

PSYCHOMETRIC PROPERTIES AND GENDER INVARIANCE OF THE INDIVIDUAL ENTREPRENEURIAL INTENT SCALE

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Abstract

This study examined the psychometric properties of the Romanian version of the Individual Entrepreneurial Intent Scale (IEIS), used to estimate the self-acknowledged intention of a person to implement a business venture. The research was based on a sample of 900 technical students (380 women; 520 men; mean age = 21.06 years). Participants completed a survey that included both the target scale and the Entrepreneurial Intention Questionnaire to measure entrepreneurial intention and its determinants: personal attitudes toward entrepreneurship, social norms, and perceived behavioral control. The analyses assessed the structural validity and gender invariance, as well as its internal consistency. Confirmatory factor analysis supported a stable unidimensional structure of the Romanian version ($\chi^2/df = 2.21$, CFI = 0.998, TLI = 0.989, RMSEA = 0.047, SRMR = 0.036) with evidence of gender invariance. McDonald's omega and Cronbach's alpha coefficients indicated an adequate level of internal consistency ($\alpha = 0.838$; $\omega = 0.837$). Moderate correlations supported the convergence between the two measures of entrepreneurial intention. The results suggest that this adaptation offers a valid and reliable option for assessing entrepreneurial intention among Romanian technical students.

Keywords: entrepreneurial intention; validation; Individual Entrepreneurial Intent Scale; students; confirmatory factor analysis; gender invariance.

1. INTRODUCTION

Interest in entrepreneurship has become increasingly prominent among young people under 35 in Romania, supported by labor market transformations (Global Entrepreneurship Monitor Romania, 2025). For Romania, as well as for other emerging countries, the motivation to open a business is essential, since the economic growth of these countries depends to a large extent on entrepreneurship (National Institute of Statistics, 2025). Especially among students, entrepreneurship appear to be emerging as an alternative to the traditional employment system which is becoming increasingly less attractive to Generation Z (Insight Pulse Z, 2024).

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This has increased the need for instruments capable of accurately assessing entrepreneurial intention (EI). The notion of EI has been defined as directing attention and energy towards a specific entrepreneurial objective – venture creation – that one intends to achieve in the near future (Bird, 1988; Ajzen, 1991; Krueger *et al.*, 2000; Krueger, 2007).

The entrepreneurship literature has consistently demonstrated that entrepreneurial intention (EI) is one of the most relevant predictors of entrepreneurial behavior because the act of starting a business is a planned act and not accidental (Liñán & Chen, 2009; Ajzen, 2011; Kautonen *et al.*, 2015; Elnadi & Gheith, 2021; Zhang & Wang, 2023).

In the scientific literature, there are a series of instruments, most anchored in the theory of planned behavior (TPB) that conceptualize EI as a result of motivational antecedents such as attitudes, social norms, and perceived control behavior (Ajzen, 1991, 2011). This category includes the Entrepreneurial Intention Questionnaire (Liñán & Chen, 2009), Kolvereid Scale (Kolvereid, 1996), and the scales developed by Autio *et al.* (2001). Although these instruments provide a robust explanatory framework, they raise difficulties related to the clear delimitation of intention as a distinct construct, often being influenced by the explanatory variables included in the models. In this sense, the need has arisen for scales that develop EI as an autonomous cognitive predisposition.

The *Individual Entrepreneurial Intent Scale* (IEIS) responds to this need and was developed precisely to delimit EI from adjacent concepts such as entrepreneurial desire, orientation, and self-employment. In these conditions, EI is conceptualized as the "self-acknowledged conviction by a person that they will set up a new business venture and consciously plan to do so at some point in the future" (p. 687) (Thompson, 2009). Thus, EI is understood as a conscious mental state and cognitive focus on starting a business. Unlike other instruments based on single items or proxies (variables used as a substitute for a latent construct) (Mueller & Thomas, 2001; Reynolds *et al.*, 2004; Liñán & Chen, 2009), the IEIS uses reflective items that refer to entrepreneurial intention already in transition to action. The IEIS items based on this conceptualization of EI are constructed to capture crystallized intention, addressing aspects of planning, learning, opportunity search, and resource gathering.

The scale has demonstrated good psychometric properties in international samples of students and non-students (Thompson, 2009). Some studies have shown that the scale was also designed to help reduce measurement error and bias by including properties that reduce method variance and attenuate response sets (Urban, 2012). Other studies have found high correlations between the IEIS and the entrepreneurial intention measurement scale based on the theory of planned behavior, such as the Entrepreneurial Intention Questionnaire (Liñán & Chen, 2009; Liñán & Fayolle, 2015). Two meta-analyses conducted on studies conducted in over 30 countries show that the scale has been described as one of the few

instruments that may reduce cross-cultural measurement variability of EI (Schlaegel & Koenig, 2014) and presents a unitary construct, all the more so as it is validated in a research involving samples from several countries simultaneously (Lortie & Castogiovanni, 2015).

Although the IEIS has been applied in numerous international studies (Urban, 2012; Anagnosti *et al.*, 2013; Liu *et al.*, 2020), most of these investigations have used the scale as a measurement instrument rather than subjecting it to comprehensive psychometric validation. To our knowledge, evidence regarding its factorial structure and measurement invariance remains limited outside the initial validation context established by Thompson (2009). Consequently, further validation studies in different cultural settings are needed to establish the robustness of this instrument.

On the other hand, research on EI measurement in the Romanian context is relatively limited, and psychometric validation studies of EI instruments are rare. Furthermore, the literature suggests that entrepreneurial intentions may vary depending on the field of study. For example, students in technical fields are likely to present specific profiles in relation to entrepreneurial initiatives (Maresch *et al.*, 2016; Vodă & Florea, 2019; Balgiu & Simionescu-Panait, 2024; Tudose *et al.*, 2025). They often have technical skills relevant to the development of innovative products and services, but may show differences in terms of opportunity orientation, resilience, or management of social interactions (Barba-Sánchez & Atienza-Sahuquillo; Lingappa *et al.*, 2020; Balgiu *et al.*, 2025). These particularities highlight the need to validate measurement instruments in specific samples to ensure the relevance and accuracy of assessment. Therefore, we aimed to provide a psychometric evaluation of the Romanian version of the IEIS in samples of technical students. Specifically, we assessed factorial structure, internal consistency, gender invariance and convergent validity. Beyond adapting an instrument, this study contributes to the growing literature on the measurement of entrepreneurial intention as an action-oriented cognitive construct. The study also extends existing evidence by examining gender invariance of IEIS in a STEM-based academic context in an Eastern European economy.

2. METHODS

2.1. TRANSLATION OF THE SCALE

The scale was translated from English to Romanian by two English teachers. To ensure that the content was relevant, this first translation was checked by a teacher with 30 years of experience in management and entrepreneurial education, which led to the refinement of the respective version. The resulting Romanian version was then back-translated into English by another translator, in collaboration with a psychologist. The final stage consisted of testing the clarity, relevance and understanding of the items on a pilot sample of 11 students who were not included in the final sample (mean age=20.72, eight men, three women), without leading to any item modifications.

2.2. PARTICIPANTS AND PROCEDURE

The sample for this study was drawn from three major technical universities in Romania: National University of Science and Technology Politehnica Bucharest (UNSTPB), Technical University of Construction Bucharest (UTCB), and Politehnica University Timisoara (UPT). This cross-sectional study comprised students who completed an online survey between January and March 2024. The author of the study was directly involved in the data collection process. The instruments that made up the survey were posted on a Google Forms link and were distributed to students during teaching activities. The applied instruments are part of a larger project on entrepreneurship in technical universities. The total time to complete the answers for the entire set of instruments was approximately 14–15 minutes. The link on which the instruments were posted was secured so that it was only allowed to be completed once by each participant. In the introduction to the survey, participants were informed about the research object, the entire procedure and the requirements for informed consent. Participation was anonymous to control the effect of social desirability and withdrawal was free at any stage of the process.

2.3. ETHICAL CONSIDERATIONS

The study was conducted in accordance with the ethical principles of the World Medical Association Declaration of Helsinki of 1975, as revised in 2013. This study was approved by the relevant departmental ethics committee of the National University of Science and Technology Politehnica Bucharest (Reg. No. 3048/16.10.2023).

2.4. MEASURES

1. *Individual Entrepreneurial Intent Scale* – IEIS (Thompson, 2009) assesses EI, consisting of 10 items, of which three items are reverse-rated and four are considered distracter items that are not related to entrepreneurial intention and act as a red herrings (these are eliminated in the interpretation of EI according to the recommendation of Thompson, 2009), thus reducing the final instrument to six items (1, 4, 6, 7, 9, and 10). Summing the scores leads to a score regarding entrepreneurial intention. Sample item: Intend to set up a company in the future. The items are rated on a continuum from 1 – definitely not true, to 6 – definitely true. The scale was validated on samples of international and postgraduate students and obtained Cronbach's alpha coefficient of internal reliability between 0.83 and 0.93.
2. *Entrepreneurial Intention Questionnaire* – EIQ (Liñán & Chen, 2009) assesses EI and the three motivational antecedents proposed by TPB as being involved in entrepreneurial behavior: attitudes towards entrepreneurship (e.g., Being an entrepreneur involves more advantages than disadvantages for me); social norms (e.g., If you decided to create a company, would

people in your close environment approve of this decision? a- Your close family, b- Your friends, c- Your colleagues); perceived behavioral control (e.g., I can control the process of creating a new company); items are rated on a scale from 1 – total disagreement to 7 – total agreement. The instrument illustrated good factorial validity: $\chi^2/df = 3.94$; CFI = 0.983; TLI = 0.975; RMSEA = 0.058 [0.049-0.066; SRMR = 0.034]. The factor loadings ranged from 0.645 to 0.910. The scale demonstrated excellent internal consistency: $\alpha = 0.953$ (0.949–0.957) and $\omega = 0.959$ (0.955–0.963) for the entire scale.

3. A self-report questionnaire was used to collect socio-demographic information including: (i) gender, (ii) age, (iii) year of study, and (iv) technical subfield studied.

2.5. HYPOTHESIS

H1: The Romanian version of the IEIS will demonstrate a unidimensional factorial structure.

H2: The IEIS scores will be positively associated with entrepreneurial intention and its motivational components (attitudes, social norms and perceived control behavior) measured by the EIQ.

2.6. DATA ANALYSIS

To evaluate the factorial structure of the scale, a confirmatory factor analysis (CFA) was conducted with the Diagonally Weighted Least Squares (DWLS) estimation method considered appropriate under the conditions of multivariate non-normality of the data (Di Stefano & Morgan, 2014). In order to determine the statistical fit of this, we used the coefficients χ^2 (chi-square), df (degrees of freedom), χ^2/df (criterion chi-square/df), CFI (comparative fit index), TLI (Tucker-Lewis index), RMSEA (root mean square error of approximation), and SRMR (standardized root mean square residual). For these indices, we considered the following cut-off level: the value of χ^2/df is acceptable if it is ≤ 3.00 (Hooper *et al.*, 2008). CFI, GFI, and TLI values close to or greater 0.90 are acceptable to good (Schumacher and Lomax, 2016). RMSEA and SRMR have good values if they are < 0.08 (McNeish & Wolf, 2023). We performed multiple groups analyzes to investigate measurement invariance across gender – a prerequisite for group comparisons to reflect true differences. Invariance criteria imply insignificant changes in absolute fit indices: ΔCFI and $\Delta RMSEA \leq 0.010$ (Putnick & Bornstein, 2016). Reliability was examined using Cronbach's alpha and McDonald's omega, which are considered good when are over 0.70 (Taber, 2018). To verify convergent validity, the association between the IEIS and EIQ, which measures entrepreneurial intention from the perspective of the TPB, was examined. All data were analyzed using JASP 0.19.1.0 (Amsterdam University, Amsterdam, Netherlands).

3. RESULTS

3.1. SOCIODEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

The study sample consisted of 900 university students, with an average age of 21.06 years ($SD = 2.91$). Of these, 520 were identified as men (Mean age = 21.03; $SD = 2.41$) and 380 as women (Mean age = 21.12; $SD = 3.48$) (Table 1).

Table 1

Socio-demographic information of the sample

Students (N = 900)	Percentage
Sex	
Men	57.77
Women	42.23
Age (years)	M=21.06 $\pm$ 2.91
18–20	43.11
21–23	52.11
24–27	4.78
Years of study	
Early years (1st–2nd)	46.45
Final years (3rd–4th)	53.55
Field of study	
Automatic Control and Computers	26.44
Medical Engineering	25.00
Business Engineering and Management	13.33
Transportation Studies	13.01
Civil Engineering	12.00
Electrical Engineering	10.22

Regarding their academic progression, 418 participants (46.45%) were enrolled in the first or second year of their programs, while the remaining 482 students (53.55%) were in their third or fourth years. The participants represented a variety of academic disciplines, including Automatic Control and Computers (26.44%), Medical Engineering (25%), Transportation Studies (13.01%), Business Engineering and Management (13.33%), Civil Engineering (12%), and Electrical Engineering (10.22%).

3.2. DESCRIPTIVE ANALYSIS

The skewness and kurtosis values for the items ranged between -0.524 and 0.452 and between -1.318 and -0.593 , respectively (Table 2). The normality assumption was considered satisfactory in the case of a sample of 900 participants, as the values did not exceed 2 (skewness) and 7 (kurtosis) respectively (Hair *et al.*, 2019). The corrected item-total correlations were between 0.561 and 0.668, above the recommended threshold of 0.40 (Wang, 2003), which shows that all items contribute adequately to measuring the construct of entrepreneurial intention. The

mean scores of the first three items indicate a positive orientation towards entrepreneurial learning and the intention to start a business. Although cognitive intention and interest are high, the concrete preparation (accumulation of financial resources, active search for opportunities) is lower.

Table 2

The descriptive statistics of the items

Items	M	SD	Skewness (SE=0.081)	Kurtosis (SE=0.163)	α if item deleted	Corrected item-total correlation
1. Intend to set up a company in the future.	3.983	1.40	-0.256	-0.593	0.805	0.654
4. Never search for business start-up opportunities. (R)	2.942	1.63	0.427	-0.978	0.819	0.575
6. Are saving money to start a business.	2.870	1.48	0.452	-0.731	0.801	0.668
7. Do not read books on how to set up a firm. (R)	4.031	1.53	-0.454	-0.791	0.821	0.561
9. Have no plans to launch your own business. (R)	3.602	1.75	-0.130	-1.318	0.820	0.577
10. Spend time learning about starting a firm.	4.221	1.64	-0.524	-0.937	0.801	0.662

Note: M – Mean; SD – Standard deviation. The table presents the six items of the IEIS without distracter items.

Gender differences show that male participants had significantly higher EI scores ($M = 22.63$; $SD = 7.06$) than female respondents ($M = 20.27$; $SD = 6.79$) ($t = 5.04$; $p < 0.001$), suggesting that gender influences entrepreneurial intention.

3.3. RELIABILITY AND INTER-ITEM CORRELATIONS

The scale's reliability was high. Thus, α [95%CI] = 0.838 [0.820–0.852] and ω [95%CI] = 0.837 [0.821–0.854] (Table 3). The inter-item correlations ranged from 0.366 to 0.652 (Figure 1).

Table 3

Averages, standard deviations Internal consistency

IEIS	M*	SD	Min.–Max.	α [95%CI]	ω [95%CI]
Sum of items	3.60	1.17	1–6	0.838 [0.820–0.852]	0.837 [0.821–0.854]

Note: M – Mean; SD – Standard deviation

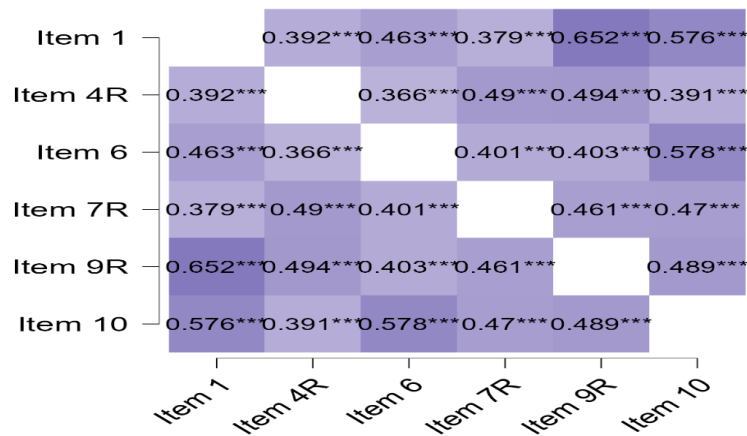


Figure 1. Inter-item correlations

3.4. FACTORIAL STRUCTURE

Multivariate normality analysis, assessed using Mardia coefficients, indicated significant deviations from the normal distribution (kurtosis = 28.09, $p < 0.001$). Although the univariate distributions were acceptable, the multivariate normality analysis indicated significant deviations. Accordingly, the CFA model was estimated using DWLS estimator, which is suitable for non-normal data and ordinal variables (Table 4).

Table 4

Goodness-of-fit indices of the alternative models in CFA (N = 900)

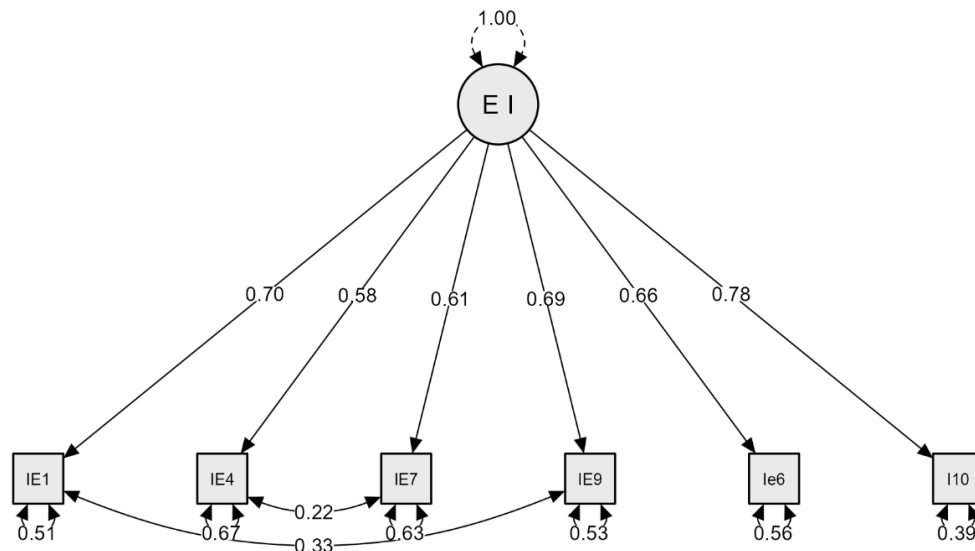
Models	χ^2	df	χ^2/df	CFI	TLI	RMSEA [90%CI]	SRMR	p
M1: one factor	46.793	9	5.19	0.985	0.977	0.067 [0.050–0.088]	0.053	0.001
M2: one factor with covariances	21.009	7	3.00	0.998	0.989	0.047 [0.025–0.071]	0.036	0.050

Note: χ^2 – chi-square; df – degrees of freedom; χ^2/df – criterion chi-square/df; CFI – comparative fit index; TLI – Tucker-Lewis index; RMSEA – root mean square error of approximation; SRMR – standardized root mean square residual.

A single-factor model (M1) and a single-factor model with residual covariances (M2), were analyzed in which two covariances were included between items 1 (Intend to set up a company in the future) and 9 (Have no plans to launch your own business – R) and 4 (Never search for business start-up opportunities – R) and 7 (Do not read books on how to set up a firm – R).

Residual covariances were specified between items with opposite wording and negatively worded items with similar content, indicating wording effects and semantic overlaps. As no additional latent factors were theoretically expected, these modifications were interpreted as method effects associated with item phrasing.

This practice is accepted in the literature provided that the modifications are theoretically anchored and do not exceed a number that would compromise the parsimony of the model (Brown, 2015). Thus, model modifications were guided by theoretical interpretability rather than purely statistical improvements. In this case, the second model showed a significant improvement in the fit indices compared to the initial model and was selected as the final model with very good values of the fit indices: $\chi^2/df = 2.21$, CFI = 0.998, TLI = 0.989, RMSEA = 0.047 [0.025–0.071], SRMR = 0.036. Given these results, the modified model was considered more adequate from both empirical and conceptual perspectives. A graphical representation of the results is shown in figure 2 where the factor loadings for the six items can be observed: 0.70, 0.58, 0.61, 0.69, 0.66, and 0.78.



Note: it.1-10 – IEIS items

Figure 2. Standardized CFA model of IEIS.

3.5. GENDER INVARIANCE

Gender invariance was measured as shown in Table 5. The analysis indicated support for configural, metric, scalar and strict invariance. The changes in fit indices remained within the recommended limits ($\Delta CFI \leq 0.01$; $\Delta RMSEA \leq 0.010$), suggesting parameter equivalence between the two groups of men and women.

Table 5

The gender invariance for IEIS

Models	Indices							p
	χ^2	df	χ^2/df	CFI	RMSEA [90%CI]	ΔCFI	$\Delta RMSEA$	
Configural	23.051	14	1.64	0.996	0.038 [0.000–0.065]	—	—	0.051
Metric	25.673	19	1.35	0.997	0.028 [0.000–0.053]	−0.001	0.010	0.140
Scalar	33.605	20	1.47	0.996	0.032 [0.001–0.054]	0.000	0.006	0.063
Strict	54.590	30	1.73	0.991	0.040 [0.021–0.058]	0.005	−0.002	0.006

3.6. CONVERGENT VALIDITY

In the next stage, we explored the relationship between the IEIS and EI_Q with its components (personal attitudes towards entrepreneurship – AT, social norms – SN, and perceived behavioral control – PBC). The results show high significant correlations between EI_(IEIS), on the one hand, and AT ($r = 0.685$), PBC ($r = 0.703$) and EI_(EIQ) ($r = 0.757$) on the other hand. Moderate correlations between EI_(IEIS) and SN ($r = 0.240$) were found (all $p < 0.001$) (Table 6).

Table 6

Convergent validity

Variables	1	2	3	4
1.EI _(IEIS)	—			
2.PA	0.685***	—		
3.SN	0.240***	0.482***	—	
4.PBC	0.703***	0.698***	0.313***	—
5.EI _(EIQ)	0.757***	0.843***	0.349***	0.804***

Note: EI_(IEIS) – entrepreneurial intention (IEIS); PA – personal attitudes, SN – subjective norm; PBC – perceived behavioral control, EI_(EIQ) – entrepreneurial intention (EIQ).

*** $p < 0.001$

Based on the CFA results, the values for composite reliability (CR) and average variance extracted (AVE) were obtained. The CR value was 0.831, exceeding the threshold of 0.70 (Chin, 2010). The average variance extracted (AVE = 0.450) was below the recommended threshold of 0.50, suggesting moderate convergence of the items. It is possible that the AVE value is due to the small number of items on the scale. In accordance with the literature (Hair *et al.*, 2019), high values of composite reliability can partially compensate for a suboptimal AVE, supporting the acceptable nature of convergent validity. In this context, the results indicate that although the variance explained at the item level is relatively limited, the construct is coherently measured at the global level.

4. DISCUSSION

The present study aimed to examine the psychometric properties of the Romanian version of the Individual Entrepreneurial Intent Scale (IEIS) in a sample of technical students. Overall, the results provide consistent support for the reliability and validity of the instrument, confirming its suitability for assessing entrepreneurial intention as a distinct cognitive construct. The CFA supported a unidimensional structure of the scale, in line with Thompson's original conceptualization (2009). Although the initial model demonstrated an acceptable fit, the inclusion of two residual covariances led to a substantial improvement in the model fit. These covariances were theoretically justified, reflecting wording effects between positively and negatively formulated items, and semantic overlap between negatively phrased indicators. The inclusion of two residual covariances appears to reflect wording effects between similarly phrased reverse-worded items rather than multidimensionality of the construct. Considering their theoretical justification and limited number, the unidimensional structure of the IEIS remains supported.

Measurement invariance across gender was supported at the configural, metric, scalar, and strict levels, with additional evidence for strict invariance based on changes in fit indices. These results indicate that the scale operates equivalently for male and female students, allowing meaningful comparisons between groups.

Gender differences highlighted that EI was higher among men than among women. This result aligns with previous studies that have reported that EI is higher in male students than in female students (Liñán & Chen, 2009; Epstein *et al.*, 2022). Several explanations have been proposed in the literature, including differences in entrepreneurial self-efficacy, perceived barriers, and sociocultural expectations regarding entrepreneurship (Shinnar *et al.*, 2012; Köpke & Schmitt-Rodermund, 2025). Evidence from Romania suggests that gender disparities in entrepreneurship remain persistent, with women being less involved in entrepreneurial activity and facing greater obstacles to business creation than men (Robayo-Abril & Rude, 2023). However, considering the cross-sectional nature of the present study, these interpretations should be considered tentative and cannot be directly inferred from data.

Convergent validity was supported by significant correlations between the IEIS and the components of the Entrepreneurial Intention Questionnaire (EIQ). As expected, strong associations were observed between attitudes toward entrepreneurship and perceived behavioral control, whereas the relationship with social norms was more moderate. This pattern is consistent with the theoretical assumptions of the Theory of Planned Behavior and with empirical studies in which attitudes and perceived control are typically stronger predictors of entrepreneurial intention than social norms (Arroyo *et al.*, 2021; Vafaei-Zadeh *et al.*, 2022, Blanco-Mesa *et al.*, 2023; Balgiu & Simionescu-Panait, 2024). For example, in a systematic literature study based on geographic regions, attitudes and perceived control behavior have the greatest role in EI, while social norms have a moderate impact, all depending

on how visible social pressures are at the community level (Andrade & Carvalho, 2023). It should be mentioned the high correlation ($r = 0.757$) between the two instruments in measuring EI, but not perfect. IEIS measures crystallized intention while EIQ also captures motivational antecedents. As such, the two instruments assess closely related yet not identical aspects of entrepreneurial intention. Thus, the study benefits from the nomological clarification of the concept, not just from technical validation. Internal consistency measured by reliability indices was good, above 0.83 in the case of Cronbach's alpha and McDonald's omega, similar to the alpha coefficients reported in the original validation study (0.83–0.93) (Thompson, 2009). Other authors found a Cronbach's coefficient of reliability of over 0.70 in samples of American students (Butz *et al.*, 2018) and students from Latin American countries (Contreras Torres *et al.*, 2017). Although the average variance extracted (AVE) was slightly below the recommended threshold, the composite reliability values were satisfactory, suggesting that the construct was measured consistently at the global level. This result may be partially explained by the relatively small number of items, which is a common characteristic of concise psychological scales.

Study limitations: First, the cross-sectional design did not allow for causal inferences or the examination of the predictive validity of the scale over time. Second, the sample was restricted to students from technical universities, which may limit the generalizability of the findings to other populations and settings. Future research could extend the validation of the scale to more diverse samples and explore its longitudinal stability, and relationship with actual entrepreneurial behavior. To evaluate the characteristics of the scale, its association with other instruments that measure EI is required. Also, the relationship between EI and entrepreneurial self-efficacy (Auer Antončič *et al.*, 2021; Nwibe & Bakare, 2022) and entrepreneurial education has been recognized in the literature (Maresch *et al.*, 2016; Barba-Sánchez & Atienza-Sahuquillo, 2018). In this case, further studies could associate the IEIS with measures from these categories. Future studies could also examine the predictive validity of the scale in relation to actual entrepreneurial behavior, as well as the equivalence of its measurements in different fields of study beyond engineering. Another limitation concerns the absence of divergent validity that would prove that the IEIS measures a different construct from related variables. Although the present study provides several important sources of validity evidence, validation is an ongoing process. Future research should further examine discriminant validity, predictive validity, and temporal stability. We thus reinforce the idea of the need to associate the IEIS with instruments that measure entrepreneurial self-efficacy, entrepreneurial attitude and/or risk-taking propensity to demonstrate that entrepreneurial intention as conceptualized by the IEIS does not excessively overlap with these constructs.

CONCLUSIONS

This study focused on the psychometric validation of the Individual Entrepreneurial Intent Scale, one of the few conducted in a specific STEM academic context in Eastern Europe. The strict gender invariance allows for direct comparisons of scores between male and female students, without measurement errors. Simultaneously, given that the AVE value is slightly below the recommended threshold, it signals that the internal convergent validity of the scale should be interpreted with caution. Further research will need to extend the validation to non-engineering populations to establish broader applicability in the Romanian higher education system. The findings support the use of the IEIS as a reliable tool for assessing entrepreneurial intention among technical students and can be used to select participants in elective entrepreneurship courses. Validating the scale on a sample of technical students is particularly relevant, given that technical skills are essential to digital entrepreneurship. However, lower scores on items related to opportunity seeking and resource gathering suggest that technical students could benefit from specific training in business dimensions and opportunity recognition of entrepreneurship, complementing their existing technical skills. Given the strategic importance of innovation-driven sectors and the increasing interest in entrepreneurship among young people, the availability of a validated instrument tailored to the Romanian context is particularly valuable for researchers and practitioners. The scale may help universities to identify students with high entrepreneurial potential early in their academic careers and design targeted support programs. The results contribute to the growing body of literature on entrepreneurship measurement and provide a useful tool for research and practice.

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