

# Entrepreneurial Competences of Management Students

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## Abstract

**Purpose:** There are many different approaches to the concept of entrepreneurial competences. Therefore, it is not easy to choose one universal set of these competences (for example: Rivera-Kempis et al., 2021). In order to make an attempt to measure the level of entrepreneurial competences in students, it was necessary to conduct a literature review.

**Design/methodology/approach:** As a result of this review, a concept was selected that seems to be the most similar to the majority of contemporary concepts describing entrepreneurial competences. Based on the description of this concept, a research tool was developed to measure the level of entrepreneurial competences. Using this tool, a study of the level of entrepreneurial competences was conducted among management students of three leading universities in Warsaw – the University of Warsaw, the Warsaw School of Economics and the Kozminski University.

**Findings:** The study shows that the most significant differences in the level of entrepreneurial competences were observed between students planning to start their own enterprise in the future and students who do not intend to start their own enterprise in the future and people who do not know yet whether they want to start their own enterprise in the future. Gender, university and year of study did not significantly differentiate the level of entrepreneurial competences in the respondents.

**Research limitations/implications:** The study is a pilot study, so it was conducted on a small, unrepresentative sample. In order to generalize the results, it should be repeated on a larger, representative sample. Moreover, due to the variety of concepts of entrepreneurial competences, it is not possible to measure the level of all entrepreneurial competences.

**Originality/value:** This article contributes to the literature in that it checks which entrepreneurial competences are present in management students. The level of entrepreneurial competences was verified on the basis of a new and pre-validated tool for measuring the level of entrepreneurial competences.

**Keywords:** entrepreneurial competences, entrepreneurial competences of management students, determinants of entrepreneurship.

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## Kompetencje przedsiębiorcze wśród studentów zarządzania

### Streszczenie

**Cel:** istnieje wiele różnych podejść do koncepcji kompetencji przedsiębiorczych. Dlatego nie jest łatwo wybrać jeden uniwersalny zestaw tych kompetencji (np. Rivera-Kempis, Valera i Sastre-Castillo, 2021). W celu podjęcia próby zmierzenia poziomu kompetencji przedsiębiorczych studentów konieczne było dokonanie przeglądu literatury.

**Metodologia:** w wyniku tego przeglądu wybrano koncepcję, która wydaje się najbardziej zbliżona do większości współczesnych koncepcji opisujących kompetencje przedsiębiorcze. Na podstawie opisu tej koncepcji powstało narzędzie badawcze do pomiaru poziomu kompetencji przedsiębiorczych. Za pomocą tego narzędzia przeprowadzono badanie poziomu kompetencji przedsiębiorczych wśród studentów zarządzania trzech wiodących warszawskich uczelni – Uniwersytetu Warszawskiego, Szkoły Głównej Handlowej i Akademii Leona Koźmińskiego.

**Wyniki:** z badania wynika, że największe różnice w poziomie kompetencji przedsiębiorczych zaobserwowano między studentami planującymi założenie w przyszłości własnej firmy a studentami, którzy nie zamierzają jej w przyszłości zakładać a osobami, które jeszcze nie wiedzą jaką podejmą w przyszłości decyzję. Płeć, uczelnia i rok studiów nie różnicowały istotnie poziomu kompetencji przedsiębiorczych badanych.

**Ograniczenia/implikacje badawcze:** badanie ma charakter pilotażowy, zostało więc przeprowadzone na małej niereprezentatywnej próbie. W celu uogólnienia wyników należałoby powtórzyć je na większej, reprezentatywnej próbie. Ponadto, ze względu na różnorodność koncepcji kompetencji przedsiębiorczych nie jest możliwe zmierzenie poziomu wszystkich kompetencji przedsiębiorczych.

**Oryginalność/wartość:** niniejszy artykuł wnosi wkład do literatury przedmiotu polegający na sprawdzeniu, które kompetencje przedsiębiorcze występują u studentów zarządzania. Weryfikacja poziomu kompetencji przedsiębiorczych została przeprowadzona na podstawie nowego i wstępnie zwalidowanego narzędzia do pomiaru poziomu kompetencji przedsiębiorczych.

**Słowa kluczowe:** kompetencje przedsiębiorcze, kompetencje przedsiębiorcze studentów zarządzania, determinanty przedsiębiorczości.

There are many approaches to identifying and measuring the competences an entrepreneur should have. In order to select the entrepreneurial competences that were measured in this study, it was necessary to conduct a literature review.

In order to review the literature, the Scopus database was used and the keyword “entrepreneurial competences” was searched for. The scope of the search was limited to open access journals and the fields of: business, social sciences and psychology. 192 results were obtained in this way. The concepts quoted below most accurately reflect the discussed subject of entrepreneurial competences, the occurrence of which among management students of Warsaw universities was examined for the purposes of this article.

## 1. Entrepreneurial Competences

According to the classic definition by Schumpeter (1960), the term entrepreneur means a person who deals with economic activity, discovers potential profitable opportunities, organizes and manages productive

enterprises (Schumpeter, 1960, as cited in Glapiński, 2012, pp. 6–7). Competences are defined as combined and integrated components of knowledge, skills, and attitudes (Man et al., 2002; Volery et al., 2015; Wagener, 2010; Kyndt & Beart, 2015, p. 14) or “[c]ompetencies are behaviors that some people master better than others, which makes them more effective in a given situation” (Rivera-Kempis et al., 2021, p. 1). “*Entrepreneurial competencies are capabilities that the business mind people possess to create a new business idea or improve the existing one*” (Esubalew & Raghurama, 2020, p. 1).

From the point of view of entrepreneurial competences, the definition of an entrepreneur according to Schumpeter seems to be the best definition. It may be the best definition because it covers the most entrepreneurial competences. Schumpeter defines an entrepreneur as a person who can cause creative destruction, is characterized by high dynamism, charisma and innovation, thus helping to create new or modernize existing enterprises, products, technologies, workplaces, outlets and to acquire new suppliers. An entrepreneur according to Schumpeter is a pioneer in taking action (Schumpeter, 1960, Bławat, 2003, p. 19).

Other researchers also pay attention to individual entrepreneurial skills: readiness to take risks (R. Cantillon; J.H. von Thünen; F.H. Knight; L. von Mises; A. Shapero; R.D. Hisrich), creation of innovations and values (J.H. von Thünen; R.D. Hisrich), ease in making decisions and allocating resources (R. Cantillon; A. Marshall; J.M. Keynes; L. von Mises; I. Kirzner), energy (D.C. McClelland), looking for and taking advantage of opportunities (P.F. Drucker), taking initiative (A. Shapero), striving to achieve personal satisfaction (R.D. Hisrich) (as cited in Bławat, 2003, pp. 16–17).

However, Bławat (2003, p. 14) defines an entrepreneur as a person who organizes production and undertakes innovative and risky initiatives. Entrepreneurs bring such benefits as new products, resources, technologies and markets, and they undertake to reorganize enterprises in a creative way. In addition, the entrepreneur decides about competitiveness and the level of autonomy in investing.

The entrepreneur's characteristic features are the pursuit of profit, the pursuit of independence, a highly developed need for self-realization, high efficiency in realizing their own visions (Bławat, 2003, p. 14), conviction about their own dignity and the tendency to take risks, exterior activity, ease of making contacts, sympathy and openness (Ray, 1993, as cited in Wasilczuk, 2005, p. 134), a strong need for achievement and moderate readiness to take risks (Brockhouse & Horwitz, 1986, as cited in Wasilczuk, 2005, p. 133), leadership of the team, action planning, ability to convince and motivate, select priorities, assess employees' competences and achievements, deepen and transfer their knowledge and skills (Mingotau, 1994, p. 75, as cited in Wasilczuk, 2005, p. 137), look for opportunities, establish relationships, strategic and commitment competences (Man et al., 2002),

ability to spot opportunities, “*fear of failure, and entrepreneurial intentions*” (Cruz-Ros et al., 2017, p. 1032), persistence in pursuing a goal, ability of long-term planning, acquiring knowledge about the market themselves and competition, ability to identify and exploit opportunities, paying attention to the ability to set priorities, ability to efficiently make decisions, ability to build a social network, ability to convince others of their own opinions, taking responsibility for social and environmental matters (Kyndt & Beart, 2015, p. 14).

Sethii and Saxena (1985, pp. 2–3) propose a different set of entrepreneurial competences focused on employees – initiative, sees and acts on opportunities, persistence, knowing, concern for the high quality of work, commitment to work contract, efficiency orientation, concern, systematic planning, problem solving, self-confidence, assertiveness, persuasion, use of influence strategies, monitoring, concern for employee welfare. Among the most important entrepreneurial competences, Schelfhout et al. (2016), in turn, include: performance orientation, creativity, taking initiative, taking calculated risks, perseverance, leadership, communication skills, planning and organizing, decisiveness, collaboration, reflection and problem solving. Wasilczuk (2005, p. 134) notes that research on entrepreneurial competences is often mutually exclusive, for example as regards the readiness to take risks (Kyndt & Beart, 2015, p. 14).

Many authors also mention a single or a few competences. Al-Jubari (2019), Al-Jubari et al. (2019), Shir et al. (2019) write about autonomy, Cnossen et al. (2019) about creativity and competences in general (also: Ivanov et al., 2015), Bagheri and Harrison (2020) about leadership as an entrepreneurial competence and about entrepreneurial competence in leaders, etc.

Chien-Chi et al. (2020) proved, on the other hand, that there are positive relationships between emotional competences and a sense of self-efficacy, emotional competences and the willingness to start one’s own enterprise, as well as a sense of self-effectiveness and readiness to start one’s own enterprise. Czyżewska and Mroczek (2020) even believe that entrepreneurial competences differ between genders, and their perception may also depend on many other factors, such as, for example, financial situation (positive impact on self-assessment in terms of competences, negative on the ability to assess business ideas and a greater need for stimulation to undertake entrepreneurial activities) or experience (it is easier for people experienced in running their own business to recognize the needs of consumers).

Moreover, Arruti and Paños-Castro (2020), among the competences necessary to set up and run one’s own enterprise, mention: creativity, teamwork, openness, innovation, passion, motivation, diligence and willingness to take risks, the ability to overcome challenges, willingness to take initiative, being proactive, organized and persistent, having leadership skills, having communication skills, the ability to adapt to changes, a positive

attitude and being a decision-maker (Arruti & Paños-Castro, 2020, p. 825). To this set of competences, one should also add readiness to change, which Oser and Obex (2015, p. 1) define as “sense of success” and “sense of failure”, so an entrepreneur is prepared to deal with success if they achieve it as well as with failure should it occur.

On the other hand, Hudáková et al. (2019) examined the entrepreneurial competences of start-up founders. Entrepreneurial competences that have been observed among start-up founders are: knowledge about the ecosystem, planning and use of resources, ability to move from the initial to further stages of enterprise development, awareness of communication methods and lobbying, ability to raise awareness among the target group, development of contacts, resource efficiency skills and identification of barriers to the next phase of development and ways to remove these barriers.

Oleksyn (2012, p. 9), on the other hand, believes that entrepreneurship itself is a certain personal competence which consists of:

- business orientation, especially customer and profit orientation;
- mindfulness, specifically looking at the external environment – the ability to notice emerging opportunities;
- imagination, ingenuity, creativity;
- ability to combine the “visionary” with pragmatism and practicality;
- ability to offer the right product; right means one that will find buyers and will be profitable for the entrepreneur;
- timing, ability to act at the right time;
- speed, energy; dynamism of action;
- ability to assess and take risks;
- effectiveness in action and in overcoming obstacles;
- bravery, tenacity, perseverance;
- ability to reach the right people and enlist them;
- intuition;
- flexibility;
- ability to concentrate on the most important things;
- and other.

## 2. Entrepreneurial Competences – Inborn or Learned?

Many authors believe that entrepreneurial competences are not only those predispositions and skills with which people are born, but also skills that can be shaped or developed through learning (e.g. Al-Jubari, 2019; Al-Jubari et al., 2019; Iglesias-Sánchez et al., 2019; Ivanov et al., 2015; Laguna-Sánchez et al., 2020; Kisubi et al., 2021; Luis-Rico et al., 2020; Slišāne et al., 2021), and according to Nevalainen et al. (2021), they are most easily gained through team learning. This approach to developing entrepreneurial competences is supported by the European Union and the United Nations (Seikkula-Leino et al., 2021).

Common theories that appear in the context of the development of entrepreneurial competences are the self-determination theory and the theory of planned behavior (e.g. Joensuu-Salo et al., 2021). According to these theories, the development of entrepreneurial competences (measured using the EntreComp model) may be a response to psychological needs, a sense of control and adjustment to subjective norms, as well as a positive perception of entrepreneurship (e.g. Al-Jubari, 2019; Al-Jubari et al., 2019; Joensuu-Salo et al., 2021).

Ferreras-Garcia et al. (2019) proved that entrepreneurial competences can be developed through practical tasks such as devising a business plan, and Baluku et al. (2020) also believe that learning and mentoring (also: Williams et al., 2020), and so knowledge and self-efficacy, influence the sense of autonomy, job satisfaction and the intention to remain self-employed. However, they observed differences between the sexes – while women's satisfaction with self-employment and the sense of autonomy were strongly related to the direct effects of mentoring, mentoring increased the sense of self-efficacy in men (Baluku et al., 2020, p. 1).

Hasleberg et al. (2019) also showed that the development, through learning, of such entrepreneurial competences as creativity, innovation, relationship building, business knowledge, and presentation skills contributes to the growth of market attractiveness of students and increases the percentage of students setting up their own enterprises. On the other hand, RezaeiZadeh et al. (2017, p. 35) believe that according to the above theories, competences such as productive thinking, motivation, interpersonal skills and leadership should be developed, because it is important for supporting entrepreneurship.

In line with the above assumptions, Bolzani and Luppi (2021, p. 214) focused on the development of such competences as: positive attitude and initiative; communication and interaction; teamwork and cooperation; critical and analytical thinking and problem solving, including risk assessment; creativity and innovation. However, they did not obtain any results proving an increase in the level of these competences with intensive extracurricular training consisting in working on a business model. Arranz et al. (2017) did not obtain positive results confirming the above assumptions. In their opinion, voluntary, additional learning aimed at the development of entrepreneurial competences actually improves the perception of entrepreneurship, but reduces the motivation to start one's own enterprises.

Stenholm et al. (2021) noticed that entrepreneurship teachers pay the greatest attention to the development of such competences as: creativity, learning from experience and financial literacy, while they often ignore such competences as identifying opportunities, perseverance and mobilizing resources.

However, the competences with which future entrepreneurs are born are not without significance. Obschonka et al. (2011) argue that early entrepreneurial competences that are revealed in adolescence had a positive

impact on the progress in the process of creating one's own enterprise, especially on the so-called habitual entrepreneurship (repeated successful creation of ventures), and assisted throughout the subsequent career. In addition, future entrepreneurs also saw significant benefits resulting from their human and social capital.

### 3. The Importance of Entrepreneurial Competences

Esubalew and Raghurama (2020) believe that having entrepreneurial competencies helps in finding or improving business ideas, but that these competencies do not have a significant impact on financial results. On the other hand, the results of studies by Glukhov and Ponomarev (2015) indicate that the lack of entrepreneurial competences and leadership qualities is one of the main reasons for bankruptcy of family businesses. However, bankruptcies of family businesses can be prevented if a founder with entrepreneurial competencies such as creativity, risk appetite, negotiation skills, technical knowledge and skills, and marketing knowledge and skills supports the innovation of their successors.

Entrepreneurial competences can also be used to profile students. Martínez-Martínez and Ventura (2020) showed that, taking into account such skills as networking, professional and social skills, social commitment as well as persistence in efforts and coherence of interests, 4 student competence profiles can be created – students with a low level of entrepreneurial competences, students with a very high level of entrepreneurial competence, students with a high level of social competence and persistent students.

Lee and Park (2020), on the other hand, noticed that entrepreneurial competences are related to technical skills and strategic thinking skills. This could explain the similarities between entrepreneurial competences and managerial competences, as noted by Nikitina et al. (2020).

The key importance of entrepreneurial competences is also underlined by Martin et al. (2011, p. 947), who emphasize that in line with “*in the OECD Innovation Strategy, entrepreneurial skills and attitudes, risk-taking behavior, creativity, etc, will be crucial competences in the economy of the future.*” And Moro et al. (2014) even believe that the diagnosis of the level of entrepreneurial competences should be taken into account by people who grant entrepreneurs loans.

Universalism and the key importance of entrepreneurial competences are also noted by Santandreu-Mascarell et al. (2013), according to whom all employees should have certain entrepreneurial competences. These are: the ability to work in a team (this is the key competence of working teams, i.a. Santos et al. (2019) as well as Stankiewicz et al. (2020), who pay attention to the appropriate distribution of competences among members of entrepreneurial teams), involvement in the work performed, search for information and new opportunities, and the ability to take risks in innovative ventures.



#### 4. Other Psychological Factors Conducive to Starting One's Own Enterprise

In addition to competences, motivation often appears in the literature as a factor correlated with competences and entrepreneurial intentions, as well as with a more favorable perception of entrepreneurship, and thus the readiness to start and run one's own enterprises (e.g. Al-Jubari, 2019; Al-Jubari et al., 2019). In addition to motivation, a key success factor and one of the most desirable traits among entrepreneurs is perseverance (Nikitina et al., 2020).

Buttler and Sierminska (2020) believe, however, that the motivation to start one's own business is also correlated with gender – women recognized independence and work consistent with their competences as a factor motivating them to start their own business, while for men, the key was a lack of stress, good remuneration and independence. Neither of the sexes was motivated by the lack of prospects for promotion in the current job, while both genders pointed to financial limitations as a strong determinant of starting their own enterprise. Previous experience in the field of entrepreneurship was also a key determinant, which resulted in a slow, careful process of developing one's own company (Buttler & Sierminska, 2020).

Experience refers to “the theory of entrepreneurship, namely the entrepreneurial value creation theory, explains the entrepreneurial experience in its fullest form, from the entrepreneurial intention and the discovery of an entrepreneurial opportunity, to the development of the entrepreneurial competence, and the appropriation of the entrepreneurial reward” (Mishra & Zachary, 2015, p. 251, as cited in Mishra & Zachary, 2014). Referring to this theory, Mishra and Zachary (2015) stated that if a person has entrepreneurial competences and if they have adequate resources, they are motivated and stimulated to activate these competences. An appropriate design of a business model, combined with these competences, leads to the creation of a lasting value, and thus may be instrumental in the acquisition of funds for the development of one's own enterprise.

Igwe et al. (2020, p. 1) also noted “self-efficacy and subjective norms (moral obligation, empathy, and perceived social support) as moderators of the effect networking competence has on social entrepreneurial intentions.” Kisubi et al. (2021) also point to education as a factor influencing the decision to start your own enterprise.

Cnossen et al. (2019) examined the motivation to start one's own enterprise in the creative and cultural industries. It turns out that in people characterized by creativity, internal motivation is very high, while those entrepreneurs who value their creative abilities relatively high expect additional external rewards. This suggests a trade-off between autonomy and commercial profitability.



## 5. Entrepreneurial Competences Among Management Students

The identification of entrepreneurial competences which management students have is important because previous research on students has mainly focused on developing entrepreneurial competences and not examining existing competences (e.g. Robinson et al., 1991; Izquierdo & Buyens, 2007; Ivanov et al., 2014; Sánchez, 2013). In turn, some students of management programs go to university with the intention of running their own business in the future and they make it come true (for example, every 11th graduate of the Warsaw School of Economics run their own business) (Macioł et al., 2013). Since they plan to run their own enterprise, it can be presumed that they should possess competences characteristic of entrepreneurs and/or they should acquire them in the course of their studies (Sethi & Saxena, 1985; Man et al., 2002; Cruz-Ros et al., 2017).

This study has been carried out to find out what entrepreneurship competences students of management programs have.

## 6. Research Method

The aim of the study was to check the level of individual competences in management students and to determine entrepreneurial competences which are the most intense among students of universities in Warsaw. As can be seen from the above, many attempts have been taken to examine entrepreneurial competences, and for the purpose of this chapter, such an examination was carried out in the following way. In order to develop a research tool, the concept of entrepreneurial competences constructed by Robles and Zárrega-Rodríguez (2015) was chosen. This concept contains most of such competences indicated in the literature as crucial, namely risk-taking and social mobility, autonomy, ability to search for and analyze information, diligence, continuous improvement and focus on results, communication, self-confidence, ability to build and maintain social relations, dynamism and ability to manage change, readiness to take initiative, innovation, leadership, negotiation skills.

Robles and Zárrega-Rodríguez (2015) studied entrepreneurial competences using the Delphi method and chose 10 competent judges (entrepreneurs) to take part in their research. Based on their results, the entrepreneurial competences test was designed by Chlebiej (2020). The questionnaire that was used in this study consists of sentences describing behaviors typical for selected entrepreneurial competences.

These competences are defined in Table 1.

Table 1  
 Definitions of Entrepreneurial Competences

Competence	Definition
<b>Risk and social mobility</b>	<b>Risk</b> – “Ability to tolerate ambiguity and uncertain situations and make sound decisions in this situation, while being able to control own emotions.” <b>Social mobility</b> – “Ability to raise or lower position in the scale of economic well-being.”
<b>Autonomy</b>	“Capacity for making independent decisions based on a clear understanding of the possibilities and the responsibility that it entails.”
<b>Information search and analysis</b>	“Ability to find and share useful business information for problem-solving using the full potential of the company.”
<b>Diligence, continuous improvement and results orientation</b>	“Ability to work intensively and tenaciously to achieve the objectives, seeking continuous improvement.” <b>Results orientation</b> – “Ability to promote, guide and select behavior in order to achieve the goals.”
<b>Communication</b>	“Ability to listen, ask questions, express ideas and concepts effectively.”
<b>Self-confidence</b>	“Ability to address new challenges with an attitude of confidence in their own possibilities, decisions or views.”
<b>Developing and maintaining social networks</b>	“Ability to create and maintain a network of contacts with agents that are or will be useful in achieving the goals.”
<b>Dynamism and change management</b>	“Ability to work hard and continuously in changing situations, with many different partners.”; <b>Change management</b> – “Ability to adapt to different contexts, situations, people and media quickly and appropriately.”
<b>Initiative</b>	“Willingness to take action, create opportunities and improve outcomes without an external requirement.”
<b>Innovation</b>	“Ability to produce an original, unexpected and appropriate (timely, useful) new work according to the needs of the context.”
<b>Leadership</b>	“Ability to guide the action of human groups in a certain direction by creating an atmosphere of energy and commitment, setting goals, following up these goals and giving feedback that integrates the views of others.”
<b>Negotiation skills</b>	“Ability to lead or control a discussion creating an environment for collaboration and making lasting commitments to strengthen the relationship.”
<b>Entrepreneurial competences</b>	A collective scale for measuring the level of the above-mentioned competences.

Source: Robles and Zárraga-Rodríguez, 2015, pp. 829–830.

Respondents were to indicate on the Likert's scale to what extent this sentence describes behaviors typical for them. The following research questions and hypotheses were formulated:

- Q1: Which entrepreneurial competencies are most pronounced among management students?
- Q2: How does gender differentiate the level of entrepreneurial competences?
- Q3: How does the university differentiate the level of entrepreneurial competences?
- Q4: How does the year of studies differentiate the level of entrepreneurial competences?
- Q5: How do entrepreneurial intentions differentiate the level of entrepreneurial competences?
- H1: Entrepreneurial competences are positively and significantly correlated with each other.
- H2: People with entrepreneurial intentions have a higher level of entrepreneurial competence than those without entrepreneurial intentions.
- H3: Entrepreneurial competences of management students are slightly different depending on the university where they study (the University of Warsaw – UW, the Warsaw School of Economics – SGH, and the Kozminski University – ALK).

## 7. Characteristics of the Studied Sample

The research sample consisted of 222 people, 94 of whom were men and 128 women. 151 respondents were students of the Faculty of Management of the University of Warsaw, 47 respondents were students of the Warsaw School of Economics, 22 respondents studied at the Kozminski University, and 2 respondents studied simultaneously at the Faculty of Management of the University of Warsaw and the Warsaw School of Economics. 70 respondents were students in the 1st year of studies, 54 respondents studied in the 2nd year of studies, 1 of the respondents was in the 3rd year of studies, 95 respondents studied in the 4th year of studies, and 2 in the 5th year of studies. 122 respondents declared that they wanted to start their own enterprise in the future, 16 respondents declared that they did not plan to start their own enterprise, and 84 respondents did not know then whether they wanted to start their own business.

## 8. Internal Reliability of the Scales and the Entrepreneurial Competences Questionnaire

The questionnaire had not been published before, and it was only used in a study on entrepreneurs (Chlebiej, 2020); therefore, it was decided to re-verify the internal reliability of the scales.

Table 2  
*Internal Reliability of the Scales and the Entrepreneurial Competences (EC)  
 Questionnaire Tested on a Group of Management Students*

Scale	Internal reliability	Test items that make up the scales
1. <i>Risk and social mobility</i>	<i>Cronbach's <math>\alpha = 0.72</math></i>	EC: 1, 13, 25, 37, 49, 61
2. <i>Autonomy</i>	<i>Cronbach's <math>\alpha = 0.67</math></i>	EC: 14, 26, 38
3. <i>Information search and analysis</i>	<i>Cronbach's <math>\alpha = 0.69</math></i>	EC: 3, 15, 27, 39, 51, 63, 68
4. <i>Diligence, continuous improvement and results orientation</i>	<i>Cronbach's <math>\alpha = 0.58</math></i>	EC: 16, 40, 52, 64
5. <i>Communication</i>	<i>Cronbach's <math>\alpha = -0.08</math></i>	no data
6. <i>Self-confidence</i>	<i>Cronbach's <math>\alpha = 0.64</math></i>	EC: 6, 18, 30, 42, 54
7. <i>Building and maintaining social networks</i>	<i>Cronbach's <math>\alpha = 0.75</math></i>	EC: 7, 19, 31, 43, 55, 66, 69
8. <i>Dynamism and change management</i>	<i>Cronbach's <math>\alpha = 0.75</math></i>	EC: 8, 20, 32, 44
9. <i>Initiative</i>	<i>Cronbach's <math>\alpha = 0.72</math></i>	EC: 9, 33, 45
10. <i>Innovation</i>	<i>Cronbach's <math>\alpha = 0.72</math></i>	EC: 10, 34, 46, 58
11. <i>Leadership</i>	<i>Cronbach's <math>\alpha = 0.72</math></i>	EC: 35, 47, 59, 67
12. <i>Negotiation skills</i>	<i>Cronbach's <math>\alpha = 0.57</math></i>	EC: 24, 36, 48
13. <i>Entrepreneurial competences (short designation of the questionnaire: EC)</i>	<b><i>Cronbach's <math>\alpha = 0.94</math></i></b>	<b>EC: 1, 3, 5–11, 13–16, 18–27, 30–49, 51, 52, 54–56, 58, 59, 61, 63–69</b>

Source: Own study based on own research.

Table 2 presents the internal reliability of the scales and the item numbers that correspond to the individual scales. The low internal reliability of the items characterizing communication did not allow for the creation of a scale. The general scale of entrepreneurial competences is highly reliable (Cronbach's  $\alpha = 0.94$ ), while the other scales reveal correct reliability or reliability close to the correct one. The scale of negotiation skills reveals the weakest internal reliability (Cronbach's  $\alpha = 0.57$ ) as did diligence, continuous improvement and results orientation (Cronbach's  $\alpha = 0.58$ ).

## 9. Results of the Study

Table 3 presents the values of descriptive statistics relating to the general intensity of entrepreneurial competences on individual scales. On the basis of the values presented in this table, it can be noted that among the respondents, there was no person who would mark only the answer “this statement definitely does not fit me” on any scale, while on each of the scales, there were answers “this statement definitely fits”.

As shown in Table 3, in general, the surveyed students of management of universities in Warsaw, on average, scored best on the autonomy scale ( $M = 4.40$ ;  $SD = 0.61$ ), and the worst on the innovation scale ( $M = 3.59$ ;  $SD = 0.71$ ). The general, average level of entrepreneurial competences in the surveyed sample of management students from universities in Warsaw was 3.80 ( $SD = 0.48$ ).

Table 3  
Descriptive Statistics

Scale	Mean and standard deviation	Minimum	Maximum
<i>Risk and social mobility</i>	$M = 3.64$ ; $SD = 0.66$	Min = 1.50	Max = 5.00
<i>Autonomy</i>	$M = 4.40$ ; $SD = 0.61$	Min = 1.67	Max = 5.00
<i>Information search and analysis</i>	$M = 3.86$ ; $SD = 0.59$	Min = 2.17	Max = 5.00
<i>Diligence, continuous improvement and results orientation</i>	$M = 3.92$ ; $SD = 0.62$	Min = 2.00	Max = 5.00
<i>Self-confidence</i>	$M = 3.80$ ; $SD = 0.63$	Min = 1.80	Max = 5.00
<i>Building and maintaining social networks</i>	$M = 3.86$ ; $SD = 0.66$	Min = 1.43	Max = 5.00
<i>Dynamism and change management</i>	$M = 3.77$ ; $SD = 0.71$	Min = 1.25	Max = 5.00
<i>Initiative</i>	$M = 3.60$ ; $SD = 0.86$	Min = 1.33	Max = 5.00
<i>Innovation</i>	$M = 3.59$ ; $SD = 0.71$	Min = 1.50	Max = 5.00
<i>Leadership</i>	$M = 3.78$ ; $SD = 0.75$	Min = 1.25	Max = 5.00
<i>Negotiation skills</i>	$M = 3.77$ ; $SD = 0.69$	Min = 1.67	Max = 5.00
<b><i>Entrepreneurial competences (EC)</i></b>	<b><math>M = 3.80</math>; <math>SD = 0.48</math></b>	<b>Min = 2.41</b>	<b>Max = 4.88</b>

Source: Own study based on own research.

Significant correlations were observed between all scales, which can be seen from the results presented in Table 4. The strongest correlations

Table 4  
Correlations Between Entrepreneurial Competences

Scale	Autonomy	Information search and analysis	Diligence, continuous improvement and results orientation	Self-confidence	Building and maintaining social networks	Dynamism and change management	Initiative	Innovation	Leadership	Negotiation skills	Entrepreneurial competences (EC)
Risk and social mobility	$r = 0.348;$ $p < 0.001$	$r = 0.579;$ $p < 0.001$	$r = 0.490;$ $p < 0.001$	$r = 0.609;$ $p < 0.001$	$r = 0.609;$ $p < 0.001$	$r = 0.518;$ $p < 0.001$	$r = 0.473;$ $p < 0.001$	$r = 0.544;$ $p < 0.001$	$r = 0.466;$ $p < 0.001$	$r = 0.519;$ $p < 0.001$	$r = 0.738;$ $p < 0.001$
Autonomy		$r = 0.437;$ $p < 0.001$	$r = 0.398;$ $p < 0.001$	$r = 0.444;$ $p < 0.001$	$r = 0.262;$ $p < 0.001$	$r = 0.343;$ $p < 0.001$	$r = 0.338;$ $p < 0.001$	$r = 0.303;$ $p < 0.001$	$r = 0.225;$ $p < 0.001$	$r = 0.406;$ $p < 0.001$	$r = 0.498;$ $p < 0.001$
Information search and analysis			$r = 0.567;$ $p < 0.001$	$r = 0.455;$ $p < 0.001$	$r = 0.395;$ $p < 0.001$	$r = 0.450;$ $p < 0.001$	$r = 0.518;$ $p < 0.001$	$r = 0.611;$ $p < 0.001$	$r = 0.489;$ $p < 0.001$	$r = 0.480;$ $p < 0.001$	$r = 0.741;$ $p < 0.001$
Diligence, continuous improvement and results orientation				$r = 0.560;$ $p < 0.001$	$r = 0.373;$ $p < 0.001$	$r = 0.453;$ $p < 0.001$	$r = 0.490;$ $p < 0.001$	$r = 0.511;$ $p < 0.001$	$r = 0.526;$ $p < 0.001$	$r = 0.430;$ $p < 0.001$	$r = 0.707;$ $p < 0.001$
Self-confidence					$r = 0.530;$ $p < 0.001$	$r = 0.639;$ $p < 0.001$	$r = 0.578;$ $p < 0.001$	$r = 0.510;$ $p < 0.001$	$r = 0.561;$ $p < 0.001$	$r = 0.541;$ $p < 0.001$	$r = 0.790;$ $p < 0.001$
Building and maintaining social networks						$r = 0.571;$ $p < 0.001$	$r = 0.552;$ $p < 0.001$	$r = 0.420;$ $p < 0.001$	$r = 0.547;$ $p < 0.001$	$r = 0.424;$ $p < 0.001$	$r = 0.721;$ $p < 0.001$
Dynamism and change management							$r = 0.688;$ $p < 0.001$	$r = 0.524;$ $p < 0.001$	$r = 0.658;$ $p < 0.001$	$r = 0.576;$ $p < 0.001$	$r = 0.789;$ $p < 0.001$
Initiative								$r = 0.660;$ $p < 0.001$	$r = 0.682;$ $p < 0.001$	$r = 0.584;$ $p < 0.001$	$r = 0.790;$ $p < 0.001$
Innovation									$r = 0.581;$ $p < 0.001$	$r = 0.543;$ $p < 0.001$	$r = 0.759;$ $p < 0.001$
Leadership										$r = 0.561;$ $p < 0.001$	$r = 0.778;$ $p < 0.001$
Negotiation skills											$r = 0.713;$ $p < 0.001$

Source: Own study based on own research.

occurred between the scales of dynamism and change management and initiative ( $r = 0.688$ ;  $p < 0.001$ ), as well as between the scale of entrepreneurial competences and initiative ( $r = 0.790$ ;  $p < 0.001$ ) and entrepreneurial competences and self-confidence ( $r = 0.790$ ;  $p < 0.001$ ). On the other hand, the weakest correlation was observed between the scales of leadership and autonomy ( $r = 0.225$ ;  $p < 0.001$ ). Moreover, there was a weak correlation between the scales of building and maintaining social networks and autonomy ( $r = 0.262$ ;  $p < 0.001$ ), and a very high correlation occurred between the scales of risk and social mobility and entrepreneurial competences ( $r = 0.738$ ;  $p < 0.001$ ), information search and analysis and entrepreneurial competences ( $r = 0.741$ ;  $p < 0.001$ ), diligence, continuous improvement and results orientation and entrepreneurial competences ( $r = 0.707$ ;  $p < 0.001$ ), building and maintaining social networks and entrepreneurial competences ( $r = 0.721$ ;  $p < 0.001$ ), dynamism and change management and entrepreneurial competences ( $r = 0.789$ ;  $p < 0.001$ ), innovation and entrepreneurial competences ( $r = 0.759$ ;  $p < 0.001$ ), leadership and entrepreneurial competences ( $r = 0.778$ ;  $p < 0.001$ ) and negotiation skills and entrepreneurial competences ( $r = 0.713$ ;  $p < 0.001$ ).

In order to check the differences in the level of entrepreneurial competences between the sexes, the student's t-test was carried out. The results of this test are presented in Table 5.

Statistically significant differences between women and men were observed on the scales of risk and social mobility as well as building and maintaining social networks. On the scale of risk and social mobility, men were statistically better ( $M = 3.77$ ;  $SD = 0.59$ ), and on the scale of building and maintaining social networks, women were statistically better ( $M = 3.97$ ;  $SD = 0.63$ ).

Table 5  
Scores on Individual Scales Depending on Gender

Scale	Men	Women	Comparison of averages
<i>Risk and social mobility</i>	$M = 3.77$ ; $SD = 0.59$	$M = 3.54$ ; $SD = 0.70$	$t = -2.57$ ; $p = 0.011$
<i>Autonomy</i>	$M = 4.33$ ; $SD = 0.70$	$M = 4.46$ ; $SD = 0.53$	$t = 1.54$ ; $p = 0.124$
<i>Information search and analysis</i>	$M = 3.89$ ; $SD = 0.63$	$M = 3.84$ ; $SD = 0.55$	$t = -0.54$ ; $p = 0.587$
<i>Diligence, continuous improvement and results orientation</i>	$M = 3.98$ ; $SD = 0.56$	$M = 3.87$ ; $SD = 0.66$	$t = -1.26$ ; $p = 0.208$



Table 5 – continued

Scale	Men	Women	Comparison of averages
<i>Self-confidence</i>	<i>M = 3.80; SD = 0.66</i>	<i>M = 3.81; SD = 0.61</i>	<i>t = 0.138; p = 0.890</i>
<i>Building and maintaining social networks</i>	<i>M = 3.71; SD = 0.66</i>	<i>M = 3.97; SD = 0.63</i>	<i>t = 2.928; p = 0.004</i>
<i>Dynamism and change management</i>	<i>M = 3.70; SD = 0.72</i>	<i>M = 3.83; SD = 0.70</i>	<i>t = 1.394; p = 0.165</i>
<i>Initiative</i>	<i>M = 3.58; SD = 0.88</i>	<i>M = 3.61; SD = 0.84</i>	<i>t = 0.239; p = 0.811</i>
<i>Innovation</i>	<i>M = 3.67; SD = 0.76</i>	<i>M = 3.53; SD = 0.67</i>	<i>t = -1.484; p = 0.139</i>
<i>Leadership</i>	<i>M = 3.75; SD = 0.77</i>	<i>M = 3.80; SD = 0.75</i>	<i>t = 0.530; p = 0.597</i>
<i>Negotiation skills</i>	<i>M = 3.75; SD = 0.74</i>	<i>M = 3.78; SD = 0.65</i>	<i>t = 0.273; p = 0.785</i>
<i>Entrepreneurial competences</i>	<i>M = 3.79; SD = 0.52</i>	<i>M = 3.81; SD = 0.46</i>	<i>t = 0.313; p = 0.754</i>

Source: Own study based on own research.

In order to check the differences in the level of entrepreneurial competences between students of universities in Warsaw, the one-way ANOVA was performed and the results are presented in Table 6.

Statistically significant differences were observed only on the scale of risk and social mobility and in the general scale of entrepreneurial competences. Among the surveyed sample of management students of universities in Warsaw, Kozminski University students come out best ( $M = 4.04$ ;  $SD = 0.61$ ), and University of Warsaw students worst ( $M = 3.58$ ;  $SD = 0.63$ ); on the scale of risk and social mobility, Kozminski University students come out best ( $M = 4.06$ ;  $SD = 0.48$ ) in the general scale of entrepreneurial competences and University of Warsaw students worst ( $M = 3.76$ ;  $SD = 0.47$ ) on the scale of entrepreneurial competences.

Table 6  
Results on Individual Scales Depending on the University

Scale	UW	SGH	ALK	UW/SGH	Comparison of averages
<i>Risk and social mobility</i>	<i>M = 3.58; SD = 0.63</i>	<i>M = 3.62; SD = 0.72</i>	<i>M = 4.04; SD = 0.61</i>	<i>M = 4.33; SD = 0.94</i>	<i>F = 3.94; p = 0.009</i>
<i>Autonomy</i>	<i>M = 4.34; SD = 0.61</i>	<i>M = 4.49; SD = 0.55</i>	<i>M = 4.59; SD = 0.67</i>	<i>M = 5.00; SD = 0.00</i>	<i>F = 2.26; p = 0.082</i>
<i>Information search and analysis</i>	<i>M = 3.83; SD = 0.57</i>	<i>M = 3.82; SD = 0.66</i>	<i>M = 4.13; SD = 0.50</i>	<i>M = 4.00; SD = 1.01</i>	<i>F = 1.772; p = 0.153</i>
<i>Diligence, continuous improvement and results orientation</i>	<i>M = 3.87; SD = 0.63</i>	<i>M = 3.95; SD = 0.57</i>	<i>M = 4.16; SD = 0.60</i>	<i>M = 4.13; SD = 1.24</i>	<i>F = 1.56; p = 0.200</i>
<i>Self-confidence</i>	<i>M = 3.75; SD = 0.65</i>	<i>M = 3.84; SD = 0.54</i>	<i>M = 4.06; SD = 0.64</i>	<i>M = 4.10; SD = 0.71</i>	<i>F = 1.86; p = 0.138</i>
<i>Building and maintaining social networks</i>	<i>M = 3.84; SD = 0.65</i>	<i>M = 3.81; SD = 0.68</i>	<i>M = 4.12; SD = 0.65</i>	<i>M = 3.64; SD = 0.71</i>	<i>F = 1.39; p = 0.266</i>
<i>Dynamism and change management</i>	<i>M = 3.72; SD = 0.73</i>	<i>M = 3.80; SD = 0.63</i>	<i>M = 4.03; SD = 0.68</i>	<i>M = 4.50; SD = 0.00</i>	<i>F = 2.07; p = 0.105</i>
<i>Initiative</i>	<i>M = 3.54; SD = 0.83</i>	<i>M = 3.57; SD = 0.95</i>	<i>M = 3.97; SD = 0.73</i>	<i>M = 4.33; SD = 0.47</i>	<i>F = 2.14; p = 0.096</i>
<i>Innovation</i>	<i>M = 3.57; SD = 0.70</i>	<i>M = 3.53; SD = 0.79</i>	<i>M = 3.84; SD = 0.54</i>	<i>M = 3.50; SD = 1.77</i>	<i>F = 1.08; p = 0.359</i>
<i>Leadership</i>	<i>M = 3.73; SD = 0.75</i>	<i>M = 3.83; SD = 0.71</i>	<i>M = 4.08; SD = 0.74</i>	<i>M = 3.50; SD = 1.77</i>	<i>F = 1.63; p = 0.184</i>
<i>Negotiation skills</i>	<i>M = 3.76; SD = 0.68</i>	<i>M = 3.81; SD = 0.74</i>	<i>M = 3.70; SD = 0.70</i>	<i>M = 4.17; SD = 0.24</i>	<i>F = 0.36; p = 0.779</i>
<i>Entrepreneurial competences</i>	<i>M = 3.76; SD = 0.47</i>	<i>M = 3.80; SD = 0.48</i>	<i>M = 4.06; SD = 0.48</i>	<i>M = 4.07; SD = 0.80</i>	<i>F = 2.82; p = 0.040</i>

Source: Own study based on own research.

In order to check the differences in the level of entrepreneurial competences between students of each year of study, the one-way ANOVA was performed and the results are presented in Table 7.

Statistically significant differences were observed only on the scale of risk and social mobility. Among the surveyed sample of management students of universities in Warsaw, 5th-year students are the best ( $M = 3.83$ ;  $SD = 0.47$ ), and 4th-year students are the worst ( $M = 3.58$ ;  $SD = 0.63$ ), on this scale.

Table 7  
Results on Individual Scales Depending on the Year of Study

Scale	1	2	3	4	5	Comparison of averages
<i>Risk and social mobility</i>	$M = 3.74;$ $SD = 0.71$	$M = 3.74;$ $SD = 0.58$	4.83	$M = 3.49;$ $SD = 0.65$	$M = 3.83;$ $SD = 0.47$	$F = 2.79;$ $p = 0.027$
<i>Autonomy</i>	$M = 4.52;$ $SD = 0.59$	$M = 4.31;$ $SD = 0.55$	5.00	$M = 4.36;$ $SD = 0.65$	$M = 4.50;$ $SD = 0.71$	$F = 1.36;$ $p = 0.249$
<i>Information search and analysis</i>	$M = 3.92;$ $SD = 0.62$	$M = 3.95;$ $SD = 0.53$	4.86	$M = 3.75;$ $SD = 0.58$	$M = 4.21;$ $SD = 0.30$	$F = 2.25;$ $p = 0.065$
<i>Diligence, continuous improvement and results orientation</i>	$M = 4.01;$ $SD = 0.59$	$M = 3.91;$ $SD = 0.60$	5.00	$M = 3.84;$ $SD = 0.65$	$M = 4.25;$ $SD = 0.35$	$F = 1.71;$ $p = 0.150$
<i>Self-confidence</i>	$M = 3.89;$ $SD = 0.57$	$M = 3.81;$ $SD = 0.65$	5.00	$M = 3.72;$ $SD = 0.65$	$M = 4.10;$ $SD = 0.14$	$F = 1.82;$ $p = 0.126$
<i>Building and maintaining social networks</i>	$M = 3.88;$ $SD = 0.67$	$M = 3.91;$ $SD = 0.63$	5.00	$M = 3.81;$ $SD = 0.66$	$M = 3.57;$ $SD = 0.81$	$F = 1.08;$ $p = 0.368$
<i>Dynamism and change management</i>	$M = 3.86;$ $SD = 0.65$	$M = 3.77;$ $SD = 0.77$	5.00	$M = 3.71;$ $SD = 0.71$	$M = 3.13;$ $SD = 0.88$	$F = 1.59;$ $p = 0.179$
<i>Initiative</i>	$M = 3.66;$ $SD = 0.90$	$M = 3.60;$ $SD = 0.86$	5.00	$M = 3.54;$ $SD = 0.83$	$M = 3.67;$ $SD = 0.47$	$F = 0.88;$ $p = 0.478$
<i>Innovation</i>	$M = 3.64;$ $SD = 0.73$	$M = 3.68;$ $SD = 0.66$	4.25	$M = 3.48;$ $SD = 0.72$	$M = 3.88;$ $SD = 0.53$	$F = 1.13;$ $p = 0.343$
<i>Leadership</i>	$M = 3.88;$ $SD = 0.72$	$M = 3.77;$ $SD = 0.81$	4.75	$M = 3.71;$ $SD = 0.75$	$M = 3.63;$ $SD = 0.18$	$F = 0.97;$ $p = 0.425$
<i>Negotiation skills</i>	$M = 3.77;$ $SD = 0.72$	$M = 3.86;$ $SD = 0.71$	4.33	$M = 3.70;$ $SD = 0.66$	$M = 4.00;$ $SD = 0.47$	$F = 0.69;$ $p = 0.602$
<i>Entrepreneurial competences</i>	$M = 3.87;$ $SD = 0.49$	$M = 3.83;$ $SD = 0.47$	4.86	$M = 3.72;$ $SD = 0.47$	$M = 3.84;$ $SD = 0.45$	$F = 2.31;$ $p = 0.059$

Source: Own study based on own research.

In order to check the differences in the level of entrepreneurial competences between students who plan to start their own enterprise and students who do not plan to start their own enterprise, the one-way ANOVA was performed and the results are presented in Table 8.

Table 8  
Results on Individual Scales Depending on the Planning of Setting Up Your Own Enterprise

Scale	Yes	No	I don't know yet	Comparison of averages
<i>Risk and social mobility</i>	$M = 3.84;$ $SD = 0.59$	$M = 3.21;$ $SD = 0.85$	$M = 3.43;$ $SD = 0.63$	$F = 15.334;$ $p = 0.000$
<i>Autonomy</i>	$M = 4.46;$ $SD = 0.60$	$M = 4.10;$ $SD = 0.72$	$M = 4.37;$ $SD = 0.59$	$F = 2.709;$ $p = 0.069$
<i>Information search and analysis</i>	$M = 4.07;$ $SD = 0.54$	$M = 3.47;$ $SD = 0.63$	$M = 3.63;$ $SD = 0.53$	$F = 20.158;$ $p = 0.000$
<i>Diligence, continuous improvement and results orientation</i>	$M = 4.09;$ $SD = 0.57$	$M = 3.77;$ $SD = 0.64$	$M = 3.70;$ $SD = 0.63$	$F = 11.307;$ $p = 0.000$
<i>Self-confidence</i>	$M = 3.92;$ $SD = 0.65$	$M = 3.80;$ $SD = 0.59$	$M = 3.63;$ $SD = 0.59$	$F = 5.246;$ $p = 0.006$
<i>Building and maintaining social networks</i>	$M = 3.90;$ $SD = 0.67$	$M = 3.91;$ $SD = 0.58$	$M = 3.79;$ $SD = 0.65$	$F = 0.869;$ $p = 0.421$
<i>Dynamism and change management</i>	$M = 3.86;$ $SD = 0.69$	$M = 3.97;$ $SD = 0.60$	$M = 3.61;$ $SD = 0.73$	$F = 3.875;$ $p = 0.022$
<i>Initiative</i>	$M = 3.78;$ $SD = 0.80$	$M = 3.75;$ $SD = 0.63$	$M = 3.31;$ $SD = 0.90$	$F = 8.169;$ $p = 0.000$
<i>Innovation</i>	$M = 3.81;$ $SD = 0.69$	$M = 3.33;$ $SD = 0.57$	$M = 3.32;$ $SD = 0.66$	$F = 14.545;$ $p = 0.000$
<i>Leadership</i>	$M = 3.90;$ $SD = 0.72$	$M = 4.13;$ $SD = 0.48$	$M = 3.54;$ $SD = 0.78$	$F = 8.253;$ $p = 0.000$
<i>Negotiation skills</i>	$M = 3.89;$ $SD = 0.72$	$M = 3.69;$ $SD = 0.59$	$M = 3.60;$ $SD = 0.62$	$F = 4.903;$ $p = 0.008$
<i>Entrepreneurial competences</i>	$M = 3.93;$ $SD = 0.48$	$M = 3.70;$ $SD = 0.39$	$M = 3.62;$ $SD = 0.45$	$F = 11.141;$ $p = 0.000$

Source: Own study based on own research.

Statistically significant differences were not observed only on the scale of building and maintaining social networks and autonomy. On the other scales, a difference was observed between the level of entrepreneurial competences in the respondents who plan to start their own enterprise and the level of entrepreneurial competences in the respondents who declare that they do not want to run their own enterprise or do not know yet whether they want to run their own enterprise in the future.

Among the studied sample, management students planning to run their own enterprise in the future achieved the best results on the following scales:

- risk and social mobility ( $M = 3.84$ ;  $SD = 0.59$ ),
- information search and analysis ( $M = 4.07$ ;  $SD = 0.54$ ),
- diligence, continuous improvement and results orientation ( $M = 4.09$ ;  $SD = 0.57$ ),
- self-confidence ( $M = 3.92$ ;  $SD = 0.65$ ),
- initiative ( $M = 3.78$ ;  $SD = 0.80$ ),
- innovation ( $M = 3.81$ ;  $SD = 0.69$ ),
- negotiation skills ( $M = 3.89$ ;  $SD = 0.72$ ),
- as well as entrepreneurial competencies ( $M = 3.93$ ;  $SD = 0.48$ ).

On the other hand, students who do not plan to start their own enterprise achieved the best results on the scales of dynamism and change management ( $M = 3.97$ ;  $SD = 0.60$ ) and leadership ( $M = 4.13$ ;  $SD = 0.48$ ).

## 10. Conclusions and Summary

The conducted study was used to check the level of entrepreneurial competences among students of selected universities in Warsaw. Answers to research questions and confirmed research hypotheses are as follows:

- Entrepreneurial competences are positively and significantly correlated with each other.
- People with entrepreneurial intentions have, on average, a higher level of entrepreneurial competence than those without entrepreneurial intentions.
- The university does not significantly differentiate the level of entrepreneurial competences.
- Men were statistically better on the risk and social mobility scale and women were statistically better at building and maintaining social networks.
- There were no statistically significant differences between the sexes on the other scales.
- Statistically significant differences between students in different years of study were observed only on the scale of risk and social mobility.

As can be seen from the results presented above and the short summary above, the hypotheses put forward at the beginning of the study have been confirmed.

The results of this study could therefore suggest that the only factor that really has to do with the increase in entrepreneurial competences is the willingness to run your own business. It is true that, depending on various factors (such as gender, education or personality), entrepreneurs may have different levels of individual competences, but when they are aware of their limitations and possibilities, they may try to make up for some individual shortcomings with other competences at which they are better. For example, it can be assumed that women, although they are less prone to take risks, are better than men at building and maintaining

social relationships. This may mean that, despite a less profound lack of courage to make risky decisions, women catch up on potential losses from unrealized investments, strong relationships with contractors or clients, and a stable position of their companies on the market.

Unfortunately, these results cannot be treated unequivocally because the study was not carried out on a representative sample and it would be necessary to repeat it on a sample reflecting the population representation. The research tool itself is also still being tested on samples consisting of entrepreneurs and management students and has not yet been tested on samples representative of these two populations. In subsequent stages of the research, it will be necessary to verify how the tool for researching entrepreneurial competences used in this research measures these competences in more representative samples.

Based on the literature review presented above, we can also notice that the very construct of entrepreneurial competences is very complex and ambiguous. Therefore, this tool does not measure all possible competences that an entrepreneur may have, because the construct itself does not assume that the list of these competences is closed and unambiguous. Therefore, it is difficult to predict whether the people who obtained high results in this study are actually ready and predisposed to start their own business will actually do so. It is also difficult to state unequivocally whether people who obtained low results in this study will not be able to run their own business.

One can only try to draw some general conclusions as to the personality traits and competences which, according to modern knowledge, favor entrepreneurial success and compare them with the features and competences of entrepreneurs who achieve professional success and have been operating on the market for a long time. Perhaps a good idea for further research would be an in-depth comparison of the competences verified by means of this questionnaire and compare them with the results of qualitative research conducted on a sample of successful entrepreneurs who have been operating on the market for a long time. The article from which the set of entrepreneurial competences used here is derived does not indicate that they were selected on the basis of direct research on entrepreneurs, but only the result of certain opinions of people recognized as experts.

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#### **References**

- Al-Jubari, I. (2019). College students' entrepreneurial intention: Testing an integrated model of SDT and TPB. *SAGE Open*, 9(2), 1–15. <https://doi.org/10.1177/2158244019853467>.
- Al-Jubari, I., Hassan, A., & Liñán, F. (2019). Entrepreneurial intention among university students in Malaysia: Integrating self-determination theory and the theory of planned

- behavior. *International Entrepreneurship and Management Journal*, 15(4), 1323–1342. <https://doi.org/10.1007/s11365-018-0529-0>.
- Arranz, N., Ubierna, F., Arroyabe, M. F., Perez, C., & Fdez. de Arroyabe, J. C. (2017). The effect of curricular and extracurricular activities on university students' entrepreneurial intention and competences. *Studies in Higher Education*, 42(11), 1979–2008. <https://doi.org/10.1080/03075079.2015.1130030>.
- Arruti, A., & Paños-Castro, J. (2020). International entrepreneurship education for pre-service teachers: A longitudinal study. *Education and Training*, 62(7–8), 825–841. <https://doi.org/10.1108/ET-04-2020-0098>.
- Bagheri, A., & Harrison, C. (2020). Entrepreneurial leadership measurement: A multi-dimensional construct. *Journal of Small Business and Enterprise Development*, 27(4), 659–679. <https://doi.org/10.1108/JSBED-01-2019-0027>.
- Baluku, M. M., Matagi, L., & Otto, K. (2020). Exploring the link between mentoring and intangible outcomes of entrepreneurship: The mediating role of self-efficacy and moderating effects of gender. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.01556>.
- Bławat, F. (2003). *Przedsiębiorca w teorii przedsiębiorczości i praktyce małych firm*. Gdańskie Towarzystwo Naukowe.
- Bolzani, D., & Luppi, E. (2021). Assessing entrepreneurial competences: Insights from a business model challenge. *Education and Training*, 63(2), 214–238. <https://doi.org/10.1108/ET-04-2020-0072>.
- Brockhouse, R. H., Horwitz, P. S., (1986). The psychology of the entrepreneur. In D. L. Sexton & T. W. Smilor (Eds.), *The art and science of entrepreneurship* (pp. 25–60). Ballinger Publishing Company.
- Buttler, D., & Sierminska, E. (2020). Career or flexible work arrangements? gender differences in self-employment in a young market economy. *Journal of Family and Economic Issues*, 41(1), 70–95. <https://doi.org/10.1007/s10834-020-09668-x>.
- Chien-Chi, C., Sun, B., Yang, H., Zheng, M., & Li, B. (2020). Emotional competence, entrepreneurial self-efficacy, and entrepreneurial intention: A study based on china college students' social entrepreneurship project. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.547627>.
- Chlebiej, J. (2020). *Ciemna triada a kompetencje u przedsiębiorców* [Unpublished master's thesis].
- Crossen, B., Loots, E., & van Witteloostuijn, A. (2019). Individual motivation among entrepreneurs in the creative and cultural industries: A self-determination perspective. *Creativity and Innovation Management*, 28(3), 389–402. <https://doi.org/10.1111/caim.12315>.
- Cruz-Ros, S., Garzón, D., & Mas-Tur, A. (2017). Entrepreneurial competencies and motivations to enhance marketing innovation in Europe. *Psychology & Marketing*, 34, 1031–1038.
- Czyżewska, M., & Mroczek, T. (2020). Data mining in entrepreneurial competencies diagnosis. *Education Sciences*, 10(8), 1–17. <https://doi.org/10.3390/educsci10080196>.
- Esubalew, A. A., & Raghurama, A. (2020). The mediating effect of entrepreneurs' competency on the relationship between bank finance and performance of micro, small, and medium enterprises (MSMEs). *European Research on Management and Business Economics*, 26(2), 87–95. <https://doi.org/10.1016/j.iedeen.2020.03.001>.
- Ferreras-García, R., Beatriz Hernández-Lara, A., & Serradell-López, E. (2019). Entrepreneurial competences in a higher education business plan course. *Education and Training*, 61(7–8), 850–869. <https://doi.org/10.1108/ET-04-2018-0090>.
- Głapiński, A. (2012). Schumpeterowska teoria przedsiębiorcy, czyli skąd się bierze pies. *Konsumpcja i Rozwój*, 1(2), 3–12.



- Glukhov, V. V., & Ponomarev, A. V. (2015). Singularities of training personnel in the family economics and family business at the current stage of development of market relations. *Asian Social Science*, 11(6), 198–206. <https://doi.org/10.5539/ass.v11n6p198>.
- Hasleberg, H., Voldsund, K. H., & Hagen, S. T. (2019, April). *Entrepreneurship education for engineering students – A survey of former students' self-employment and market attraction* [Paper presentation]. IEEE Global Engineering Education Conference, EDUCON. <https://doi.org/10.1109/EDUCON.2019.8725095>.
- Hudáková, M., Urbancová, H., & Vnoučková, L. (2019). Key criteria and competences defining the sustainability of start-up teams and projects in the incubation and acceleration phase. *Sustainability (Switzerland)*, 11(23). <https://doi.org/10.3390/su11236720>.
- Iglesias-Sánchez, P. P., Jambrino-Maldonado, C., & de las Heras-Pedrosa, C. (2019). Training entrepreneurial competences with open innovation paradigm in higher education. *Sustainability (Switzerland)*, 11(17). <https://doi.org/10.3390/su11174689>.
- Igwe, A., Ogbo, A., Agbaeze, E., Abugu, J., Ezenwakwelu, C., & Okwo, H. (2020). Self-efficacy and subjective norms as moderators in the networking Competence–Social entrepreneurial intentions link. *SAGE Open*, 10(3). <https://doi.org/10.1177/2158244020934878>.
- Ivanov, V. G., Shaidullina, A. R., Drovnikov, A. S., Yakovlev, S. A., & Masalimova, A. R. (2015). Regional experience of students' innovative and entrepreneurial competence forming. *Review of European Studies*, 7(1), 35–40. <https://doi.org/10.5539/res.v7n1p35>.
- Izquierdo, E., & Buyens, D. (2007). Impact assessment of an entrepreneurship course on students' entrepreneurial competencies: A constructivist perspective. In *Proceedings of II Jornadas de Emprendimiento*.
- Joensuu-Salo, S., Viljamaa, A., & Varamäki, E. (2021). Understanding business takeover intentions – The role of theory of planned behavior and entrepreneurship competence. *Administrative Sciences*, 11(3). <https://doi.org/10.3390/admsci11030061>.
- Kisubi, M. K., Bonuke, R., & Korir, M. (2021). Entrepreneurship education and self-employment intentions: A conditional effect of entrepreneurial self-efficacy evidence from a developing country. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1938348>.
- Kyndt, E., & Baert, H. (2015). Entrepreneurial competencies: Assessment and predictive value for entrepreneurship. *Journal of Vocational Behavior*, 90, 13–25.
- Laguna-Sánchez, P., Abad, P., de la Fuente-Cabrero, C., & Calero, R. (2020). A university training programme for acquiring entrepreneurial and transversal employability skills, a students' assessment. *Sustainability (Switzerland)*, 12(3). <https://doi.org/10.3390/su12030796>.
- Lee, S.-J., & Park, I. (2020). A study on the influence of entrepreneurial competence characteristics on the sustainability of entrepreneurs-focused on the mediating effects of entrepreneurial mentoring. *Research in World Economy*, 11(2), 12–21. <https://doi.org/10.5430/rwe.v11n2p12>.
- Letonja, M., Jeraj, M., & Marič, M. (2016). An empirical study of the relationship between entrepreneurial competences and innovativeness of successors in family SMEs. *Organizacija*, 49(4), 225–239. <https://doi.org/10.1515/orga-2016-0020>.
- Luis-Rico, I., Escolar-Llamazares, M.-C., De la Torre-Cruz, T., Jiménez, A., Herrero, A., Palmero-Cámara, C., & Jiménez-Eguizabal, A. (2020). Entrepreneurial interest and entrepreneurial competence among Spanish youth: An analysis with artificial neural networks. *Sustainability (Switzerland)*, 12(4). <https://doi.org/10.3390/su12041351>.
- Macioł, S., Minkiewicz, B., & Moskalewicz-Ziółkowska, E. (2013). Monitorowanie losów absolwentów SGH. *E-mentor*, 3(50), Retrieved April 27, 2019, from <http://www.e-mentor.edu.pl/artukul/index/numer/50/id/1019>.
- Man, T. W. Y., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises. A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17, 123–142.

- Martin, C., Platis, M., Malita, L., & Ardeleanu, M. (2011). The role of EMENTORING and social media for developing the entrepreneurship competences. *Procedia – Social and Behavioral Sciences*, 15, 947–951. <https://doi.org/10.1016/j.sbspro.2011.03.218>.
- Martínez-Martínez, S. L., & Ventura, R. (2020). Entrepreneurial profiles at the university: A competence approach. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.612796>.
- Mingotau, F. (1994). *Sprawny kierownik, techniki osiagania sukcesów*. Poltex.
- Mishra, C. S., & Zachary, R. K. (2014). *The theory of entrepreneurship*. Palgrave Macmillan.
- Mishra, C. S., & Zachary, R. K. (2015). The theory of entrepreneurship. *Entrepreneurship Research Journal*, 5(4), 251–268. <https://doi.org/10.1515/erj-2015-0042>.
- Moro, A., Fink, M., & Kautonen, T. (2014). How do banks assess entrepreneurial competence? The role of voluntary information disclosure. *International Small Business Journal*, 32(5), 525–544. <https://doi.org/10.1177/0266242612458444>.
- Nevalainen, T., Seikkula-Leino, J., & Salomaa, M. (2021). Team learning as a model for facilitating entrepreneurial competences in higher education: The case of proakademia. *Sustainability (Switzerland)*, 13(13). <https://doi.org/10.3390/su13137373>.
- Nikitina, T., Lapina, I., Ozolinš, M., Irbe, M. M., Priem, M., Smits, M., & Nemilentsev, M. (2020). Competences for strengthening entrepreneurial capabilities in Europe. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(3). <https://doi.org/10.3390/JOITMC6030062>.
- Obschonka, M., Silbereisen, R. K., Schmitt-Rodermund, E., & Stuetzer, M. (2011). Nascent entrepreneurship and the developing individual: Early entrepreneurial competence in adolescence and venture creation success during the career. *Journal of Vocational Behavior*, 79(1), 121–133. <https://doi.org/10.1016/j.jvb.2010.12.005>.
- Oleksyn, T. (2012). Przedsiębiorczość jako kategoria złożona. Jak ją rozwijać? *Problemy Zarządzania*, 1(36) (vol. 2), 8–25.
- Oser, F., & Obex, T. (2015). Gains and losses of control: The construct “sense of failure” and the competence to “rescue an enterprise from failure”. *Empirical Research in Vocational Education and Training*, 7(1). <https://doi.org/10.1186/s40461-015-0015-7>.
- Ray, D. (1993). Understanding the entrepreneur: entrepreneurial attributed, experience and skills. *Entrepreneurship and Regional Development*, 5, 354–357.
- RezaeiZadeh, M., Hogan, M., O’Reilly, J., Cunningham, J., & Murphy, E. (2017). Core entrepreneurial competencies and their interdependencies: Insights from a study of Irish and Iranian entrepreneurs, university students and academics. *International Entrepreneurship and Management Journal*, 13(1), 35–73. <https://doi.org/10.1007/s11365-016-0390-y>.
- Rivera-Kempis, C., Valera, L., & Sastre-Castillo, M. A. (2021). Entrepreneurial competence: Using machine learning to classify entrepreneurs. *Sustainability (Switzerland)*, 13(15). <https://doi.org/10.3390/su13158252>.
- Robinson, Peter B., Jonathan C. Huefner, & Hunt, H. K. (1991). Entrepreneurial research on student subjects does not generalize to real world entrepreneurs. *Journal of Small Business Management*, 29(2), 42–50.
- Roblesa, L., & Zárrega-Rodríguez, M. (2015). Key competencies for entrepreneurship. *Procedia Economics and Finance*, 23, 828–832.
- Sánchez, J.C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51(3), 447–465.
- Santandreu-Mascarell, C., Garzon, D., & Knorr, H. (2013). Entrepreneurial and innovative competences, are they the same? *Management Decision*, 51(5), 1084–1095. <https://doi.org/10.1108/MD-11-2012-0792>.
- Santos, S. C., Morris, M. H., Caetano, A., Costa, S. F., & Neumeyer, X. (2019). Team entrepreneurial competence: Multilevel effects on individual cognitive

- strategies. *International Journal of Entrepreneurial Behaviour and Research*, 25(6), 1259–1282. <https://doi.org/10.1108/IJEBR-03-2018-0126>.
- Scelphout, W., Bruggeman, K., & De Mayer, S. (2016). Evaluation of entrepreneurial competence through scaled behavioural indicators: Validation of an instrument. *Studies in Educational Evaluation*, 51, 29–41. <https://doi.org/10.1016/j.stueduc.2016.09.001>.
- Schumpeter, J. (1960). *Teoria rozwoju gospodarczego*. PWN.
- Seikkula-Leino, J., Salomaa, M., Jónsdóttir, S. R., McCallum, E., & Israel, H. (2021). EU policies driving entrepreneurial competences – Reflections from the case of EntreComp. *Sustainability (Switzerland)*, 13(15). <https://doi.org/10.3390/su13158178>.
- Sethi, J., & Saxena, A. (1985). *Lesson-3. Entrepreneurial competencies, motivation, performance and rewards*. Retrieved April 28, 2019, from [http://lib.cufe.edu.cn/upload\\_files/other/4\\_20140605105319\\_Entrepreneurial%20Competencies,%20Motivation,%20Performance%20and%20Rewards.pdf](http://lib.cufe.edu.cn/upload_files/other/4_20140605105319_Entrepreneurial%20Competencies,%20Motivation,%20Performance%20and%20Rewards.pdf).
- Shir, N., Nikolaev, B. N., & Wincent, J. (2019). Entrepreneurship and well-being: The role of psychological autonomy, competence, and relatedness. *Journal of Business Venturing*, 34(5). <https://doi.org/10.1016/j.jbusvent.2018.05.002>.
- Slišāne, A., Lāma, G., & Rubene, Z. (2021). Self-assessment of the entrepreneurial competence of teacher education students in the remote study process. *Sustainability (Switzerland)*, 13(11). <https://doi.org/10.3390/su13116424>.
- Stankiewicz, K., Tomczak, M. T., Ziemiański, P., & Krawczyk-Bryłka, B. (2020). The structure of entrepreneurial team members' competencies: Between effectuation and causation. *Education Sciences*, 10(11), 1–12. <https://doi.org/10.3390/educsci10110337>.
- Stenholm, P., Ramström, J., Franzén, R., & Nieminen, L. (2021). Unintentional teaching of entrepreneurial competences. *Industry and Higher Education*, 35(4), 505–517. <https://doi.org/10.1177/09504222211018068>.
- Volery, T., Mueller, S., & von Siemens, B. (2015). Entrepreneur ambidexterity: A study of entrepreneur behaviors and competencies in growth oriented small and medium-sized enterprises. *International Small Business Journal*, 33, 109–129.
- Wagener, S., Gorgievski, M., & Rijdsdijk, S. (2010). Businessman or host? Individual differences between entrepreneurs and small business owners in the hospitality industry. *The Service Industries Journal*, 30, 1513–1527.
- Wasilczuk, J. (2005). *Wzrost małych i średnich przedsiębiorstw aspekty teoretyczne i badania empiryczne*. Politechnika Gdańska.
- Williams Middleton, K., Padilla-Meléndez, A., Lockett, N., Quesada-Pallarès, C., & Jack, S. (2020). The university as an entrepreneurial learning space: The role of socialized learning in developing entrepreneurial competence. *International Journal of Entrepreneurial Behaviour and Research*, 26(5), 887–909. <https://doi.org/10.1108/IJEBR-04-2018-0263>.