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# Entrepreneurial intentions of students from Latvia, Poland, and Ukraine: The role of perceived entrepreneurial education results

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## Abstract

*Purpose:* Our main aim is to establish which factors influence entrepreneurial intentions, with a particular focus on the role of entrepreneurial education and university support in Central and Eastern European countries (CEE). An additional aim is to determine the differences in these perceptions between students from seemingly similar but rather different CEE countries. *Methodology:* We based our study mainly on two theory constructs, namely the entrepreneurial support model (ESM) and entrepreneurial self-efficacy (ESE). Both concepts often appear in research on entrepreneurial intentions, but they are not used together. Moreover, we proposed a new education-related factor – perceived entrepreneurial education results (PEER). To verify hypotheses quantitative research was conducted using surveys among 2,085 first-year undergraduate students from three technical universities in three countries: Latvia, Poland and Ukraine. *Findings:* The results of the study indicate that entrepreneurial self-efficacy, perceived entrepreneurial education results, and perceived educational and relational support all influence the intention of students to launch a venture. The research did not provide support for the hypothesis of an impact of perceived structural support (PSS) on intentions. The impact of perceived educational and relational support appeared to be less important than the impact of ESE and PEER on intentions. Additionally, we identified that there are significant differences between students from the analysed countries. *Implications for theory and practice:* Our research has identified a new factor, not previously used in studies of entrepreneurial intentions, that is, perceived entrepreneurial education results. This new factor can be used in research as a complement to self-efficacy and it refers to hard skills related, in this particular case, to entrepreneurship. The results show the importance of the national context, implying the need to take this into account when modelling support policies at a national level. The findings can be used to remodel how this knowledge is delivered to young people. *Originality and value:* Firstly, we proposed the inclusion of a new education-related component called perceived entrepreneurial education results, which can examine the perceived results of education at any level, in our case, at the secondary school level. Secondly, we showed the stronger influence of factors related to perceptions of one's own skills than perceptions of support from the environment. In addition, we demonstrated that making judgements or recommendations about entrepreneurial support, for rather similar countries, should be considered separately. Furthermore, we conceptualised the three aspects ESE, PEER and ESM in a new way. Finally, we also proved that the role of individual factors varies from country to country, even if the countries belong to the same cultural background and share a similar past experience.

**Keywords:** entrepreneurial intentions, entrepreneurial education, perceived entrepreneurial support model, entrepreneurial self-efficacy, perceived entrepreneurial educational results, Central and Eastern European Countries, CEE countries, comparative analysis

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## INTRODUCTION

Understanding what makes an individual become an entrepreneur is vital to increasing the number of new entrepreneurs. Although a lot of effort has been made to encourage entrepreneurship among people, especially young people, many students who have already graduated from universities do not consider themselves to be entrepreneurial and are not interested in becoming entrepreneurs, thus developing those intentions among young people remains a challenging task (Delanoë-Gueguen & Liñán, 2019). Entrepreneurship is considered to be an intentional behavior; as a consequence, there is a fundamental need to study the reasons why young people choose entrepreneurial careers and how entrepreneurial intentions develop (Napolitano & Riviezzo, 2008; Liñán & Fayolle, 2015).

When looking for factors that shape entrepreneurial intentions, scientists use variables belonging to different categories, most often limiting themselves to one category of factors. According to an analysis of 177 publications conducted by Pérez-Macías, Fernández-Fernández, and Vieites (2022), the share of such research is 54%. Another 36% are studies focusing on a mixture of categories (personal and/or entrepreneurial education and/or institutional and contextual factors), while another 10% are meta-analyses and theoretical articles. Publications that included all three categories (personal and entrepreneurial education and institutional and contextual factors) accounted for only 6 out of 177 articles (3.4%). This is surprising because only a multi-aspect approach to examining entrepreneurial intentions allows for a better diagnosis of the factors influencing it. The fact that few studies are conducted in such a comprehensive way constitutes the research gap that our article fills.

In the pursuit of a better understanding of students' entrepreneurial intentions, we use the theory constructs of Entrepreneurial Self-Efficacy (ESE) (Bandura, 1997) and the Entrepreneurial Support Model (ESM) (Turker & Selcuk, 2009). The influence of ESE on entrepreneurial intentions has been confirmed in many samples, as well as the influence of some aspects of perceived support, from ESM, yet they were not used together in studies. Already representing both the individual category and the institutional category, we have added one more variable, which is related to entrepreneurial education (EE), and we measure the perception of entrepreneurial knowledge gained before entering university.

Turker and Selcuk's ESM is one of the most influential in recent years, according to the systematic literature review by Maheshwari, Kha, and Arokiasamy (2022). ESM views predominantly the influence of contextual factors on entrepreneurial intentions. In this model, entrepreneurial intention is treated "as a function of educational, relational and structural support" (Turker & Selcuk, 2009, p. 142). However, the results of the study conducted by Turker and Selcuk revealed that only educational and structural support factors influence students' EI. ESE is also one of the most frequently and best-studied factors influencing entrepreneurial intentions and almost all studies support its importance (Pérez-Macías et al., 2022). We combined these two elements with perceived educational outcomes. Entrepreneurship education, according to research, is important in shaping entrepreneurial intentions either directly (Feder & Nițu-Antonie, 2017) or indirectly (Camacho-Miñano & del Campo, 2017). The inclusion of these potential determinants in a single study can be considered unique and, so far, unexplored in this way.

Entrepreneurial intentions and their determinants constitute a very well-known relationship (such as ESE and EI) in entrepreneurship research, like a good old marriage. However, we are not only proposing a unique set of determinants but, by referring to the metaphor in the title, we are moving this marriage to a new house, by which we mean the under-researched context of Central and Eastern European countries. The main interest of researchers of intentions was focused on countries with stable market economies (Valliere, 2017). However, more and more papers appear to show the situation in emerging countries (e.g., Pham, Nguyen, Nguyen, Tran, & Nguyen, 2023). Relatively few reports on this topic come from Central and Eastern Europe (Wach & Wojciechowski, 2016; Nowiński, Haddoudb, Lančaričc, Egerovád, & Czeglédie 2019; Gubik 2021). These are countries that have behind them a period of planned economic systems, in which there was no room for entrepreneurship. The entrepreneurial tissue is, therefore, not yet fully developed and perceptions of entrepreneurial action may be distorted by path dependency.

Each country creates an individual entrepreneurial context that includes family, society, business, and institutions (Lin, Rogoff, Foo, & Liu, 2015), as well as the educational system. These elements are the result of historical and cultural conditions and, through stories, anecdotes, jokes, or social models, they influence life decisions made by young people, including those concerning entrepreneurial careers. Cross-country analyses of students' intentions are carried out; however, not so often and seldom in the eastern part of Europe (Liñán & Fayolle, 2015). It turns out that even in countries with similar historical experiences, there are differences in the factors influencing entrepreneurial intentions, as exemplified by research among the Visegrad countries (Czech Republic, Hungary, Poland, and Slovakia) (Nowiński et al., 2019) and

the Iberian Peninsula countries (Spain, Portugal, Andorra, Gibraltar, and a small part of France) (Fernandes, Ferreira, Raposo, Sanchez, & Hernandez–Sanchez, 2020).

Bearing in mind the call for more research in Eastern European countries and the differences among countries from the same cultural and geographical region, we decided to focus on three countries from the same region, with a similar cultural background, and similar, yet not identical, recent history: Latvia, Poland and Ukraine. All three countries underwent a political transformation in the 1990s, building new political, economic, and regulatory systems. However, there is still little information regarding the potential results of this transition. Hence, although all three were dependent on the Soviet Union, the dependence was different. Latvia and Ukraine are former Soviet republics that lost their sovereignty in 1940, regaining it in 1991. Latvia was admitted to the European Union in May 2004. Ukraine, since 2014, has been a country associated with the European Union, waiting to be admitted as a member. Poland functioned as a satellite state, which meant no market economy and a socialist political system. In Poland, however, private ownership was never completely abolished and small artisanal companies survived the period of the centrally planned economy. Poland joined the European Union together with Latvia in 2004. Each of these countries has a slightly different economic and political history, and hence, the attitude to entrepreneurship and its education is different.

Recognizing the research gap of little comprehensive research on entrepreneurial intentions across CEE countries, our aim is to examine the entrepreneurial intentions of students in the realities of CEE countries, taking into account their self-efficacy, perceived external condition and perception of entrepreneurial education results. For this purpose, we questioned 2,085 first-year students from three technical universities from different fields of study. We used correlation, hierarchical regression, and the Kruskal-Wallis test to verify hypotheses. With this study, we make three contributions to the knowledge on entrepreneurial intentions and how this all relates to students. First, we propose a new component called perceived entrepreneurial education results (PEER), which can examine the perceived results of education at any level, in our case, at the secondary school level. Secondly, we prove that ESE, PEER and relational support are good predictors of entrepreneurial intentions. And third, we suggest that despite the similar culture and history in countries from CEE, the impact of factors influencing entrepreneurial intentions may differ.

## LITERATURE REVIEW

Entrepreneurship is considered to be a complex process that consists of various phases; one of these phases is the creation of entrepreneurial intentions (Hisrich, 1990). Entrepreneurship is an intentional action and planned behavior (Krueger, Reilly & Carsrud, 2000; Chen, 2014). The preliminary step in developing into an entrepreneur is the fact that a person shows a particular level of entrepreneurial intentions (Bird, 1988). In many different domains, intentions are key to understanding predecessors, correlates, and consequences of intentional behavior (Ajzen & Fishbein, 1977; Ajzen, 2002). This reasoning is also the basis of the Theory of Planned Behaviour proposed by Ajzen and it is often used in the study of entrepreneurial intentions (Doanh, 2021; Baharuddin & Rahman, 2021).

Individuals will initiate entrepreneurship if they indicate a satisfactory level of entrepreneurial intentions. In general, intentions arise somewhat in connection with a sense of the ability to perform certain activities. In the context of entrepreneurship, the intention to start a business is about feeling that the person can carry out the process efficiently, which means that self-efficacy plays an important role in this process. The traditional understanding of self-efficacy, in accordance with the definition of Bandura, is that it is dictated by situational requirements and is domain-specific (Bandura, 1997). People with high self-esteem for a particular job are more likely to both seek and persist in this job (Shane, Locke & Collins, 2003). This is due to the fact that self-efficacy helps people reduce interference and focus on the task (Kanfer & Ackerman, 1996; Bandura, 1997). Boyd and Vozikis (1994) observed that people, even if they perceive social appreciation for particular behavior, may not act because their self-efficacy for a particular task is low. Moreover, ESE moderates the relationship between entrepreneurial education and intentions, which was confirmed in research in the Visegrad countries (Nowiński et al., 2019), as well as in other countries.

Entrepreneurial education at the university level takes place primarily in the fields of business and economics and, to a much lesser extent, in the other fields. Therefore, some studies of entrepreneurial intentions analyze the impact of the field of study, assessing the extent to which the content transmitted during studies, mainly business, influenced entrepreneurial intentions. The analysis of opportunity perception in relation to the field of study (STEM versus business) did not reveal significant differences (Dilli & Westerhuis, 2018), yet research conducted on samples diverse in terms of the field of study is scarce (Teixeira & Forte, 2017). However, the relationship between the choice of field of study and entrepreneurial

intentions is not examined. It can be assumed that young people thinking about starting their own business will choose such fields of study. Therefore, we expect that the chosen field of study can explain the level of entrepreneurial intentions, as new business students should manifest higher EI than other students. As a consequence, we hypothesize that:

H1: The chosen field of study (STEM or business) has an impact on entrepreneurial intentions.

When entering university, young people already have some basic business and economic knowledge, both formal (high school education) and informal (news, observation, etc.). Entrepreneurship education, or education with an entrepreneurial element, is offered at the secondary level in many European countries (Eurydice Report, 2018). Business knowledge can also be acquired by young people during extracurricular activities, e.g. in youth organizations or in social activities in or outside the school. Early exposure to entrepreneurial knowledge fosters later entrepreneurial intentions (Huber, Sloof & Van Praag, 2014), and could lead to more efficient entrepreneurial education at the university level (Nowiński et al., 2019). It also favors the establishment of companies, as proved by Elert, Wennberg, and Sjöö (2020), following 9,731 Swedish pupils who participated in entrepreneurship courses in the mid-1990s. The effect of education at the high school level can be both entrepreneurial intentions and a change in entrepreneurial attitude (Martinez, 2022). Entrepreneurial knowledge not only directly affects entrepreneurial intentions, but also shapes personal attitudes and Perceived Social Norms (Wach & Głodowska, 2019), which has been proven in research conducted in Poland. It should be assumed that when they start their studies, young people already have some knowledge about entrepreneurship, both from high school and from observations of economic life or experience related to seasonal work. Even if this knowledge is incomplete, it will serve as the basis for further entrepreneurial education, during studies.

When examining the entrepreneurial intentions of students, the knowledge acquired at the earlier stages of education is not analyzed. Recognizing this gap, we propose to introduce this component to research on student intentions, and call it Perceived Entrepreneurial Education Results (PEER). PEER refers to the hard skills related to the purely technical aspects of starting and running a business, such as business planning and management. ESE promotes opportunity recognition and evaluation, while PEER can confirm the belief that a given person will cope with the challenges of starting a business. Consequently, the following hypotheses are proposed:

H2: Entrepreneurial self-efficacy has an impact on entrepreneurial intentions.

H3: Perceived entrepreneurial education results (PEER) have an impact on entrepreneurial intentions.

However, young people do not function in a vacuum. They are surrounded by family and loved ones, they are shaped by the university environment, and finally, their decisions can be influenced by the general regulatory and economic environment of a given country. Boter and Lundström (2005) argued that entrepreneurial support should provide motivation for people to start their entrepreneurial career, provide good opportunities to develop start-ups, and offer support structures for potential entrepreneurs to teach them the necessary skills and convey important information. To investigate the influence of these contextual factors, Turker and Selcuk (2009) developed the Entrepreneurial Support Model (ESM), which included perceived relational, educational and structural support. Their first study revealed that only perceived educational and structural support were significant predictors of students' entrepreneurial intentions, while perceived relational support was not statistically significant.

*Educational support* is the first dimension of the model. It is clear that acquiring professional education at universities is an effective way of receiving the necessary knowledge about entrepreneurship. There are many studies confirming the importance of entrepreneurial education, an example of which is a meta-analysis of 73 studies conducted by Bae, Qian, Miao, and Fiet (2014). The positive significant relationship between entrepreneurship education and entrepreneurial intentions, mediated by self-efficacy, is confirmed in the study of Nowiński et al. (2019). Entrepreneurial education affects EI by increasing self-efficacy but also by changing the attitude towards entrepreneurship (Yousaf, Ali, Ahmed, Usman, & Sameer, 2021). The more substantively prepared students feel, the higher their intentions to start a business (Pinto Borges, 2021). And although there are studies that indicate that entrepreneurial intentions become more realistic as a result of entrepreneurial education, and that they are reduced, the research results that confirm their positive influence predominate (Pérez-Macías et al., 2022).



Entrepreneurial education, however, is not offered to students in all fields of study to the same extent. In such a case, when starting studies at a university, in a field not related to business, students can only rely on knowledge they gained from high school. On the other hand, university support should not be limited only to education (non-cognitive support), because this may paradoxically lead to lower entrepreneurial intentions, as indicated above. For those who do not participate in business studies, targeted cognitive support (Kraaijenbrink, Bos & Groen, 2010) is equally important. Entrepreneurial exposure also plays an important role (Gulzar & Fayaz, 2021), which, through role models, influences entrepreneurial intentions and motivations (Brunel, Laviolette & Radu-Lefebvre, 2017). Both positive and negative examples of graduate careers, as well as publicizing the success of students who set up their start-ups, help to build motivation and make students believe that entrepreneurship can be a good career choice, and running a company is not that difficult. This type of cognitive nature support (Trivedi, 2016) is of great importance, strengthening target non-cognitive support (seed funding, start-up programs, etc.). And perhaps this will also reduce the number of people who, having only received knowledge about running a business, abandon the intention of starting it for fear of failure. Some young people's relationship with their university ends after three years of study, which is why such support should be available for students already from the very beginning of their education process at university.

The second dimension of the model is *relational support*. Turker and Selcuk (2008) took into account family background as a factor influencing entrepreneurial intentions. Families are considered as an important source of psychological support (Renzulli, Aldrich & Moody, 2000), background experience, and motivation to engage in entrepreneurial activities (Laspita, Breugst, Heblich, & Patzelt, 2012; Lingappa, Shah & Mathew, 2020), financing at the beginning of launching a business (Steier, 2003), tutoring (Sullivan, 2000), knowledge and connections (Steier, 2007; Newbert, Tornikoski & Quigley, 2013; Gronhoj, & Thogersen, 2017; Georgescu & Herman, 2020). Not only do families play an important role in the development of young people's entrepreneurial intentions, but also social relations and networks (Pérez-Macías et al., 2019). Belonging to social networks helps in obtaining information and strengthens the sense of being able to gain support (Twum, Kwakwa, Ofori, & Nkukporu, 2021). A friend who is involved in any business can act as a role model (Keat, Selvarajah & Meyer, 2011; Lingappa et al., 2020), and is a trustworthy source of advice (Robson & Bennet, 2000). Therefore, the influence of friends can also affect the decisions of students to become entrepreneurs (Nanda & Sorensen, 2008). In the socialist/communist period in CEE countries, ties, acquaintances, contacts and informal economic relations were significant (Polese & Rodgers, 2012). We can, therefore, expect that relational support is perceived to be very important, even among younger members of CEE societies.

*Structural support* is the last dimension in the entrepreneurial support model. People live in a wider context of cultural, social, economic, political, and technological factors (Turker & Selcuk, 2009). The present context of entrepreneurship is mostly shaped by political and economic mechanisms governed by private, public, and non-governmental segments (Urbano, Aparicio & Audretsch, 2019). The Global Entrepreneurship Monitor (2021) report emphasizes the importance of an institutional environment and supportive culture for the growth of entrepreneurs. However, the impact of structural support on entrepreneurial intentions can be seen as a controversial issue. A deeper analysis of the Global Entrepreneurship Monitor results from 22 European countries did not confirm the relationship between perceived government support and entrepreneurial intentions (Teixeira, Casteleiro, Rodrigues, & Guerra, 2018). On the other hand, perceived structural support may have a positive impact on the attitude towards entrepreneurship and, at the same time, a negative one on entrepreneurial intentions (Trang & Doanh, 2019).

Despite many studies on the role of support in shaping entrepreneurial intentions, there are still ambiguities (Pérez-Macías et al. 2022), which we diagnosed as a research gap, especially in the context of CEE countries, and which prompted us to put forward the following hypothesis:

H4: Entrepreneurial intentions are influenced by perceived entrepreneurial support in the form of: H4a. Relational support, H4b. Educational support, and H4c. Structural support.

### Latvia, Poland, and Ukraine context

More and more research on factors influencing entrepreneurial intentions is being conducted on samples from different countries, allowing for cross-country comparisons (Liñán & Fayolle, 2015; Beynon, Jones, Pickernell, & Maas, 2020). Researchers look for countries representative of different cultures (Engle, 2010; Nowiński, Mohamed, Wach, & Schaefer, 2020; Litzky, Winkel, Hance, & Howell, 2020) or countries with different economic levels (Iakovleva, Kolvereid &

Stephan, 2011). There are also studies covering almost all countries, such as the Global Entrepreneurship Monitor or GUESS, but participation in them depends on the activity of local researchers and the results do not allow full freedom of comparison.

The vast majority of cross-country research is based on Ajzen's theory, confirming the relationship between personal attitude, perceived behavioral control, and entrepreneurial intentions (Liñán & Fayolle, 2015; Gorgievski, Stephan, Laguna, & Moriano, 2018; Stabingis & Raupelienė, 2023). Comparative research is also carried out on ESE and individual elements of ESM. Regardless of the country of research, ESE is always in the first place among the factors shaping EI (Pérez-Macías et al., 2022).

When analyzing the perception of the impact of the environment on entrepreneurial intentions, researchers most often focus on one element of ESM as part of cross-country research. This only allows us to obtain information about one section of the relationship between the perception of structural, educational and relational support and EI. An example of such a study is the analysis of the perceived university environment and support factors among students of India, Singapore, and Malaysia, which showed differences, with the highest values for Malaysia (Trivedi, 2016). Relational support was not the subject of this research.

The analysis of the impact of personal attitude, social environment, closed personal environment, society's opinion, and university impact on EI in Estonia, Finland, Lithuania, Poland, and Sweden showed the lowest impact of the latter (Stabingis & Raupelienė, 2023). However, further comparisons between countries showed no significance of perceived university impact in Lithuania, Finland, and Sweden, and among the other two countries, Poland had a higher rate compared to Estonia. Besides contributions relevant to the development of theory, this study can also contribute to the understanding of factors influencing entrepreneurial intentions in what is still a novel context. Referring to the metaphor used in the title of this article, we place the old marriage of EI and its determinants in a new house, namely the Central and Eastern European research area. Few studies are carried out in CEE countries (Lesinski, Carvalho, Mavlutova, & Dias, 2022), and descriptions of comparative research conducted in these countries are still lacking. We see insufficient research in CEE as a research gap that our article fills, answering the call to analyze entrepreneurship in various regions of the world in order to obtain a clearer picture (e.g., Valliere, 2017).

Our research was carried out in three countries not compared so far, which have been operating on the basis of market economy principles only since the 1990s. This means that the environment influencing the entrepreneurial attitudes of young people, and above all, their entrepreneurial intentions, has existed for a short time. Recently, entrepreneurial activities have been gaining social acceptance and have begun to function in social awareness as a potential type of professional career. The Global Entrepreneurship Monitor (GEM) allows the level of entrepreneurial intentions in individual countries to be estimated, but this applies to the intentions of the entire population and, unfortunately, there is no data for Ukraine. Looking at the data for Latvia and Poland from the 2017/2018 GEM (the year before our study), there was a higher level of intentions in Latvia (27th out of 54 countries surveyed in the world) than in Poland (44th out of 54) (Global Entrepreneurial Monitor, 2018). Ukraine does not participate in this study, so there is no comparative value for this country.

Poland and Latvia are countries ranking above the European average when it comes to the participation of young people aged 15-24 in entrepreneurship classes (Eurydice Report, 2018). Ukraine, as a country outside the European Union, did not participate in these studies. An analysis of entrepreneurship teaching programs at the secondary school level shows large differences in the content provided. Thus, for example, content related to attitudes to entrepreneurship (self-confidence and a sense of initiative) is present in Polish programs but not in Latvia anymore. Polish programs also cover, to a greater extent, such issues as entrepreneurial skills and entrepreneurial knowledge (Eurydice Report, 2018).

According to the World Bank report, education in Ukraine, especially at the university level, does not meet the modern needs of the economy (Cheney, Zolotarev & Wyne, 2017). A very high level of education in mathematics and science is displayed, but there is a lack of cooperation with the economic environment. The discussion about introducing entrepreneurial content has begun. Nevertheless, there are concerns regarding the success of this project due to staff shortages, rigid regulations and "conservatism typical of the post-soviet system of education with mimicry and pseudo-reforming" (Korzhov & Pasko, 2020). However, the introduction of entrepreneurial education is not the only challenge; this education should be adapted to modern requirements and supported by educational activities, which is also beginning to be noticed in Ukraine (Stavytskyi, Dluhopolskyi, Kharlamova, Karpuk, & Osetskyi, 2020). Therefore, we believe that perceived entrepreneurial education results would be different in these three countries, and analyzing the data above, we expect the highest value of this factor in Poland. The shortage of educational programs at the university level in Ukraine,

in view of the barriers to introducing these programs, presented above, leads us to assume that Ukrainian universities do not conduct cognitive activities supporting students in choosing an entrepreneurial career path.

The small number of studies devoted specifically to support from the family in the process of entrepreneurial intentions has also translated into a lack of research on this subject conducted in the three countries of interest to us, and it can be concluded that this is another research gap worth filling. Certainly, the socialist/communist doctrine prevailing in the past has left its mark on the role of the family in the Eastern Bloc, especially with regard to the ties that prevail in families. However, we expect some differences in perceived relational support.

We expect that students perceived the differences in structural support in the investigated countries. The data from Doing Business indicate the 19th and 40th place, respectively, for Latvia and Poland in terms of ease of doing business (World Bank Group, 2020). However, Ukraine underwent a tremendous improvement, coming second in the world in terms of growth rate in the Doing Business ranking since 2009; and since 2014, it has risen by 41 places in the ranking. Despite the seemingly many existing similarities resulting from their common traditions, geographic region, or turbulent history, with periods of independence, occupation, and border changes, Latvia, Poland, and Ukraine actually differ in many aspects of their socio-economic reality.

In view of the differences described above, we believe that there will be differences between countries in the entrepreneurial intentions of young people and in the factors influencing these intentions. These differences may result from the fact that although all of them have been operating under the conditions of a market economy since the 1990s, they operated under different conditions before that period. Ukraine was exposed to central planning for the longest time (excluding the western(?) territories belonging to Poland before WWII). Poland did not lose its statehood and could enjoy relative freedoms, also in the context of small private activities, which the authorities allowed to a small margin (Korzhowe & Pasko, 2020).

On the other hand, Latvia is a relatively small country; without a quick transformation and openness to European economies, it would be difficult to obtain an adequate standard of living for its citizens. Additionally, Latvia and Poland are part of the European Union, while Ukraine is still waiting to be. With all this in mind, the objective of this research is to determine whether there are similarities or differences in the studied entrepreneurial variables. Consequently, we proposed the following hypotheses:

H5. There are differences between students from Latvia, Poland and Ukraine in their: H5a. Entrepreneurial self-efficacy, H5b. Perceived entrepreneurial education results, H5c. Perceived relational support, H5d. Perceived educational support, H5e. Perceived structural support, and H5f. Entrepreneurial intentions.

Based on the literature review, research hypotheses were formulated on the relationships between the mentioned potential determinants of intentions adopted in the context of predicted entrepreneurial intentions. We conceptualized these factors in a unique form that has not been used in previous studies.

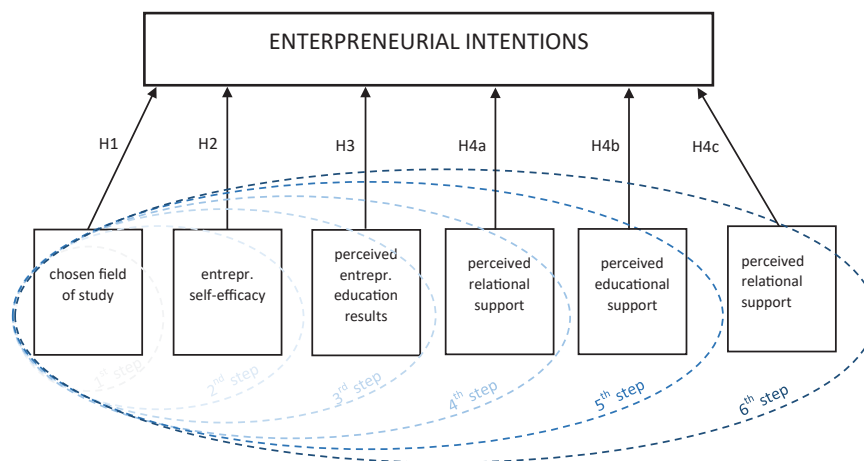


Figure 1. Research model

The graphical representation of our research proposal is the model (Figure 1), where EI and its predictors are placed in individual rectangles, while the arrows indicate particular hypotheses that will be verified in the subsequent steps during the hierarchical regression analysis.

## METHODOLOGY

The study was part of the SEAS Project (Survey on Entrepreneurial Attitudes of Students), which has been an ongoing project at the Faculty of Management and Economics, GUT, since 2008. The 2019 edition, for the first time, became an international one. The sample population comprised 2,095 first-year undergraduate students from three technical universities: Gdansk University of Technology (GUT), Poland ( $n=1,016$ ), Lviv Polytechnic National University (LPNU), Ukraine ( $n=718$ ), Riga Technical University (RTU), Latvia ( $n=361$ ). The research was carried out before the Russian invasion of Ukraine. Of the participants, 79.5% were STEM students (854 from GUT, 538 from LPNU, and 266 from RTU), and 20.5% represented the Business and Management field (162 from GUT, 180 from LPNU, and 95 from RTU). The survey was conducted during normal lectures and seminars. All the students who were present received a questionnaire in a paper version.

Entrepreneurial intentions were measured with five items based on Liñán and Chen (2009). A five-point Likert scale was used. Principal component analysis indicated that all statements loaded on a single factor. The item explained 73.38% of the variance. Cronbach's alpha level reached 0.91. A single score indicating the level of Entrepreneurial Intentions was computed for each participant by averaging the answers to five items. Entrepreneurial Self-Efficacy was assessed using five items derived from Wilson, Kickul, and Marlino (2007). The ESE scale was used to measure the students' perceptions of their ability to perform instrumental functions of the entrepreneurial life cycle. For each statement, they rated their level of confidence on a five-point Likert scale (1 = "no confidence," 5 = "complete confidence"). Representative items are "I can come up with a unique idea for a business" and "I can grow a successful business." The principal component method was applied. The item explained 61.98% of the variance, and Cronbach's alpha for the ESE scale was 0.85.

Perceived Entrepreneurial Education Results were measured using five items derived from Cox, Mueller, and Moss (2002). Again, a five-point Likert scale was used. Principal component analysis indicated that all statements loaded on a single factor. The item explained 60.25% of the variance. Cronbach's alpha level reached 0.82. A single score indicating the level of perceived entrepreneurial education results was computed for each participant by averaging the answers to five items. Representative items are "I can plan a new business" and "I can manage a small business." Perceived Entrepreneurial Support was measured using nine items in three categories: perceived relational, educational, and structural support. Students were asked to indicate their level of agreement with each of the statements using a five-point Likert scale.

Exploratory factor analysis was conducted to determine the structure of the scale. The principal component method was used. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.72, above the commonly recommended value of 0.60, and Bartlett's test of sphericity was significant  $\chi^2(36) = 6084.03$ ,  $p < 0.001$ . The Kaiser criterion was applied to determine the number of factors, based on which it was determined that three factors should be selected. In total, these factors explain 68.92% of the variance. After the analysis of the factors with the Varimax orthogonal rotation method, it was found that the first factor was composed of two items, intended to measure relational support. The factor loadings of both of these items were 0.89. The second factor consisted of three items that were intended to measure perceived educational support. The factor loadings of these items were 0.78, 0.88 and 0.89, respectively. The last factor consisted of four items. They were intended to measure perceived structural support. The factor loadings of these items were 0.46, 0.82, 0.87, and 0.77, respectively. No cross-loadings were observed. The three identified factors followed the expected structure and the following reliability levels were obtained (Cronbach's alpha coefficient was computed): 0.83 for educational support, 0.77 for relational support, and 0.74 for structural support. Composite scores (mean values) for each of the factors were computed.

Data management included the following steps: checking for coding mistakes and if the minimum and maximum values were in a range to control the data for accuracy, inspecting cases with missing values above the traditional limit of 10% to clean the dataset, examining reliability levels of results (Cronbach's alpha internal consistency for multi-item indices) obtained in the sample ( $n=2095$ ), which indicated an acceptable level as it is more than the threshold value of 0.70 (Pallant, 2001, p. 85), checking for univariate normality of all items using standard guidelines (i.e., skewness  $> 3$  and kurtosis  $> 9$ ) (Schivinski, Langaro & Shaw, 2019); the absolute values of skewness of the observed variables in our study are within the range of 0.04 to 1.02 and the absolute values of kurtosis are in the range of 0.24 to 1.5.



## RESULTS

In Table 1, we present the descriptive statistics of our measures together with the Cronbach results obtained in the sample (n=2095). Cronbach's alpha reliabilities range from 0.74 to 0.91. Reliabilities are satisfactory for all variables as they are above the recommended level. In order to examine relationships between variables that are of interest in this study, correlations between them were computed.

**Table 1.** Descriptive statistics

	Alpha	Mean	Std. Dev.
Entrepreneurial intentions	0.91	3.16	1.01
Entrepreneurial self-efficacy	0.85	3.08	0.87
Perceived entrepreneurial education results	0.82	3.02	0.87
Perceived relational support	0.77	4.22	0.73
Perceived educational support	0.83	3.01	0.92
Perceived structural support	0.74	2.80	0.70

Table 2 presents the pairwise correlation coefficient of the variables used in the study. To examine the hypotheses in this study, hierarchical regression analysis was used, as we believe it is particularly relevant in the context of studying entrepreneurial intentions. This approach allowed us a step-by-step analysis of how various factors such as personal characteristics, education and environmental influences incrementally affect the formation of entrepreneurial intentions. The methodology fits well with the multifaceted nature of research on entrepreneurial intentions, in which different layers of influences interact. It offers a structured way to analyze these complex relationships, as emphasized in entrepreneurship research (e.g., Krueger et al., 2000). The initial steps in the analysis process included evaluating the assumptions for hierarchical multiple regression subsequent models. All the relationships between the dependent variable (EI) and the independent variables are significant. The perceived support factors, such as perceived relational, educational and structural support, have a positive inclination towards entrepreneurship. Entrepreneurial self-efficacy and perceived entrepreneurial education results are also positively related to the students' entrepreneurial intentions. Nineteen out of the twenty-one correlations were positive and significant. The results indicate that there is no multicollinearity problem, as pairwise Spearman Correlation coefficients are below the threshold value of 0.8 (Gujarati, 2003: 359) with one case of slightly above 0.8. Additionally, the no autocorrelation assumption is not violated as the Durbin-Watson statistic value lies between 1 and 3, namely  $1 < 1.906 < 3$ , and multicollinearity is not an issue according to VIF, which is widely employed to eliminate multicollinearity (Hair, Black, Babin & Anderson, 2010). All the VIF values of all the variables are below the recommended level of 5 (exceeded 1, but below 3.063). Moreover, we investigated the statistics of standardized residuals and excluded ten observations because their values were above and beyond the recommended range between -3.0 and 3.0.

**Table 2.** Correlation matrix

	EI	Field of study	ESE	PEER	PRS	PES	PSS
Entrepreneurial intentions	1						
Field of study	0.118**	1					
Entrepreneurial self-efficacy	0.552**	0.055**	1				
Perceived entrepreneurial education results	0.556**	0.087**	0.816**	1			
Perceived relational support	0.192**	0.034	0.159**	0.132**	1		
Perceived educational support	0.256**	0.201**	0.203**	0.241**	0.152**	1	
Perceived structural support	0.115**	0.034	0.112**	0.133**	0.057**	0.318**	1

Note\*\*. Correlation is significant at the 0.01 level (2-tailed).

The hierarchical regression analysis was structured to add predictors incrementally across six models, examining their impact on entrepreneurial intentions.

Firstly, the field of studies was entered (Model 1 in Table 3). Thus, ESE was entered in Model 2, perceived entrepreneurial education results was added in Model 3, perceived relational support in Model 4, perceived educational support in Model 5, and finally, perceived structural support in Model 6 (Table 3). Each of these predictors was introduced in an order from factors most directly related to the individual to more external and contextual aspects. The field of study is often seen as a fundamental factor that shapes the development of skills, attitudes, and professional orientations of students. In the context of entrepreneurship, choosing between STEM and business fields may reflect different approaches to innovation, creativity, and risk, key for entrepreneurship (Bae et al., 2014). Then the further order was as follows: individual beliefs (ESE), followed by interpretation of educational experiences (PEER), and then the external ecosystem of support (relational, educational, structural). This sequence was based on the theory that individual cognitive processes and interpretations precede the influence of external factors on entrepreneurial intentions (Klyver & Grant, 2010). The objective was to explore whether these components contribute to the explanation of the variance of the criterion variable over and beyond one another. Additionally, control variables for universities affiliation were included as dummy variables to account for potential variability associated with different institutions.

The F Change value is not statistically significant ( $p > 0.1$ ) only in the sixth model. Table 2 presents the standardized regression coefficients,  $R^2$ , change  $R^2$ , and F Change value.

**Table 3.** Hierarchical regression results (criterion variable: entrepreneurial intentions)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Field of study (STEM=0; Business = 1)	0.22***	0.19***	0.16***	0.15***	0.12**	0.12**
Entrepreneurial self-efficacy		0.59***	0.34***	0.32***	0.32***	0.32***
Perceived entrepreneurial education results			0.32***	0.32***	0.30***	0.30***
Perceived relational support				0.15***	0.14***	0.14***
Perceived educational support					0.09***	0.09***
Perceived structural support						0.02
University dummies	Included	Included	Included	Included	Included	Included
$R^2$	0.098	0.331	0.356	0.368	0.375	0.375
$\Delta R^2$		0.233	0.025	0.012	0.006	0.0
$\Delta F$		724.92***	80.88***	40.21***	21.81***	1.05

Note:  $n=2085$ , standardized regression coefficients ( $\beta$ ) are presented in the table. \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ . This table presents the results of hierarchical linear regression analysis, taking into account clustered robust errors, clustered at the university level. Dummy variables for the universities were included in each model to control for variability associated with different institutions. In each subsequent model, additional predictors were added.

The results showed that Model 1, including only the field of study and university dummy variables, explained 9.78% of the variance in EI. The field of study was a significant positive predictor ( $\beta = 0.2277$ ;  $p < 0.001$ ;  $R^2 = 0.0978$ ). Hypothesis 1 can be thus considered supported. The addition of ESE in model 2 significantly increased the explanatory power ( $R^2 = 0.3310$ ;  $R^2$  Change = 0.2332; F Change = 724.92\*\*\*). ESE emerged as a strong predictor ( $\beta = 0.5928$ ,  $p < 0.001$ ), underscoring the importance of self-efficacy in entrepreneurial intentions, thus Hypothesis 2 was supported. When perceived entrepreneurial education results scores were added in Model 3, the value for R Square increased to 0.3561. The addition of perceived entrepreneurial education results scores further improved the model ( $R^2$  Change = 0.0251; F Change = 80.88\*\*\*). Hypothesis 3 can thus be considered supported. Adding perceived relational support scores (Model 4) led to a slight increase in explained variance ( $R^2 = 0.3683$ ;  $R^2$  Change = 0.0122; F Change = 40.21\*\*\*) and adding perceived educational support scores (Model 5), resulted in a modest increase in R square (0.3748) and a significant F Change (21.81\*\*\*). Thus, Hypotheses H4a and H4b were supported. The inclusion of perceived structural support (Model 6) did not produce a significant increase in variance accounted for in the EI variable ( $R^2$  Change = 0.0003; F Change = 1.05). PSS was not a statistically significant predictor, indicating a limited direct impact on EI compared to other factors, thus Hypothesis H4c was not supported.

In fulfilling our further objective of a comparison of the factors described in the literature background section regarding Latvian, Polish, and Ukrainian students (descriptive statistics are presented in Table 4), we employed the Kruskal-Wallis test to examine the differences.

**Table 4.** Descriptive statistics for three countries

		N	Mean	Std. Dev.	Std. Error Lower Bound	95% Confidence Interval for Mean		Mean Rank
						Upper Bound		
Entrepreneurial self- efficacy	Poland	1013	2.88	0.88	0.03	2.83	2.94	908.62
	Ukraine	714	3.44	0.77	0.03	3.39	3.50	1306.63
	Latvia	358	2.88	0.76	0.04	2.80	2.96	897.45
Perceived entrepreneurial education results	Poland	1013	2.79	0.86	0.03	2.73	2.84	881.25
	Ukraine	714	3.40	0.77	0.03	3.34	3.46	1313.05
	Latvia	358	2.91	0.81	0.04	2.83	2.99	962.10
Perceived relational support	Poland	1013	4.26	0.72	0.02	4.22	4.30	1078.21
	Ukraine	714	4.28	0.69	0.03	4.23	4.33	1085.66
	Latvia	358	3.97	0.80	0.04	3.89	4.06	858.29
Perceived educational support	Poland	1013	2.78	0.90	0.03	2.72	2.83	890.82
	Ukraine	714	3.22	0.93	0.03	3.15	3.29	1182.62
	Latvia	358	3.23	0.82	0.04	3.15	3.32	1195.16
Perceived structural support	Poland	1013	2.80	0.68	0.02	2.75	2.84	1054.68
	Ukraine	714	2.76	0.70	0.03	2.71	2.81	997.88
	Latvia	358	2.90	0.72	0.04	2.82	2.97	1099.95
Entrepreneurial intentions	Poland	1013	2.90	1.00	0.03	2.84	2.96	882.13
	Ukraine	714	3.57	0.92	0.03	3.50	3.64	1287.25
	Latvia	358	3.11	0.94	0.05	3.01	3.20	1011.08

A Kruskal-Wallis H test (Table 5) showed that there was a statistically significant difference ( $p \leq 0.05$ ) between the different countries in: entrepreneurial self-efficacy,  $H = 209.915$ ,  $p = 0.000$ , with a mean rank score of 908.62 for Poland, 1306.63 for Ukraine, and 897.45 for Latvia; perceived entrepreneurial education results,  $H = 224.321$ ,  $p = 0.000$ , with a mean rank score of 881.25 for Poland, 1313.05 for Ukraine, and 962.10 for Latvia; perceived relational support,  $H = 43.948$ ,  $p = 0.000$ , with a mean rank score of 1078.21 for Poland, 1085.66 for Ukraine, and 858.29 for Latvia; perceived educational support,  $H = 125.547$ ,  $p = 0.000$ , with a mean rank score of 890.82 for Poland, 1182.62 for Ukraine, and 1195.16 for Latvia; perceived structural support,  $H = 7.703$ ,  $p = 0.021$ , with a mean rank score of 1054.68 for Poland, 997.88 for Ukraine, and 1099.95 for Latvia; entrepreneurial intentions,  $H = 191.561$ ,  $p = 0.000$ , with a mean rank score of 882.13 for Poland, 1287.25 for Ukraine, and 1011.08 for Latvia. By analyzing the results, it is possible to conclude that significant differences ( $p < 0.05$ ) were found for all variables. This allows us to retain the hypotheses from H5a to H5f (Table 6), because at least one of the samples dominates at least one other sample. Unfortunately, the test did not show where this dominance occurs. Therefore, looking further for a more complete picture of the differences between countries, post hoc tests to test pairwise comparisons were performed.

**Table 5.** Results of Kruskal-Wallis test and the post hoc Dunn’s multiple comparisons test

Variable	Kruskal-Wallis test		Dunn’s multiple comparisons test		
	PL-UA		PL-LV	UA-LV	
	H	p	p	p	p
Entrepreneurial self-efficacy	209.915	0.000	***	ns	***
Perceived entrepreneurial education results	224.321	0.000	***	*	***
Perceived relational support	43.948	0.000	ns	***	***
Perceived educational support	125.547	0.000	***	***	ns
Perceived structural support	7.703	0.021	*	ns	**
Entrepreneurial intentions	191.561	0.000	***	***	***

Note: PL - Poland, UA - Ukraine, LV - Latvia; H - test value; ns - non-significant; p - significance level: \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$ .

In the study, Dunn's multiple comparisons test, which is one of the post hoc tests, was applied (Table 5). Dunn's multiple comparisons test showed students from Poland and Ukraine to differ significantly in 5 analyzed variables, 4 variables being significantly ( $p \leq 0.05$ ) different between Poland and Latvia, and 5 variables being significantly ( $p \leq 0.05$ ) different between Ukraine and Latvia. According to the analysis of the results, it has been determined that the LPNU (Ukraine) students' entrepreneurial self-efficacy (mean = 3.44), perceived entrepreneurial education results (mean = 3.40) and entrepreneurial intentions (mean = 3.57) are statistically significantly higher than of those studying at GUT (Poland) (respective means = 2.88; 2.79; 2.90) and RTU (Latvia) (respective means = 2.88; 2.91; 3.11) but their perceived structural support is statistically significantly lower. In turn, Latvian students' perceived relational support (mean = 3.97) is lower than Polish (mean = 4.26) and Ukrainian (mean = 4.28), between which there is no statistically significant difference.

The findings also indicate that there is a significant difference in perceived educational support between Polish-Ukrainian, and Polish-Latvian students ( $p < 0.01$ ). To be more specific, Ukrainian students (mean = 3.22) and Latvian students (mean = 3.23) have a higher level of perceived educational support, compared to Polish students (mean = 2.78).

Table 6 contains a summary of the tested variables, hypotheses, and outcomes.

**Table 6.** Summary of hypothesis test results

Variables tested	Hypothesis	Outcome
Field of study (Business or STEM)	H1. Chosen field of study → EI	Supported
ESE	H2. Entrepreneurial self-efficacy → EI	Supported
PEER	H3. Perceived entrepreneurial education results → EI	Supported
PRS	H4a. Perceived relational support → EI	Supported
PES	H4b. Perceived educational support → EI	Supported
PSS	H4c. Perceived structural support → EI	Not Supported
ESE	H5a. Differences between students in entrepreneurial self-efficacy	Supported
PEER	H5b. Differences between students in perceived entrepreneurial education results	Supported
PRS	H5c. Differences between students in perceived relational support	Supported
PES	H5d. Differences between students in perceived educational support	Supported
PSS	H5e. Differences between students in perceived structural support	Supported
EI	H5f. Differences between students in entrepreneurial intentions	Supported

As presented in the description of the results, only one of our hypotheses, regarding the effect of structural support on entrepreneurial intentions, was not supported during our research and analyses (Table 6).

## DISCUSSION

In the vast majority, our hypotheses were confirmed in the research conducted. The hypothesis concerning the relationship between ESE and EI in Central and Eastern European countries was confirmed. Other factors did not influence the growth of entrepreneurial intentions to such an extent. This clear advantage of ESE over other constructs is also reflected in the Global Entrepreneurship Monitor study (Martínez-González, Álvarez-Albelo, Mendoza-Jiménez, & Kobylinska, 2022). The perception of acquired knowledge at previous educational stages (PEER) was also of great importance, but was not as significant as ESE.

At each of the universities surveyed, there is a department that is commonly described as less technically oriented and more socially oriented, namely the department of economics and management. The fact that young people choose this particular faculty may indicate completely different plans for their future careers compared to students choosing technical fields. Therefore, the study distinguished the variable field of study, and the authors decided to see to what extent the choice of field of study between business, economics and technology could explain the level of entrepreneurial intentions, since business students are more likely to start businesses compared to others (Liñán & Santos, 2007). One of the notable findings is the consistent positive association between being in a non-STEM field and higher entrepreneurial intentions, but the decreasing magnitude of the coefficient in subsequent models suggests that while the field of study is an important factor, its relative influence on EI becomes somewhat less pronounced when other factors are considered. We initially expected that the effect of the field of study variable would be much more impactful. The relatively moderate influence observed



may have several implications and this is good news, as it means that students choosing a major are not guided by future entrepreneurial plans, and entrepreneurial intentions can be aroused in them regardless of the major studied (non-STEM or STEM). Research on the impact of a major on entrepreneurial intentions usually concerns the content of the field of study offered, and not the relationship between the decision to start studies in a given field and the idea of a future career.

In contrast to ESE, perceptions of educational, relational and structural support were much less significant. Young people's intentions are thus primarily driven by their sense of efficacy and acquired knowledge, and are independent of their sense of external support. This indicates the important role of education at every stage, and particular emphasis should be placed on building a sense of self-efficacy at every stage of education, especially that related to entrepreneurship.

The marginal effect of structural support on entrepreneurial intentions was also documented by the study of Eagle et al. (2011), although the methodology of this study was quite different. Fortunately, entrepreneurial intentions, even despite negative perceptions of the environment due to unfavorable conditions for entrepreneurial development, can be driven by optimism, as evidenced by the findings of a study from Indonesia (Wibowo, Purwana, Wibowo, & Saptono, 2019). What is puzzling is the low impact of perceived educational support on entrepreneurial intentions. It is perceived by young people in the countries surveyed to a greater extent than structural support, but it does not greatly relate to entrepreneurial intentions. Interestingly, again in Poland, perceptions of the existence of such support at university are low. Analysis at the level of individual countries shows differences in entrepreneurial intentions and other examined factors.

Differences between countries apply to PEER, where the highest value of the perceived effects of education was felt by young people in Ukraine, and by far the lowest was in Poland and Latvia. Poland's low position comes as a surprise, as this is where the most significant number of students in Europe (together with Latvia) benefit from entrepreneurial education at the secondary school level (Eurydice Report, 2018). This gives a very bad opinion of entrepreneurial education in Poland, a country where this education has been compulsory at the secondary school level since 2002 (Sadowska, 2016). Our results show that it is not enough to introduce entrepreneurial education into the curriculum, as the program and the way it is implemented are also important (Abaho, Olomi & Urassa, 2015). The best solution is to teach 'through' entrepreneurship, while the most common is a mixed approach, something between 'about' and 'for' entrepreneurship (Leon, 2017).

Another evident example of these differences is the lower value of positive perceptions of structural support in the case of Ukraine, compared to Latvia. The result obtained may mean that in Latvia, where socio-economic changes started earlier than in Ukraine, structural support is treated as the norm and is more visible to students. Meanwhile, in Ukraine, which has made a big leap (41st position in the Doing Business ranking) despite a lower position than the other two countries, changes are clearly observable. This positive change may have shaped the perception of structural support in the close future. The quite low level of perceived structural support of Polish students contradicts a 2014-2016 study among Polish and American students by Nowiński et al. (2020). The mentioned studies did not analyze the quality of support at each university, or the quality of entrepreneurship programs provided to students. Meanwhile, as the meta-analysis conducted by Martínez-Gregorio, Badenes-Ribera and Oliver (2021) indicates, even the length of entrepreneurship courses offered is important.

Relational support, on the other hand, was perceived low by Latvian youth. There were no differences between Polish and Ukrainian. Similar results were expected because culturally, Ukraine is very close to Poland. We also do not exclude the influence of cultural aspects, in the sense of Hofstede (2011), on the phenomena studied. According to Leon (2017), developing entrepreneurial skills is conditioned by the national cultural profile. It is important to mention that this paper does not claim that the proposed study presents the full picture of EI formation. Our research is not free of limitations. Conducting international surveys requires many resources that are not always available. Our survey was conducted with a sample that included students from three technical universities in three major cities in Latvia, Poland and Ukraine. These universities provide education in STEM and business fields, which allowed us to diversify the survey in terms of the chosen field of study. This choice enabled us to compare students in these two majors studying in the same ecosystem of cognitive influence on entrepreneurial intentions. We did not include students in humanities, medicine or arts in the study. It is worth mentioning at this point that the GUESS study shows that the highest entrepreneurial intentions are found in artistic fields, which the authors explain by the students' perception of their future as freelancers (Sieger, Raemy, Zellweger, Fueglistaller, & Hatak, 2021).

We also recognize that the selection of Lviv University may not be representative of Ukraine, which is a larger, more diverse country compared to Poland and Latvia. In the case of Poland and Latvia, the results of our study can be interpreted in the context of other technical universities in these two countries. We are also aware that our results cannot be applied one-to-one to other countries or universities. Self-efficacy is shaped through education, so it is crucial to foster it from

an early stage, whether it concerns its entrepreneurial aspect or enhancing general self-efficacy. It is also important to introduce entrepreneurship education as early as possible in educational programs (Huber et al. 2014); however, it needs to be a high-quality experience. When introducing entrepreneurship education, its purpose should be clearly defined. Both the content and teaching methods should depend on it (Ndofirepi, 2020). Education 'for' entrepreneurship should strengthen the elements influencing entrepreneurial intentions (motivation, self-efficacy), while 'in' entrepreneurship should indicate how to act in an entrepreneurial manner. The trend 'about' entrepreneurship, often present in academic programs, explains what entrepreneurship is. And lastly, 'through' should equip students with tools enabling them to solve social problems in an entrepreneurial way (Leon, 2017).

Universities should not only provide educational programmes, but also provide cognitive support in the form of promoting successes, meetings, etc., in the spirit of entrepreneurship. This is especially important at universities that are not business-oriented by definition. It is also important to further enhance the process of starting and running a business, because although the impact of perceived structural support on entrepreneurial intentions was not confirmed in our research, its objective, not the perceived one, but the real impact on subsequent entrepreneurial activities, is vital. Our research also conveys a message to policymakers, pointing to the need to consider country-level reality in designing support models, since even in similar countries, support can affect people differently.

## CONCLUSION

Looking for an answer to the question regarding the factors influencing entrepreneurial intentions, we combined two theoretical constructs: the entrepreneurial support model and entrepreneurial self-efficacy, and we proposed adding another factor, which is perceived entrepreneurial education results. The research model constructed in this way allowed us to formulate five research hypotheses, which we verified on students from three technical universities in Latvia, Poland and Ukraine. The vast majority of our hypotheses were confirmed, and so ESE (H2), PEER (H3), educational (H4a), and relational support (H4b) are related to young people's entrepreneurial intentions. The hypothesis regarding the impact of the perception of structural support (H4c) was not confirmed. However, in the case of individual countries, there were significant differences (H5), as exemplified by Ukraine. Young people from Ukraine evaluate their entrepreneurial intentions, entrepreneurial self-efficacy and entrepreneurial education results much higher comparing to youth from the other two countries surveyed (Latvia and Poland). Moreover, our research shows that the choice of field of study explains the level of declared entrepreneurial intentions to a small extent.

The results of the study led us to make suggestions primarily for educational institutions, which should provide more qualitative and quantitative support for their students, as well as foster their sense of self-efficacy and introduce elements of entrepreneurial education from an early stage. One of the shortcomings of our research is the limitation of the research sample to people studying at selected universities, which omitted young people who, for various reasons, did not choose to study. Another drawback is that the students' EI may be influenced over time by other factors, such as entrepreneurial experience (Kasouf, Morrish & Miles, 2015). Therefore, it is worth noting that our comparisons between countries do not include the level of entrepreneurial education and methods of transmitting this knowledge. In further research, it could be useful to refer to Hofstede's cultural profile when making international comparisons (Tukur & Adam, 2017). Some researchers point to the moderating effect of group collectivism, low gender egalitarianism and low uncertainty avoidance, as a linkage between entrepreneurial education and EI (Bae et al., 2014). This element can also be included in comparisons between countries in the future.

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## Appendix - Scales used in the current research

### I. Entrepreneurial intentions

Item	Factor
	1
EI1	0.809
EI2	0.871
EI3	0.886
EI4	0.864
EI5	0.850

## II. Entrepreneurial self-efficacy

Item	Factor
	1
ESE1	0.694
ESE2	0.829
ESE3	0.759
ESE4	0.835
ESE5	0.811

## III. Perceived entrepreneurial education results

Item	Factor
	1
PEER1	0.773
PEER2	0.851
PEER3	0.752
PEER4	0.673
PEER5	0.820

## IV. Entrepreneurial support

Item	Factor		
	1	2	3
StructS3	0.865		
StructS2	0.817		
StructS4	0.769		
StructS1	0.459		
EduS3		0.891	
EduS2		0.877	
EduS1		0.776	
RelS1			0.888
RelS2			0.893

## Biographical notes

**Julita E. Wasilczuk** is a Professor at Gdańsk University of Technology at the Faculty of Management and Economics. Her specialization is in entrepreneurship, particularly entrepreneurial intentions. Since 2008, she has been continuously running the SEAS (Survey on Entrepreneurial Attitudes of Students) project, which examines the entrepreneurial intentions of students, both in Poland and abroad. She is a vice president for Poland of the European Council for Small Business.

**Magdalena Licznerska** is a Teaching Assistant in the Department of Entrepreneurship at the Faculty of Management and Economics, Gdansk University of Technology, where she teaches small business management and essentials of economics. Her research is concentrated on gender aspects of entrepreneurship, and social-cognitive perspective on entrepreneurship. She is preparing her PhD thesis on the role of context in individual entrepreneurial orientation and entrepreneurial intentions. She is also an active small business founder and owner.

## Authorship contribution statement

**Julita E. Wasilczuk:** Project Administration, Conceptualization, Methodology, Discussion, Review & Editing. **Magdalena Licznerska:** Conceptualization, Methodology, Data Analysis.

### **Conflicts of interest**

The authors declare no conflict of interest.

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