THE IMPACT OF COMPETENCES AND SKILLS ON FEMALE ENTREPRENEURSHIP DEVELOPMENT IN DIGITAL ERA

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Abstract:

This paper investigates the effects of education, entrepreneurial learning and enterprise skills on the female entrepreneurship in digital age. In the empirical research participated 143 women enterprises and entrepreneurs, mostly from the micro sized companies from food production and services sector in 2020 Serbia. Beside the state of play of these dimensions of education in Serbia, key findings confirmed the hypothesis of the research, that there is the significant impact of entrepreneurial learning and skills to female entrepreneurship in Serbia. Methods used were correlation

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and regression analysis. The contribution of the research can be seen in bridging the digital gender divide by awareness raising of equipping and training women and girls with the skills needed to participate and thrive in the digital transformation and in new possibilities to start or develop their own business.

Keywords: Education, Female Entrepreneurship, Innovation and Research.

JEL: I21, I24, J16 , O31.

1. INTRODUCTION

Women entrepreneurs have enormous potential for making greater contributions to economic growth, job creation, innovation and social inclusion: some recent estimates suggest that if the entrepreneurship gender gap were eliminated, global GDP could rise by as much as 2% annually (Blomquist 2014; Radović-Marković 2012a; Ivković, Čukanović-Karavidić & Kvrgić 2013). Motivated by education as one of the most powerful tools that policy makers may leverage to bridge the digital gender divide the authors of this research made the contribution. In this context the research in the paper on entrepreneurship learning and enterprise skills in female entrepreneurship development would support to a greater number of women the possibility to start or develop their own business in digital age (Jevtic, Zakic, Popovic, Coric & Kvrgic, 2020; Kvrgic2017; Bertrand 2011; Radovic Markovic, Nelson-Porter & Omolaja 2009, 2012b).

Figure 1. Measures aimed to support female entrepreneurship
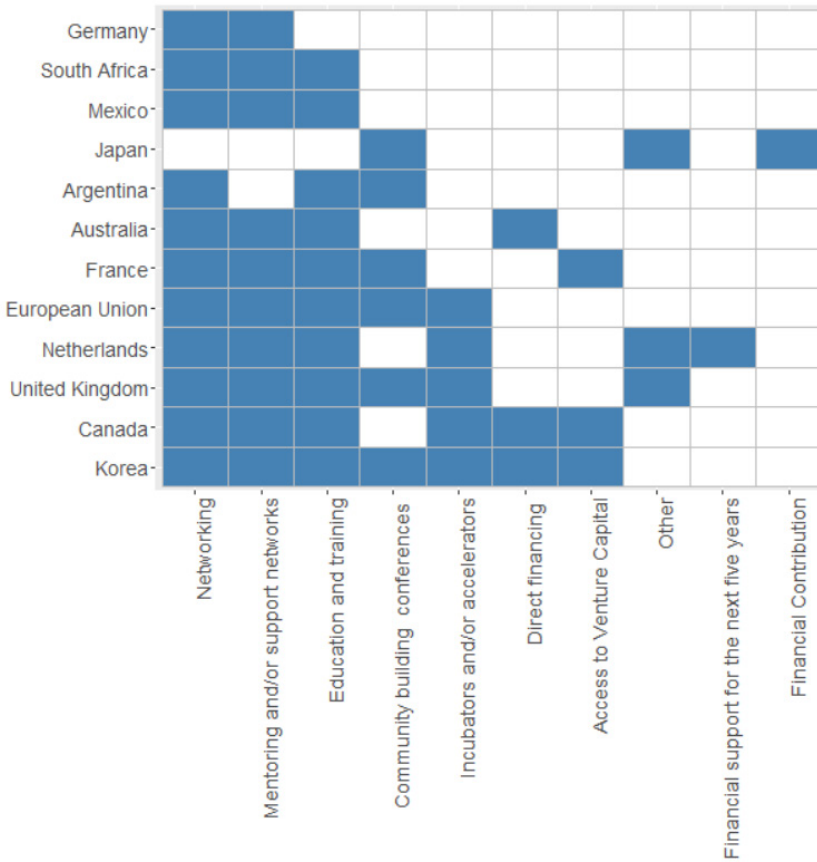
Source: OECD (2017h).

According to the Gender Analysis for Serbia report, the share of entrepreneurial women has been 31.7% in 2014 (Dokmanovic 2016), but only 19.6% of female entrepreneurs run enterprises (SME contribution to overall exports was 39.3%, with the share of micro enterprises in exports of 7.9% in 2017). Generaly, 357 234 enterprises are SMEs in Serbia or 99.8% of the total business population (Grozdanić, Radović-Marković & Vučić 2008).

According to the SBA report (OECD, SBA 2019) the score for entrepreneurial learning has increased to 3.70, while the score for women's entrepre-

neurship stands at 4.35. Serbia has been gradually building the policy and The legislative basis for developing entrepreneurial learning make Strategies: for Entrepreneurship and Competitiveness 2015-2020, for Industrial Policy 2011-2020, for Youth 2015-2025, the action plan for implementing the Government of Serbia's Work Programme 2017-2019, with the goals set for establishing a functional education system and developing entrepreneurial competences at all levels of education. Educational legislation contributes to entrepreneurial learning, and new Law on Dual Education and the Law on Higher Education, as well as the co-ordination body – the Council for SMEs, Entrepreneurship and Competitiveness (Blomquist 2014; Stephan & El-Ganainy 2007; Croson & Gneezy 2009).

According to SBA assessment (OECD 2019) Serbia has substantially advanced the design and implementation of policy in entrepreneurial learning. Further are developed co-operation with non-government partners for promoting women's entrepreneurship. Resources were invested in developing legislation, supplying education and training services, communication and awareness-raising measures. However, challenges remain in the field of entrepreneurial learning. The first are issues of co-ordination of government policy actions for lifelong entrepreneurial learning to be strengthened. The founded Council for SMEs, Entrepreneurship and Competitiveness would have to increase attention to developing the education sector by strengthening for facilitating collective efforts of key stakeholders across different sectors and levels of education, around the common vision for entrepreneurship key competence development. Defining entrepreneurial learning aspects within the new implemented dual education concept in VET and across all other forms and phases of lifelong learning would be a long run activity.

Teacher competence as a key factor of entrepreneurial learning enhoucing would assume the reinforcement of the compulsory provision of practical entrepreneurial experience in upper secondary, VET and higher education. Applying the EntreComp framework could help in refining the integrated learning outcomes in the curricula and to strengthen impact evaluation and

student-tracking measures. Developing key competences across levels of education it would have to be design and implement of competence-based education programmes scaled up to cover all levels of formal education (Forte 2009). As the entrepreneurial learning concept is not enough clear to local stakeholders, the focus has to be put on the development of entrepreneurial personality and not necessarily oriented at startup creation, and distinguishing it from the dual education approach, and on teachers' capacity, teaching methods and the new role of a teacher. Ensure better co-ordination and consolidation of government policy actions for women's entrepreneurship is crucial. In the wish to implement the comprehensive evaluation of women's entrepreneurship support programmes, ensuring availability and quality of data disaggregated by sex, means to improve policy evaluation. Entrepreneurial learning is better mainstreamed across the curriculum. According to the issues of skills as important dimension of the womens entrepreneurship Serbia scores 3.95 in *Enterprise skills* increasing its focus on better co ordinating and consolidating training and support programmes (Peterman & Kennedy 2003; Gray 2011; Wilson, Kickul & Marlino 2007, Andersen & Nielsen 2019).

2. METHODS AND MATERIALS

2.1. Research hypothesis and variables

The aim of the research is to explore the role of education, more specific – the entrepreneurial learning and skills on entrepreneurship development for women businesses.

For the purpose of acquiring deeper knowledge, a questionnaire (with 24 questions) for field research of the attitudes of women entrepreneurs in

Serbia was composed, which was conducted in 2020. In addition to data related to the company itself, employees, income, industry to which the entrepreneur belongs, questions were answered about the role of entrepreneurial education in acquiring the necessary knowledge and competencies, as well as skills for successfully founding and running companies run by women. A special group of questions referred to the very development of entrepreneurship in the field of women's entrepreneurship and the factors that favorably affect these processes in Serbia. 143 representatives of companies, farms, agencies and, owned by women answered the survey, what makes the sample of the research. The concentration of the interviewed companies coming from the micro sized entitles, as responds to the 85% of women entrepreneurs who are active as small firms, shops, farms.

There are main hypothesis of the research and two specific ones defined.

- H_o= Level of entrepreneurial learning (abrrv. EL) and skills (abrrv.S) significantly impact the entrepreneurship development (abrrv.ED) of women business in Serbia.
- $H_{1=}$ Level of entrepreneurial learning (abrrv. EE) significantly impact the entrepreneurship development (abrrv.ED) of women business in Serbia, and
- H_2: Level of skills (abrrv. S), significantly impact the entrepreneurship development (abrrv.ED) of women business in Serbia. Theoretical model is frameworked by 2 independent variables, entrepreneurial learning and skills, and one dependent, entrepreneurship development.

Theoretical model is flameworked by 2 independent variables, entrepreneurial learning and skills, and one dependent, entrepreneurship development, with their claims as determinants of the closer content of variables stated by respondents:

1. *Entrepreneurial learning* (EL), with claims:

   - EL1= Government action can ensure that through education and life-long learning women's digital capabilities are provided.
   - EL2= Learning from experience, presenting existing national practices for economic empowerment of women, drawing on a stocktaking exercise of national initiatives is important.
   - EL3= It is important to equip women with innovation, e.g. entrepreneurship research competences, fostering their engagement in innovation can conduct to the innovative women's entrepreneurship as essential for economies
   - EL4= Encouraging greater female enrolment in STEM studies, related apprenticeships, and targeting existing gender biases in curricula is important.

2. *Skills* (S), with claims:

   - S1= By generating and adopting new technologies and skills women have much to gain from boosting their use of digital tools.
   - S2= For women in business is important to permanently improve their: Advanced numeracy skills, Literacy, Readiness to learn, Accountancy and selling skills, problem solving, managing and communication and self-organization skills.
   - S3= The challenge to face is addressing skills needs under the upcoming Smart Specialization Strategy, which will require flexibility in education and training provision with actions that particularly target the SMEs in the smart specialization priority areas.

3. *Entrepreneurship development (ED) of women, with claims*:

   - ED1= Bridging the gender divide in the digital world, can provide new sources of global economic growth, support the implementation of the 2030 Agenda for Sustainable Development.

- ED2= The ability of women to access and use digital technologies is affected by market related factors including investment dynamics, regulations, and competition, especially in rural areas
- ED3 = The gender gap in entrepreneurship and in start-ups venture capital (VC) investment point to socio-cultural gender bias.

In the research are used descriptive statistics and correlation and regression analysis processed in statistical software IBM SPSS 26 and IBM SPSS AMOS 26. A questionnaire was used to make personal claims. Attitudes are defined: 1 – I completely disagree, 2 – I disagree, 3 – undecided, 4 – I agree and 5 – I fully agree.

## 2.2. The sample characteristics

In figure 2 are given the descriptive research statistics for industry activities of the interviewed women entrepreneurs. As the research sample followed the most interesting industry sectors for women, the results of the field survey show that there are 71 companies coming from food production, and 72 from services: 42 from tourism and hospitality, and 30 from trade, transport, ICT and marketing services.

Figure 2. Industry activities of the interviewed women entrepreneurs
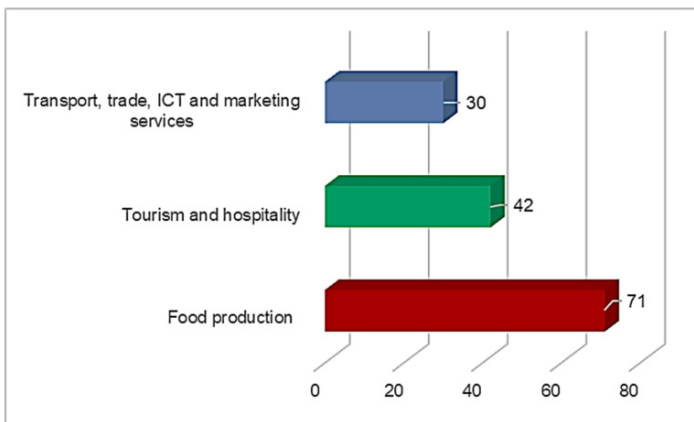
In figure 3 are presented data on the function of the interviewed women entrepreneurs. There were 78 or 54.54% owners of business, and 65 or 45.45% managers/directors, what shoes the competence of company representatives who participated in the research.

Figure 3. Position of the interviewed women entrepreneurs
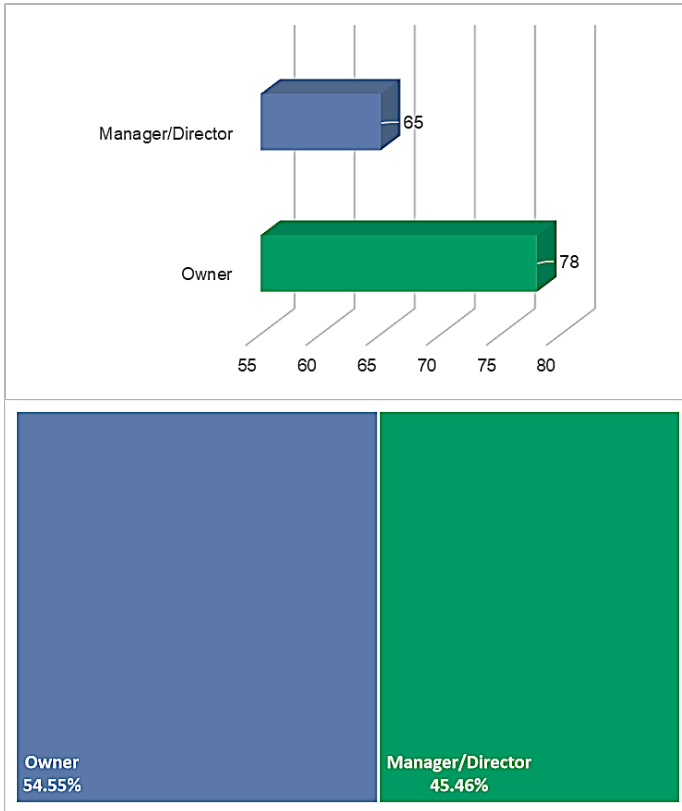
Descriptive statistics according on the number of employees in the company are presented in figure 4. From 1 to 10 employees have 52 or 36.36% of the researched companies, from 11 to 20 - 54 or 37.76%, from 21 to 20 - 23 or 16.08%, from 31 to 50 - 10 or 6.99% and over 50 employees - 4 or 2.79%. As in Serbia women entrepreneurs work mainly alone, with small number of employees as solopropertios or micro businesses, the research sample represents the real situation in this field.

Figure 4. The Number of Employees in the Company
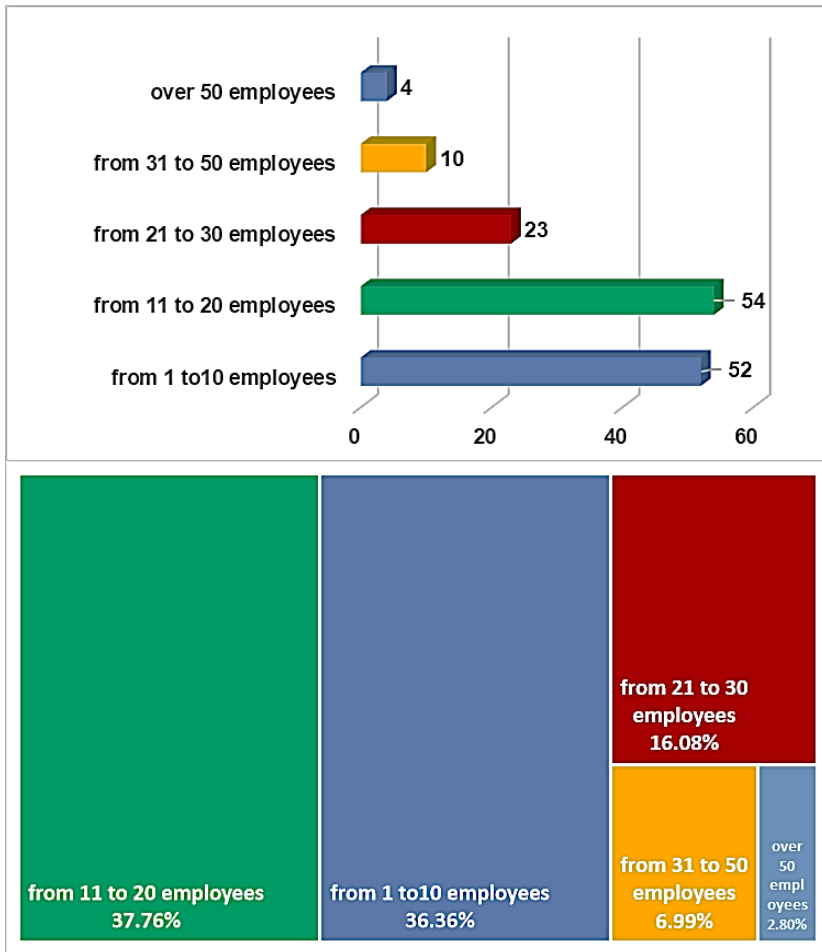
Basic descriptive survey statistics based on revenues generated in 2020 are provided in figure 5. From 0 to 10,000 € earned 46 firms/farms/shops or 32.17%; from 10,001 to 50,000 € realized 25,17% of women entrepreneurs in 2020; from 50,001 to 100,000 € - 32 companies or 22.37% and more than 100,000 € - 29 or 20.28% of the total number of the interviewed women entrepreneurs. The structure of the revenues realized in 2020 coordinates to the number of employees, and inform about the small size of the business as a central characteristics of the sample.
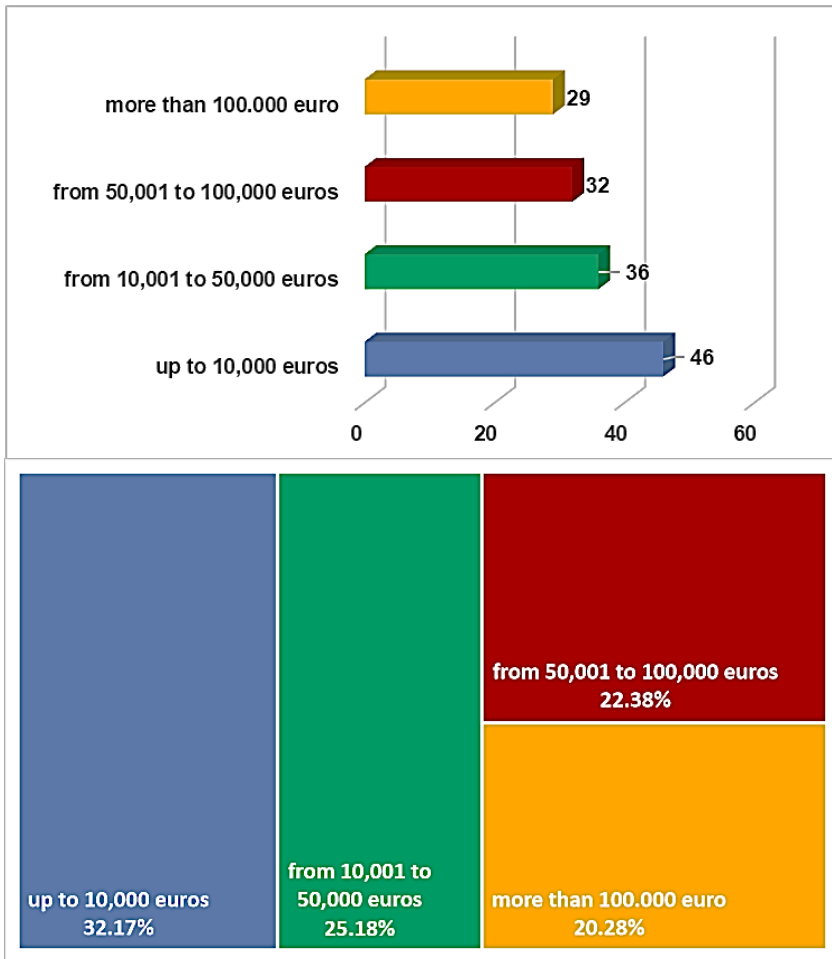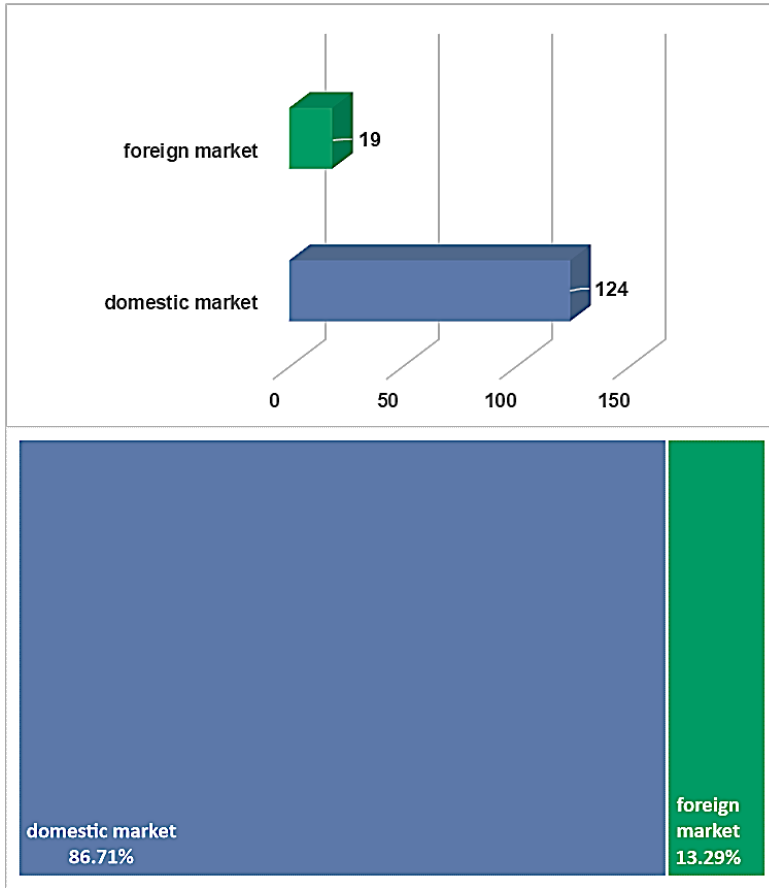
Figure 5. Revenues, 2020

Figure 6 illustrates the revenues origin, where there most companies which realized revenues in 2020 on the domestic market - 124 or 86.71%, and 30 or 13.28% on the foreign market.

Figure 6. Revenues origin in 2020

2.3. Key findings

Here are given researched opinions of the representatives of the female companies, on the claims defined within all variables. So, in figure 7. are presented median score for claims for the level of entrepreneurial learning (EL). The higest of 4.03% medium score has given to the claim that -Learning from experience, presenting existing national practices for economic empower-

ment of women, drawing on a stocktaking exercise of national initiatives is important.

Other two claims (EL3) = It is important to equip women with innovation, e.g. entrepreneurship research competences, fostering their engagement in innovation can conduct to the innovative women's entrepreneurship as essential for economies, has got 3.72% median score, and (EL4)= Encouraging greater female enrolment in STEM studies, related apprenticeships, and targeting existing gender biases in curricula is important, 3.93%. 3.72% median score is given for the claim (EL1) = Government action can ensure that through education and life-long learning women's digital capabilities are provided.
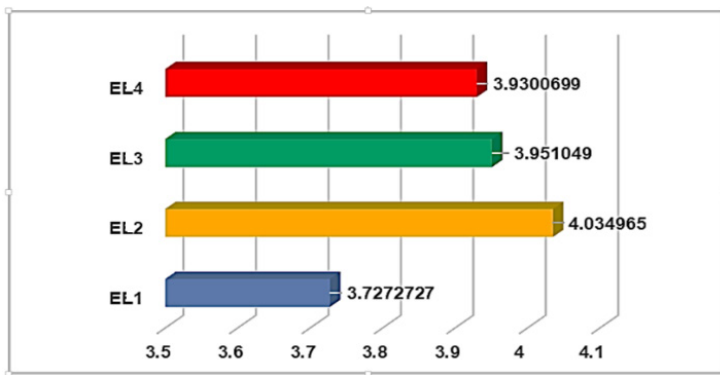
Figure 7. Median claim scoring for EL level

Figure 8 gives the names and mean scores of the statements within the independent variable Level of (S). The most valued statement is S1= By generating and adopting new technologies and skills women have much to gain from boosting their use of digital tools, and it has got median score of 3.97%. Than is second valued S3 statement with 3.86% -The challenge to face is addressing skills needs under the upcoming Smart Specialization Strategy, which will require flexibility in education and training provision with ac-

tions that particularly target the SMEs in the smart specialization priority areas. As third is valued S2= For women in business is important to permanently improve their: Advanced numeracy skills, Literacy, Readiness to learn, Accountancy and selling skills, problem solving, managing and communication and self-organization skills, with 3.84% median score.

Figure 8. Median claim scoring for S level
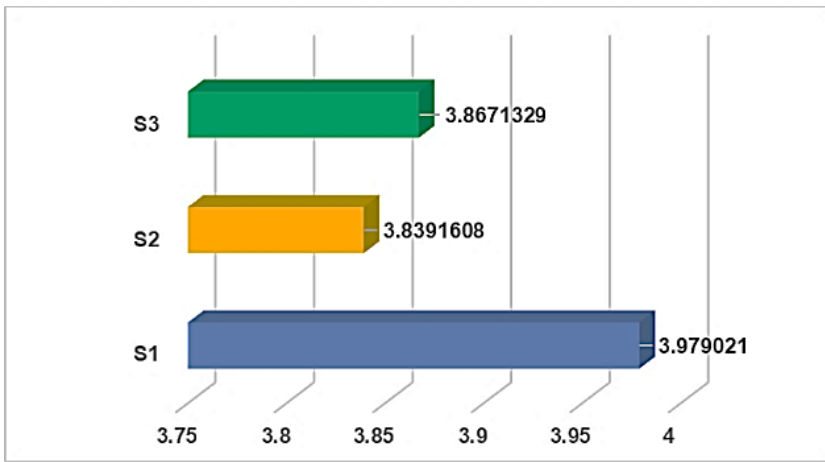
The names and mean values for claims related to the dependent variable are given in the the figure 9. The first was placed statement ED1= Bridging the gender divide in the digital world, can provide new sources of global economic growth, support the implementation of the 2030 Agenda for Sustainable Development,with 4.06%, the secont the statement ED3= The gender gap in entrepreneurship and in start-ups venture capital (VC) investment point to socio-cultural gender bias, with 3.95%, and third is the claim ED2= The ability of women to access and use digital technologies is affected by market related factors including investment dynamics, regulations, and competition, especially in rural areas, which mean score is 3.79.

Figure 9. Median claim scoring for ED level
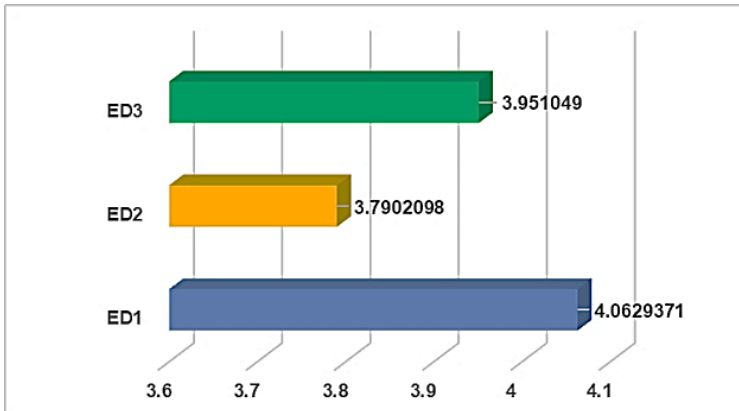
2.3.1. Correlation and regression analysis for variable (EE - ED)

Figure 10 presents the Theoretical system model for the level of ED. The system model concists of the independent variable –level of entrepreneurial learning (EL) and dependent – level of entrepreneurship development of women business (ED).

Figure 10. Theoretical system model for the level of ED
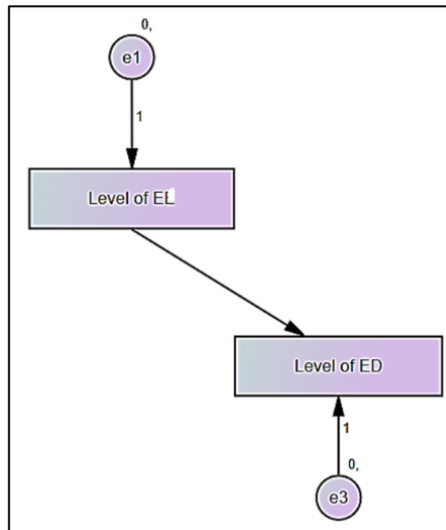
Basic standard evaluation of the system model was performed in figure 11. The determination coefficient is 0.624981, which means that with 62.49% dependent variable- Level of entrepreneurship development (ED) can be explained by the independent -Level of entrepreneurial learning (EL) variable. It can be concluded that the correlation coefficient between the independent -Level of (EL) variable and the dependent-Level of (ED) variable is 0.7905 and that there is a strong correlation – the connection between them.

Figure 11. Standard contribution size system model of independent variable (EL) to dependent variable (ED)
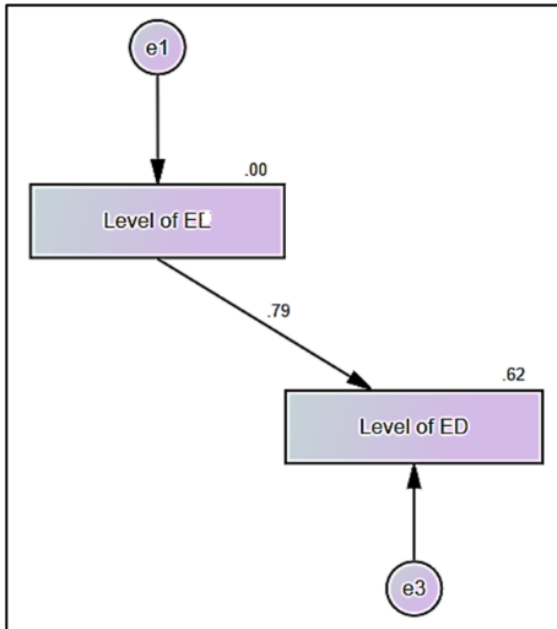

The statistician rating is given in table 1 and it is [F(1,141)= 234.9812, p<0,0001].

Table 1. ANOVA

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	42.256894	42.2569	234.9812
Error	141	25.356160	0.1798	Prob > F
C. Total	142	67.613054		<0.0001

Based on this data, a first specific **hypothesis of H1** can be confirmed: Level of entrepreneurial learning EL, significantly affecting the Level of ED, the entrepreneurship development of women enterprises. Non-standard contribution values for the given system model is presented in Figure 12.

Figure 12. Non-standard contribution size system model of independent variable (EL) to dependent variable (ED)
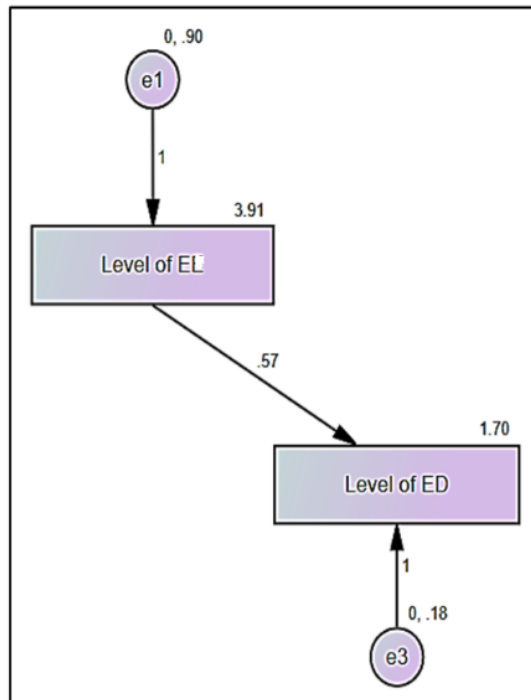
The average rating for an independent variable- Level of (EL) is 3.91. The variance size for the independent Level of (EL) variable is 0.90, and the variance for the dependent Level of (ED) variable is 0.18. Based on the data shown, a regression equation (formulas 1 and 2) can be formed, which reads:

$$y=1.6990073+0.5716739 \cdot x_1 \qquad (1)$$

or

$$\text{Level of ED}=1.6990073+0.5716739 \cdot \text{Level of EL} \qquad (2)$$

Diagram of regression equation for the variable (EL-ED) is pesented in figure 13.

Figure 13. Regression Equation Diagram for the level of the variable EL-ED
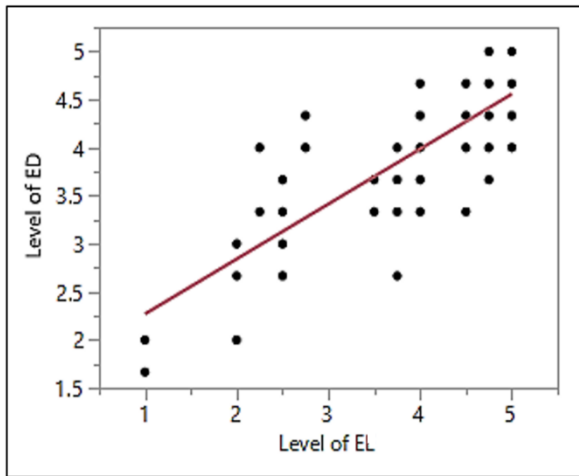
2.3.2. Correlation and regression analysis for variable (S - ED)

Theoretical system model for the level of (ED) is shown in table 14, and it consists of theindependent variable- Level of (S) and dependent - level of (ED) variable.

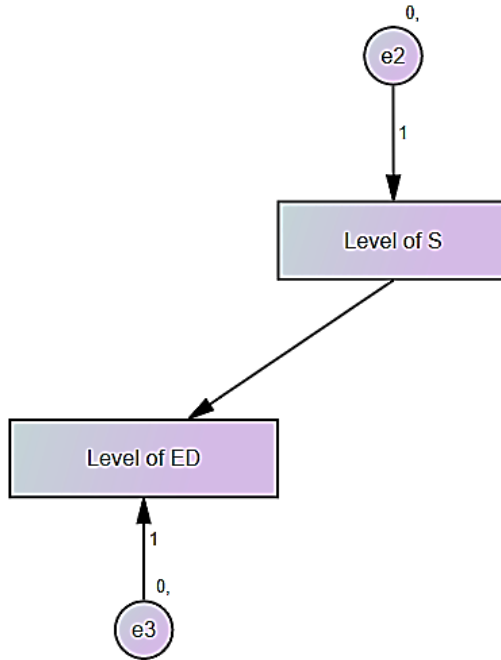**Figure 14.** Theoretical system model for the level of (ED)

Basic standard evaluation of the system model was performed in figure 15. The determination coefficient is 0.186121, which means that at 18.61% dependent variable- Level of (ED) can be explained by the independent- Level of (S) variable. On this basis, an conclusion can be made, that the correlation coefficient between the independent variable -Level of (S) and the dependent variable -Level of (ED) is 0.4314 and that there is a relatively weak correlation – the connection between them.

Figure 15. Standard contribution sizes system model of an independent variable (S) to a dependent variable (ED)
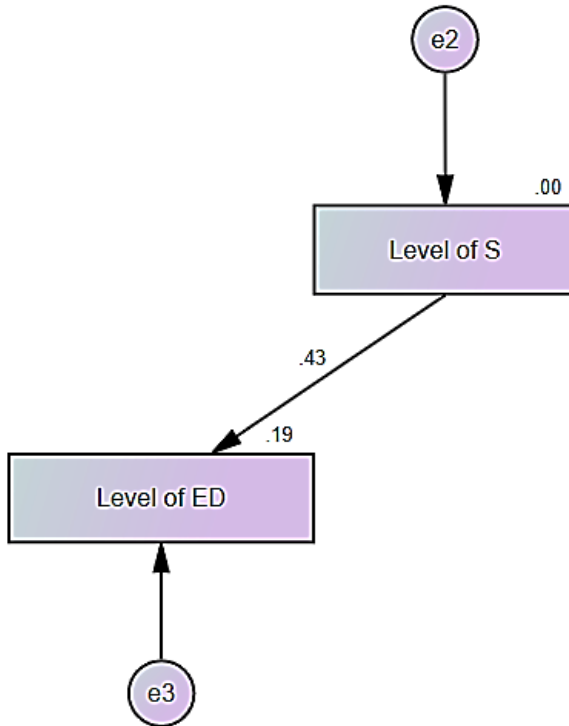
The statistician rating was given in table 2 and it is $[F_{(1,141)}= 32.2445, p<0,0001]$.

Table 2. ANOVA

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	12.584234	12.5842	32.2445
Error	141	55.028819	0.3903	Prob > F
C. Total	142	67.613054		<0.0001

Based on this data, a second specific hypothesis of H2 can be confirmed: Level of S (skills), significantly affecting the Level of ED (entrepreneurship development of women business). In figure 16 are given non-standard contribution sizes for the set system model.

Figure 16. Non-standarized contribution size system model of independent variable (S) to dependent variable (ED)
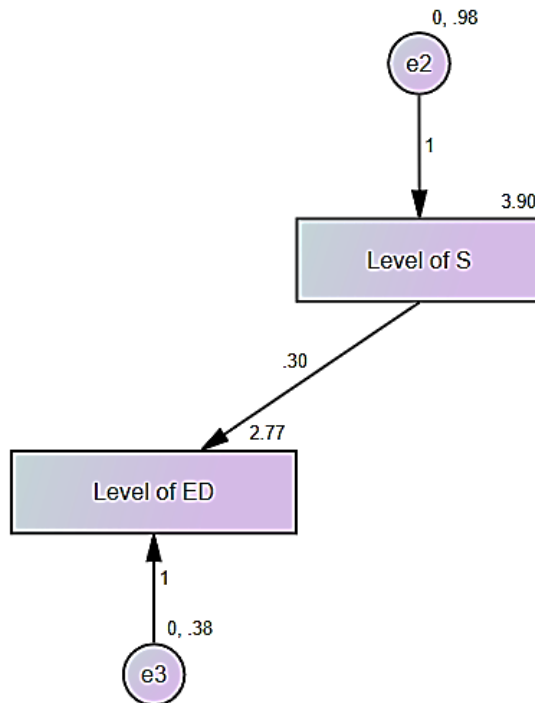
The average rating for an independent variable -Level of skills (S) is 3.90. The variance size for the independent variable- Level of skills (S) is 0.98, and the variance for dependent variable -Level of entrepreneurship development (ED) is 0.38. Based on the data shown, a regression equation (formulas 3 and 4th) can also be formed, which reads:

$$y=2.7682452+0.299475 \cdot x_1 \qquad (3)$$

or

$$\text{Level of ED}=2.7682452+0.299475 \cdot \text{Level of S} \qquad (4)$$

In figure 17 is given Diagram of Regression Equation for the varable (S - ED).

Figure 17. Regression Equation Diagram for the level of ED

2.3.3. Multiple correlation and regression analysis for variable (ED)

Theoretical system model for the level of EL is presented in figure 187, and it consists of independent variable, skills (S), and dependent variable (ED), entrepreneurship development of women business.
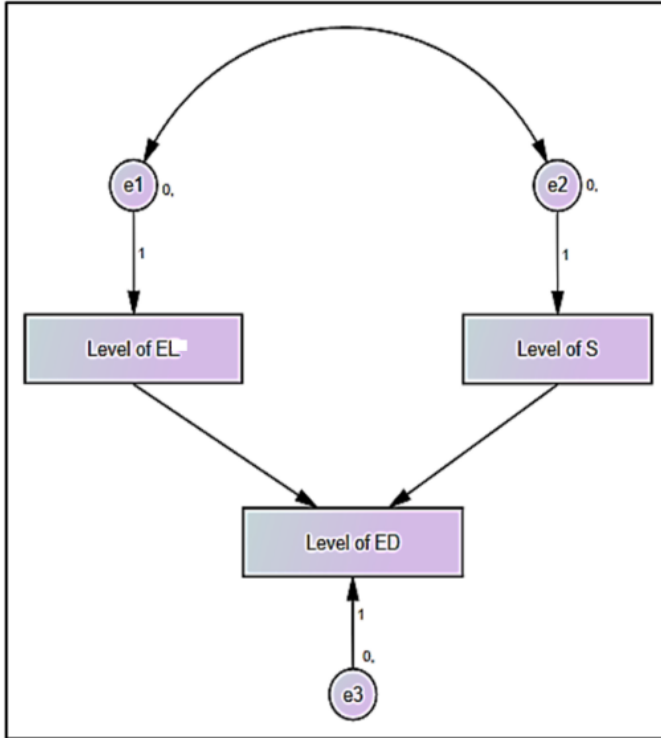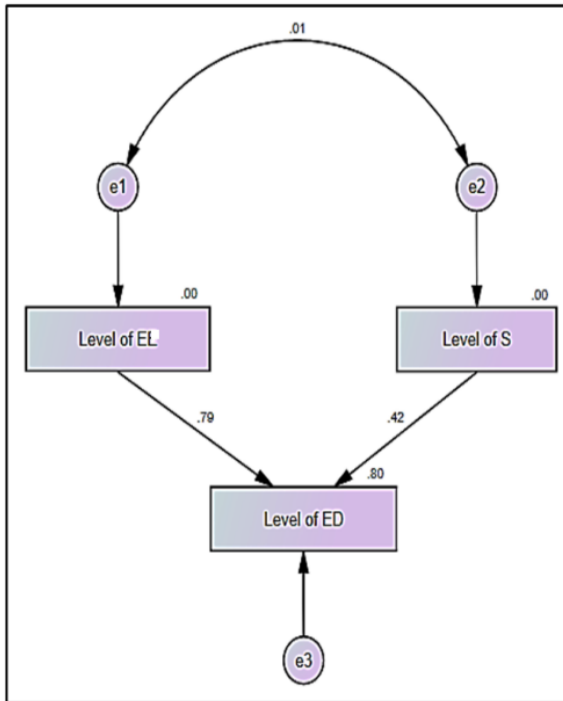
Figure 18. Theoretical system model for the level of EL

Basic standard evaluation of the system model was performed in figure 19.

Figure 19. Standard contribution sizes system models of independent variables (EL) and (S) to dependent variables (ED)

The determination coefficient is 0.803626, which means that with 80.36% variability dependent variable (ED) can be explained by other independent variables. The variable connection exists. Also are given the size of the correlation coefficients where the largest correlation between the independent variable (EL) and dependent variable (ED) is 0.79 and it is strong. The smallest correlation size is between independent variables (EL) and (S) and is relatively weak at 0.42. The biggest impact on dependent variables (ED) has independent variables (EL) at 0.6241, or 62.41%, and lower impact has the independent variable (S) at 0.1764, or 17.64%. This means, that all reforms, new technologies implementation, leaning methodologies and programs adjusted to the entrepreneurs needs through entrepreneurial learning can realy

influence the women's entrepreneurship development. These results support the concept of knowledge which women entreprenerus can get thorugh the entrepreneurial elarning. Less, but not many is seen the role of skills and their influence on entrepreneurship development. But, bouth independent variables together demonstrate significant impact on the development of the phenomena.

The statistician's score was given in table 3 and it is [F(2,140)= 286.4630, p<0,0001].

Table 3. ANOVA

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	54.335621	27.1678	286.4630
Error	140	13.277433	0.0948	Prob > F
C. Total	142	67.613054		<0.0001

Based on this data, ***main hypothesis H0 can be confirmed***: That the Level of EL (entrepreneurial learning) and S (skills), significantly affecting the Level of ED (development of entreprenership of women). In figure 20 are given non-standard contribution sizes for the set system model. The highest average rating is for an independent variable (EL) at 3.91, the lowest for an independent variable (S) at 3.90. The largest size for variance is the size of an independent variable (S) 0.98, and the smallest variance is for dependent variables (ED) at 0.09. Covariance between independent variables (EL) and (S) is 0.01.

Figure 20. Non-standard contribution sizes system models of independent
variables (EE) and (S) to dependent variables (ED)
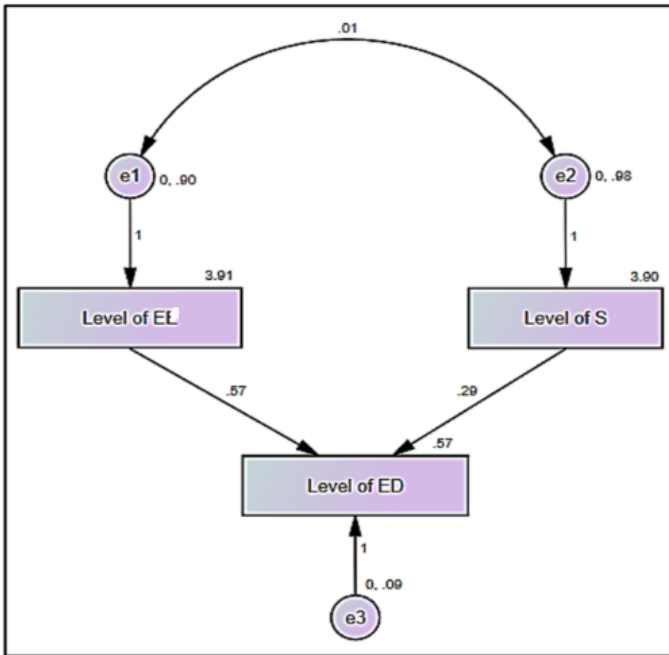
Based on the data shown, multiple regression equations (formulas 5 and 6)
can also be formed, which reads:

$$y=0.569395+0.5682792 \cdot x_1+0.2934165 \cdot x_2 \qquad (5)$$

or

Level of ED=0.569395+0.5682792·Level of EL+0.2934165·Level of S   (6)

In figure 21 is presented Diagram of multiple regression equation for vari-
able (ED).

Figure 21. Multiple Regression Equation Diagram for the level of ED
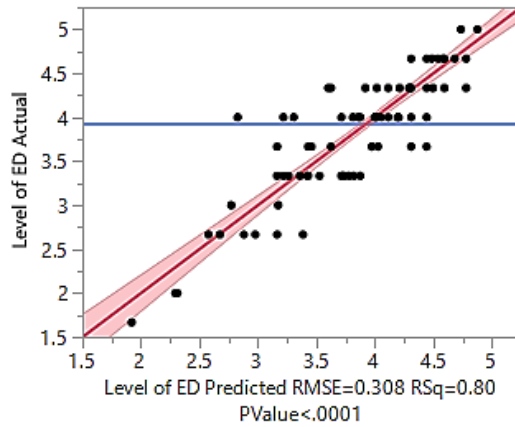
3. CONCLUSION

To provide the educational curricula development in the field of entrepreneurship which would meant to facilitate self-employment, to closer connection of educational institutions with manufacturing and other types of organizations, to reduce discrimination and achieve gender equality is not possible in the conventional educational concepts [14]. In the line with Millennium objectives, it is necessary enhancing various types and forms of entrepreneurship activities with special emphasis on women's entrepreneurship.

In this context, the intention of the research in the paper was to show that the modern business environment should be accompanied by the change in educational and skills environment. The research shows that the existing education system should be improved as well as educational programs for women's entrepreneurship. Furthermore, women respondents in the survey in this paper were mostly interested in the fostering innovative personality development of individuals which creates something unique and turn it into entrepreneurial activity (claims with highest mean score within variables:

entrepreneurial learning, skills and entrepreneurship development. In their opinion, it is one of the most effective ways to encourage the entrepreneurial abilities of students. Providing them more freedom in learning is critical for their self-confidence and individual development. In this direction, the new education system can reduce common existing stereotypes and help them better involvement into business environment and decision making.

In addition, development of women entrepreneurship should support their economic empowerment. Consequently, empowering women by improving their economic status and providing them new opportunities for self-employment and entrepreneurship is necessary. It is impossible to achieve all new education advantages without support by governments, schools and women's organizations.

According to SBA assessment (OECD 2019) Serbia has substantially advanced the design and implementation of policy in entrepreneurial learning. Further are developed co-operation with non-government partners for promoting women's entrepreneurship. Resources were invested in developing legislation, supplying education and training services, communication and awareness-raising measures.

However, challenges remain in the field of entrepreneurial learning. The first are issues of co-ordination of government policy actions for lifelong entrepreneurial learning to be strengthened. The founded Council for SMEs, Entrepreneurship and Competitiveness would have to increase attention to developing the education sector by strengthening for facilitating collective efforts of key stakeholders across different sectors and levels of education, around the common vision for entrepreneurship key competence development. Defining entrepreneurial learning aspects within the new implemented dual education concept in VET and across all other forms and phases of lifelong learning would be a long run activity. Teacher competence as a key factor of entrepreneurial learning enhoucing would assume the reinforcement of the compulsory provision of practical entrepreneurial experience in upper secondary, VET and higher education. Applying the Entre-

Comp framework could help in refining the integrated learning outcomes in the curricula and to strengthen impact evaluation and student-tracking measures.

The new role of the teacher as a facilitator of students' entrepreneurship key competence development would have to be reinforced. That firstly with attention given to pre-service teacher training across the system, enabling teachers to become facilitators of entrepreneurship key competence development and to apply new methods of active teaching and learning. Developing key competences across levels of education it would have to be design and implement of competence-based education programmes scaled up to cover all levels of formal education. As the entrepreneurial learning concept is not enough clear to local stakeholders, the focus has to be put on the development of entrepreneurial personality and not necessarily oriented at startup creation, and distinguishing it from the dual education approach, and on teachers' capacity, teaching methods and the new role of a teacher (Jevtic Zakic, Popovic, Coric & Kvrgic 2020).

Ensure better co-ordination and consolidation of government policy actions for women's entrepreneurship is crucial. In the wish to implement the comprehensive evaluation of women's entrepreneurship support programmes, ensuring availability and quality of data disaggregated by sex, means to improve policy evaluation.

 According to the issues of skills as important dimension of the womens entrepreneurship it can be concluded that Serbia increases its focus on better coordinating and consolidating the rich supply of training and support programmes required to increase the effectiveness and efficiency of government actions (Jevtic, Dedjanski, Beslac, Grozdanic & Papic2013; Grozdanic, Radovic-Markovic, Papic, Kvrgic & Jevtic 2012, Popovic, Kvrgic, Coric, Avakumovic & Milosevic2020; Kvrgic, Popovic, Milosevic & Avakumovic 2019). Budget flows and institutional actors are numerous. It can be concluded that has further would have to be strengthen an official co-ordination structure through the Council for SMEs in the evaluation of all programmes for SME

skills' development. To consolidate all available monitoring and evaluation data, to prepare evaluation reports and make them publicly available would improve the useful information of all stakeholders and women entrepreneurs in the field.

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UTICAJ ZNANJA I VEŠTINA NA RAZVOJ ŽENSKOG PREDUZETNIŠTVA U DIGITALNO DOBA

Rezime:

U ovom radu se istražuju efekti obrazovanja, preduzetničkog učenja i veština preduzeća na žensko preduzetništvo u digitalno doba. U empirijskom istraživanju učestvovale su 143 vlasnice preduzeća i preduzetnice, uglavnom iz kompanija mikro veličine iz proizvodnje hrane i sektora usluga u 2020. godini u Srbiji. Rezultati istraživanja potvrdili su hipoteze o postojanju značajnog uticaja preduzetničkog obrazovanja, kao i digitalnih, istraživačkih i inovatinih veština na razvoj ženskog preduzetništva u Srbiji. Metode koje su korišćene u radu su korelaciona i regresiona analiza. Rad može da doprinese premošćavanju polnih razlika u digitalizaciji, podizanju svesti o potrebi većeg učešća savremenih znanja i veština žena i devojaka, u digitalnoj transformaciji i novim mogućnostima za pokretanje ili razvoj sopstvenog biznisa.