

## VERIFYING THE MODEL OF PREDICTING ENTREPRENEURIAL INTENTION AMONG STUDENTS OF BUSINESS AND NON-BUSINESS ORIENTATION

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*This study aims to verify whether certain entrepreneurial characteristics, like entrepreneurial potential and entrepreneurial propensity, affect the level of entrepreneurial self-efficacy and desirability of entrepreneurship, and further have direct and indirect effect on entrepreneurial intentions. Furthermore, this study seeks to compare the strength of the relationship between these variables among groups of students who receive some entrepreneurship education and students outside the business sphere. Data was collected from a sample of undergraduate students of business and non-business orientation and analyzed with multi-group analysis within SEM. Results of the multi-group analysis indicate that indeed, the strength of the relationship among tested variables is more pronounced when it comes to business students. That is, mediating effect of perceived entrepreneurial self-efficacy and desirability of entrepreneurship in the relationship between entrepreneurial characteristics and intent, is significantly stronger for the business-oriented groups, in comparison to non-business orientation group. The amount of explained variance of all constructs (except entrepreneurial propensity) is also larger in business students in comparison to non-business students. Educational implications of obtained results are discussed.*

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## 1. INTRODUCTION

Previous research has confirmed the importance of various personal predispositions for recruitment into entrepreneurship. These predispositions, called entrepreneurial tendencies, inclinations or abilities include a wide spectrum of psychological constructs - from motivational characteristics (e.g. achievement motive, independence motive), specific cognitions (e.g. opportunity identification), specific and general traits (e.g. risk taking, ambiguity tolerance) to abilities (e.g. creativity) (Ahmetoglu and Chamorro-Premuzic, 2010; Caird, 1988; Chell, 2008; Miljković Krečar, 2008; Zhao and Seibert, 2006).

Correlations of different entrepreneurial characteristics with entrepreneurial intentions and behavior were found to be moderate (e.g. the multiple R between the BIG5 personality dimensions and entrepreneurial status found in Zhao Seibert and Lumpkins' (2010) meta-analysis was  $R=0.37$ ). Therefore, some researchers investigated the indirect effect of entrepreneurial characteristics on entrepreneurial intentions through the convictions or attitudes about entrepreneurship (e.g. Chandler and Jansen, 1997). One of these key attitudes is *entrepreneurial self-efficacy* (ESE), a belief in one's own ability to create a successful venture. Higher ESE was found to be correlated with higher intrinsic motivation for entrepreneurship, prolonged effort investment and higher persistence when facing obstacles (Boyd and Vozikis, 1994). Krueger and Braezel (1994) found a significant correlation between ESE and entrepreneurial intentions. In total, ESE was found to be the most significant predictor of someone's entrepreneurial intentions and entrepreneurial behavior, as well as significant predictor of later venture success.

Yet, believing that we are capable of something does not instantly imply our wish to become active in that direction. What is also important is a perception of desirability of a particular behavior. Shapero and Sokol (1982) define perceived *desirability of entrepreneurship* (DOE) as the degree to which one finds attractive the possibility of starting a business. This perception could be the reflection of our internal standards of attractive and unattractive career options as well as of external social pressures, laws, etc.

These ideas are the basis of Krueger and Braezel's (1994) *Entrepreneurial potential model*. This model assumes that the entrepreneurship is a focused, planned activity, so intention to become an entrepreneur is its most significant predictor. Based on their previous research authors suggest that the strongest impact on the formation of entrepreneurial intentions comes from the evaluation of its *feasibility*, or entrepreneurial self-efficacy. The other key aspect of this theory is perceived *desirability* of entrepreneurship, which constitutes attitudes toward action and social norms. People can have various attitudes on entrepreneurship, ranging from generally negative to preferences towards specific forms of entrepreneurship. Also, social norms or opinions of significant others as well as general public attitudes, could influence perception of desirability. Essentially, perceived feasibility and desirability are essential elements of intentional behavior. Perceived feasibility (ESE) and perceived desirability (DOE) together form a so-called *credibility of entrepreneurship* as a career option – a basis on which a person forms his/her entrepreneurial intentions.

ESE and DOE, as important antecedents of entrepreneurial intent and behavior, could be influenced through education. Bandura (1997) postulates four basic sources of self-efficacy: performance accomplishments, vicarious experience, social persuasion and evaluation of physiological and affective states. By giving students the opportunity to independently experience various entrepreneurial tasks (e.g. form and manage fictive enterprises), is considered to be the best education practice in this context (Segal et al., 2007). The results are even better if lecturers themselves are examples of successful entrepreneurs or if they at least give students the opportunities to meet actual entrepreneurs. Also, social support for entrepreneurship coming from relevant sources (possibly lecturers) could increase ESE (Bandura, 1997). Desirability of entrepreneurship could also be affected through education (Krueger and Braezel, 1994). By influencing student's ESE and DOE, an indirect influence is made on entrepreneurial intentions and later behavior. Although the majority of research made in this field deals with the effects of specific and often unique educational programs, there is a consensus of a positive correlation between entrepreneurship education and entrepreneurship activity (Dickson, Solomon and Waever, 2008; Kolvereid and Moen, 1997).

Certain research perspectives on entrepreneurial intentions address the relationship between entrepreneurship education and the entrepreneurial intention of its participants (Linán and Fayolle, 2015). Empirical research results reveal significant differences in terms of attitudes and intention levels of students who take part in entrepreneurship education programs and those who

do not. Fayolle's and Linán (2014) suggest that scholars should seek to conduct studies with a high standard of methodological rigor when comparing groups of students who receive entrepreneurship education to students outside the entrepreneurship education sphere.

In line with the above mentioned, we tested the model of predicted entrepreneurial intentions (Figure 1) among the students of the final year of different master study programmes.

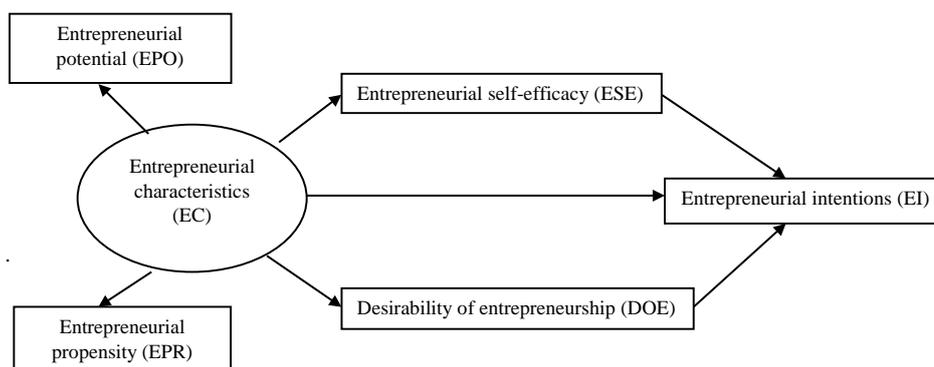


Figure 1. Proposed research model

The model proposed that ESE and DOE are the key predictors of EI. In addition, it has been assumed that certain entrepreneurial characteristics, consisting of entrepreneurial potential (EPO) and entrepreneurial propensity (EPR), affect the level of ESE and DOE, and have direct and indirect effects on EI. In order to verify the possible effects of entrepreneurship education on relations between key constructs, the proposed model was tested simultaneously on both students of business and on students of non-business orientation. Accordingly, the following hypotheses have been formulated.

**H1:** Entrepreneurial characteristics will be positively linked to the perceived entrepreneurial self-efficacy and desirability of entrepreneurship.

**H2:** Entrepreneurial characteristics will be positively linked with and will have both direct and indirect effect on entrepreneurial intentions.

**H3:** Entrepreneurial self-efficacy and desirability of entrepreneurship will be positively linked to entrepreneurial intentions.

**H4:** Perceived entrepreneurial self-efficacy and desirability of entrepreneurship will mediate the relationship between entrepreneurial characteristics and entrepreneurial intentions.

**H5:** Students' (non)business orientation will moderate the relationship between measured constructs: the model will more pronouncedly predict entrepreneurial intentions of students of business in comparison with the non-business students.

## 2. MATERIAL AND METHODS

### 2.1. Participants

Data was collected from a sample of 528 undergraduate students of business and non-business fields (Faculty of Economics in Rijeka (N=142), Faculty of Economics in Osijek (N=129), VERN' University of Applied Sciences in Zagreb (N=44), Faculty of Humanities and Social Sciences in Osijek (133) and Faculty of Humanities and Social Sciences in Rijeka (80)). The gender composition of the sample was 77.5% female and 22.5% male. Age of the participants ranged from 21 to 31 (M = 23.1, SD = 1.41). For the purpose of further analysis, the students of the Faculty of Economics in Rijeka and Osijek, and VERN ' students are classified as "business orientation" (N = 315), while the students of the Faculty of Humanities and Social Sciences in Osijek and Rijeka are classified as "non-business orientation" (N = 213).

### 2.2. Instruments

*Measure of Entrepreneurial Tendencies and Abilities* (META L61, adjusted from Ahmetoglu and Chamorro-Premuzic, 2010) was used as the measure of entrepreneurial potential. This scale contains 61 items measuring 4 different aspects of entrepreneurial personality: *entrepreneurial awareness, entrepreneurial creativity, opportunism and need for progress.*

Items were presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). Composite score was calculated by summing across all items, with higher scores indicating higher entrepreneurial potential. Cronbach's alpha coefficient for the overall entrepreneurial potential (for the pooled sample) was .96.

*Entrepreneurial Propensity Questionnaire* (UPS; Miljković, 2006) contains 69 items divided into three subscales that describe the entrepreneurs'

characteristics - *risk acceptance and unconventionality, focus on the achievement and confidence in their own abilities*. Items were presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). Part of the items are given in a positive form, and a part in the negative form. Composite score was calculated by summing across items, with higher scores indicating higher entrepreneurial propensity. Cronbach's alpha coefficient for the overall entrepreneurial propensity (for the pooled sample) was .91.

*Entrepreneurial self-efficacy scale* (adjusted from Liñan and Chen, 2006) was used to assess entrepreneurial self-efficacy. The scale contains 6 items, presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). Composite score was calculated by summing across items, with higher scores indicating higher entrepreneurial self-efficacy. Cronbach's alpha coefficient (for the pooled sample) was .79.

*Desirability of Entrepreneurship Scale* (adjusted from Liñan and Chen, 2006) was used to assess the desirability of entrepreneurship. The scale contains 5 items presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). Composite score was calculated by summing across items, with higher scores indicating higher desirability of entrepreneurship. Cronbach's alpha coefficient (for the pooled sample) was .86.

*Entrepreneurial Intentions Questionnaire* (adjusted from Liñan and Chen, 2006) was used to assess entrepreneurial intentions. The scale contains 6 items, presented in Likert-type format with a scale ranging from 1 (=strongly disagree) to 5 (=completely agree). Composite score was calculated by summing across items, with higher scores indicating higher entrepreneurial intentions. Cronbach's alpha coefficient (for the pooled sample) was .90.

### 2.3. Procedure and analyses techniques

We conducted the research in larger or smaller groups on the faculties included in the study. The survey lasted approximately 25 minutes. Participation in the survey was confidential and voluntary. All the items were randomly generated in order to form one unique questionnaire. The information about students' demographic characteristics was at the end of the questionnaire. For verifying whether the (non)business students' orientation will moderate the relationship between measured constructs, a multi-group analysis within structural equations modeling was performed. Multi-group analysis allows simultaneous estimation of the different group parameters (Hayduk, 1987). It

allows researchers to direct the issue of measurement equivalence, or measurement invariance across populations or groups (e.g., Cheung and Rensvold, 2002; Epitropaki and Martin, 2004; Vandenberg and Lance, 2000) and to further verify whether belonging to a certain population or a group moderates the relationships specified in the model (Kline, 1998). Based on an extensive review of the literature, Vandenberg and Lance (2000) proposed that configural, metric and scalar invariance should be confirmed before comparisons across groups can be meaningful (Meredith, 1993; Steenkamp and Baumgartner, 1998) in order to capture whether the constructs itself function the same across groups.

Therefore, prior to testing the hypotheses of whether the students (non)business orientation moderates the relationship between measured constructs, the precondition for such a comparison of strength of relationships was tested and met.

More specifically, three types of measurement invariance were tested. *Configural invariance* (equality of factor structures across groups) is the basic level of invariance between groups. It examines if the number of factors and the pattern of salient and non-salient loadings are same across groups.

*Metric invariance* (equality of all factor-loading parameters across groups) investigates whether the strength of the relationship between each item and its factor is equal for both groups. Metric invariance is a significant prerequisite for meaningful subgroup comparisons (Bollen, 1990) and the evidence of weak factorial invariance (Meredith, 1993).

*Scalar invariance* (equal constraints on factor loadings and item intercepts) aims to explore whether participants with the same value on the latent construct would have same values on the observed variable. Scalar invariance is the evidence of strong factorial invariance (Meredith, 1993). Additionally, when testing invariance, the measurement of constructs needs to show at least partial measurement invariance (e.g., Byrne, Shavelson, and Muthen, 1989; Byrne and Watkins, 2003; Reise, Widaman, and Pugh, 1993).

### 3. RESULTS

#### 3.1. Descriptive statistics and correlations

Firstly, all variables were examined for the accuracy of data entry, missing values, fit between their distributions and assumptions of multivariate and

multi-group analyses (Tabachnick and Fidell, 2001). All assumptions are fulfilled, and all variables were deemed normally distributed. Descriptive statistics for all measured variables (for the pooled sample and for both samples separately) is presented in Table 1.

Table 1. Means, standard deviations and Cronbach alpha coefficients of all variables

	Business orientation ( <i>e</i> )			Non-business orientation ( <i>n</i> )			Pooled sample ( <i>p</i> )		
	M	SD	$\alpha$	M	SD	$\alpha$	M	SD	$\alpha$
<b>Entrepreneurial potential (EPO)</b>	214.33	25.07	.94	204.68	24.60	.93	210.32	25.30	.93
<b>Entrepreneurial propensity (EPR)</b>	240.18	26.62	.91	238.72	26.22	.92	239.58	26.44	.91
<b>Entrepreneurial characteristics (EC)</b>	462.20	49.09	.97	441.35	48.40	.96	450.75	49.15	.96
<b>Entrepreneurial self-efficacy (ESE)</b>	21.41	4.13	.80	18.57	4.09	.75	20.25	4.34	.79
<b>Desirability of entrepreneurship (DOE)</b>	19.08	4.53	.85	15.48	4.21	.81	17.61	4.74	.86
<b>Entrepreneurial intentions (EI)</b>	20.62	6.41	.88	14.30	5.19	.86	18.06	6.70	.90

Note. Items were rated on a 5-point Likert-type scale. N (*e*) = 315; N (*n*) = 213; N (*p*) = 528.

Furthermore, the inter-correlations of all measured variables were examined, separately for the samples of students (1) of business and (2) non-business orientation, and for the pooled sample as well (Table 2).

As expected, the inter-correlations of all measured variables found to be the highest for the sample of students of business. Furthermore, the high positive correlations between *entrepreneurial potential* (EPO) and *entrepreneurial propensity* (EPR) were found, which in further analysis represent a common, latent factor of *Entrepreneurial Characteristics* (EC). Entrepreneurial characteristics (EC) is highly positively correlated with both mediating variables, perceived *entrepreneurial self-efficacy* (ESE) and the *desirability of entrepreneurship* (DOE), as well as with the *entrepreneurial intentions* (EI). ESE and the DOE were also highly positively associated with the EI, as well as mutually.

Table 2. Correlations of all variables

	Business orientation ( <i>e</i> )					Non-business orientation ( <i>n</i> )					Pooled sample ( <i>p</i> )				
	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6
1. EPO	.83	.95	.67	.47	.51	.77	.93	.59	.39	.39	.80	.94	.62	.45	.49
2. EPR		.96	.67	.41	.45		.94	.63	.29	.28		.95	.67	.35	.36
3. EC			.68	.45	.48			.65	.40	.41			.67	.42	.44
4. ESE				.68	.73				.59	.63				.67	.71
5. DOE					.84					.77					.82
6. EI															-

Note. All correlations are significant at  $p < .01$ .  $N(e) = 315$ ;  $N(n) = 213$ ;  $N(p) = 528$ . EPO = Entrepreneurial potential, EPR = Entrepreneurial propensity, EC = Entrepreneurial characteristics, ESE = Entrepreneurial self-efficacy, DOE = Desirability of entrepreneurship, EI = Entrepreneurial intentions

### 3.2. Testing Preconditions for cross-groups comparisons: Measurement equivalence across (non)business orientation groups

As outlined above, prior to hypotheses testing, multi-group confirmatory factor analyses (MGCFA) for all measured variables was employed, in order to test whether the preconditions for cross-groups comparison are met; i.e. if at least partial measurement requirements can be established across groups. Models assuming configural invariance were compared to subsequent nested models additionally assuming metric and also partial and full scalar invariance. Therefore, constraints are added to various model parameters to be equal across groups, and the model is fitted, yielding an  $X^2$  value for each constrained model. This is followed by a Chi-square difference test to see if the difference between the constrained and unconstrained models is significant. More precisely, results are explained for each invariance test by the change in the  $X^2$  value ( $\Delta X^2$ ) as the indicator of a significant drop in fit. However, the use of  $\Delta X^2$  has been criticized because of its sensitivity to sample size (Cheung and Rensvold, 2002). Cheung and Rensvold (2002) produced ground for belief that  $\Delta CFI$  was not apt to these problems. On the ground of thorough simulations, they also concluded that a  $\Delta CFI$  value higher than .01 was indicative of a significant drop in fit. Therefore, a non-significant  $\Delta X^2$ , and a  $\Delta CFI$  value less than .01 designate that the constrained model is the same as the unconstrained multi-group model, pointing to the conclusion that the model does apply across groups and does exhibit multi-group invariance. Table 3 presents the results for each scale.

Table 3. Model fit with all parameters estimated freely across groups (“configural invariance, but no metric invariance”)

Var	m	Model fit						Model fit compared to “no metric invariance”			
		$\frac{\chi^2}{df}$	NC	CFI	GFI	NFI	TLI	R	$\Delta\chi^2$	df	$\Delta CFI$
EPO	C	7364.94** 3408	2.2	.87	.84	.74	.69	.05			
	M	7484.35** 3464	2.2	.87	.84	.74	.69	.05	119.41**	56	.003
	S	<b>7499.35**</b> <b>3474</b>	<b>2.2</b>	<b>.87</b>	<b>.83</b>	<b>.74</b>	<b>.68</b>	<b>.05</b>	<b>134.55**</b>	<b>66</b>	<b>.005</b>
EPR	C	8598.23** 4414	1.9	.76	.85	.66	.74	.04			
	M	8680.01** 4479	1.9	.76	.85	.67	.74	.04	81.78 ns	65	.002
	S	<b>8705.08**</b> <b>4485</b>	<b>1.9</b>	<b>.76</b>	<b>.85</b>	<b>.66</b>	<b>.74</b>	<b>.04</b>	<b>106.85**</b>	<b>71</b>	<b>.004</b>
ESE	C	51.40** 18	2.9	.96	.97	.94	.93	.06			
	M	59.75** 23	2.6	.95	.96	.92	.94	.06	8.34 ns	5	.001
	S	<b>59.75**</b> <b>24</b>	<b>2.5</b>	<b>.95</b>	<b>.96</b>	<b>.92</b>	<b>.94</b>	<b>.05</b>	<b>8.35 ns</b>	<b>6</b>	<b>.001</b>
DOE	C	54.72** 10	5.5	.96	.96	.95	.91	.09			
	M	59.96** 14	4.3	.96	.96	.94	.93	.08	5.24 ns	4	.001
	S	<b>60.86**</b> <b>15</b>	<b>4.1</b>	<b>.96</b>	<b>.96</b>	<b>.94</b>	<b>.94</b>	<b>.08</b>	<b>6.14 ns</b>	<b>5</b>	<b>.001</b>
EI	C	97.56** 18	5.4	.96	.94	.95	.93	.09			
	M	108.83** 28	4.7	.96	.93	.94	.94	.08	11.27*	5	.001
	P	<b>119.20**</b> <b>34</b>	<b>4.9</b>	<b>.96</b>	<b>.93</b>	<b>.94</b>	<b>.94</b>	<b>.09</b>	<b>21.64**</b>	<b>6</b>	<b>.003</b>
	S	285.57** 36	9.5	.87	.87	.86	.85	.13	188.01**	12	.09

Note \* $p < .05$ ; \*\* $p < .001$ ; Var = Variable, m = Model, R = RMSEA, EPO = Entrepreneurial potential, EPR = Entrepreneurial propensity, EC = Entrepreneurial characteristics, ESE = Entrepreneurial self-efficacy, DOE = Desirability of entrepreneurship, EI = Entrepreneurial intentions, C = Configural, M = Metric, S = Scalar, P = Partial Scalar

Concerning *configural invariance*, the results of the multiple MGCFA show that all items are significantly related to the underlying latent constructs they were hypothesized to measure. Constraining all item-factor-loadings to be identical across groups (*metric invariance*), indicated that the strength of the relationship between each item and its factor is equal for both groups, so metric invariance for all scales is also supported. Concerning *scalar invariance*, participants with the same value on the latent construct deemed to have same values on the observed variable. Full scalar invariance is supported for all scales, except for the scale measuring EI. By constraining the intercepts to be equal, model fit indices significantly deteriorated in EI scale. The indicator whose intercepts is not invariant across groups was identified ("*My professional goal is to become an entrepreneur*"). That item contributed to a significant increase in  $X^2$  and decrease in CFI value. Releasing this constraint yielded substantial and statistically significant improvement in model fit as compared to the full scalar invariance model, so partial scalar invariance was achieved. Therefore, preconditions for across-groups comparisons are met.

### 3.3. Hypotheses tests

In testing for multi-group invariance and in examining differences across groups, the model of a pooled sample (of all groups) and also one-sample models are tested separately first, in order to provide a summary of how consistent the model results are. Therefore, fit of the proposed model (Figure 1.) to the actual data set, was tested *separately* for a sample of students of (1) business orientation (N = 315), (2) non-business orientation (N = 213) and (3) for the pooled sample (N = 528).

The variance-covariance matrix was analyzed using the maximum-likelihood estimation and multiple indices of model fit including the Chi-Square statistic ( $\chi^2$ ), the Normed Chi-Square statistic (NC), the Comparative fit index (CFI), Normed-fit index (NFI), the Tucker-Lewis index (TLI) and the Root mean square error of approximation (RMSEA). Generally, a nonsignificant Chi-Square, values of Normed-fit index (NFI), Comparative fit index (CFI), Goodness-of-fit statistic (GFI) and Tucker-Lewis index (TLI)  $\geq .95$  and the Root mean square error of approximation (RMSEA)  $< .07$  indicate very good model fit (Byrne, 1994, Hooper, Coughlan and Mullen, 2008; Hu and Bentler, 1999, Shevlin and Miles, 1998, Steiger, 2007). Although the Chi-Square is the

standard statistic to assess the overall fit of the model to the data, it is practically impossible not to reject the null hypothesis when large samples are used (Jöreskog and Sörbom, 1993). To address this limitation, calculation of the Normed Chi-Square statistic (NC) was proposed, with desirable values < 3 (Kline, 1998) and the above-mentioned additional fit indices were also employed. The results indicated a very good fit by most indices (Table 4).

Table 4. Fit indices for pooled sample, and one-sample models

Models	Model fit							
	$\chi^2$	df	NC	CFI	GFI	TLI	NFI	RMSEA
Pooled sample (p)	18.48**	2	9.24	.99	.99	.95	.99	.13
Business orientation (e)	2.26 ns	2	1.13	1.00	.99	.99	.99	.02
Non-business orientation (n)	9.94**	2	4.97	.98	.98	.92	.98	.12

Note. \*\*  $p < .01$ . N(p) = 528; N(e) = 315; N(n) = 213; ns = non-significant.

As expected, the proposed model fits best for the sample of students of business orientation, but further analysis is required to verify whether students' (non)business orientation will moderate the relationships specified in the model. Therefore, a multi-group analysis was utilised.

### 3.4. Multi-group analyses of invariance

The advantage of multi-group analysis is precisely the fact that it allows for the evaluation and comparison of different models simultaneously, resulting in common fit indices, but different and unique model parameters, which vary depending on the groups' (non)business orientation.

First, an unconstrained, *baseline model* was obtained by estimating model fit for the pooled sample (of both groups, simultaneously), in order to examine the invariance of basic model structure between groups. Third, *Model 1* (constrained path coefficients) was created, in order to investigate the strength of the relationships between constructs across groups. Fourth, *Model 2* (constrained path coefficients and variable intercepts) was employed to examine the difference in the amount of constructs across groups.

*Baseline model* fit indices indicate very good fit (Table 6). Differences in path coefficients (standardized regression weights) and variables intercepts across (non) business orientation groups are presented in Table 5.

Table 5. Parameter estimates

Parameter	Business orientation ( <i>e</i> )	Non-business orientation ( <i>n</i> )
<i>Standardized regression weight coefficients (b)</i>		
(a) EC → ESE	.71*	.67*
(b) EC → DOE	.46*	.36*
(c) EC → EI	.06	-.06
(d) ESE → EI	.30*	.27*
(e) DOE → EI	.61*	.60*
<i>% of the explained variance (R<sup>2</sup>)</i>		
EPO	83	66
EPR	72	78
ESE	50	45
DOE	21	13
EI	69	58

Note. \* $p < .01$ . EPO = Entrepreneurial potential, EPR = Entrepreneurial propensity, EC = Entrepreneurial characteristics, ESE = Entrepreneurial self-efficacy, DOE = Desirability of entrepreneurship, EI = Entrepreneurial intentions

According to the *baseline model*, and in line with **H1**, self-rated EC positively affects the perception of ESE and the DOE. ESE, as well as the DOE, was positively related to EI, which fully confirmed **H3**. The significance of the mediation effect of perceived ESE and DOE was obtained using the Monte - Carlo approximation method (bootstrapping). Results showed that EC indirectly affects entrepreneurial intentions, through the perception of ESE and DOE ( $\beta_e = .46$ ,  $p < .01$ ;  $\beta_n = .39$ ,  $p < .05$ ) while the direct effect of EC on IE was insignificant, indicating full mediation effect. These last findings give full support to **H4** and partial support to **H2**.

The total effect of EC on EI for the sample of business orientation group was  $\beta = .52$  ( $p < .01$ ), while the total predictor effect for the sample of non-business orientation group was  $\beta = .36$  ( $p < .05$ ). So, the predictors explain 69% of the total variance of EI of students of business orientation and 58% of the variance of EI of students of non-business orientation.

In order to examine **H5** – whether the students’ (non)business orientation moderates the relationship between measured constructs, *Baseline model* was compared to *Model 1* and *Model 2* (Table 6).

Table 6. Results of multi-group analysis

Models	Model fit									
	$\chi^2$	df	$\Delta X^2$	$\frac{\Delta}{df}$	NC	CFI	$\frac{\Delta}{CFI}$	TLI	NFI	R
<b>Baseline model</b>	12.21*	4	-	-	3.05	.99	-	.97	.99	.06
<b>Model 1</b>	<b>26.61**</b>	<b>10</b>	<b>14.40**</b>	<b>6</b>	<b>2.66</b>	<b>.98</b>	<b>.01</b>	<b>.97</b>	<b>.98</b>	<b>.06</b>
<b>Partial model 1</b>	15.17**	7	2.96 ns	3	2.17	.99	.001	.98	.99	.05
<b>Model 2</b>	<b>127.37***</b>	<b>12</b>	<b>112.19***</b>	<b>5</b>	<b>10.61</b>	<b>.93</b>	<b>.06</b>	<b>.88</b>	<b>.92</b>	<b>.14</b>
<b>Partial model 2</b>	15.53**	8	0.36 ns	1	1.94	.99	.00	.04	.99	.06

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , ns = non-significant, N=528. R = RMSEA.

*Baseline model* indicates invariance of the basic model structure across groups (same variable parameter pattern across groups). However,  $\Delta CFI$  of the *Model 1* suggests that the strength of the relationship between some constructs differs across groups. Unconstraining the path coefficients *c*, *d* and *e* altogether, resulted in significant improvement of model indicators (*Partial Model 1*), which means that the strength of those paths (structural weights) differs significantly across groups, but only when they act upon together. This finding indicates the moderated mediation effect (Denis, 2010) – strength of the mediation effect is moderated by belonging to a certain group (in this case, (non)business orientation group). This indicates that the mediating effect of perceived ESE and DOE is significantly stronger for the business ( $\beta = .52$ ;  $p < .01$ ), in comparison to non-business orientation group ( $\beta = .36$ ;  $p < .05$ ).

Furthermore,  $\Delta CFI$  and other indices pointed to the tremendous fit deterioration of the *Model 2*, which indicates that the amount of some constructs differs significantly across groups. Unconstraining all variable intercepts, except for EPR, resulted in significant improvement of model indicators (*Partial Model 2*), which means that the amount of all constructs (except EPR) differs

significantly across groups: it is larger in business in comparison to non-business orientation group. These findings support **H5**.

Therefore, proposed model explains significantly larger amount of entrepreneurial intentions variance of students of business, in comparison to students of non-business orientation.

#### 4. DISCUSSION

This study aimed to verify whether certain entrepreneurial characteristics, consisting of entrepreneurial potential and entrepreneurial propensity, affect the level of entrepreneurial self-efficacy and desirability of entrepreneurship, and further, have direct and indirect effect on entrepreneurial intentions. Moreover, this study seeks to compare the strength of the relationship among these variables between groups of students who receive some entrepreneurship education and students outside the entrepreneurship education sphere. Firstly, results support our proposed baseline model. This finding additionally confirms the theoretical background of the proposed model - Krueger and Breazel's (1994) Entrepreneurial potential model. Secondly, results of multi-group analysis indicate that indeed, the strength of the relationship among tested variables is more pronounced when it comes to students of business orientation. That is, mediating effect of perceived entrepreneurial self-efficacy and desirability of entrepreneurship in the relationship between entrepreneurial characteristics and intent is significantly stronger for the business, in comparison to non-business orientation group. The amount of the variance of all constructs (except entrepreneurial propensity) is also larger in business in comparison to non-business students. The results of our study basically confirm the major findings of Pfeifer, Šarlija and Zekić Sušac (2014), which show that education factors, particularly enrolment in graduate programs with a major either in entrepreneurship, marketing, finance or management, have been positively related to self-efficacy, positive outcome expectations and entrepreneurial intentions of the graduate students, concluding that self-efficacy and entrepreneurial identity mediate the educational effect on intentions.

Our results are also aligned with previous findings showing that individuals who have received university-level classes in entrepreneurship have greater intentions to start a venture (Galloway and Brown, 2002) than those who have not taken entrepreneurship classes. Human capital theory (Becker, 1964) predicts that individuals who hold higher levels of knowledge, skills, and other competencies will perform better in comparison to those who hold lower educational levels (Ployhart and Moliterno, 2011). Entrepreneurship education

and training have positive, significant relationships with a number of entrepreneurship-related human capital assets and entrepreneurship outcomes (Martin, McNally and Kay, 2013). Moreover, entrepreneurial training programs improve students' competencies and intentions for undertaking a business venture. Such competencies are achieved through courses in accounting, finance, marketing, and management. Through such exposure students develop competencies such as self-efficacy, proactiveness, and risk taking by developing business plans and intensively interacting with practitioners (Sánchez, 2013).

Additionally, a great importance of institutions and public policies in entrepreneurial intentions have been acknowledged. Institutions can both constrain and enable self-employment and entrepreneurship (Smallbone and Welter, 2012). Institutions affect, both directly and indirectly, individuals' perceptions on the desirability and feasibility of entrepreneurship (Shane, 2003).

In line with the above mentioned, it would be desirable to include entrepreneurial education and training in all educational levels and institutions as suggested by Bakotić and Kružić (2010). Namely, regarding the same level of acceptance of risk and unconventionality, focus on achievement and confidence in their capabilities among young people, regardless of the academic orientation, non-business students still have lower levels of perceived entrepreneurial potential, desirability of entrepreneurship and entrepreneurial self-efficacy, as well as the entrepreneurial intentions.

However, some possible limitations might reflect these results. One refers to the collection of the variables data from the same sources, in the same time, using the same (self-ratings) method, which brings up the issue of common method variance. Harman's single-factor test (Podsakoff and Organ, 1986) revealed that no single factor accounted for the majority of the covariance. Eleven factors emerged with values greater than one, accounting for 75% of the variance in the independent and dependent variables. Therefore, it did not appear that common method variance represented a problem for this study. In addition, prior research suggested that pre-education entrepreneurial intentions, which have not been taken into account within this research, might account for some variance in post-education ones (Sánchez, 2011). Although the research continually keeps on demonstrating the robustness of the Theory of planned behavior in predicting entrepreneurial intentions and actions (e.g., Kautonen, Gelderen and Fink, 2013), a dose of caution is always desirable, so future research should concentrate on taking the longitudinal approach to answering this questions. Ideally, changes in study programs in terms of interventions, should be made and tracked, and measures of variables at both, pre- and post-

intervention accounted as suggested Fayolle and Gailly (2015). Additionally, future research should aim to further explore these problems on the less gender – biased sample.

Although reasons for these kinds of results might be various, they are certainly to some extent related to education. Hence, entrepreneurial self-efficacy and desirability of entrepreneurship should be strengthened through appropriate training that might be incorporated in each educational study programme. Educational programmes should, therefore, empower individuals in various fields and allow them to develop self-confidence and self-esteem.

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#### **VERIFIKACIJA MODELA PREDVIĐANJA PODUZETNIČKE NAMJERE STUDENATA EKONOMSKIH I NEEKONOMSKIH STUDIJA**

##### **Sažetak**

Cilj ovog rada je utvrditi djeluju li određene poduzetničke karakteristike, poput poduzetničkog potencijala i sklonosti poduzetništvu, na razinu poduzetničke samodjelotvornosti i poželjnosti poduzetništva te imaju li direktnog ili indirektnog

učinka na poduzetničku namjeru. Nadalje, u radu se uspoređuje snaga veza između navedenih varijabli između grupa studenata, koji su polazili poduzetničko obrazovanje i studenata neekonomskih studija. Podaci su prikupljeni iz uzorka studenata preddiplomskih ekonomskih i neekonomskih studija te analizirani uz pomoć analize višestrukih grupa, unutar metodologije modeliranja strukturnih jednadžbi. Rezultati ove analize pokazuju da je snaga povezanosti između prethodno navedenih varijabli zaista viša kod studenata ekonomskih studija. Naime, medijacijski efekt percipirane poduzetničke samodjelotvornosti i poželjnosti poduzetništva, u promatranom odnosu između poduzetničkih karakteristika i namjere, značajno je veći kod studenata ekonomskih studija, negoli kod studenata neekonomskih studija. Veličina objašnjene varijance svih konstrukata (osim sklonosti poduzetništvu) je, također, veća kod studenata ekonomskog, u odnosu na studente neekonomskih studija. Na kraju rada se razmatraju implikacije dobivenih rezultata za obrazovanje.

