that requires skill, to actualise challenging but realistic goals (Caird, 1991). An important view and link include (Palmer, 1971) who exercises that the willingness of an individual to deal with uncertain situations with uncertain outcomes has the capacity to be a measure of entrepreneurial potential. Brindley (2005), when discussing barriers to women achieving their entrepreneurial potential links the risk-taking propensity to an overall level of demonstrated confidence within an individual and finds that women and men exhibited similar traits (regarding propensity) but according to Brockhaus Sr (1980) there were still noticeable differences in risk taking. The gender gap is also mentioned by other authors. Yordanova and Alexandrova-Boshnakova (2011) interestingly found that gender has an indirect effect on risk perception via overconfidence and risk propensity. This is attributed to the fact that many other factors play a role in determining an individual's risk-taking propensity and hence entrepreneurial potential. It is worth shedding light on the findings of Brockhaus Sr (1980), who conducted a study that determined the level of risk-taking propensity does not distinguish new entrepreneurs either from their managers or from the general population. This in relation to entrepreneurial potential suggests risk-taking propensity may not be such a reliable source in determining it. However, results of a different study that examined generational differences in entrepreneurial potential found that Y generation (1980-1995) had a higher entrepreneurial potential tendency than X generation (1966-1979) and Baby Boomers generation (1945-1965) due to their higher tendency of taking risks. These interesting studies outline the need for further research to be conducted on risk-taking propensity in relation to entrepreneurial potential among individuals.

2. Methodology

2.1 Data collection and sample

The research was carried out on the entire population of students at the University of Information Technology and Management in Rzeszów, UITM (Poland). Poland provides a relevant and valuable context for studying entrepreneurial potential for several reasons. As a member of the European Union, it offers a relatively stable legal and institutional environment that supports business development. At the same time, it has become an increasingly attractive destination for international students from diverse economic and cultural backgrounds, creating a unique setting for cross-national research. This diversity allows for the observation of how students from various countries interact within the same educational environment while facing different external realities. The research covered all fields of study (Aviation Management, Computer graphics and multimedia production, Computer science, Cosmetology, Cybersecurity, Data science, Dietetics, English Philology, English Philology with Chinese, Finance and accounting in management, Game design and development, Global aviation management, Graphic design, International business management, Journalism and social communication, Logistics, Management, Nursing, Physiotherapy, Programming and Psychology in management), modes of study (full-time and part-time studies), tracks of study (Polish-language and English-language) and level of study (bachelor's and master's degrees). Thanks to this, it was possible to comprehensively analyse the entrepreneurial potential of UITM students in all the sections indicated above. The study assumed that each field of study must be represented by at least 20% of the people studying in it. As a result, a sample of 1,526 students was obtained (i.e. 29.8% of all UITM students), which was representative of both the fields and population of students studying at UITM (Table 1).

Table 1. UITM student population and research sample.

Field of Study	Responses	Total Number of Students	%
Aviation Management	64	246	26.0%
Computer Science	247	624	39.6%
Cybersecurity	18	79	22.8%
Data Science	46	82	56.1%
English philology	98	256	38.3%
English Philology with Chinese	16	50	32.0%
Finance and accounting in management	41	176	23.3%
Physiotherapy - uniform master's degree	61	165	37.0%
Game Design and Development	35	125	28.0%
Global Aviation Management	2	9	22.2%
Computer graphics and multimedia production	126	486	25.9%
International Business Management	57	139	41.0%
Cosmetology	141	549	25.7%
Logistics	125	482	25.9%
Management	148	558	26.5%
Nursing	55	262	21.0%
Programming	117	451	25.9%
Graphic design	22	61	36.1%
Psychology in management	52	216	24.1%
Dietetics	21	33	63.6%
Journalism and Social Communication	28	46	60.9%

Source: Own elaboration.

To ensure easy access to the survey and the scale of the research data was collected using the online platform LimeSurvey. The platform allowed all students to access the survey in Polish and English languages. This was important due to the two-track nature of the fields of study offered at the university. It ensured that the research did not limit the scope of participants by eliminating language barriers. The survey was distributed among the student population using a link sent directly to students. The employment and consequent use of QR codes (linking to the LimeSurvey platform)

became especially useful when targeting fields of study that had not achieved the required minimum 20% representativeness. A direct approach was subsequently used, inviting students to take part in the survey during their classes.

The privacy and confidentiality of the participants were strictly maintained, and the collected data was utilized solely for research purposes. Based on the findings, it can be inferred that the participants demonstrated a clear understanding of the instructions, and no difficulties were reported throughout the data collection process.

Figure 1 illustrates the country of origin of the students who participated in the survey. Nearly half (48.7%) of student entrepreneurs originate from Poland, followed by Ukraine (18.3%), Zimbabwe (8.9%), and Kazakhstan (5.8%).

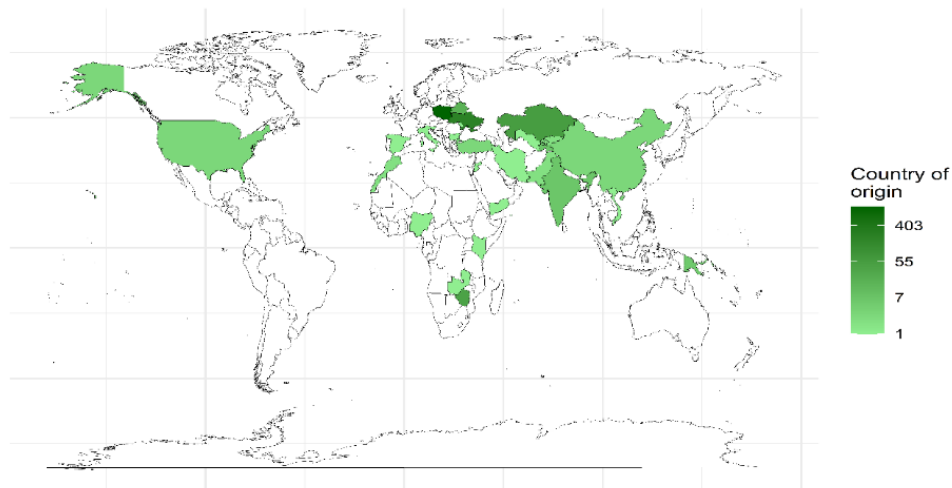


Figure 1. Geographical distribution of surveyed students - by country of origin.

Source: Own elaboration.

The remaining 18.3% belong to other countries such as Belarus, India, China, Pakistan and USA. The significant representation of Ukraine and Kazakhstan suggests that regional proximity and economic similarities may influence entrepreneurial engagement among students. The notable presence of Zimbabwean student entrepreneurs indicates that individuals from emerging economies actively leverage business opportunities, possibly as a response to economic conditions in their home countries.

International students who choose to study in Poland demonstrate a high level of personal entrepreneurial capacity through their educational migration (i.e. moving abroad at a young age, studying in a foreign language, and adapting to a new legal and cultural context). Their presence in the sample adds an additional interpretative layer, showing how varying levels of entrepreneurial potential manifest in a highly diverse academic environment. As a result, this study captures entrepreneurial potential in a way that is simultaneously local (reflecting the Polish institutional setting) and global (encompassing the individual attributes and experiences that students bring from their countries of origin). The focus is on measuring personal characteristics that shape entrepreneurial tendencies rather than directly assessing institutional differences between countries.

1.2 Methods

In this research, an original survey questionnaire was used to determine the entrepreneurial potential of students. The survey was developed in cooperation with experts in fields such as economics, sociology, and psychology to ensure the reliability and psychometricity of the chosen method that would be used to determine the entrepreneurial potential of students. The final iteration of the survey consists of three parts and a total of 44 questions. Due to the defined research questions in this article, Part B on the forms of entrepreneurial support expected by students from the university was omitted. Thus, the research focused on Parts A and C (Appendix A). Part A operationalizes

students' entrepreneurial potential through four dimensions: locus of control, motivation, creativity, and risk-taking propensity, enabling a detailed analysis of each trait while collectively offering a comprehensive method to evaluate entrepreneurial potential. The selection of these dimensions is based on theoretical frameworks, which indicate that they encompass key traits and competencies relevant for initiating and managing entrepreneurial activities, while integrating both psychological and practical aspects. Locus of control and motivation reflects students' self-esteem and their internal readiness to engage in business activities. Creativity reflects differences in innovative abilities in various fields of study. Risk-taking propensity, on the other hand, allows for the assessment of the likelihood of starting a business in different linguistic and cultural contexts. The use of these dimensions allows for a comprehensive assessment of entrepreneurial potential in different groups of students, taking into account both individual characteristics and environmental and cultural factors that may influence the flourishing of entrepreneurship. It is important to note that all questions used a 5-point Likert scale (Joshi et al., 2015) ranging from definitely agree to definitely disagree. The use of a Likert scale on all questions in this part of the survey for all dimensions allowed for an easy comparison and analysis to take place between each of the dimensions. This also provided an easy way to test the reliability of the dimensions. Table 2 provides a summary of the distribution of questions per dimension with the retrospective reliability test results. Entrepreneurship potential was examined considering four complementary dimensions, to describe which variables were developed in the form of scales with the following names: locus of control, creativity, motivation, willingness to take risks. The reliability of each scale was confirmed by the Cronbach's Alpha test (Cronbach, 1951). Formula 1 highlights the method that was used:

$$\alpha = \frac{N\bar{c}}{\bar{v} + (N-1)\bar{c}} \quad (1)$$

where N corresponds to the position on the Likert scale, $\bar{v}$ is the mean variance, $\bar{c}$ is the mean covariance between positions on the Likert scale. For this research, it was assumed that above a level of 0.6, good reliability had been achieved for a given dimension (Martins & Martins, 2002).

Table 2. Question distribution and reliability indicator for dimensions in part (A) of the survey.

Dimension	Questions	Number of Items	Cronbach's α
Locus of control	A1, A2, A3, A4, A5, A6, A7, A8 and A9	9	0.72
Creativity	A10, A11, A12, A13, A14 and A15	6	0.71
Motivation	A16, A17, A18, A19, A20, A21, A22, A23 and A24	9	0.79
Risk-taking propensity	A25, A26, A27 and A28.	4	0.62

Source: Own elaboration.

Each dimension of the survey tool in Table 2 is linked to the research questions. Locus of control and motivation capture students' self-assessment and drive for entrepreneurial activities (RQ1). Creativity reflects differences in innovative capacities across fields of study (RQ2). Risk-taking propensity indicates the likelihood of initiating business activities in diverse linguistic or cultural contexts (RQ3).

The second part of the survey (B) was implemented to determine and review the respondents' opinions towards different forms of entrepreneurship support offered by UITM. It also collected information on the needs of students in this area by asking respondents what forms of support they would like to see introduced. Most questions in this part of the survey were questions with multiple-choice answers. This meant that students could express more than one opinion and better contribute to the gathered data. The multiple-choice questions also had an option that was named 'other', allowing students to express their needs even if it had not been listed in the options provided by the research. As indicated above, the defined research questions did not refer to the questions included in Part B of the survey. Therefore, they were not included in the analysis.

The last part of the survey (C) allowed for the metric analysis of a respondent completing the survey. In this part, information on gender, age, employment status, mode of study, track of study, country of origin, level of study and field of study were collected. This allowed the research to then cross-sectionally analyse data collected on the entrepreneurial potential of students and their metrics.

A 5-point Likert scale was used for each dimension, which enabled the analysis of correlations between individual questions of each index. In the next step, the results were scaled using the linear scaling method (Formula 2). First, the average value for all variables in each scale was calculated for each respondent, then the median was calculated and then the results were scaled so that the median was 100 using the following formula:

$$V_D = \mu_D \times \left(\frac{100}{M_D}\right) \quad (2)$$

where V_D is the rescaled value of a respondent in each dimension, μ_D is the arithmetic mean of the Likert scale response, and M_D is the median score for the retrospective dimension. Then, individual dimensions were presented using histograms (see Figures 1, 3, 5 and 7). Collected responses above 100 indicate an above-average result in each dimension. All analyses and their graphical visualizations were carried out in the R programming environment.

To analyse the likelihood of business ownership among students, logit and probit models were estimated, as these are commonly used for binary dependent variables. The dependent variable y represents whether a student owns a business ($y = 1$) or not ($y = 0$). While the country of registration is not specified, the act of founding and operating a business reflects a concrete manifestation of entrepreneurial behavior and serves as a robust indicator of individual entrepreneurial potential. For international students, additional barriers such as language, legal, and administrative differences may make entrepreneurship particularly demanding, highlighting the strength of their entrepreneurial capabilities. This approach allows for a comprehensive assessment of individual entrepreneurial capacity while acknowledging that broader contextual factors may also influence business ownership. The independent variables include locus of control, creativity, motivation, and risk-taking propensity, which capture key psychological factors influencing entrepreneurial engagement. The general form of the models estimates the probability of owning a business as:

$$P(y = 1 | x) = F(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4) \quad (3)$$

For the logit model we have used the logistic function:

$$P(y = 1 | x) = \frac{e^{\beta_0 + \sum \beta_i x_i}}{1 + e^{\beta_0 + \sum \beta_i x_i}} \quad (4)$$

and for the probit model we have used standard normal cumulative distribution function:

$$P(y = 1 | x) = \Phi(\beta_0 + \sum \beta_i x_i) \quad (5)$$

Both models were estimated using the maximum likelihood method, ensuring that predicted probabilities remain between 0 and 1. The coefficients in these models indicate how a change in an independent variable affects the likelihood of business ownership, but their magnitude is not directly interpretable due to differences in scale. Instead, marginal effects were computed to assess the actual impact of each explanatory variable on the probability of business ownership. These results provide a robust framework for understanding the psychological determinants of student entrepreneurship.

3. Research results

3.1 Locus of control

Figure 2 shows the distribution of the locus of control among respondents. The results indicate that students are not characterised by a high locus of control. This since only 707 respondents (46.3%) were above the median.

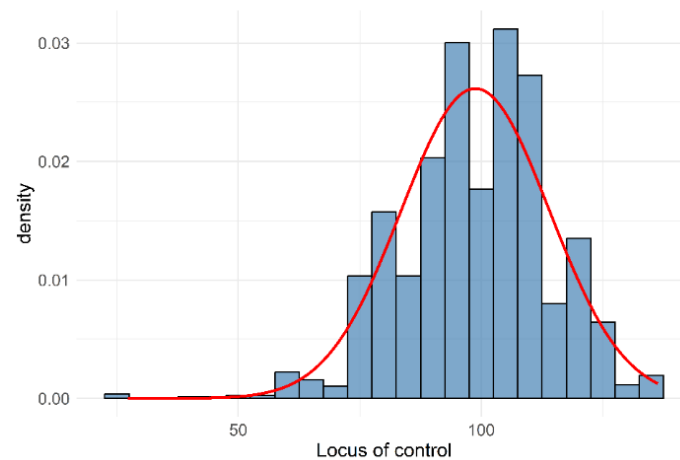


Figure 2. Locus of control among respondents.

Source: Own elaboration.

In other words, had a higher-than-average locus of control. This distribution highlights variability in students' perceived personal agency, which is relevant for understanding individual entrepreneurial potential. Figure 2 demonstrates these results below. The highest correlation observed (0.70; $p < 0.001$) was between question A1, which represents self-assessed entrepreneurship, and question A2, which measures the opinion of family and friends regarding the student's entrepreneurial abilities. The obtained result may indicate consistency in the perception of social roles. The social identity concept (Goffman, 1959) suggests that individuals shape their self-perception and the perception of others based on the social role they fulfil in each context. Those perceived as entrepreneurial may assume the role of a leader or innovator, which, in line with societal expectations, is strongly associated with entrepreneurship.

Additional noteworthy correlations include the following: A1 and A3 (indicating a strong character personality; 0.38; $p < 0.001$), A1 and A5 (describing an entrepreneurial person as persistent; 0.35; $p < 0.001$), and A1 and A7 (suggesting that an entrepreneurial person's life is shaped by their own actions; 0.29; $p < 0.001$). Individuals who believe that their success depends on their own effort are more likely to take risks, persevere, overcome difficulties, and face challenges (Rotter, 1966). Such individuals often perceive themselves as the "creators" of their success, which reinforces their entrepreneurial identity (Luthans, 2002). On the other hand, the correlation analysis reveals no statistically significant relationship (-0.01 ; $p = 0.69$) between questions A1 and A8, which represents the belief that success is an innate trait rather than a result of one's own actions. However, there is a correlation with responses to question A9, which indicates that success is attributed to hard work rather than luck (0.14; $p < 0.001$).

It is important to note that the measure of business ownership used in the study does not differentiate between enterprises registered in Poland and those in students' countries of origin. Consequently, while the presence of a business indicates tangible entrepreneurial behaviour, interpretation should consider that international students may face additional barriers (language, legal, and administrative differences), which could affect both the likelihood and scope of entrepreneurial activity. Moreover, the sample includes young respondents, whose responses may reflect aspirations rather than fully realized business activities. The analysis, therefore, focuses on individual-level entrepreneurial potential, acknowledging that reported ownership or intentions may

vary in maturity and practical realization. This approach ensures that the observed correlations between locus of control and entrepreneurial behaviour are interpreted within a nuanced context, rather than assuming uniform entrepreneurial engagement across all age groups and national backgrounds (Fig. 3).

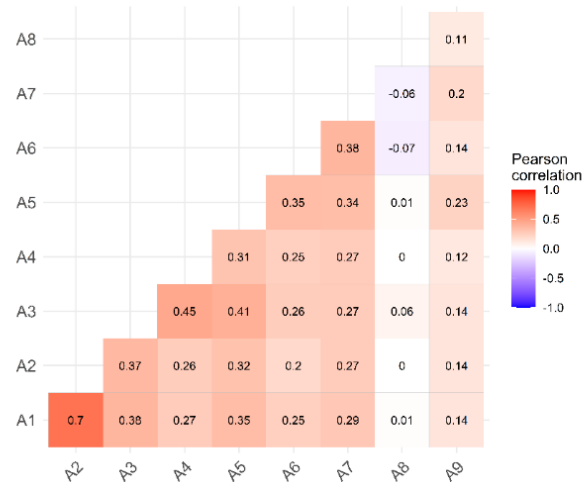


Figure 3. Correlation between questions that determine the locus of control.

Note: A1 – I am an entrepreneurial person, A2 – My family and friends consider me an entrepreneurial person, A3 – I consider myself a person of strong character, A4 – In stressful situations I can concentrate and think clearly, A5 – I am a person who never gives up, A6 – The setbacks I experience provide me with lessons for the future, A7 – My life is determined by my own actions, A8 – To what extent do you agree with the statement that you are either naturally good at something or you are not; effort makes no difference, A9 – To what extent do you agree with the statement that being successful is a result of working hard, luck has nothing to do with it.

Source: Own elaboration.

Entrepreneurship theory further suggests that entrepreneurial individuals exhibit perseverance, a strong work ethic, and a commitment to developing their ideas, even in the face of failure. McClelland (1961), in his motivation theory, emphasizes that entrepreneurs possess a high need for achievement, which is linked to attributing success to their own efforts rather than external factors such as luck. Such individuals develop a high resilience to failure, as setbacks are perceived as an inherent part of the learning and growth process.

3.2 Creativity

The results show that 989 respondents (58.8%) were above the median, demonstrating above average level of creativity. Figure 4 shows the distribution of this variable. This indicates that a substantial proportion of students possess cognitive flexibility and innovative thinking, which are key components of entrepreneurial potential. Most correlations observed in the motivation dimension are highly significant at $p < 0.001$.

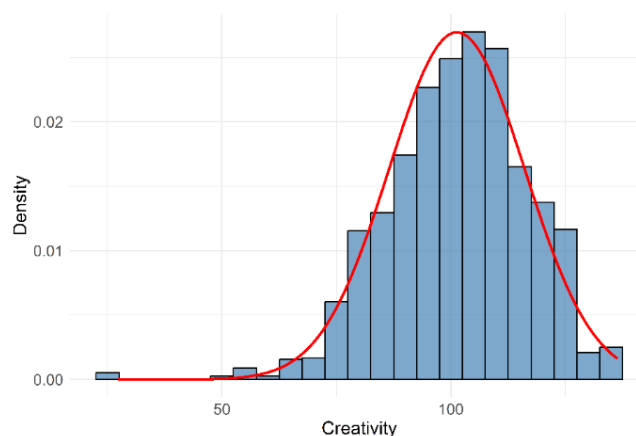


Figure 4. Creativity among respondents.

Source: Own elaboration.

Figure 5 demonstrates the highest correlation between question A11 (ability to find oneself in any situation) and question A12 (ease of adaptation to new circumstances; 0.48; $p < 0.001$).

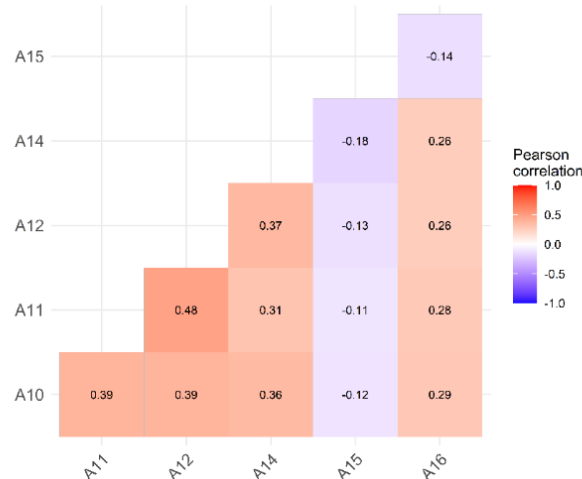


Figure 5. Correlation between questions that determine creativity.

Note: A10 – In difficult and complex situations, I always find a few alternatives to solve the problem, A11 – I can find myself in any, even in the most unfavourable circumstances, A12 – I can easily adapt to new circumstances, A13 – I am able to look at a situation from different points of view, A14 – I like to find out about things even if it means handling some problems while doing so, A15 – I prefer doing things in the usual way rather than trying out new ways, A16 – I am seriously thinking about starting a business.

Source: Own elaboration.

The obtained result can be linked to the experiential learning theory (Kolb, 2014), which emphasizes the role of prior experiences in developing adaptive skills. Students who navigate diverse situations effectively, may translate their experiences into practical problem-solving strategies, which is essential for entrepreneurial activities.

Moreover, positive correlations are observed between question A10 (ability to identify multiple alternatives in challenging situations) and questions A11, A12, and A14. These correlations suggest that creative students are not only flexible in thinking but also resilient, capable of turning setbacks into learning opportunities (Masten, 2001; Shane, 2003). This aligns with findings from our logit and probit analyses, which indicate that creativity is a significant predictor of entrepreneurial potential among students.

It is worth noting that question A10 exhibits a small but statistically significant correlation with question A15 (reluctance to adopt new problem-solving methods). This may reflect that some students prefer established approaches over radical innovation, highlighting that entrepreneurial creativity can manifest in both adaptive and incremental forms. Furthermore, questions A11, A12, and A14 exhibit positive correlations with question A16 (declaration of interest in starting one's own business). This suggests that cognitive flexibility and adaptability (Diamond, 2013) are associated with students' intentions to engage in entrepreneurship, although the actual realization of these intentions may depend on contextual factors, including the country of business registration and institutional frameworks.

Given the diverse age and international composition of the sample, the observed correlations between creativity and entrepreneurial potential should be interpreted with caution. In particular, variations in respondents' experience levels and the country in which they may actually operate a business could influence the practical realization of entrepreneurial intentions. Therefore, while creativity emerges as a significant individual-level predictor, contextual factors and sample heterogeneity should be taken into account when generalizing these findings.

Additionally, there is a small but statistically significant correlation between question A15 and question A16 (0.14; $p < 0.001$). This finding supports the notion that entrepreneurial success does not

always require groundbreaking innovation; many students may leverage existing methods efficiently to create value (Kirzner, 2015; Schumpeter, 2004).

3.3 Motivation

The results indicated that most students are below the median in the motivation dimension. A score above 100 was recorded for only 681 students, which represented 44.6% of all students at the university. These results are graphically demonstrated on Figure 6.

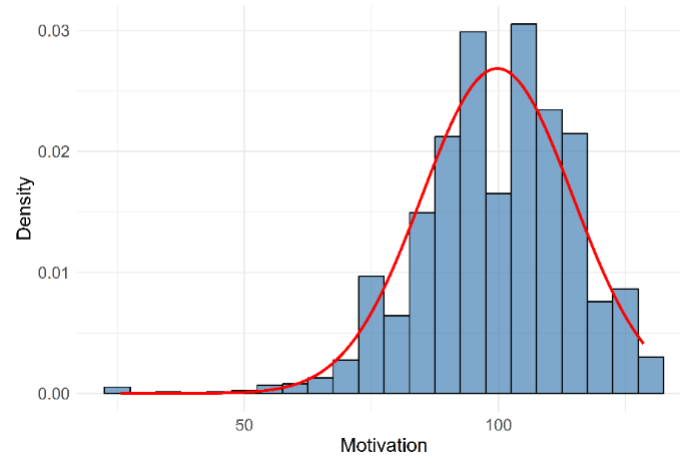


Figure 6. Motivation among respondents.

Source: Own elaboration.

Figure 7 displays the highest positive correlation (0.73; $p < 0.001$) between question A16 (declaration of interest in starting one's own business) and A17 (willingness to do anything to become an entrepreneur).

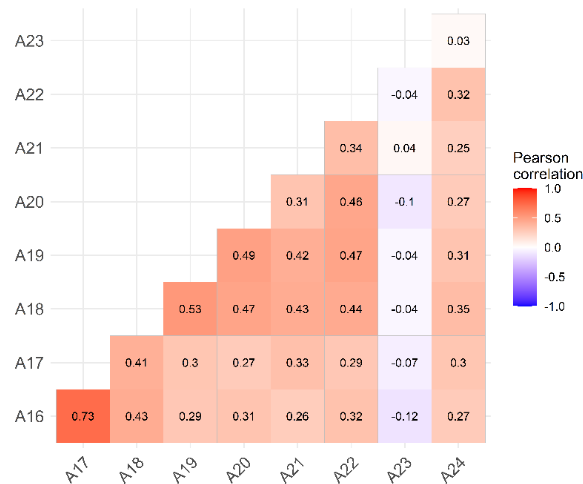


Figure 7. Correlation between questions that determine motivation.

Note: A16 – I am seriously thinking about starting a business, A17 – I am ready to do anything to become an entrepreneur, A18 – I make a determined effort to achieve the goals I set for myself, A19 – I try to cope with solving problems no matter how difficult they are, A20 – Dealing with difficult situations strengthens and develops me, A21 – I implement developed plans from start to finish, A22 – I am open to new experiences, A23 – I would not mind routine unchallenging work if the pay was good, A24 – When I am faced with a challenge, I think more about the results of succeeding than the effects of failing.

Source: Own elaboration.

The finding aligns with the perspective of Klinkosz and Sękowski (2006), as cited in Schuler & Prochaska (2000). The authors highlight that individuals with a high need for achievement are more inclined to engage in entrepreneurial activities. They demonstrate determination and a willingness to make sacrifices in pursuit of their goals. Conversely, a moderate positive correlation (0.53; $p < 0.001$)

is observed between questions A18 (reflecting a commitment to giving one's best to accomplish objectives) and A19 (indicating a proficiency in problem-solving regardless of complexity). Hollenbeck & Klein (1987) demonstrate that commitment to goal achievement is crucial for attaining successful outcomes. Consequently, individuals with a high level of commitment are more proficient in overcoming challenges encountered along the path to reaching their objectives.

Additionally, there is a correlation between question A23 (willingness to accept routine, undemanding work with adequate remuneration) and questions A16 (0.12; $p < 0.001$) and A17 (0.07; $p = 0.0074$). The identified relationship is consistent with the views of Batz Liñeiro et al. (2024). In their opinion, individuals seeking financial stability through routine employment may simultaneously consider entrepreneurship as a means of improving their economic situation. The relationship between a preference for stable work and entrepreneurial aspirations is therefore complex and cannot be described in a binary manner.

The observed relations between motivation and entrepreneurial potential should be interpreted with consideration for the sample's heterogeneity. In particular, international students may face barriers in translating motivation into actual business ownership, depending on whether entrepreneurial activity occurs in Poland or their country of origin. Moreover, young respondents may report high motivational scores reflecting aspirations rather than tangible entrepreneurial actions. Despite these contextual factors, the significant correlations between motivation-related items and entrepreneurial intentions (A16, A17) underscore the role of intrinsic drive and commitment as key individual-level determinants of entrepreneurial potential. These findings are consistent with prior research highlighting the predictive value of motivational traits for entrepreneurial behaviour (Hollenbeck & Klein, 1987; Klinkosz & Sękowski, 2006), while also acknowledging the need to consider age and contextual limitations when generalizing the results.

3.4 Risk-taking propensity

The results of the linear scaling indicate that most students can be characterised by a low risk-taking propensity. Out of the 1526 surveyed students, 754 (48.8%) were above the median for this dimension. The results are graphically demonstrated by Figure 8.

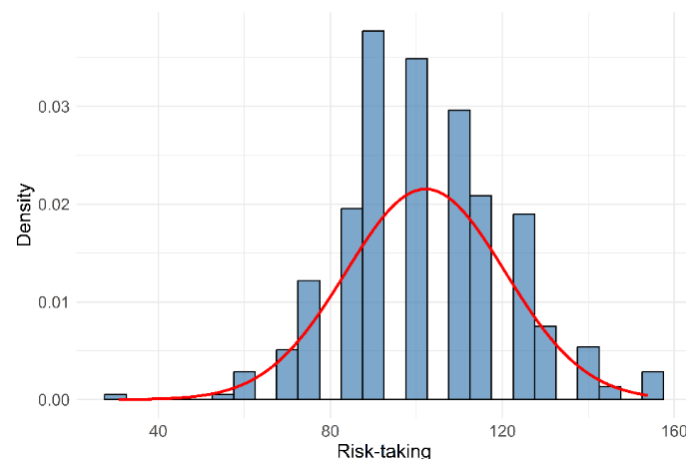


Figure 8. Risk-taking propensity of respondents.

Source: Own elaboration.

Figure 9 reveals a weak negative correlation (-0.19 ; $p < 0.001$) between question A25 (pertaining to the inclination to embrace new challenges) and question A26 (describing pessimism and excessive caution in difficult situations). The above finding suggests that individuals with a higher level of pessimism tend to focus on the negative aspects of risk, which may lead them to avoid taking on new challenges. However, this relationship is weak, as other factors, such as individual experiences and personality traits, also influence the willingness to engage in challenges (Dohmen et al., 2023).

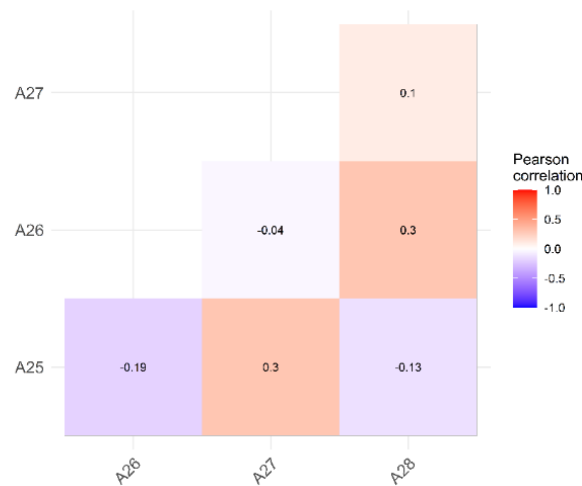


Figure 9. Correlation between questions that determine risk-taking.

Note: A25 – I like to take on challenges that allow me to prove myself in new situations, A26 – I tend to be pessimistic and overly cautious in difficult situations, A27 – Before making an important decision, I prefer to weigh up the pros and cons fairly quickly rather than spending a long time thinking about it, A28 – If there is a chance of failure, I would rather not do it.

Source: Own elaboration.

Furthermore, a moderate positive correlation (0.30; $p < 0.001$) is observed between questions A25 and A27 (indicating the ability to swiftly analyse the pros and cons before making important decisions). This result aligns with the view of Cassey et al. (2014), who argues that individuals who readily take on challenges in new situations often make decisions quickly, without unnecessary hesitation. Such individuals tend to process information more rapidly (Wickelgren, 1977) and have a lower need for multifaceted and time-consuming analyses, enabling them to act efficiently, even in unfamiliar circumstances.

Additionally, there is a weak correlation (0.13; $p < 0.001$) between questions A25 and A28 (indicating a tendency to avoid actions with a risk of failure). The observed pattern indicates that individuals who enjoy taking on challenges often accept the possibility of failure (Jagacinski et al., 2008) as an integral part of the learning and development process. However, when the probability of failure is high, even these individuals may choose to withdraw from action. Nonetheless, this relationship is generally weak, as individual risk tolerance and the assessment of potential benefits play a crucial role in decision-making (Wang et al., 2022).

While these correlations describe individual tendencies, their interpretation must consider the broader context. Risk-taking propensity is a key psychological trait influencing entrepreneurial behaviour (Stewart Jr & Roth, 2001). In our study, the generally low level of risk-taking suggests that many students are cautious when considering entrepreneurship, which may partly explain the limited number of actual business owners.

Given the diversity of the sample, including international and young respondents, the reported entrepreneurial activity may vary in meaning. For instance, it remains unclear whether international students referred to businesses in Poland or their home countries, and younger participants may express aspirations rather than real experience. Therefore, risk-taking propensity should be seen as an indicator of entrepreneurial potential rather than direct entrepreneurial outcomes.

While risk-taking is an important predictor of entrepreneurial behaviour, it is shaped by contextual, cultural, and developmental factors, which must be considered when interpreting these results.

3.5 Fields of study

The results of the respondents' self-assessment of their entrepreneurial potential are presented on Figure 10. The results show that 867 students (56.8% of all respondents) describe themselves as

entrepreneurial. Of this group, 279 (18.3%) declare strongly that they are entrepreneurial. In contrast, 237 respondents (15.5%) do not see themselves as an entrepreneurial person.

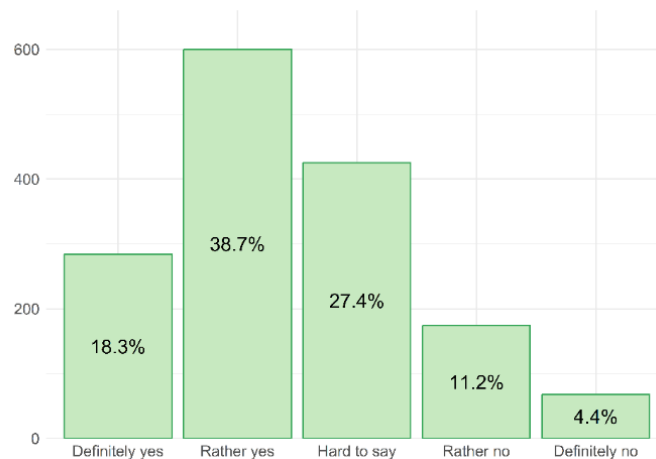


Figure 10. Self-assessment of entrepreneurship.

Source: Own elaboration.

Additionally, there are noticeable differences between students in different fields of study in how they perceive themselves as entrepreneurial (Appendix B). Respondents that most often considered themselves to be entrepreneurial persons are students in management (12.5%), information technology (12.2%) and logistics (10.8%). While the fields of study for which none or very few students chose to describe themselves as entrepreneurial, was English Philology with Chinese (0.0%), English Philology (0.4%) and game design and development (0.7%).

Data on the fields of study with the highest number of students running their own businesses was collected (Figure 11). Among the persons surveyed who run their own business, the largest number represented the International Business Management field (25 persons), followed by Management and Information Technology (24 and 23 persons respectively).

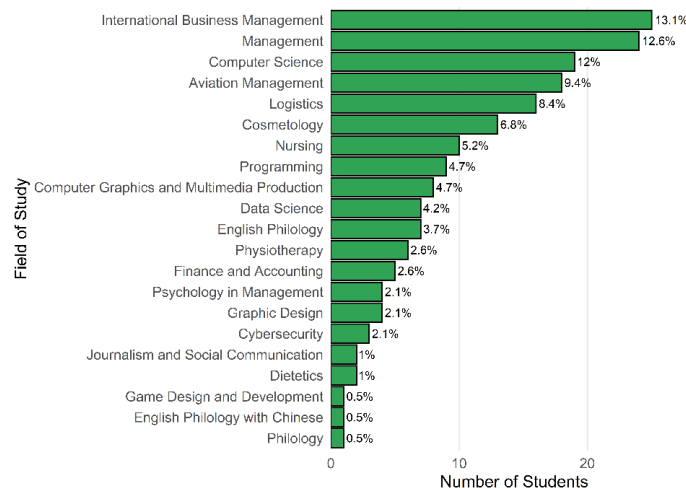


Figure 11. Business owners by field of study.

Source: Own elaboration.

The highest percentage of student entrepreneurs is observed in International Business Management (13.1%), Management (12.6%), and Computer Science (12%), aligning with expectations that business-related and technology-oriented fields equip students with the knowledge and competencies necessary for starting and managing enterprises. This observation is consistent with previous findings (Hmieleski & Baron, 2009; Nabi & Holden, 2008), which indicate that students

in management and IT-related disciplines develop both strategic and technical skills essential for entrepreneurship. Aviation Management (9.4%) and Logistics (8.4%) also show strong entrepreneurial representation, suggesting that industries requiring operational efficiency and global market awareness foster business initiatives among students. Interestingly, fields traditionally associated with service provision, such as Cosmetology (6.8%) and Nursing (5.2%), demonstrate notable levels of business ownership. This reflects broader labour market trends, where self-employment is a common career path in personal care and private healthcare services, allowing professionals to establish independent practices.

Lower entrepreneurial engagement is observed in humanities and social sciences, with English Philology (3.7%), Physiotherapy (2.6%), and Finance and Accounting (2.6%) displaying relatively limited business activity. While finance-related disciplines provide knowledge applicable to entrepreneurship, students in this field may prefer corporate or institutional career paths over independent ventures (Klimkowska & Klimkowski, 2020).

The estimated logit and probit models (Table 2) yield largely consistent results regarding the determinants of business ownership. In both models, the intercept is negative and statistically significant, reflecting a low baseline probability of owning a business when the predictors are zero.

Table 2. Modelling results – dependent variable: owning a business.

	Logit	Probit
Intercept	-10.69 *** [<0.01]	-5.72 *** [<0.01]
Locus of control	0.03 *** [<0.01]	0.02 *** [<0.01]
Creativity	0.02 ** [0.01]	0.01** [0.01]
Motivation	0.02* [0.03]	0.01* [0.02]
Risk-taking propensity	0.01 [0.24]	0.002 [0.25]
AIC	1019.5	1021.4

Source: Own elaboration.

The coefficient for Locus of control is positive and highly significant (0.03 in the logit model and 0.02 in the probit model, both with $p < 0.01$), indicating that a higher internal locus of control is associated with an increased likelihood of business ownership. Creativity also has a positive influence on the probability of owning a business, with coefficients of 0.02 (logit) and 0.01 (probit), significant at the 1% level, suggesting that more creative individuals are more inclined to engage in entrepreneurship. Motivation shows a positive and significant effect (0.02 in the logit model at $p = 0.03$ and 0.01 in the probit model at $p = 0.02$). The Risk-taking Propensity does not appear to be a statistically significant predictor in either model (0.01 in the logit and 0.002 in the probit model, with $p > 0.24$ in both cases), implying that its role in determining business ownership is less clear or potentially mediated by other factors.

The results indicate that internal psychological traits (particularly locus of control, creativity, and motivation) are strong predictors of business ownership. This finding underscores the role of cognitive and motivational factors in fostering entrepreneurial behaviour (McClelland, 1961; Shane, 2003). In contrast, risk-taking propensity was not significant, suggesting that risk tolerance may influence entrepreneurship indirectly or be moderated by other factors, such as cultural or institutional barriers.

The interpretation of these findings should take into account the diversity of the sample. Because the survey included students from various countries and age groups, the reported business ownership may refer to enterprises operating under very different legal and economic conditions. Additionally, for the youngest respondents, certain answers could reflect future intentions or plans rather than

current entrepreneurial activity. This context is essential for accurately understanding the scope and meaning of the results.

The models provide valuable evidence that individual psychological factors are crucial for understanding entrepreneurial potential, but their impact should be viewed in light of contextual and developmental considerations.

4. Discussion

The research results obtained from the analysed data provided answers to the formulated research questions. The findings demonstrate that fields of study in which students exhibit high entrepreneurial self-assessment correlate with their declarations of running their own businesses (RQ1). This outcome aligns with expectations, as Chen et al. (1998) show that students with high entrepreneurial self-assessment – defined as a strong belief in their ability to successfully perform entrepreneurship-related tasks – are significantly more likely to engage in business activities. However, entrepreneurial self-assessment can be subjective (Lyons et al., 2015; Wach et al., 2017). Therefore, understanding how individuals are perceived by their surroundings is particularly important in identifying their actual entrepreneurial potential (Pinheiro et al., 2023). Confirming this relationship through the presented research adds significant value to the existing studies on students' entrepreneurial potential (Zhang et al., 2023) while also shaping directions for further research in this area.

The analyses also highlighted the relationship between the language in which students pursue their studies and their entrepreneurial potential (RQ3). Studying in a foreign language is indicative of resourcefulness and entrepreneurial tendencies (Wijaya & Gracia, 2024). Individuals with an internal locus of control believe they have influence over their lives and decisions, which fosters business initiatives (Annisa et al., 2021). Moreover, the willingness to take business risks is linked to a readiness to engage in uncertain situations (Mueller & Thomas, 2001). Therefore, studying in a foreign language, often in a foreign country, can serve as a "litmus test" for assessing one's preparedness to enter the business world.

The modelling results show that the top predictors of business ownership are a strong internal locus of control, high creativity, and solid motivation. In simple terms, students who believe they control their own fate, who are creative, and who are self-driven are much more likely to own a business. On the other hand, the willingness to take risks did not play a significant role as a predictor of entrepreneurship potential in the tested group of students. This may be associated with the age of the respondents.

The study further revealed that management-related fields and computer science (Norhaidah Abu Haris & Abu Talib Othman, 2017) are particularly popular among students who run their own businesses (RQ2). Management students acquire knowledge in business strategy, marketing, and finance – key competencies necessary for running a business (Fayolle & Gailly, 2015; Hmieleski & Baron, 2009). Meanwhile, computer science students develop technical skills that enable them to create products and services based on modern technologies (Nabi & Holden, 2008). Complementing these qualifications with general academic courses (such as the basics of economics, personal business models, or fundamental management principles) and providing support in business conceptualization facilitates the process of starting a business.

At the opposite end of the entrepreneurial potential spectrum are students majoring in Chinese philology, with as many as 36% of respondents not perceiving themselves as entrepreneurial. This result suggests that these students are more likely to associate their career plans with salaried employment rather than self-employment. This perspective aligns with the findings of Klimkowska and Klimkowski (2020) as well as Trojak et al. (2023). The qualifications gained by English Philology students are predominantly service-oriented and are more strongly linked to employment rather than independent business ventures (Alhassan et al., 2021).

Conclusions

The study provides valuable insights into the entrepreneurial potential of students at the University of Information Technology and Management in Rzeszow (Poland). The research methodology, based on an original psychometric tool operationalizing four theoretical dimensions: locus of control, motivation, creativity, and risk-taking propensity, combined with rigorous statistical analyses, ensured reliability and validity of the results. Given the heterogeneous composition of the sample, which included students from diverse countries, cultural backgrounds, and educational systems, the findings primarily reflect individual-level entrepreneurial potential rather than specific national or institutional conditions.

The estimated logit and probit models indicate that key psychological traits, specifically internal locus of control, creativity, and motivation are significant predictors of business ownership among students, whereas risk-taking propensity does not show a statistically significant effect. For international students, additional challenges such as language barriers, unfamiliar legal frameworks, and administrative requirements may further highlight the role of personal traits in entrepreneurial activity. These results emphasize the importance of cognitive and motivational factors in shaping entrepreneurial behaviour.

While the study focused on a single university, limiting the direct generalizability of findings to other educational contexts or countries, it provides a robust basis for understanding the individual-level determinants of entrepreneurial potential. Extending this research to international samples and integrating qualitative methods, such as interviews or focus groups, would allow for comparative analyses across different cultural and institutional contexts and offer a deeper understanding of the factors shaping entrepreneurial potential.

The high reliability of the developed research tool, combined with its adaptation to an international student population, supports its future application in cross-cultural studies and underscores the relevance of assessing entrepreneurial potential at the individual level, taking into account the broader socio-cultural and institutional environment.

Author Contributions: Conceptualization, T.S. and L.C.; methodology, L.C. and T.S.; formal analysis, A.H., L.C. and T.S.; investigation, T.S. and A.H.; resources, T.S. and A.H.; data curation, A.H.; writing-original draft preparation, A.H., L.C. and T.S.; writing-review and editing, T.S. and L.C.; visualization, L.C.; supervision, T.S.; project administration, T.S. All authors have read and agreed to the published version of the manuscript.

Funding: The authors declare that no funding was received for the conduct of this research or the preparation of this article.

Data Availability Statement: The data utilized in this manuscript were obtained through a survey conducted within the framework of a research project. The dataset is securely stored on the servers of the University of Information Technology and Management in Rzeszow. Access to the data may be granted to interested parties upon request submitted via email to the corresponding author.

Conflicts of Interest: The authors affirm no conflict of interest.

Appendix A

Survey on student entrepreneurial potential and forms of business support expected by students

The staff of the Department of Entrepreneurship at UITM in Rzeszow are conducting research on the potential for entrepreneurship among students and the forms of support from the University that students planning to start a business expect. Answers to the questions in the survey are anonymous. The results will be used to develop solutions aimed at effectively supporting those planning to set up a business. We hope for honest and comprehensive answers. Incomplete questionnaires will not provide full knowledge of the topic under investigation. The survey will take no longer than 10 minutes to complete.

Thank you for completing the survey

(A) Student Entrepreneurial Potential (In each question, please only choose one response)

A1. I am an entrepreneurial person

- a) Definitely agree
- b) Rather agree

- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A2. My family and friends consider me an entrepreneurial person

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A3. I consider myself a person of strong character

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A4. In stressful situations I can concentrate and think clearly

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A5. I am a person who never gives up

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A6. The setbacks I experience provide me with lessons for the future

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A7. My life is determined by my own actions

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A8. To what extent do you agree with the statement that you are either naturally good at something or you are not; effort makes no difference

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A9. To what extent do you agree with the statement that being successful is a result of working hard, luck has nothing to do with it

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A10. In difficult and complex situations, I always find a few alternatives to solve the problem

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A11. I can find myself in any, even in the most unfavourable circumstances

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A12. I can easily adapt to new circumstances

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A13. I am able to look at a situation from different points of view

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A14. I like to find out about things even if it means handling some problems while doing so

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A15. I prefer doing things in the usual way rather than trying out new ways

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A16. I am seriously thinking about starting a business

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A17. I am ready to do anything to become an entrepreneur

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A18. I make a determined effort to achieve the goals I set for myself

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A19. I try to cope with solving problems no matter how difficult they are

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A20. Dealing with difficult situations strengthens and develops me

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A21. I implement developed plans from start to finish

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A22. I am open to new experiences

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A23. I would not mind routine unchallenging work if the pay was good

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A24. When I am faced with a challenge, I think more about the results of succeeding than the effects of failing

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A25. I like to take on challenges that allow me to prove myself in new situations

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A26. I tend to be pessimistic and overly cautious in difficult situations

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A27. Before making an important decision, I prefer to weigh up the pros and cons fairly quickly rather than spending a long time thinking about it

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

A28. If there is a chance of failure, I would rather not do it

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

(B) Expectations entrepreneurship support offered by UITM (For each question, choose only one response)

B1. Do you run a business or are you a shareholder in a company? (If "No" go to question B2, if "Yes" go to question B3)

- a) Yes
- b) No

B2. Do you plan to start a business while studying at UITP?

- a) Definitely agree
- b) Rather agree
- c) Neither agree or disagree
- d) Rather disagree
- e) Definitely disagree

B3. Have you ever used UITMs support in setting up and running a business? (If "Yes" go to question B4 and then B6, if "No" go to question B5)

- a) Yes
- b) No

B4. What was the support provided by UITM about?

- a) support in preparing a business plan
- b) financial and accounting support
- c) legal support
- d) participation in thematic training courses for entrepreneurs
- e) support in obtaining external funding for starting a business
- f) support in developing a product strategy
- g) support in developing a marketing strategy
- h) Other, which

B5. If you did not use the support offered by UITM when setting up your business, what was the reason?

- a) I was not aware that such support was available
- b) I had no need for the support offered by the university
- c) I think that the market offers better support than the university
- d) I did not know who / which units at the university to approach for support
- e) I did not want the support provided to create future obligations towards the university
- f) I needed financial support which I could not get from the university
- g) Other, which

B6. Are you interested in taking advantage of the start-up and business assistance offered by UITM again? (If "Yes" go to question B7. If "No" go to question B8).

- a) Yes
- b) No

B7. What kind of support do you expect from UITM when setting up your business, taking into account your previous experience with support from the University?

- a) assistance in the preparation of a business plan
- b) financial and accounting advice
- c) legal advice
- d) direct financial support from UITM
- e) participation in thematic training courses
- f) support in the development of a business model
- g) assistance in choosing the organizational and legal form of business activity
- h) assistance in the procedure of registering business activity
- i) assistance in obtaining funds for starting business activity
- j) possibility to consult business ideas with practitioners
- k) Other, which

B8. If you do not plan to use UITMs support when setting up your business, what are the reasons for this?

- a) I do not think that the university has an attractive offer of support
- b) I need financial support, which I will not get at university
- c) I don't want too many people to know about my business idea
- d) I don't want to have obligations towards the university
- e) I have more confidence in external experts
- f) I have had bad experiences with applying for university support
- g) The support provided by the university has not met my expectations
- h) Services provided by other market players meet my needs better
- i) Other, which

(C) METRICS

C1. Gender:

- a) Female
- b) Male

C2. Age:

- a) from 16 to 18
- b) from 19 to 21
- c) from 22 to 24
- d) from 25 to 30
- e) from 31 to 40
- f) from 41 and above

C3. Employment status:

- a) full-time employee
- b) part-time employee
- c) unemployed
- d) freelancer
- e) self-employed
- f) trainee/apprentice
- g) economically inactive

C4. Mode of study:

- a) Offline
- b) Online

C5. Track of study:

- a) Polish -Language
- b) English-Language

C6. Country of Origin:

- a) Poland,
- b) Ukraine,
- c) Kazakhstan,
- d) China,
- e) India,
- f) Belarus,
- g) Other, which

C7. Level of study:

- a) Bachelor
- b) Master
- c) Postgraduate

C8. Field of Study:

- a) Aviation Management
- b) Computer science
- c) Social Work
- d) Game Design and Development
- e) International Business Management
- f) Nursing
- g) Programming
- h) Global Aviation Management
- i) Cybersecurity
- j) Data Science
- k) (.....)

Thank you for filling in the questionnaire

Note: The minimum age of participants was set at 16 to include students from countries such as Ukraine, Kazakhstan, China, India, Belarus, Spain, Pakistan, Papua New Guinea, Morocco, Kyrgyzstan, Turkey, Jordan, Vietnam, Tajikistan, Zambia, Nigeria, Uzbekistan, Kenya, Moldova, Yemen, Zimbabwe and others, where university education typically begins at a younger age. This approach ensured that all first-year students could participate in the study without being excluded based on age.

Appendix B**Table 3.** Cross-analysis for questions: A1. I am an enterprising person and a C8. Courses of study.

Table 17. Cross analysis for questions: I'm a... I am an... person and a... Co. Sources of study.												
C8.	A1.										Total	
	Definitely yes		Most likely yes		Hard to say		Probably not		Definitely not			
	N	%	N	%	N	%	N	%	N	%	N	%
N/A	1	0.4%	3	0.5%	2	0.5%	0	0.0%	0	0.0%	6	0.4%
Aviation Management (AM) & Global AM	19	6.8%	25	4.3%	10	2.4%	9	5.3%	3	4.5%	66	4.3%
Cybersecurity	3	1.1%	7	1.2%	6	1.4%	1	0.6%	1	1.5%	18	1.2%
Data Science	7	2.5%	24	4.1%	10	2.4%	4	2.4%	1	1.5%	46	3.0%
Dietetics	3	1.1%	8	1.4%	8	1.9%	1	0.6%	1	1.5%	21	1.4%
Journalism and Social Communication	7	2.5%	12	2.0%	6	1.4%	1	0.6%	2	3.0%	28	1.8%

Philology	1	0.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
English philology	6	2.2%	39	6.6%	34	8.1%	16	9.4%	2	3.0%	97	6.4%
English philology with Chinese	0	0.0%	6	1.0%	7	1.7%	1	0.6%	2	3.0%	16	1.0%
Finance and accounting in management	14	5.0%	9	1.5%	14	3.3%	3	1.8%	1	1.5%	41	2.7%
Physiotherapy - uniform master's degree	5	1.8%	21	3.6%	27	6.4%	6	3.5%	2	3.0%	61	4.0%
Computer graphics and multimedia production	9	3.2%	51	8.7%	44	10.4%	13	7.6%	9	13.4%	126	8.3%
Computer Science	34	12.2%	100	17.0%	75	17.8%	25	14.7%	13	19.4%	247	16.2%
International Business Management	28	10.0%	21	3.6%	4	0.9%	2	1.2%	2	3.0%	57	3.7%
Cosmetology	20	7.2%	65	11.1%	38	9.0%	13	7.6%	5	7.5%	141	9.2%
Logistics	30	10.8%	51	8.7%	31	7.3%	10	5.9%	3	4.5%	125	8.2%
Nursing	28	10.0%	16	2.7%	4	0.9%	3	1.8%	4	6.0%	55	3.6%
Programming	13	4.7%	32	5.4%	41	9.7%	27	15.9%	4	6.0%	117	7.7%
Game Design and Development	2	0.7%	10	1.7%	16	3.8%	7	4.1%	0	0.0%	35	2.3%
Graphic design	6	2.2%	3	0.5%	5	1.2%	6	3.5%	2	3.0%	22	1.4%
Psychology in management	8	2.9%	24	4.1%	14	3.3%	6	3.5%	0	0.0%	52	3.4%
Management	35	12.5%	61	10.4%	26	6.2%	16	9.4%	10	14.9%	148	9.7%
Total	279	100%	588	100%	422	100%	170	100%	67	100.0%	1526	100%

Source: Own elaboration.

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