

## Drivers of Sustainable Entrepreneurial Intentions in the Case of Serbian Students

Renata Dana Nițu-Antonie\*, Emóke-Szidónia Feder\*\*, Kristina Stamenovic\*\*\*

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### Abstract

The present research aims to establish the antecedents of sustainable entrepreneurial intention, having as reference theoretical framework the model of entrepreneurial event and the model of planned behavior, integrated and adapted to the context of sustainable entrepreneurship.

At the level of investigated population, consisting of 150 students from two Serbian universities, the empirical results emphasized that: personality traits and environmental values are significant and direct predictors of behavioral characteristics; entrepreneurial education and behavioral characteristics have an indirect influence on sustainable entrepreneurial intention being mediated by the desire and feasibility of sustainable entrepreneurship perceived by respondents.

As theoretical utility of the research, the current study is among the few that tried to integrate and expand two competing models in order to establish the antecedents of sustainable entrepreneurial intent. The research model adopted variables specific for the two models and integrated personality traits, environmental values and entrepreneurial education in order to establish direct and indirect determinants of sustainable entrepreneurial intention.

At practical level, the validation of the research model emphasizes the utility of stimulating youth' sustainable entrepreneurial intention and applicability for future academic research endeavors. In order to stimulate sustainable entrepreneurial intentions, the validated research model indicates to governmental and university decision makers the need to implement programs promoting environmental values and integrating sustainability into the entrepreneurial education of youth.

**Keywords:** sustainable entrepreneurial intentions, personality traits, behavioral characteristics, environmental values, perceived entrepreneurial desire and feasibility, students.

**JEL classification:** L26.

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\* West University of Timișoara, Faculty of Economics and Business Administration, Romania; e-mail: [renata.nitu@e-uvt.ro](mailto:renata.nitu@e-uvt.ro).

\*\* West University of Timișoara, Faculty of Economics and Business Administration, Romania; e-mail: [emoke.feder@e-uvt.ro](mailto:emoke.feder@e-uvt.ro) (corresponding author).

\*\*\* West University of Timișoara, Faculty of Economics and Business Administration, Romania; e-mail: [kristina.stamenovic80@e-uvt.ro](mailto:kristina.stamenovic80@e-uvt.ro).

## 1. INTRODUCTION

Intention is the cognitive representation of the actions that an individual is going to perform, indicating the way he/she thinks and behaves (Arru, 2020). It refers to the individual's willingness to have a certain behavior, being a predictor of an attempt to achieve a certain goal and not necessary of a successful action (Yadav & Pathak, 2017). The perceived belief of starting a new business is an entrepreneurial intention (Farrukh, Alzubi, Shahzad, Waheed, & Kanwal, 2018), and if it takes into account both social and environmental issues it becomes a sustainable entrepreneurial intention (Sung & Park, 2018). In order to encourage students to create new start-ups, in the recent years, universities included aspects of entrepreneurship in their curricula, which led to the intensification of scientific research within the entrepreneurship field, taking into account entrepreneurship education as determinant of student's entrepreneurial intentions (dos Santos, Xavier, da Silva Moura, & dos Santos, 2021) and support for environmental values (Ginanjar, 2016 in Hameed, Zaman, Waris, & Shafique, 2021). Sustainable entrepreneurial intention can be affected by factors related to personality, attitude and perception (Koe, Omar, & Sa'ari, 2014; Sendawula, Turyakira, Ikiror, & Bagire, 2021). In order to identify the determinants of entrepreneurial intentions, most research has used models of the entrepreneurial event of Shapero and Sokol (1982) and the planned behavior of Ajzen (1991, 2002). The theoretical model of the entrepreneurial event considers that entrepreneurial intention is determined by individual perceptions regarding the desire and feasibility of entrepreneurship, along with the inclination to act according to the opportunities offered by the environment, and the existence of an entrepreneurial event which transforms the behavioral inertia of the individual into the action of creating a business (Shapero & Sokol, 1982). The model is dynamic and suggests that entrepreneurial intention is influenced by individual perceptions manifested in a particular situational context, as well as by social and cultural factors that characterize the external environment (Shapero & Sokol, 1982). The planned behavior model is the theoretical framework which postulates that the entrepreneurial intention of an individual is the driver of entrepreneurial behavior in order to create a company. In the model, the entrepreneurial intention is determined by the individual behavioral characteristics, respectively the individual's attitude towards the entrepreneurial behavior, the subjective norms regarding the social pressure and the perceived behavioral control that reflects the extent to which the individual thinks he/she is able to put the behavior into practice (Ajzen, 1991, 2002, 2020; Feder & Nițu-Antonie, 2017). The inclusion in the model of exogenous factors (demographic, psychological, etc.) can increase its predictability in order to identify the determining factors of entrepreneurial intention (Nițu-Antonie & Feder, 2015). Some researchers considers that antecedents of entrepreneurial intentions based on the two theories were not sufficiently tested, being necessary their integration and empirical validation of the resulted research models (Iakovleva & Kolvereid, 2009; Krueger, Reilly, & Carsful, 2000; Solesvik, Westhead, Kolvereid, & Matlay, 2012). The few researchers, who opted for integrating the two fundamental theories and empirically verifying the obtained conceptual models, concluded that these were only partially validated (Alferaih, 2017). Furthermore, in very limited number of studies, these models have been integrated and extended to be adapted to the context of sustainable entrepreneurship in order to establish the antecedents of sustainable entrepreneurial intent (Agu, Kalu, Esi-Ubani, & Agu, 2021). The results lead to the conclusion that personal attitude towards entrepreneurship and subjective norms have a direct and

significant influence on sustainable entrepreneurial intent, while desire and feasibility do not directly influence sustainable entrepreneurial intent (Agu et al., 2021). Empirical conclusions would further require the identification of improved integrated models (Sharahiley, 2020).

Entrepreneurship is considered a factor capable of solving economic and social challenges, being perceived as one of the engines of sustainable economic development (Bakator, Đorđević, Čočkalo, Nikolić, & Vorkapić, 2018). In Serbia, in 2021, the unemployment rate rose with 11.9% in average, and some recent studies show that most young people are not motivated to start their own business due to difficulties in obtaining financial support, lack of entrepreneurial knowledge, deficiencies regarding incentives and government policies for the implementation of business ideas, as well as an uncertain socio-economic and political environment (Čočkalo, Đorđević, Bogetić, & Bakator, 2020). In such a context, identifying the determinants of sustainable entrepreneurial intention among young people as a precedent for sustainable entrepreneurial behavior is a necessary research direction.

As result, the theme of the present research is to identify the triggers of sustainable entrepreneurial intention among youth with university degrees from Serbia, in the context of integrating and expanding models of entrepreneurial event (Shapero & Sokol, 1982) and planned behavior (Ajzen, 1991, 2002).

The main objective of the research constitutes studying the influence of personality traits, environmental values, behavioral characteristics, entrepreneurial education, and of the perceived desire and feasibility of sustainable entrepreneurship on the sustainable entrepreneurial intention of youth with higher education.

The structure of the paper includes the following main parts: the theoretical and empirical framework regarding the antecedents of sustainable entrepreneurial intention in Section 2; the presentation of the research model and methodology in Section 3; the highlights of obtained results from the statistical data analysis in Section 4; the research findings and implications in Section 5; the established conclusions drawn from the conducted research, the limits and future research directions in Section 6.

## 2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

### 2.1 The Impact of Personality Traits and Environmental Values on Behavioral Characteristics

An individual's personality can explain the extent to which his entrepreneurial behavior is generated by personality traits, in association with social and environmental factors (Xavier-Oliveira, Laplume, & Pathak, 2015). Personality traits are considered as an important component of any multidimensional entrepreneurial model (Zhao & Seibert, 2006). Studies in the field of psychology have taken into account several personality traits, namely the need for achievement, locus of control, inclination towards risk-taking, tolerance of ambiguity, self-confidence (Begley and Boyd, 1987 in Mokhtar, Zulkifli, & Zainuddin, 2016) and innovativity (Schumpeter, 1934 in Mokhtar et al., 2016). These personality traits (Caliendo et al., 2014; Díaz-Casero et al., 2012; Nabi and Liñán, 2013; Schjoedt and Shaver, 2012; Segal et al., 2005 in Munir, Jianfeng, & Ramzan, 2019), along with creativity (Jovanović, Arsić, & Nikolić, 2018; Montiel-Campos, 2018; Munir et al., 2019; Rosique-Blasco, Madrid-Guijarro, & García-Pérez-de-Lema, 2018) and proactivity (Crant, 1996; Seibert and Kraimer, 2001; Zampetakis, 2008 in Munir et al., 2019) are considered in most empirical studies regarding

entrepreneurship. Research on the direct link between personality traits and entrepreneurial intention has generated consensus lacking empirical results, emphasizing that proactivity, risk management, and locus of control can have a significant impact on entrepreneurial intent formation (Rohmann, 1997; Schjoedt and Shaver, 2012; Seibert and Kraimer, 2001; Yurtkoru et al., 2014 in Rosique-Blasco et al., 2018). These results have led to the idea that personality traits can constitute predictors of entrepreneurial intention, through some mediating factors (Karimi, Biemans, Lans, Chizari, & Mulder, 2016). In more recent empirical studies, several personality traits have emerged as strong distal variables, indirectly correlated with the entrepreneurial intentions of students in multiple countries, like: locus of control (dos Santos et al., 2021; Karimi et al., 2016; Munir et al., 2019), the need for achievement (dos Santos et al., 2021; Karimi et al., 2016; Mokhtar et al., 2016; Munir et al., 2019), the inclination for risk-taking (Karimi et al., 2016), proactivity (dos Santos et al., 2021; Munir et al., 2019; Rosique-Blasco et al., 2018), and creativity (Munir et al., 2019; Rosique-Blasco et al., 2018). In these studies, the behavioral dimensions specific to the rational action and planned behavior model (Ajzen, 1991, 2002) were constituted as mediating factors in the relationship between personality traits and entrepreneurial intentions of the surveyed students (dos Santos et al., 2021; Karimi et al., 2016; Mokhtar et al., 2016; Munir et al., 2019; Rosique-Blasco et al., 2018). Therefore, the following research hypothesis is proposed:

*H1: Psychological traits influence positively the behavioral characteristics of youth with higher education.*

Environmental values highlight the significance or importance that an individual attaches to the environment (Corraliza and Berenguer, 2000 in Qazi, Qureshi, Raza, Khan, & Qureshi, 2020). Environmental issues require potential entrepreneurs to take environmental values into account in their business plans, although focusing on the future company's economic performance may cause them to give up on those values. Therefore, it becomes essential to identify the extent to which environmental values are antecedent of sustainable entrepreneurial intention in the context of the rational action and planned behavior model (Peng, Li, Zhou, & Sadowski, 2021). Empirical studies have shown that behavioral variables from this model mediate the linkage between environmental values and sustainable entrepreneurial intent for students in several countries ((Peng et al., 2021; Yasir et al., 2021). Taking these aspects into account results the formulation of the following research hypothesis:

*H2: Environmental values influence positively the behavioral characteristics of youth with higher education.*

## **2.2 The Impact of Behavioral Characteristics and Entrepreneurial Education on the Perceived Desire and Feasibility of Sustainable Entrepreneurship**

Several theoretical models have been developed to explain the formation of entrepreneurial intentions, and some of them have proved useful in predicting entrepreneurial actions (Atiya & Osman, 2021). The theory of planned behavior assumes that the basis of any behavior is an intention. Whereas the central idea of the entrepreneurial event model is that in an individual's life there exists an event that generates a change in his/her career path. According to the theory of planned behavior, entrepreneurial intention is anticipated by three behavioral variables: personal attitude, subjective norms and perceived behavioral control (Ajzen, 1991, 2002, 2020). In an entrepreneurial context, the personal attitude reflects the

extent to which an individual finds entrepreneurial behavior attractive, subjective norms refer to the social pressure felt to have or not an entrepreneurial behavior, and perceived behavioral control refers to self-assessment of one own abilities to carry out entrepreneurial actions (Lopes, Gomes, Santos, Oliveira, & Oliveira, 2021). Within the entrepreneurial event model there are three antecedents of the entrepreneurial intention: the perceived desire, the perceived feasibility and the propensity to act (Shapero & Sokol, 1982). Perceived desire is related to the evaluation of new business attractiveness that an individual could accomplish (Lopes et al., 2021). Perceived feasibility is associated with the individual's perception of how viable creating a new business is, depending on the skills, tangible (financial, material) and intangible resources (education, entrepreneurial experience, and social network) needed to start a business (Otache, Edopkolor, & Okolie, 2021; Saadin & Daskin, 2015). The propensity or inclination to act involves an assessment of existing opportunities for a new business (Lopes et al., 2021).

Some authors considered these models to be very similar or even overlapping (Krueger et al., 2000; van Gelderen et al., 2008) but their mutual compatibility (Krueger et al., 2000) led to several integration attempts (Agu et al., 2021; Díez-Echavarría et al., 2019; Ozaralli & Rivenburgh, 2016). A comparison of the explanatory variables for entrepreneurial intention in the two models shows that the perceived feasibility corresponds to the perceived behavioral control (Dickel & Eckardt, 2021; Liñán, Rodríguez-Cohard, & Rueda-Cantuche, 2011; Peterman & Kennedy, 2003), and the perceived desire to have an entrepreneurial behavior could be composed of personal attitude towards this behavior, respectively of perceived social norms (Liñán et al., 2011). Additionally, entrepreneurial feasibility perception was considered a necessary competence for an individual to start a career in sustainable entrepreneurship (Sommer and Haug, 2011 in Agu et al., 2021), and the perception of his/her entrepreneurial desire was considered in order to understand the sustainable entrepreneurship propensity (Koe et al., 2014). Therefore, the following research hypotheses were stated:

*H3: Behavioral characteristics influence positively the perceived sustainable entrepreneurial desire in the case of youth with higher education.*

*H4: Behavioral characteristics influence positively the perceived sustainable entrepreneurial feasibility in the case of youth with higher education.*

Entrepreneurial education is the set of training activities that aim to provide individuals with entrepreneurial knowledge, to develop their desire for entrepreneurial activity or the feasibility perception of starting a business (Liñán, 2004). At university level, there are different curricular contents and teaching methods related to entrepreneurship, due to the heterogeneity of the definitions given to entrepreneurship in the field of pedagogical sciences (Contreras-Barraza, Espinosa-Cristia, Salazar-Sepulveda, & Vega-Muñoz, 2021). On the one hand, an entrepreneurial awareness education is carried out aiming to develop students' perception on career options offered by their profession so that they can make choices in timely manner and as easily as possible – Lorz (2011) in (Tiwari, Bhat, & Tikoria, 2018). On the other hand, the entrepreneurial start-up education aims to transmit explicit information on legal, taxation and financing aspects in order to start and develop a business (Lorz (2011) in (Tiwari et al., 2018)) or to create an increasing the variety of businesses. In addition, entrepreneurship education can be considered a training modality that also ensures the development of abilities necessary for students to orient themselves towards sustainable entrepreneurship (Agu et al., 2021). Within the empirical studies conducted at student level

in different countries, entrepreneurship education was identified as positively associated with the perceived desire and feasibility of entrepreneurship (Tiwari et al., 2018), respectively sustainable entrepreneurship education as directly and positively influencing the desire and feasibility perceived for sustainable entrepreneurship (Agu et al., 2021). Based on these conclusions, the following research hypotheses were formulated:

*H5: Entrepreneurial education influences positively the perceived sustainable entrepreneurial desire in the case of youth with higher education.*

*H6: Entrepreneurial education influences positively the perceived sustainable entrepreneurial feasibility in the case of youth with higher education.*

### **2.3 The Impact of Perceived Desire and Feasibility regarding Sustainable Entrepreneurship on Sustainable Entrepreneurial Intentions**

Triggering the entrepreneurial intention presupposes that an individual perceives an entrepreneurial activity as attractive and feels that he/she has the capability to carry it out, which implies the perception of desirability and feasibility on entrepreneurship (Wu & Wu, 2008). Perceived entrepreneurial desire refers to an individual's personal attractiveness to become an entrepreneur, and perceived entrepreneurial feasibility concerns the assessment of his/her entrepreneurial capabilities (Agu et al., 2021). In the theoretical model of entrepreneurial event, the perceived entrepreneurial desire and feasibility are constituted as direct determinants of the entrepreneurial intention (Shapiro and Sokol, 1982 in Agu & Nwachukwu, 2020). Some empirical studies have validated the existence of these direct and positive links (Krueger et al., 2000), other studies have highlighted only the positive and significant effect of the perceived desire on entrepreneurial intentions (Agu & Nwachukwu, 2020; Barral, Ribeiro, & Canever, 2018).

Entrepreneurial intention becomes sustainable when an individual's mentality indicates a conviction and commitment to starting a business in the future which takes into account and put into balance economic, social and environmental values (Agu et al., 2021). Some empirical studies conducted on samples of students from different countries emphasize that perceived entrepreneurial desire and feasibility influence sustainable entrepreneurial intent (Ebdane, 2019; Tehseen & Haider, 2021). Other empirical studies have identified an insignificant influence of desire (Agu et al., 2021) or of perceived feasibility regarding entrepreneurship (Agu et al., 2021; Vuorio, Puumalainen, & Fellnhofer, 2018) on sustainable entrepreneurial intentions. Based on these studies and their results, the following research hypotheses have been proposed:

*H7: Perceived sustainable entrepreneurial desire influences positively the sustainable entrepreneurial intentions of youth with higher education.*

*H8: Perceived sustainable entrepreneurial feasibility influences positively the sustainable entrepreneurial intentions of youth with higher education.*

### **3. CONCEPTUAL MODEL AND RESEARCH METHODOLOGY**

A conceptual research model (Figure no. 1) has been developed in order to identify the determinants of sustainable entrepreneurial intention in the case of youth with university degree. First, the aim was to investigate the direct effects of personality traits and environmental values on behavioral characteristics. Next, it was considered to identify the

causal links between behavioral characteristics, respectively university-level entrepreneurial education and sustainable entrepreneurial intention, mediated by the perceptions of sustainable entrepreneurial desire and feasibility.

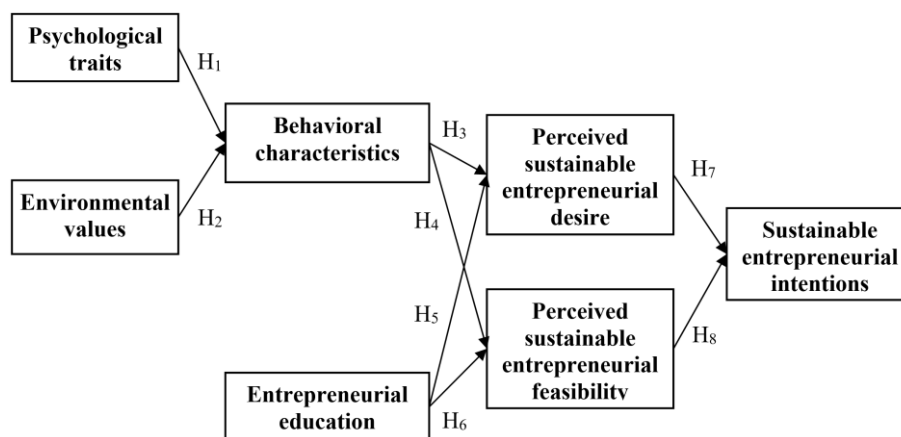


Figure no. 1 – Research model on the determinants of sustainable entrepreneurial intentions

The research model is an improved version of other models that integrated the determinants of entrepreneurial intention from the original model of rational action and planned behavior developed by Ajzen (1991, 2002, 2020) in the entrepreneurial event model created by Shapero and Sokol (1982).

The originality of the research model is given by the consideration of the importance of cognitive processes, environmental values and entrepreneurial education in exploring the intentions to become a sustainable entrepreneur, for a better understanding of the real antecedents of entrepreneurial intentions that allow the creation of mechanisms to facilitate sustainable entrepreneurship. Additionally, Stebbins (2001) emphasized the crucial role and high value of the exploratory studies in social sciences. In this sense, the proposed research aims to discover the multidisciplinary overlaps within the entrepreneurship, sustainability, education, and psychology fields, in order to examine and link the potential determinants of sustainable entrepreneurial intentions.

### 3.1 Data Collection Procedure

Within the entrepreneurship field, the cross-sectional quantitative research method is frequently applied on the basis of sample surveys, using structured questionnaires as research tool. Similar to several recent studies in the field (Agu et al., 2021; Alam, Kousar, & Rehman, 2019; Atiya & Osman, 2021; Montiel-Campos, 2018; Munir et al., 2019; Sher, Abbas, Mazhar, Azadi, & Lin, 2020), the current study employs the above approach and primary data collection tool.

First the questionnaire was realized in English, due to the adopted measures from extant studies published in the international literature in English (measures and references detailed in Section 3.3), afterwards it was translated into Serbian, checked with academics and adjusted

for proper understanding and language correctness, and finally coded as form and made available on a well-known online platform.

The data collection part of the research has been conducted in 2021. The administration of the questionnaires was carried out online, due to the geographical dispersion of the respondents and to the fact that currently the university teaching activity is carried out online in Serbia.

In order to be able to collect responses, the authors' academic contacts were used within the University of Belgrade and Niš in Serbia. A link toward the research questionnaires have been online distributed by three professors, academic contacts within the universities, two at Belgrade and one at Niš. The link has been transmitted to students only after their educational activities, not during classes, in order to avoid conflicts of interests, biased or forced responses due to the professor's presence. Therefore, questionnaires were completed just by those students who explicitly wanted to participate within the study.

The online questionnaires were applied anonymously, in compliance with the European General Data Protection Regulation (GDPR) harmonized Serbian Personal Data Protection Act, the umbrella regulation of the local personal data protection law. Therefore, before starting the completion of the questionnaire, on the first page respondents were informed and assured upon the anonymous character of their responses. Furthermore, no identification data from the respondents was collected, no data regarding their name or email address were requested. Similarly, before starting the questionnaire, details regarding the purpose of the questionnaire and on the processing of the statistical data were included, mentioning that the continuation of the online questionnaire is an agreement on participation and processing of the collected information. Also, the presentation included that no individual data will be released, just statistically processed sample specific statistics will be published and afterwards all collected data erased.

### **3.2 Participants**

The 2021 Eduniversal ranking, as one of the widely recognized official unbiased selection of the best business schools, for Serbia included the University of Belgrade - Faculty of Economics, Megatrend University of Applied Sciences - Faculty of Management, Singidunum University - Faculty of Business, University of Niš - Faculty of Economics, University of Novi Sad - Faculty of Economics. Due to their higher national influence, similarities regarding their educational curriculum on entrepreneurship and business subjects, and considering the extant academic contacts limiting the access to collect primary data, the University of Belgrade and University of Niš were selected.

The present research used the convenience sampling approach. Although it has several disadvantages, considering the difficulties to obtain a probabilistic sampling in the pandemic context, the impossibility to assure representativeness for each involved study program, it was considered by the authors as the most feasible option.

From the slightly over 7000 students of the University of Belgrade – Faculty of Economics and around 2700 students of the University of Niš – Faculty of Economics, the questionnaire has been transmitted as available to completion to a number of 1200 students (850 from Belgrade and 350 from Niš). From the two universities, a number of 150 fully completed questionnaires were received, assuring a response rate of 12%.



**Table no. 1 – Demographic profile of the surveyed participants**

Criteria	Classes	Sample distribution	
Age	19-22	87	58%
	23-30	21	14%
	Over 30	42	28%
Gender	Male	69	46%
	Female	81	54%
Study level	Undergraduate	144	96%
	Master	6	4%
Role model	Entrepreneurial model exposure	93	62%
	No entrepreneurial model exposure	57	38%

The participants in the study compose a relatively homogeneous sample of 150 respondents, all completing their studies in the fields of economics or business. The inclusion criteria as basis of participants selection were the enclosure of entrepreneurship and business education related subjects in their curriculum, offering them basic or elevated entrepreneurial skills and sustainable business administration competencies.

Participants were youth of different ages, ranging from 19 to 37 years, of which 58% were between 19–22-year-old, 14% between 23-30 years, and 28% slightly over 30. Regarding gender identity, 46% of the participants were male and slightly more (54%) were female. Preponderantly (96%) respondents were at undergraduate level of studies, while 4% followed master type postgraduate studies. The most common majors in the sample were economics, economical informatics, management, international business, marketing, and finance. Complementary, 62% of the participants reported having an entrepreneur within the family or friends, while 38% considered they had no such exposure.

### 3.3 Measures

The *psychological traits* construct was measured using the scale of Koh (1996), including personality traits and characteristics defining a person. As higher-level construct, it was approached as a composite construct and was operationalized based on 6 dimensions: innovativeness measured via 5 items, locus of control measured by 7 items, need for achievement, risk tolerance, self-esteem and tolerance of ambiguity, with 6 items each.

The *behavioral characteristics* construct was measured using the scale of Liñán and Chen (2009) and regards the motivational factors influencing the individual's ability to become an entrepreneur. As a higher-level composite construct, 3 dimensions were considered: personal attitude with 5 items, perceived behavioral control with 6 items, and subjective norms with 3 items.

The *environmental values* construct was measured applying the scale of (Mair and Noboa, 2006 in Sher et al., 2020), encompassing 6 items, referring to the protection of the environment, to the ecological values and belief of entrepreneurs to exceed the traditional economic interests of a business.

The scale used for *entrepreneurial education* construct having 3 items was developed by Parvaneh and Korosh (2011). It consists of any educational program or process that contributes to the development of entrepreneurial abilities, competencies and knowledge (Liñán et al., 2011), thus encouraging entrepreneurial intentions (Feder & Nițu-Antonie, 2017) and environmental commitment (Alam et al., 2019) of individuals.

The *perceived sustainable entrepreneurial desire* construct was measured using the scale of Koe et al. (2014) with 8 items, it regards the degree to which an individual feels attracted to become entrepreneur and reflects personal preferences for entrepreneurial behavior (Liñán et al., 2011).

The *perceived sustainable entrepreneurial feasibility* construct was measured applying the scale of Koe et al. (2014) with 18 items, reflecting the degree to which an individual feels able to start a business and perceives feasible the business opportunity and idea (Shapero & Sokol, 1982).

The *sustainable entrepreneurial intention* construct was measured via the 5 item scale of Sher et al. (2020), focusing on the individual's desire to start a business which balances aspects of environmental protection, social wellbeing, and economic prosperity (Kuckertz & Wagner, 2010).

For every modeled construct all the items have been evaluated using a five-point Likert's scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Consequently, the measurement scales were evaluated. Based on Hair, Black, Babin, and Anderson (2019), first, the reliability of each construct was tested using Cronbach's alpha ( $\alpha$ ) and composite reliability (CR), continued with the evaluation of convergent and discriminant validity.

The internal structure of each construct assessed using Cronbach's alpha, which were 0.763 for psychological traits, 0.774 for behavioral characteristics, 0.926 for environmental values, 0.889 for entrepreneurial education, 0.934 for perceived sustainable entrepreneurial desire, 0.963 for perceived sustainable entrepreneurial feasibility, and 0.833 for sustainable entrepreneurial intentions. All of these values are acceptable, being higher than the recommended threshold value of 0.70 (Hair et al., 2019). Moreover, composite reliability (CR) shows high values, consolidating the previous conclusion regarding scale reliability: 0.921 for psychological traits, 0.923 for behavioral characteristics, 0.969 for environmental values, 0.963 for entrepreneurial education, 0.969 for perceived sustainable entrepreneurial desire, 0.978 for perceived sustainable entrepreneurial feasibility, and 0.878 for sustainable entrepreneurial intentions.

The convergent validity has been explored based on factor analysis after evaluating the Kaiser-Meyer-Olkin (KMO) criterion. Values of KMO were between 0.646 and 0.896, superior compared to the threshold of 0.60 for all the considered constructs. Next, for the factor analysis, items were tested for the seven scales. All the items have loaded with above 0.5 values on the specific factors assuring convergent validity: with values between 0.767 and 0.882 for psychological traits, between 0.749 and 0.891 for behavioral characteristics, between 0.809 and 0.893 for environmental values, between 0.826 and 0.944 for entrepreneurial education, between 0.712 and 0.893 for perceived sustainable entrepreneurial desire, between 0.620 and 0.852 for perceived sustainable entrepreneurial feasibility, and between 0.527 and 0.896 for sustainable entrepreneurial intention.

Furthermore, to assess discriminant validity, the Fornell and Larcker (1981) criterion and procedure were applied, determining the average variance extracted (AVE). The seven modeled constructs registered the following scores as AVE: 0.825 for psychological traits, 0.829 for behavioral characteristics, 0.858 for environmental values, 0.904 for entrepreneurial education, 0.827 for perceived sustainable entrepreneurial desire, 0.766 for perceived sustainable entrepreneurial feasibility, and 0.770 for sustainable entrepreneurial intention. After evaluating if the values scored over 0.7 (Hair et al., 2019), we compared the square root

of calculated AVE for the constructs (values between 0.875 and 0.951) with the correlations with all the other traits (values between 0.359 and 0.801, [Table no. 2](#)). Therefore, the obtained results indicate that the constructs are different ones from the others, thus suggesting satisfactory discriminant validity.

In conclusion, reliability and validity were assured for all the measurement scales used to operationalize the modeled constructs, permitting to advance with data analysis.

#### 4. DATA ANALYSIS RESULTS

Prior to initiate the research model testing phase, the sample size was checked for size (150:7) to exceed the 5:1 rule, as recommended by [Hair et al. \(2019\)](#). Afterwards, for descriptive analysis mean scores, as measures of central tendency, and standard deviations, as measures of variability, were considered, while deviations from normality were analyzed using skewness and kurtosis, as measures of data distribution shape.

**Table no. 2 – Descriptive statistics regarding the modeled constructs**

Constructs	Mean	Standard deviation	Skewness	Kurtosis
Psychological traits (1)	3.820	0.630	-0.882	0.947
Behavioral characteristics (2)	3.944	0.608	-0.877	0.889
Environmental values (3)	4.163	0.789	-0.717	0.847
Entrepreneurial education (4)	4.040	0.925	-0.638	0.784
Perceived sustainable entrepreneurial desire (5)	4.168	0.725	-0.820	0.950
Perceived sustainable entrepreneurial feasibility (6)	3.921	0.740	-0.668	0.878
Sustainable entrepreneurial intentions (7)	3.816	0.831	-0.483	0.632

All the seven constructs included within the proposed research model has above average (>3) mean scores considering the applied 5-step Likert evaluation scales. Particularly, the highest (above 4) mean values were identified for perceived sustainable entrepreneurial desire, environmental values, and entrepreneurial education.

In the case of all the considered constructs, standard deviations are well within the threshold range, being the lowest for psychological traits (0.630) and behavioral characteristics (0.608), and the highest for sustainable entrepreneurial intentions (0.804) and entrepreneurial education (0.925).

Regarding skewness, the unimodal distribution in the case of all the 7 constructs is negatively skewed (between -0.470 and -0.882), therefore the dataset is placed more at the right with a longer left tail. Concerning kurtosis, the majority of the considered constructs registered higher positive values (0.510-0.950), indicating leptokurtic sharper peaks compared to the central one. The two measures of the shape of distribution did not indicate any type of problem regarding the normal distribution of the responses, thus not violating the requirements of multiple regression analysis.

Based on two-tail Pearson correlations, all the association type relationships ([Table no. 3](#)) between the main variables of the model show statistically significant ( $p < 0.001$ ) and positive correlations. Strong positive and significant correlations can be found especially between psychological traits and behavioral characteristics ( $r = 0.745$ ), behavioral characteristics and sustainable entrepreneurial intentions ( $r = 0.769$ ), environmental values and perceived sustainable entrepreneurial desire ( $r = 0.801$ ), environmental values and perceived

sustainable entrepreneurial feasibility ( $r=0.749$ ), perceived sustainable entrepreneurial desire and feasibility ( $r=0.886$ ), perceived sustainable entrepreneurial desire and sustainable entrepreneurial intentions ( $r=0.696$ ), perceived sustainable entrepreneurial feasibility and sustainable entrepreneurial intentions ( $r=0.714$ ).

**Table no. 3 – Correlation matrix for the modeled constructs**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Psychological traits (1)	1						
Behavioral characteristics (2)	0.745**	1					
Environmental values (3)	0.643**	0.575**	1				
Entrepreneurial education (4)	0.555**	0.527**	0.538**	1			
Perceived sustainable entrepreneurial desire (5)	0.676**	0.569**	0.801**	0.359*	1		
Perceived sustainable entrepreneurial feasibility (6)	0.640**	0.550**	0.749**	0.374**	0.886**	1	
Sustainable entrepreneurial intentions (7)	0.588**	0.769**	0.517**	0.453**	0.696**	0.714**	1

Note: \*\* correlations significant at 0.01 level (two-tailed).

Since the research is an early-stage assessment of the determinants of sustainable entrepreneurial intentions, to test the proposed hypothesis, multiple regression analysis was performed sequentially to assess the causal relations between the pairs of independent variables and dependent variables, as foreseen in the research model. For hypothesis testing purposes, IBM SPSS 22 statistical software was used.

**Table no. 4 – Results of hypotheses testing for the Serbian sample**

Hypotheses	Independent variable	Dependent variable	R <sup>2</sup>	$\beta$	p	Decision
H1	Psychological traits	Behavioral characteristics	0.683	0.617	0.000	valid
H2	Environmental values			0.389	0.055	limited validity
H3	Behavioral characteristics	Perceived sustainable entrepreneurial desire	0.451	0.627	0.000	valid
H5	Entrepreneurial education			0.264	0.093	limited validity
H4	Behavioral characteristics	Perceived sustainable entrepreneurial feasibility	0.473	0.594	0.001	valid
H6	Entrepreneurial education			0.393	0.057	limited validity
H7	Perceived sustainable entrepreneurial desire	Sustainable entrepreneurial intentions	0.784	0.504	0.037	valid
H8	Perceived sustainable entrepreneurial feasibility			0.607	0.012	valid

Regarding the first hypothesis, results (Table no. 4) confirm the positive and significant influence ( $\beta=0.617$  with  $p<0.001$ ) of psychological traits on the behavioral characteristics of youth with higher education, supporting hypothesis H1. Complementary, environmental values positively although with limited significance ( $\beta=0.389$  with  $p<0.1$ ) influence the

behavioral characteristics of youth with academic background, thus partially validating hypothesis H2. Collectively, psychological traits and environmental values explains 68,3% of the variance of behavioral characteristics.

Concerning the third hypothesis, behavioral characteristics positively and significantly influence ( $\beta=0.627$  with  $p<0.001$ ) the perceived sustainable entrepreneurial desire of youth, confirming hypothesis H3. Additionally, behavioral characteristics has a positive and statistically significant influence ( $\beta=0.594$  with  $p=0.001$ ) also on the perceived sustainable entrepreneurial feasibility of youth with higher education, hence supporting hypothesis H4.

Referring to the role of entrepreneurial education, it positively influences although with limited significance influence both the perceived sustainable entrepreneurial desire ( $\beta=0.264$  with  $p<0.1$ ) and feasibility ( $\beta=0.393$  with  $p<0.1$ ) in the case of youth with higher education. Consequently, hypothesis H5 and H6 has limited validity.

Together the above two variables, behavioral characteristics and entrepreneurial education, explains 45,1% of the variance of perceived sustainable entrepreneurial desire and 47,3% of the variance of perceived sustainable entrepreneurial feasibility.

There is also evidence of a significant positive influence ( $\beta=0.504$  with  $p<0.05$ ) of perceived sustainable entrepreneurial desire on sustainable entrepreneurial intentions of students. Similarly, the perceived sustainable entrepreneurial feasibility influences positively and significantly ( $\beta=0.607$  with  $p<0.05$ ) the sustainable entrepreneurial intentions of youth with higher education. Therefore, hypothesis H7 and H8 are supported. Furthermore, 78,4% of the variance in the sustainable entrepreneurial intentions (dependent variable) is collectively explained via perceived sustainable entrepreneurial desire and feasibility. This also means that regression model fits not perfect, but acceptable, the observed data. Overall, from the 8 hypotheses formulated based on the research model, 5 are fully confirmed by the collected data, while 3 are with limited validity for the considered sample.

**Table no. 5 – Results of mediation tests**

Independent variable	Mediator	Dependent variable	Sobel test	p	Decision
Behavioral characteristics	Perceived sustainable entrepreneurial desire	Sustainable entrepreneurial intentions	3.567	0.000	valid
Entrepreneurial education	Perceived sustainable entrepreneurial feasibility	Sustainable entrepreneurial intentions	2.428	0.015	valid
Behavioral characteristics	Perceived sustainable entrepreneurial desire	Sustainable entrepreneurial intentions	3.559	0.000	valid
Entrepreneurial education	Perceived sustainable entrepreneurial feasibility	Sustainable entrepreneurial intentions	2.549	0.011	valid

Although the paper aimed to analyze the overall total effect of the variables on sustainable entrepreneurial intentions, complementary, it has been assessed if some variables, like the perceived sustainable entrepreneurial desire and perceived sustainable entrepreneurial feasibility, as components of the entrepreneurial event model, do or do not have any real mediating role within the proposed research model. Based on Preacher and Hayes (2008), the Sobel mediation test was applied, along with their interactive calculation tool. The Sobel test results and significance tests (Table no. 5) prove that the perceived sustainable entrepreneurial desire is a valid mediator between behavioral characteristics and sustainable entrepreneurial intention ( $p<0.001$ ), functioning likewise between the entrepreneurial education and

sustainable entrepreneurial intention ( $p < 0.05$ ). Also, the Sobel test validate the mediating role of Perceived sustainable entrepreneurial feasibility between behavioral characteristics and sustainable entrepreneurial intention ( $p < 0.001$ ), having a similar function in the case of entrepreneurial education and sustainable entrepreneurial intention ( $p < 0.05$ ).

## 5. RESEARCH FINDINGS AND IMPLICATIONS

This research aimed to identify the antecedents of sustainable entrepreneurial intentions by integrating models of entrepreneurial event and planned behavior, with the purpose of their extension as well, by taking into account sustainable entrepreneurial intention, personality traits, environmental values and entrepreneurial education. The selection of these variables was based on previous research that highlighted, on the one hand, the possibility of integrating the two theoretical models due to compatibility between them (Agu et al., 2021; Krueger et al., 2000) and their adaptation to the sustainable entrepreneurial context, considering entrepreneurial education as having a decisive role in the formation of sustainable entrepreneurial intention (Agu et al., 2021). On the other hand, previous research has shown that personality variables and those on environmental values were included as direct antecedents of entrepreneurial intention in studies that had as a theoretical frame of reference the planned behavior model (Feder & Nițu-Antonie, 2017; Nițu-Antonie & Feder, 2015; Peng et al., 2021).

The research hypotheses validated at the level of investigated population illustrated that sustainable entrepreneurial intention is influenced by behavioral characteristics and entrepreneurial education through the perceived desire and feasibility of sustainable entrepreneurship, given that environmental values and personality traits are direct antecedents of behavioral characteristics. The existence of direct and significant relations between perceived desire, respectively perceived feasibility regarding sustainable entrepreneurship and the sustainable entrepreneurial intention correspond to the results obtained by Tehseen and Haider (2021). Entrepreneurial education is an indirect influencing factor of sustainable entrepreneurial intention, the relationships between variables being mediated by the perceived desire and feasibility of sustainable entrepreneurship, according to the research results of Agu et al. (2021). The majority of extant research validated the existence of a direct linkage between behavioral characteristics from the planned behavior model and entrepreneurial intentions, respectively sustainable entrepreneurial intentions (Agu et al., 2021; Alam et al., 2019; Díez-Echavarría et al., 2019; Liñán et al., 2011; Ozaralli & Rivenburgh, 2016; Tomy & Pardede, 2020). The results reached in the present study indicate indirect causal relationships, mediated by the variables related to the perceived desire and feasibility of sustainable entrepreneurship. In the conducted research, personality traits and environmental values are factors that directly and significantly influence the behavioral characteristics specific to the planned behavior model, according to the empirical results obtained in previous research conducted by Feder and Nițu-Antonie (2017), Nițu-Antonie and Feder (2015), respectively Peng et al. (2021).

The results obtained in the current study indicate that the conceptual research model is suitable to stimulate sustainable entrepreneurial intentions in the case of the investigated population. Personality traits and environmental values significantly and positively influence the behavioral characteristics of surveyed students in Serbia. Environmental values determine the extent to which respondents find sustainable entrepreneurial behavior attractive and feel able to put it into practice, under the constraint of social or environmental pressure. In these

conditions, the behavioral characteristics along with entrepreneurial education determined the surveyed students to perceive as attractive and viable the start-up of a new business, taking into account the economic, social and environmental problems, stimulating them cognitively on the availability to pursue a sustainable entrepreneurial behavior and on the conviction to initiate it in the future. For Serbia, these results highlight the need for government and university decision makers, as well as for other stakeholders of the society, to promote environmental values and integrate sustainability into entrepreneurship training programs. Actions to stimulate and encourage interest in sustainable entrepreneurship, programs to inspire and train sustainable entrepreneurial abilities and competences could strengthen the collective impact of entrepreneurial event and planned behavior models on sustainable entrepreneurial intentions.

## 6. CONCLUSIONS, LIMITS AND FUTURE RESEARCH DIRECTIONS

The present research identified the antecedents of sustainable entrepreneurial intention in the case of students from two universities in Serbia, who benefited from entrepreneurial education through the university curriculum. The theoretical reference framework was the entrepreneurial event and the planned behavior models, integrated and extended in order to adapt them to the context of sustainable entrepreneurship. Confirmation of all research hypotheses led to the validation of the conceptual research model, indicating that the perceived desire and feasibility of sustainable entrepreneurship as direct antecedents of sustainable entrepreneurial intentions, behavioral characteristics and entrepreneurial education as influencing the desire and feasibility perceived by respondents regarding sustainable entrepreneurship, in the context of behavioral characteristics being determined by personality traits and environmental values.

The theoretical utility of the research is given by the fact that the study is one of the few that tried to combine, integrate and expand two competing models in order to establish the antecedents of sustainable entrepreneurial intentions. Coupling various theoretical models with different influencing factors offer a more comprehensive insight and a better understanding on influencing factors and antecedents of sustainable entrepreneurial intentions. From theoretical perspective, the study demonstrates that cognitive processes, environmental values, and entrepreneurial education generated via university curriculum have a significant influence on sustainable entrepreneurial intention, strengthening the joint impact of entrepreneurial event model and planned behavioral model on sustainable entrepreneurial intention (Agu et al., 2021; Krueger et al., 2000).

The integrative research model offers an enhanced explanatory power from empirical perspective as well. The study adds to the extant literature on sustainable entrepreneurship in Serbia, indicating whether young people with a university degree are ready to explore and have a favorable perception upon sustainable entrepreneurship.

The practical usefulness of the study is given by the fact that the research model validated via the conducted empirical analysis could stimulate the entrepreneurial intention among youth in Serbia, and may be helpful in future academic research, but also for government authorities and university decision makers to implement programs that promote environmental values and integrate sustainability in the entrepreneurial training of youth.

Exclusively young people enrolled to economics and business administration degree programs from two major higher education centers from Serbia were considered within this

study. Exploring entrepreneurial intentions of law, education, arts and engineering students in Serbia, as well as cross-country comparative studies, including longitudinal studies, with mixed, quantitative and qualitative methodologies, would bring an improved perspective and enhanced value to this study. Also, the extension of the research sample and using probability sampling techniques would improve the representativeness of the results and would permit the application of more powerful statistical methods, like structural equation modeling.

The research model could be extended by taking into account parental entrepreneurial models as another factor influencing sustainable entrepreneurial intent, gender identity as a factor moderating the relation between variables that constitute direct antecedents and sustainable entrepreneurial intention, as well as entrepreneurial behavior that balances the social aspects, environmental protection and economic prosperity, as a result of the actual materialization of the sustainable entrepreneurial intention.

### ORCID

Renata Dana Nițu-Antonie  <http://orcid.org/0000-0001-6063-1152>

Emőke-Szidónia Feder  <http://orcid.org/0000-0002-8942-5093>

Kristina Stamenovic  <http://orcid.org/0000-0002-2144-1396>

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