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Entrepreneurial attitudes as driving forces in times of European uncertainty: The role of entrepreneurial education

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ABSTRACT

Objective: The article aims to identify the main determinants affecting the creation of entrepreneurial attitudes among university students in non-economic fields during times of high uncertainty (such as the Covid-19 pandemic).

Research Design & Methods: We based the research model on the theory of planned behaviour (TPB) and surveyed university students in non-economic fields in Poland (N=355). Statistical analysis provided an opportunity to confirm the research hypotheses.

Findings: Positively confirmed hypotheses: entrepreneurial attitudes are shaped by a number of internal and external factors (H1); entrepreneurial knowledge is related to the formation of entrepreneurial attitudes (H2); formal education can be an important source of entrepreneurial knowledge among university students in non-economic fields (H3); well-established entrepreneurial attitudes influence positive attitudes towards entrepreneurship in times of uncertainty related to Covid-19 (H4). This led to an indirect positive answer to the RQ: Entrepreneurial education among university students in non-economic fields is linked to the intention to establish their businesses.

Implications & Recommendations: The survey's conclusions suggest the necessity to intensify efforts at the higher education level to supplement programs with entrepreneurial education for university students in non-economic fields, which scholars seldom analyse in this context, particularly in the Central and Eastern European region.

Contribution & Value Added: The study fills the gap in research on the relationship between entrepreneurial education and entrepreneurial attitudes, which are key factors influencing the creation of new business ventures. Existing literature highlights the lack of analysis in Central and Eastern Europe with particular emphasis on Poland.

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INTRODUCTION

In economic terms, scholars define entrepreneurship as the capacity to choose and engage in economic activity, conducted under conditions of uncertainty, in a way that provides profit to one entrepreneur or a group of entrepreneurial individuals. The essential characteristics of entrepreneurship include the ability to perceive needs, refine ideas, and the willingness to take risks (PWN, 2023). This primarily involves starting one's own business (as a sole proprietor or by employing others in one's own company), as well as being able to choose the right job and sector in challenging economic conditions.

Moreover, scholars view entrepreneurship as a force for economic development and a means of combating youth unemployment (Tubadji *et al*., 2021; Crisp & Powell, 2016). This was evident during the Covid-19 pandemic when employment opportunities were endangered and many countries introduced specific policies in the field of entrepreneurship (OECD, 2020). The restrictions on the operation of business entities made it necessary for businesses to demonstrate their ability to adapt to changes. Entrepreneurship continues to be a topic of interest to researchers (Wadhwani *et al*., 2020), who argue that its formation and development have an impact on improving the economy (Li *et al*., 2020) and the development of societies (Neneh, 2020).

With over 2.2 million enterprises in Poland, the sector is composed of 99.8% of small and medium-sized enterprises, 97% of which are microenterprises (Statistics Poland, 2021). According to studies, microenterprises are the most conducive to the creation of new employment opportunities (Androniceanu *et al*., 2022; Grondys *et al*., 2021) and thus positively impact the market in this regard. According to OECD data (2021), the self-employment rate in Poland in 2020 was 19.7% among all employed individuals, which is a high rate compared to the EU average of approximately 15.3%. According to analyses by the Polish Economic Society, the increase in self-employment in Poland may result from the necessity of transitioning to involuntary employment to reduce labour costs.

Microenterprises were the fastest to adapt to the conditions of the new pandemic environment, and the leading force of the economy in these transformations turned out to be the entrepreneurial spirit of the Polish people (Polish Agency for Enterprise Development, 2021). It is considered an effective factor in the economic development of businesses and regions, and forming entrepreneurship is included among the goals of the country's economic policy (Gaweł & Pietrzykowski, 2015). Although the percentage of individuals involved in entrepreneurial activities lowered to 15% (down by three p.p. y/y) in the most difficult period of the pandemic, 2020, more than half (60%) of them equated making a career with running their own business and high status as an entrepreneur. In Europe, an average of 70% believe that you can have a successful career by having an own business. This value is higher than Poland's rating of the social perception of entrepreneurship (GEM, 2021).

According to Eurostat studies, the Covid-19 pandemic had the biggest impact on youth employment rates. If we compare 2020 with 2019, we see that all countries have seen a decline in youth employment rates. Lithuania, Portugal, Ireland, and Spain recorded the largest decreases in youth employment, which exceeded five percentage points (Eurostat, 2023). The Employment and Social Developments in Europe, report presented by the European Commission (2022), shows similar trends in 2021. While the youth unemployment rate declined in 2021, it was still 1 percentage point higher than before the crisis. The situation was similar in Poland, where unemployment in Q1-Q3 2021 mainly affected young people (aged 25-34). However, most of the unemployed young people registered at employment offices in Poland are people with a relatively low level of education – those who have completed basic vocational, lower secondary, or primary school (more than 25% of the total unemployed). People with higher education accounted for about 15% of the total unemployed (Statistics Poland, 2021).

However, the trends indicated by experts from the Polish Economic Institute are worrying. According to their estimates, the long-term cost of the pandemic for young people will reach USD 4 trillion globally (in the areas of education, the labour market, and mental health). Experts believe that due to the Covid-19 pandemic, today's young generation will earn over 6% less in the future, with university graduates suffering the greatest loss (Business Insider, 2023). In addition, data on the decline in the employment of young people in the business services sector and the increasing specialization of this sector mean that young people with higher education are less likely to find a job (Polish Economic Institute, 2023).

Another challenge for entrepreneurship, particularly in Poland, was the dynamic influx of migrants from war-stricken Ukraine, unprecedented in recent history. As it seems, effective absorption of these individuals by European labour markets will be possible, for instance, by intensifying entrepreneurial behaviours.

Noteworthy, individuals (Piróg, 2014) who have formed perceptions and attitudes towards entrepreneurship after graduation and who see their readiness to start a business as an opportunity to ensure their livelihood often contribute to the rate of establishment of new enterprises (GEM, 2021),

especially in times of difficult conditions in the labour market (Cieślik, 2010). As the GEM report (2021) shows, Poland saw a decline in the share of new enterprises from 5.4% in 2019 to 3.1% in 2020.

The cyclically published index of external conditions affecting the country's entrepreneurship, *i.e.* the National Entrepreneurship Context Index (NECI), shows that Poland ranks fourteenth among the 18 European countries surveyed. One of the conditions for the development of entrepreneurship that affects the low level of the NECI index is entrepreneurial education at the university level. At the university level, entrepreneurial education aims to increase entrepreneurial awareness by teaching theory and preparing university graduates to function as entrepreneurs through competence development. European Commission strongly supports efforts to spread entrepreneurial education through its policies (2006, 2012).

The post-educational effect of teaching can be the undertaking of a business venture, which is the result of entrepreneurial intentions (Maina, 2011) understood as the intention to start or own a business (Krueger *et al*., 2009). Entrepreneurial intentions are a prerequisite (Acuña-Duran *et al*., 2021; Shi *et al*., 2020; Dehkordi *et al*., 2012) for identifying opportunities and making business decisions (Jiatong *et al*., 2021; Zarafshani & Rajabi, 2011). Noteworthy, the level of the entrepreneurial intentions (GEM, 2021) in Poland has been declining since 2016, and in 2020 it reached 5%, which is much lower compared to the average for Europe (11%).

These observations prompted us to address the topic of the relationship between entrepreneurial education at the academic level and the attitudes and intentions of young people in Poland. The study aimed to identify the main determinants affecting the creation of entrepreneurial attitudes in times of high uncertainty. The results of the study will help better understand the relationship described and provide a basis for recommendations in the direction of developing entrepreneurial education, especially in the CEE region.

The paper is organized as follows. Firstly, the theoretical background is described. Based on the Theory of Planned Behaviour (TPB), the research problem is defined. In the subsequent part, research hypotheses developed from the subject literature are presented. The next section is dedicated to the research methodology. The research model is introduced, the applied measures are described, and the research process is outlined. The following section presents the results of the study on the entrepreneurial attitudes of non-economic students, along with a discussion based on the conclusions drawn from the research and subject literature. The concluding part provides a summary and some practical implementations.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical Framework

We based the research model on the theory of planned behaviour (TPB) (Ajzen, 2011). The theory itself emerged as a development of the theory of reasoned actions while maintaining the common assumption that intention remains closely related to the undertaken behaviour or at least the intensity of the attempted behaviour. Intentions are simultaneously correlated with three conceptually independent determinants: attitude towards a given behaviour (negative vs. positive), subjective norms (perceived social pressure towards a given behaviour), and perceived behavioural control (degree of perceived ease of a given behaviour) (Ajzen, 1991).

According to the TPB, entrepreneurial intention (EI) is of utmost importance in the decision-making process of starting and running businesses. On the other hand, EI remains under the influence of factors related to one's opinion of entrepreneurs, the ease of starting and running a business according to one's aptitude, knowledge, experience, and social pressure to be an entrepreneur (*e.g*. to continue the family tradition) (Ajzen, 2012; Lorti & Castogiovanni, 2015).

Ajzen's theory adopted in this study aims to analyse the direct and indirect relationship between entrepreneurial intentions and entrepreneurial education (EE). As a moderator, we adopted an entrepreneurial attitude (EA), which includes both formal factors (entrepreneurial knowledge, work experience), and informal factors (pressure from parents or own interests).

Scholars have repeatedly used TPB to research entrepreneurship (Miranda *et al*., 2017; Al-Jubari, 2019; Kautonen *et al*., 2011), the entrepreneurial intentions of students (Kuttim *et al*., 2014; Khalifa & Dhiaf, 2016; Fernández-Pérez, 2019; Ahmed *et al*., 2020; Mamman *et al*., 2018; Shneor *et al*., 2021; Datta *et al*., 2021; Adekiya & Ibrahim, 2016) and conduct surveys in Poland (Wasilczuk & Stankiewicz, 2022; Wach & Wojciechowski, 2016; Boguszewicz-Kreft *et al*., 2020).

Justification for the Scope of the Study

Polish socio-economic conditions result from the departure from the socialist economy and the adoption of a free market economy after 1989 (Nowiński, 2019), which influenced the formation of the entrepreneurial environment. Moreover, it turned out to be important from a research perspective to assume that among those who intend to start their own business, there are also graduates of non-economic university programs (Tripathi, 2007; Hrehová, 2015), who usually do not have any experience with entrepreneurship classes as a component in their curriculums. Thus, the implementation of systems recommended by the European Union to stimulate entrepreneurship (Wach *et al*., 2021) should also extend to students of non-economic profiles (Płoziak *et al*., 2014). Given the above, the study aimed to initiate a discussion on the analysis of entrepreneurial education and its impact on changing the level of entrepreneurial intentions of university students (Tripathi, 2011) in non-economic fields.

Increasing EI is an important and expected outcome of EE (Lavelle, 2019; Nabi *et al*., 2017), as it significantly affects the creation of new business ventures (Lechuga Sancho *et al*., 2020). However, many publications on the relationship between EI and EE propose considering only selected variables, such as administrative barriers and public support (Wannamakok, 2020; Wach *et al*., 2021), the development of analytical skills (Gubik & Bartha, 2018), the development of practical skills acquired through internships and university-enterprise cooperation (Kurczewska *et al*., 2020). The approach proposed in this study is more comprehensive than the research conducted to date. This is especially true for EE as a component of building entrepreneurial attitudes among young people. Previous research noted the inadequate inclusion of university students in non-economic fields in the acquisition of entrepreneurial competencies, who were either completely ignored in the research or constituted only a reference group (Bernat & Gąsior, 2018; Díez-Echavarría *et al*., 2020).

Literature research has pointed to the under-representation of EA analysis in Central and Eastern Europe, particularly in Poland. They mostly focus on individual countries outside the region (Anwar *et al*., 2022; Sherkat *et al*., 2022; Haddoud *et al*., 2022; Jiatong *et al*., 2021; Nabi &Liñán, 2011; Hattab, 2014) or provide aggregate analyses of groups of countries without detailing the specifics of individual national economies (Egerová, 2016).

Given the adopted purpose of the study and the research scope, we asked the following baseline research question:

RQ: Is entrepreneurial education among university students in non-economic fields related to the intentions to establish their own businesses?

Entrepreneurial Intention (EI) and Entrepreneurial Attitude (EA)

We may define EA as individual's attitude towards their capability to successfully perform various entrepreneurial activities (Chaker & Jarraya, 2021). Moreover, there are claims in the literature that EA better explains career choice than demographic variables (Abun *et al*., 2017). Moreover, EAs are more easily subject to change than personality traits. Hence, through external actions (*e.g.* by educational institutions), we may consciously and effectively influence a change in EA towards a more favourable attitude towards entrepreneurship (Robinson *et al*., 1991).

According to the TPB, attitudes towards entrepreneurship, along with a sense of self-efficacy, are the most important sources of entrepreneurial intentions (Shnoer *et al*., 2020). This is supported by research findings indicating a direct relationship between EA and EI (Krueger *et al*., 2000; Zapkau *et al*., 2015; Maresch *et al*., 2016) and treating EA as a mediator (Maes *et al*., 2014; Anwar *et al*., 2020; Datta *et al*., 2021; Liñán, 2004).

H1: Entrepreneurial attitudes are shaped by a number of internal and external factors.

Knowledge as a Source of Shaping Entrepreneurial Attitudes

Many factors influence the decision to start a business. Some determinants include an assessment of resources availability (financial, human, intellectual, etc.), the ability to meet legal regulations (general and specific to the planned activity), a market assessment (demand and supply competitiveness), and an assessment of one's own resources as a potential entrepreneur (Olszewska, 2010). The last of the factors is psychologically determined and, within the framework of self-assessment, accommodates the stock of one's own knowledge (understood both in a broad and narrower sense) to start and run own business. Another determinant of entrepreneurial activity is the observation of entrepreneurship, patterns of attitudes and individuals involved in professional activities resulting from self-employment. For example, social learning theory involves observing and imitating individuals from closer and farther afield, or entire networks of individuals associated with business, which can influence future decisions to choose a career path. Zapakau *et al*. (2015) confirmed in their study the impact of positive exposure of role models in education on entrepreneurial intentions.

Sources of entrepreneurial information and knowledge are both formal (education, training) and informal (family, experience, friends). Research points to the general principle that knowledge has a positive impact on entrepreneurial attitudes. Scholars also indicate the importance of its various sources, including knowledge acquired through experience (Adekiya & Ibrahim, 2016; Ruswanti, 2015), education in the family (Hutasuhut, 2018; Hasan *et al*., 2020; Herdijono *et al*., 2017), or official sources reporting on institutional support for entrepreneurship (Malebana, 2014).

H2: Entrepreneurial knowledge (in its various scopes/sources) is related to the formation of entrepreneurial attitudes.

Research on the relationship between entrepreneurial education and the formation of entrepreneurial attitudes among students is inconclusive. Studies conducted in Europe by the European Commission (EIM Business & Policy Research & European Commission 2012) show that the results of the entrepreneurial education of students include positive entrepreneurial intentions and attitudes among students and graduates. Observations from outside Europe (Alharbi, Almahdi & Mosbah, 2018; Mustafa *et al*., 2021) confirm that entrepreneurial education influences the entrepreneurial intentions and attitudes of individuals. However, many studies do not confirm the link between education and entrepreneurial intentions (Souitaris, Zerbinati, & Al-Laham, 2007; Ooster beek, Van Praag, & Ijsselstein, 2010; Von Graevenitz, Harhoff, & Weber, 2010) or the low relevance of this relationship and its many determinants (Nabi *et al*., 2018). Scholars indicate training time as an additional variable favouring the relationship between entrepreneurial education and the formation of entrepreneurial attitudes. An important element of educational programs is their positive impact on attitude change immediately after training and on entrepreneurial behaviour in the future (Tkachev & Kolvereid, 1999; Kolvereid & Moen, 1997; Fayolle, 2002). Another variable is the relationship between the training offer and the early stages of university education. Therefore, stimulating entrepreneurial behaviours starts from the first years of university education (Smith & Beasley, 2011). The relationships described above mean that the educational offer in the field of entrepreneurship is constantly expanding (Fretschner & Weber, 2013; Sirelkhatim & Gangi, 2015; Golonka, 2019) and a growing number of students use it (Golonka, 2019; Rideout & Gray, 2013). As Nabi *et al*. demonstrate, the increase or decrease of entrepreneurial intentions remains under the influence of multiple practical and theoretical elements of education and the estimation of risks associated with the choice of an entrepreneurial path and the associated consequences (2018). If one adds after Fayolle *et al*. such factors as age, nationality, or family support, the relationship between education and entrepreneurial intentions becomes even more complex and can be described as positive or negative influence/impact. According to Mustafa *et al*. (2021), entrepreneurial education, experience, and the external environment are factors with positive perceptions, while personal traits and pragmatic judgement – with negative perceptions of entrepreneurship. The intensity of the drive to start one's own business and become an entrepreneur is higher in those who have received entrepreneurial education. Moreover, the preference for self-employment is related to the advantages of entrepreneurship, which are considered pull factors (EIM

Business & Policy Research & European Commission, 2012). Despite differences in approaches to the relevance of variables affecting the formation of entrepreneurial attitudes through education, researchers indicate the need to study this relationship, because of its crucial importance.

H3: Formal education can be an important source of entrepreneurial knowledge among university students in non-economic fields.

Entrepreneurial Attitudes and the Covid-19 Pandemic

Reports compiled from before and after the Covid-19 pandemic indicate that the SARS-CoV-2 coronavirus outbreak significantly degraded almost all factors affecting economic development. In July 2020, in its annual economic forecasts published each year, the European Commission estimated that the European economy had experienced the largest decline in output since the Second World War and was in a sharp recession (European Economy Institutional Papers, 2020).

Such a difficult situation also affected entrepreneurship (Stephan *et al*., 2021; Chaturvedi & Karri, 2022). More (3.4%) Poles quit business activity in 2020 compared to 2019 (3.2%) with the Covid-19 pandemic being the main reason. In total 52% of Poles, indicated Covid-19 as the reason they quit business activity. Respondents in no other country indicated Covid-19 this frequently. Moreover, 64% of those in the process of organising a company also admitted that due to the coronavirus situation, they could not fully launch their business (in Europe the rate was 61% on average). Although the Polish public's attitude towards entrepreneurship was still favourable in 2020 (six out of 10 Poles thought that running their own business was a good way for a successful career), at the same time, 47% of Poles indicated that they knew someone who had quit business activity because of pandemic. This was the highest rate compared to the surveyed countries in Europe, where the average was 31% (Global Entrepreneurship Monitor Poland, 2021).

The literature often emphasises the role of businesses in combating the negative effects of the pandemic (Storr *et al*., 2021). The Covid-19 crisis had no clear impact on entrepreneurial attitudes. A sense of one's own capabilities and efficacy can mediate between the pandemic environment of businesses and entrepreneurial intentions, also among students (Zhang & Huang, 2021; Botezat *et al*., 2022). Krichen and Chaabouni (2022) showed that the pandemic affects students' attitudes towards entrepreneurship in two ways. Some surveyed saw Covid-19 as a threat and increased risk to entrepreneurial intent, while another group saw it as an opportunity (Lungu & Bogoslov, 2020; Galinda-Martin *et al*., 2021).

H4: Well-established entrepreneurial attitudes influence positive attitudes towards entrepreneurship in times of uncertainty related to Covid-19.

RESEARCH METHODOLOGY

Conceptual Model

Figure 1 summarises the conceptual framework described above. The model includes a visualisation of the hypotheses while indicating the direct and indirect relationship between entrepreneurial education and entrepreneurial attitudes. We assumed EAs which include formal knowledge as a moderator between EE and EI, which additionally depend on the Covid-19-related factors.

Sample

We conducted the survey at the University of Gdańsk among university students in non-economic fields taking the mandatory ABC of Entrepreneurship course in February-March 2021. Students from selected majors of six faculties (Chemistry, Oceanography and Geography, Social Sciences, Management, Law and Administration, and Philology) participated in the entrepreneurship training program, which represents over half of the faculties at UG.

We adopted the non-probability convenience sampling procedure. This is in line with procedures adopted in previous entrepreneurship studies (Nowiński *et al*., 2019; Conviello & Jones, 2004; Adelaja *et al*., 2018; Passoni & Glavam, 2018; Ahmed *et al*., 2020). High response rates and sufficient

sample size ensured good data quality. Although participation in the survey was voluntary, most of the students invited to the survey chose to participate.

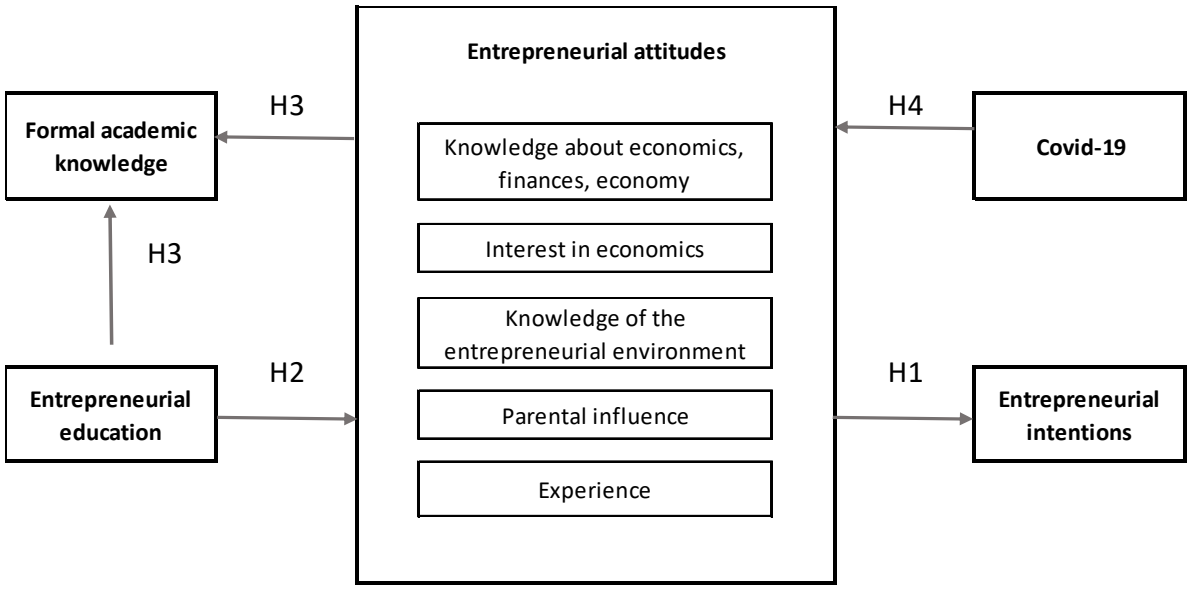

Figure 1. Conceptual model of the relationship between entrepreneurial education and entrepreneurial intentions
Source: own elaboration.

In the Pomeranian labour market, the number of registered unemployed individuals under the age of 30 accounted for 25.5% of the total number of registered people (as of January 31, 2022, WUP, 2022). In 2021, the residents of Pomerania were the youngest population among regions in Poland with a median age of 40.6 years (the median age for the country was 42 years in 2021).

Over the years, the situation in the regional labour market has undergone transformations due to events that took place in the country and around the world. The Pomeranian market suffered the most negative effects of the Covid-19 pandemic in 2020-2021 (WUP, 2023). The armed conflict in Ukraine is currently causing further consequences for the economy, and experts predict that this situation will persist for the next few years. Furthermore, rising inflation, operating costs, and increasing energy prices have led to a decrease in demand for employees.

We collected the data using a proprietary survey questionnaire, which we distributed among students electronically using the MS Forms platform. The respondents provided individual responses according to a standardised tool and we administered the data collection procedure. The sampling was purposive, which is in line with the study assumptions.

The study sample included 355 individuals, including 202 women (56.9%). Noteworthy, three (3.7%) respondents refused to answer the question about their gender. The age of the respondents ranged from 19 to 30 (M = 21.44; SD = 4.44). The study group consisted of individuals living in rural communities (17.7%), cities with up to 50,000 residents (17.5%), cities with 50,000 to 200,000 residents (12.1%), and cities with over 200,000 residents (52.7%). We present detailed data on the socio-demographic characteristics of the respondents in Appendix A.

Measures

We conducted the research based on a proprietary survey questionnaire. We selected the questions to fully meet the research objectives. At the same time, we supported research with a literature analysis. We established research indicators based on a series of individual questions to elaborate on each issue. We ensured their fit through exploratory factor analysis and reliability analysis.

We based the vast majority of questions adopted for the survey on the 5-point Likert scale. This is in line with research practice in the study of entrepreneurial attitudes and intentions (Fernández-Pérez, 2019; Dinis *et al*., 2013; economic-financial_competences; Gianiodis & Meek, 2020; Nabi *et al*., 2018).

We examined EA through five items consisting of multiple questions relating to the declared evaluation of oneself as an entrepreneur and one's entrepreneurial abilities and intentions to be an entrepreneur ($\alpha = 0.88$). Sample questions were: 'Do you view yourself as an entrepreneurial person?' (Łuczka & Rembiasz, 2016), 'To what extent do you agree with the statement: Starting a business and maintaining it would be easy for me?,' 'To what extent do you agree with the statement: Being an entrepreneur would provide a great deal of satisfaction for me?' (Liñán & Chen, 2006).

We extracted EI as a stand-alone indicator composed of three survey questions with a good level of internal consistency ($\alpha = 0.85$). The sample question was: 'Have you ever seriously considered being an entrepreneur?' (Liñán & Chen, 2006).

We examined entrepreneurial knowledge was examined in two self-assessment questions (general and relating to specific areas of knowledge) in the areas of economics, finance, and economy (adaptation of a diagnosis of the state of the knowledge, National Bank of Poland). On this basis, we established an overall indicator of the declared level of knowledge ($\alpha = 0.81$).

We constructed the index of perceived impact of Covid-19 as a threat to entrepreneurs based on three items (initially, we assumed four items but one of them had a negative level of discriminatory power, indicating that it was negatively correlated with the others) and a parallel item on the question: 'To what extent does the Covid-19 situation change your approach to entrepreneurship? Covid-19 is a chance to succeed,' on Likert's scale from 1 (completely disagree) to 5 (completely agree). Because we prepared the questionnaire at the early stage of the pandemic and there was a relatively small number of studies available at the time, we adapted the questions based on the literature (Hernández-Sánchez *et al.*, 2020). This resulted in a satisfactory Cronbach's α value, α = 0.73.

Moreover, we supplemented the questionnaire with personal detail questions on respondents' socio-demographic characteristics, *i.e.* age, gender, place of residence and birth, material and occupational status (adapted from Bernat & Gąsior, 2018; A diagnosis of the state of the knowledge, National Bank of Poland; Liñán, 2004).

Data Analysis

To answer the research questions and test the hypotheses, we performed statistical analyses using IBM SPSS Statistics version 26 software. We used it to perform analysis of basic descriptive statistics, Kolmogorov-Smirnov tests of normality of distribution, stepwise linear regression analysis, Mann-Whitney U tests for independent samples, Kruskal-Wallis H tests, correlation analyses with Pearson's r coefficient and Spearman's ρ rank correlation analyses. We assumed the classical threshold of α = 0.05 as the level of significance in this section, additionally interpreting the probability results of the test statistic in the range of $0.05 < p < 0.1$ as significant at the level of the statistical trend.

RESULTS AND DISCUSSION

Firstly, we identified the variables that influence the formation of entrepreneurial attitudes. For socio-demographic characteristics, we demonstrated the following: gender was not significant in shaping entrepreneurial attitudes (Mann-Whitney U test), similarly to a place of residence and origin (rho = 0.06; p = 0.302, and rho = 0.02; p = 0.684, respectively) as well as field of study.

We noted a statistically significant relationship for age (Pearson's r coefficient r = -0.20; $p < 0.001$). At the same time, as the level of self-assessment of financial condition increased, the level of entrepreneurial attitude also grew. However, the observed relationship was weak (Pearson's r coefficient r = 0.13; p = 0.016).

The most interesting findings resulted from an analysis of the relationship between the level of entrepreneurial attitudes and occupational status as well as additional activities undertaken during studies (paid work, volunteer work). We found the level of entrepreneurial attitude to be significantly higher in the group of those who undertook additional activity during their studies, including participation in training courses or workshops (Mann-Whitney U test). We found the level of entrepreneurial attitude to be significantly higher in the group of individuals who were employed or had work experience.

Entrepreneurial attitudes increased as familiarity with the business environment increased: personal knowledge of the entrepreneur, familiarity with business associations, and institutions that support entrepreneurs.

We introduced six statistically significant predictors into the final model to verify the factors that were the predictors of entrepreneurial attitudes – declared level of knowledge possessed in economics, finance and the economy, level of influence of interest in the subject of economics on the knowledge of economics and finance, personal relationship with an entrepreneur, the influence of parents and upbringing on knowledge of economics and finance, unemployment, and lack of work experience, and age $F(6, 335) = 18.84$; $p < 0.001$. Together, these variables explained 25% of the variation in the level of respondents' entrepreneurial attitude. We did not include the remaining variables were into the model due to the lack of significant improvement in the level of explained variation. We performed a stepwise linear regression analysis. As Table 1 shows, a personal relationship with an entrepreneur turned out to be the strongest predictor. Summarising, the level of entrepreneurial attitude increased with the following: declared level of knowledge possessed in economics, finance, and economy, level of influence of interest in the subject of economics on the knowledge of economics and finance, personal relationship with an entrepreneur as well as the influence of parents and upbringing on knowledge of economics and finance, and decreased with age and unemployment and lack of work experience. This answers the research hypothesis (H1), which assumed that entrepreneurial attitudes are shaped by both internal and external factors listed above.

Table 1. Results of linear regression analysis conducted using the stepwise method for the dependent variable in the form of the level of entrepreneurial attitudes

Variables	B	SE	Beta	t	p
(Constant)	42.32	6.53		6.48	<0.001
Declared level of knowledge in economics, finance, and economy	0.44	0.11	0.22	4.17	<0.001
The level of influence of interest in economics on the knowledge of economics and finance	1.6	0.34	0.24	4.75	<0.001
The personal relationship with an entrepreneur	3.74	1.09	0.17	3.45	0.001
The level of parent's and upbringing's influence knowledge of economics and finance	0.84	0.35	0.12	2.41	0.017
Unemployment and lack of work experience	-2.32	0.99	-0.11	-2.34	0.020
Age	-0.64	0.30	-0.10	-2.17	0.031

Source: own elaboration.

Further, we decided to verify whether the declared level of knowledge possessed in economics, finance, and economy related to the level of entrepreneurial attitude. For this purpose, we performed a correlation analysis with Pearson's r coefficient. We noted the presence of a statistically significant relationship, $r = 0.35$; $p < 0.001$. This means that as the declared level of possessed knowledge of economics, finance, and economy increased, the level of entrepreneurial attitude (H2) also increased. The strength of the observed relationship was moderate (Table 2).

Table 2. Correlation of the level of entrepreneurial attitude and possessed economic knowledge

Variables / Statistics		The level of entrepreneurial attitude	The declared level of knowledge in economics, finance, and economy
The level of entrepreneurial attitude	Pearson correlation	1	0.347**
	Significance (two-tailed)		0.000
	N	355	355
The declared level of knowledge in economics, finance, and economy	Pearson correlation	0.347**	1
	Significance (two-tailed)	0.000	
	N	355	355

Note: ** correlation significant at the 0.01 level (two-tailed).

Source: own elaboration.

In the next step, we decided to verify whether the level of entrepreneurial attitude was linked to sources of information about economics. For this purpose, we conducted a series of correlation analyses with Pearson's r coefficient (Appendix B).

As can be seen in Appendix B, we noted six statistically significant relationships. The level of influence of parents and family home, conversations with friends and neighbours, the media, press, radio, television and the Internet, conversations with employees from financial institutions, life experience and interest in economic topics on economic and financial knowledge correlated positively with the level of entrepreneurial attitude. This means that as the influence of the above-mentioned sources of information increased, the level of entrepreneurial attitude also grew. The strength of the recorded relationships was low for the level of influence of parents and family home, conversations with friends and neighbours, media, press, radio, television and the Internet, conversations with employees from financial institutions and life experience; and moderate for – the level of influence of interest in economic topics on knowledge of economics and finance. We found the relationship between the level of influence of schools and teachers on knowledge of economics and finance and the level of entrepreneurial attitude to be statistically insignificant. This is in line with predictions, as respondents had very little contact with formal education in entrepreneurship. Hence, they could not demonstrate its great importance in building entrepreneurial attitudes. This proves hypothesis H3, which assumed that formal education is an important source of entrepreneurial knowledge among university students in non-economic fields.

Moreover, there was a statistically significant relationship between the level of entrepreneurial attitude and the assessment that Covid-19 is an opportunity to succeed, $r = 0.22$; $p < 0.001$. The negative sign in the correlation means that the higher the level of entrepreneurial attitude, the higher the respondents rated the chance of success with the Covid-19 pandemic. However, the strength of the noted relationship was low (H4). The correlation between the overall level of perceived threat from the pandemic to entrepreneurs and the level of entrepreneurial attitude was not statistically significant, $r = -0.06$; $p = 0.231$.

Men were more likely to rate Covid-19 as an opportunity for success, while women were more likely to see the pandemic as a threat to entrepreneurs. The strength of the first effect noted was moderately high, while the second was low.

These considerations also allowed us to indirectly answer the baseline research question (RQ) relating to the relationship between entrepreneurial education and entrepreneurial intent. According to the established research model, the components leading to the above conclusions were the demonstration of statistically significant relationships H1 and H2. Therefore, we should assume that entrepreneurial education is an important component of building entrepreneurial intentions and attitudes among young individuals who are university students in non-economic fields.

The findings of this study could have practical implications benefiting both educational institutions and policymakers in the development of curricula and policies supporting entrepreneurship. The research demonstrated that knowledge in the fields of economics, finance, and business positively influences entrepreneurial attitudes. Therefore, universities should consider integrating economy-, finance-, and business-related content into their curricula, even for non-economic disciplines.

Moreover, the findings suggest that professional experience and firsthand exposure to entrepreneurship foster positive entrepreneurial attitudes. As such, policies aimed at promoting entrepreneurship should encompass initiatives like internships, vocational training, mentorship from seasoned entrepreneurs, and support for business networking.

The influence of the media and interactions with business practitioners is significant, given that a variety of information sources can shape entrepreneurial attitudes. This finding implies that encouraging entrepreneurship through these mediums may augment entrepreneurial tendencies within society.

Noteworthy, individuals with comprehensive knowledge about entrepreneurship are more inclined to view crises, such as the Covid-19 pandemic, as opportunities rather than threats. This underlines the importance of incorporating teachings into educational programs that demonstrate how to convert challenges into opportunities.

According to the study, men are more likely to interpret the Covid-19 pandemic as an opportunity, whereas women tend to perceive it as a threat to entrepreneurship. This disparity in perception underscores the potential necessity for entrepreneurship support strategies differentiated by gender.

CONCLUSIONS

The findings of the survey among university students in non-economic fields on their entrepreneurial attitudes presented in this article provided many valuable conclusions. First of all, we showed that EAs are determined by a diverse group of factors. Among these, the most relevant include knowledge of the entrepreneurial environment and parental influence in forming entrepreneurial intentions. This is in line with the assumptions of the model based on TPB. An important factor influencing the formation of positive attitudes towards entrepreneurship was also the declared level of knowledge in economics, finance, and economy.

At the same time, the practical implications are the study's main contribution. The findings revealed that entrepreneurial attitudes facilitate easier adaptation to economic turbulence, including the case of Covid-19. In this situation, people treated these difficulties more as an opportunity than a threat.

The key element of the study was to determine entrepreneurial attitudes during a period of increased uncertainty. As the survey showed, a well-established entrepreneurial attitude allows for easier adaptation at the time of socio-economic turbulence and perceiving it as an opportunity. Therefore, efforts to foster such an attitude would have a beneficial effect on stabilising an economy affected by crisis and uncertainty.

In recent years, there has been a growing trend towards developing study programs that are more coherent with local society goals, particularly in the area of entrepreneurship and doing business. New programs integrate academic knowledge with practical skills and experiences. Their aim is to produce graduates who are much better prepared to meet the demands of the modern labour market, start their own businesses, and drive economic growth.

The study has several research limitations that stem from the nature of the chosen topic and scientific methods. Firstly, the analysis focused only on non-economic students, which does not allow for a direct comparison of the results with students possessing a higher level of economic knowledge. Secondly, the study was limited to students from one university. We took this decision to illustrate the phenomenon under the homogeneous introduction of entrepreneurship theory within academic courses. In the future, these studies should be expanded to include a larger number of academic institutions. Furthermore, the female respondents were overrepresented. However, this was a result of the uneven gender distribution among students.

For a more comprehensive picture, further research should cover the Central and Eastern European region, including Poland, to a greater extent. An analysis of the available literature revealed a gap in this area. Filling it would provide more opportunities to understand the specific conditions of these countries, which still face many barriers to entrepreneurial development.

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Appendix A: Socio-demographic characteristics of respondents

Characteristics	Measures	number	percentage
Total		355	100
gender	women	202	56.9
	men	140	39.4
	refuse to say	13	3.7
age	19	5	1.4
	20	112	31.5
	21	146	41.1
	22	36	10.1
	23	35	9.8
	24	7	1.9
	25	3	0.9
	26	3	0.9
	27	3	0.9
	28	1	0.3
	30	1	0.3
	refuse to say	3	0.9
place of birth	rural municipality	25	7.0
	city with up to 50 000 residents	118	33.2
	city with 50 000 to 200 000 residents	74	20.9
	city with over 100 000 residents	138	38.9
place of residence	rural municipality	63	17.7
	city with up to 50 000 residents	62	17.5
	city with 50 000 to 200 000 residents	43	12.1
	city with over 100 000 residents	187	52.7
self-assessment of own material situation	very good	33	9.3
	above average	104	29.3
	average	180	50.7
	bad	32	9
	very bad	6	1.7

Source: own study.

Appendix B: Basic descriptive statistics with Kolmogorov-Smirnov tests of normality of distribution for the quantitative variables studied

Variables	M	Me	SD	Sk.	Kurt.	Min.	Max.	K-S	p
The level of entrepreneurial attitude	46.84	47	9.18	-0.39	-0.08	15	67	0.06	0.001
The level of intention to be an entrepreneur	33.91	35	6.57	-0.44	-0.11	10	47	0.09	<0.001
The declared level of knowledge in economics, finance, and economy	18.25	18	4.48	0.75	0.26	10	33	0.11	<0.001
The level of acceptance of the environment	13.05	13	2.19	-1.47	3.32	3	15	0.20	<0.001
The level of perceived impact of COVID on own situation	13.51	14	3.44	-0.33	-0.06	4	20	0.09	<0.001
The level of perceived threat of the pandemic to businesses	12.28	13	2.42	-1.32	2.55	3	15	0.17	<0.001

Variables	M	Me	SD	Sk.	Kurt.	Min.	Max.	K-S	p
COVID-19 is a chance to succeed	2.91	3	1.10	0.06	-0.58	1	5	0.18	<0.001
The level of perception of the entrepreneur's image	66.74	67	7.97	-0.35	1.62	25	85	0.05	0.023
Knowledge and skills related to economics and finance are interesting	3.51	4	1.15	-0.59	-0.67	1	5	0.30	<0.001
Knowledge and skills related to economics and finance are easy to understand	2.71	3	1.05	0.05	-1.10	1	5	0.23	<0.001
Knowledge and skills related to economics and finance are needed in everyday life	4.59	5	0.72	-2.49	7.80	1	5	0.39	<0.001
The level of willingness to continue acquiring knowledge in economics and finance	3.96	4	1.09	-1.24	0.98	1	5	0.31	<0.001
The level of willingness to deepen knowledge in the area of entrepreneurship	40.12	41	7.95	-1.02	1.03	10	50	0.14	<0.001
The level of assessment of one's own financial condition	3.35	3	0.84	0.04	0.24	1	5	0.28	<0.001
The level of influence of schools and teachers on knowledge of economics and finance	2.39	2	1.22	0.53	-1.01	1	5	0.29	<0.001
The level of parent's and upbringing's influence knowledge of economics and finance	2.99	3	1.24	-0.03	-1.29	1	5	0.25	<0.001
The level of influence of conversations with friends and neighbours on knowledge of economics and finance	2.55	2	1.21	0.33	-1.21	1	5	0.28	<0.001
The level of influence of the media, press, radio, television and the Internet on knowledge of economics and finance	3.05	3	1.26	-0.14	-1.31	1	5	0.27	<0.001
The level of influence of interviews with employees from financial institutions on knowledge of economics and finance	2.67	3	1.32	0.06	-1.31	1	5	0.18	<0.001
The level of influence of life experience on knowledge of economics and finance	3.52	4	1.19	-0.52	-0.89	1	5	0.30	<0.001
The level of influence of interest in the subject of economics on the knowledge of economics and finance	2.39	2	1.33	0.54	-0.98	1	5	0.22	<0.001
The declared level of knowledge of economics, finance, and economy	1.68	2	0.67	0.77	0.68	1	4	0.27	<0.001
The declared level of knowledge of household budget management	2.45	2	0.78	0.09	-0.37	1	4	0.26	<0.001
The declared level of knowledge about retirement	1.41	1	0.60	1.32	1.53	1	4	0.40	<0.001
The declared level of knowledge of cashless, electronic money payments	2.90	3	0.84	-0.30	-0.61	1	4	0.24	<0.001
The declared level of knowledge of the use of credits and loans	1.57	1	0.72	1.03	0.35	1	4	0.34	<0.001
The declared level of knowledge of insurance	1.63	1	0.73	0.92	0.26	1	4	0.31	<0.001
The declared level of knowledge of saving, using deposits and savings accounts	2.06	2	0.87	0.52	-0.35	1	4	0.26	<0.001
The declared level of knowledge of taxes and tax systems	1.54	1	0.66	0.99	0.64	1	4	0.33	<0.001
The declared level of knowledge of investing and using investment instruments	1.50	1	0.76	1.50	1.73	1	4	0.38	<0.001
The declared level of knowledge of entrepreneurship and running one's own business	1.51	1	0.67	1.08	0.40	1	4	0.36	<0.001

M – average; *Me* – median; *SD* – standard deviation; *Sk.* – skewness; *Kurt.* – kurtosis; *Min* and *Max* – lowest and highest values of the distribution; *K-S* – Kolmogorov-Smirnov test result; *p* – significance

Source: own study.

Appendix C: Correlation analysis of the level of entrepreneurial attitude and sources of economic knowledge

Variables	Statistics	Level of entrepreneurial attitude
The level of influence of schools and teachers on knowledge of economics and finance	Pearson's *r*	0.06
	significance	0.236
The level of influence of parents and upbringing on knowledge of economics and finance	Pearson's *r*	**0.21**
	significance	<0.001
The level of influence of conversations with friends and neighbours on knowledge of economics and finance	Pearson's *r*	**0.16**
	significance	0.002
The level of influence of the media, press, radio, television and the Internet on knowledge of economics and finance	Pearson's *r*	**0.13**
	significance	0.017
The level of influence of interviews with employees from financial institutions on knowledge of economics and finance	Pearson's *r*	**0.15**
	significance	0.005
The level of influence of life experience on knowledge of economics and finance	Pearson's *r*	**0.26**
	significance	<0.001
The level of influence of interest in the subject of economics on the knowledge of economics and finance	Pearson's *r*	**0.34**
	significance	<0.001

Source: own study.

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The contribution share of authors is equal and amounted to ⅓ for each of them.
KBP – conceptualisation, literature writing, methodology, calculations. MŁ – conceptualisation, methodology, calculations, discussion. BCzD - literature writing, discussion, conclusions.

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Conflict of Interest

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