

IMPACT OF ENTREPRENEURIAL EDUCATION ON POTENTIAL ENTREPRENEURS: THE CASE OF JOUF UNIVERSITY'S FEMALE STUDENTS

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ABSTRACT

The aim of this study is to investigate the influence of entrepreneurship education, including entrepreneurial knowledge, entrepreneurial skills and the mindset of female potential entrepreneurs. The study surveyed 173 female students employing the Assessment Tools for Entrepreneurship Education (ASTE) and factor analysis. The results indicated that around 80% of the students have entrepreneurial intentions. In addition, entrepreneurship education might significantly influence the female potential entrepreneurs, as all factors are significantly related to entrepreneurial intention. Furthermore, their entrepreneurial intention is most influenced by entrepreneurial skills and least influenced by the mindset.

Key words: entrepreneurship education, ASTEE, female potential entrepreneurs, Saudi Arabia, Jouf University

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1. INTRODUCTION

In Saudi Arabia, women represent 25% of the workforce (World Bank, 2017) and 43% of the total population (Ali et al., 2019). The Saudi government supports women entrepreneurship for more than one goal, namely, strengthening the family structure (Basaffar et al., 2018) and increasing women's economic contribution. Increasing women's contribution can play a prominent role in tackling the high rate of unemployed females (57% in 2019) (General Authority of Statistical, 2020), as there is a strong relationship that brings together women's entrepreneurship and the level of economic empowerment (Al-Dajani and Marlow, 2013).

Females face various challenges entering the business environment. Abou-Moghli and Al-Abdallah (2019) concluded that many factors, including cultural, financial and social factors, greatly influence female participation in the region's labour market. Islam et al. (2018) supported the aforementioned factors and added the vital role that media may play in increasing females' desire to establish entrepreneurial projects. Legislation, government policies and entrepreneurship education, all can affect the entrepreneurship intentions of Saudi females and social support (Ali et al., 2019). In contrast, the training and education that businesswomen received were often less related to entrepreneurial activities, and there were no female role models (Andersson et al., 1993).

Accordingly, to overcome challenges that may face Saudi women, many researchers proposed different solutions in recent years. For example, Danish and Smith (2012) suggested providing resources, training and direction and overcoming administrative procedures that require male representation of women when establishing projects. Basaffar et al. (2018) stressed cooperation between government, education and the business sector. Saudi Arabia engaged in significant reforms and launched multiple projects to encourage entrepreneurship among females, such as small and medium enterprises financing support programmes and business venture advisory services (Alexandre and Kharabsheh, 2019). Also, Saudi Arabia has designated centres and incubators that exclusively serve women (Jabeen et al., 2015). According to the World Bank report (2017), Saudi Arabia is one of the most important donors to the Women Entrepreneurs Finance WE-Fi initiative. The 2030 Vision included different programmes aimed to transfer the country from the rentier economy. One of these programmes focuses on small and medium enterprises that create jobs and contribute to the country's GDP (Basaffar et al., 2018).

Entrepreneurship is receiving wide attention from the Ministry of Education, which instigated several initiatives to support entrepreneurship, namely, supporting entrepreneurship education and innovation in schools and universities, supporting entrepreneurship and innovation activities. Hamdan (2005) argued that education for Saudi women is necessary to empower them and an urgent and vital necessity for the economy. One can argue that entrepreneurship education can increase their economic participation, as it can influence their attention to start a business.

According to Danish and Smith (2012), the number of Saudi women entrepreneurs is linked to the increased number of female university students. Although a significant percentage of enrolled students were female almost 60% during recent years (Amal et al., 2018) and female participation has increased significantly in the labour market, females are still inadequately represented in labour compared to the high educational level they have achieved (World Bank 2017). Therefore, training and support must be provided at institutional and social levels to achieve the desired success for female entrepreneurship in Saudi Arabia (Abou-Moghli and Al-Abdallah, 2019) and increase their economic contribution. Accordingly, this study explored the impact of entrepreneurial education on female potential entrepreneurs of Jouf University's students.

1.1 What does Entrepreneurship mean and what does influence female entrepreneurship?

Drucker (1985) defined entrepreneurship as an innovative act giving defined resources a new capacity to produce wealth. Similarly, Shane and Venkataraman (2000) presented entrepreneurship as the discovery, evaluation and exploitation of an opportunity. Thus, it can be seen as a decision-making process that primarily involves the entrepreneur (Cloet and Vernazobres, 2012). Accordingly, entrepreneurship can be defined as a process that an entrepreneur can go through in identifying an opportunity, evaluate it and react to it. This

process can be influenced by different factors, namely resource access and institutional support. Access to financial, education and training resources can play a significant role in influencing the entrepreneurship process, thus strengthening economic contribution.

There is increasing interest in focusing on female entrepreneurship due to the crucial role females can play in economic development and growth (Sarfraz et al., 2014; Kourilsky and Walstad, 1998; Verheul et al., 2006; Dean et al., 2019; Kalinić et al., 2014). Worldwide, more females are establishing new business ventures (Meyer, 2018). Ninety-eight million women operate established businesses, and more than 126 million women are starting business. Knowing what influences female entrepreneurship can help in developing it and strengthening their economic role. Varied studies emphasised a number of factors can affect female entrepreneurship. These include technological, economic, demographic, institutional and cultural factors (Verheul et al., 2006).

Other factors could promote female entrepreneurs' intention to develop their business ventures (e.g., Kerr et al., 2017; Malebana, 2014), namely, motivation (Hamilton and De Klerk, 2016; Pérez-Pérez and Avilés-Hernández, 2016), attitudes (Hamilton, 2015), government support (Meyer, 2018) and education and training (Irene, 2017). In addition, external elements were considered factors that might influence female entrepreneurship, namely, legislation, social standards, family policy, economic policy and the labour market (Ahl, 2006). According to Arenius and Minniti (2005), the level of education influences intentions to start a business. Similarly, Allen et al. (2007), Verheul et al. (2002) found that self-employment is affected by the educational system. Cowling and Taylor (2001) agree that education is an important factor in female entrepreneurship. Therefore, developing females' entrepreneurial skills through entrepreneurship education and training can significantly impact their entrepreneurial intention. Entrepreneurial intention can be described as "*the state of one's mind to foster new businesses or ventures and a person will only initiate entrepreneurial actions when one's entrepreneurial conviction is high in relation to the perceived requirements of a specific opportunity*" (Lin et al., 2017). Entrepreneurship education can be defined as any educational programme or process of teaching entrepreneurial manners and skills, which help in developing personal qualities (Maritz et al., 2015; McIntyre, 2000).

1.2 How does entrepreneurship education influence female entrepreneurial intention?

Entrepreneurship education can be a major tool to increase entrepreneurial attitudes of both potential and nascent entrepreneurs (Liñán et al., 2011) because entrepreneurial activities are a vital component of economic growth, innovation and employment (Giacomin et al., 2011). Entrepreneurial education needs to include skill-building and leadership programmes, new product development, creative thinking and technology innovation to have this impact (McMullan et al., 2002). Fayolle et al. (2006) focused on the mechanism of application, content, methods and activities that support the creation and development of knowledge, competencies and experiences and make it attractive and possible for students to engage in the entrepreneurial value-creating process. Accordingly, entrepreneurship education aims to develop specific knowledge and skills relating to entrepreneurship (Sinkovec and Cizelj, 2013).

Many researchers concluded that entrepreneurship education reinforces entrepreneurial self-efficacy of postgraduate students (Kubberød and Pettersen, 2017), undergraduate students (Haddoud, 2017), high school students (Sánchez, 2013) and the general population (Kerrick et al., 2016). Kobeissi (2010) believes that at least education improves skills in dealing with banks, increases decision-making ability and helps with presenting financial information more effectively. Also, students with entrepreneurial courses have a higher entrepreneurial motivation than others (Solesvik, 2013). Nabi et al. (2011) and (Jones et al., 2011) found that

entrepreneurial education impacts developing entrepreneurship intentions and increases the knowledge and skills of individuals. Similarly, Mazzarol (2014) drew attention to the role of the university as a key component in the entrepreneurial ecosystem by promoting entrepreneurship and creating an entrepreneurial mindset.

Other researchers focused on female entrepreneurship. Namely, Kobeissi (2010) emphasised the close relationship between education and women's entrepreneurship activities in developed and developing countries. Bloom et al. (1956) concluded that entrepreneurship awareness and learning experiences are tailored to female youth at multiple levels of the cognitive domain. Furthermore, Isenberg (2010) argued that suitable education and training programmes encourage women's entrepreneurship aspirations and increase their necessary entrepreneurial skills to start a successful business. De Bruin et al. (2007) found that entrepreneurial education significantly affects females compared to males. Ahl and Marlow (2012) considered it necessary to highlight that entrepreneurship education and training influence perceiving ability of females.

Accordingly, developing entrepreneurship education can influence entrepreneurial intention, and thus strengthen their economic contribution. This is because entrepreneurial education develops certain skills, knowledge and the mindset that influences opportunity identification, opportunity evaluation and how they react to it, which can be in the form of starting their own business. Thus, this research focuses on analysing these factors and how they influence their intention to start a business.

2. RESEARCH METHODOLOGY

The main aim of this research is to analyse how entrepreneurship education influences females' intention to start their own business. The analysis uses the ASTEE survey, which is designed to assess entrepreneurship education. This survey analyses entrepreneurship education from four different factors, including entrepreneurial skills, entrepreneurial knowledge, connectedness to labour markets and mindset. The ASTEE survey was translated to Arabic and distributed to female students in the Business School of Jouf University. There are different reasons for focusing in this article on the nascent female entrepreneurs. One of these reasons is related to the significant support to female entrepreneurs in Saudi Arabia and considerable changes to empower Saudi women. Assuming that a significant percentage of these students might start their own businesses, this article focuses on an important element in empowering female entrepreneurs, which is entrepreneurship education. Another reason for focusing on women is that the percentage of unemployed females outnumbered unemployed males significantly, which is one of the economic issues in Saudi Arabia.

The ASTEE survey is designed to analyse entrepreneurial education by analysing different variables and factors. The first variable is entrepreneurial knowledge, which refers to learning to understand entrepreneurship via analysing different factors. These factors include identifying opportunities, innovation and creativity, the process of entrepreneurship, the ethical position of enterprises, the workings of the economy and where people live and work. The second variable is the mindset of learning to become an entrepreneur. This variable can be analysed through the entrepreneurial mindset, core-self-evaluation and entrepreneurial attitude. The final variable is entrepreneurial skills, which refers to learning to become an entrepreneur through analysing five different factors. These skills include creativity, planning, financial literacy, resources marshalling and managing ambiguity. Table 1 shows the research variables, inter-items and how to measure each variable.

Table 1 Research Variables, inter-items and how to measure them

Variable	Inter-items	How to measure it	Measurement
Entrepreneurial knowledge	On a scale from 1–7, how much do you agree (3 sub-items)?		EKT = total/sub-items number
Mindset	Entrepreneurial Mindset (EM1, EM2 and EM3)	On a scale from 1–7, how much do you agree (3 sub-items)?	EMT = total/sub-items number
	Core self-evaluation (CSE1, CSE2, CSE3, CSE4 and CSE5)	On a scale from 1–7, how much do you agree (5 sub-items)?	CSET = total/sub-items number
	Entrepreneurial Attitudes (EA1, EA2 and EA3)	On a scale from 1–7, in general, starting a business is... (3 sub-items)	EAT = total/sub-items number
Entrepreneurial skills	Creativity (C1, C2, C3 and C4)	On a scale from 1–7, how much do you agree (4 sub-items)?	CT = total/sub-items number
	Financial literacy (FL1, FL2 and FL3)	On a scale from 1–7, how much do you agree (3 sub-items)?	FLT = total/sub-items number
	Managing ambiguity (MA1, MA2, MA3 and MA4)	On a scale from 1–7, how much do you agree (4 sub-items)?	MAT = total/sub-items number
	Marshalling of resources (RM1, RM2, RM3 and RM4)	On a scale from 1–7, how much do you agree (4 sub-items)?	RMT = total/sub-items number
	Planning (Plan1, Plan2, Plan3 and Plan4)	On a scale from 1–7, how much do you agree (4 sub-items)?	PlanT = total/sub-items number
Connectedness to the labour market	Innovative Employee (IE1, IE2 and IE3)	On a scale from 1–7, how much do you agree (3 sub-items)?	IET = total/sub-items number
	Entrepreneurial Intentions (Ein1, Ein2 and Ein3)	On a scale from 1–7, how much do you agree (3 sub-items)?	EInT = total/sub-items number
	Experience with self-employment (ESE1, ESE2 and ESE3)	Yes and no questions (3 sub-items)	

This article follows three main steps to analyse the survey. First, descriptive analysis is used to present the research sample and test the variables' normality. After this, validity and reliability tests are conducted on all measurements. Finally, factor analysis is applied to the survey data to answer this article's main question of how entrepreneurship education influences female nascent entrepreneurs.

As mentioned, this article's sample is the female students of the Business School in Jouf University, a population of 1588. The sample size in this article can be decided based on population and confidence level, as explained in Israel (1992). Another method that needs to be considered regarding the sample size is the data analysis method that is factor analysis. Based on Israel (1992), the adequate sample size for a population between 1000 and 2000, where the confidence level is 10%, is between 91–95. Comrey and Lee (2013) offered a rough rating scale for adequate sample sizes in factor analysis; this rating is between 100 and 1000 or more. According to MacCallum et al. (1999), the survey sample size depends on the number of factors and variables. Since this article's ratio of variables to factors is 20:3, 100 is an adequate sample size.

An electronic survey was created by Google Survey and distributed to the Business School's female students via email. Around 700 electronic questionnaires were sent to the students and

173 responded, yielding a 24% respondent rate. Since the sample size is 173, it surpasses the minimum of 100 required to be considered adequate for the analysis.

3. DATA ANALYSIS

As mentioned above, around 700 electronic questionnaires were sent to female students in the Business School in Jouf University, with 173 respondents replying. This sample can be described based on age, nationality, education programme, work experience and volunteering. Majority of the respondents (97%) are between 18-24 years old and mere 1.7% are older than 25 years old. In addition, majority of respondents are national students, and their parents were born in the same country where the students lived. A quarter of the respondents are participating in the Accounting programme, 74.6% in the Business Management programme and 5.2% in the Finance and Investment programme. Moreover, 74.6% of students' parents, or the adults that raised them, have a university degree. A significant percentage (more than 60%) of the respondents have not participated in an entrepreneurship course or module and have not participated in extra-curricular activities focused on entrepreneurship. For more details of the research sample, see Table 2, 3 and 4.

Table 2 Research sample descriptive1

Total participants	Gender		Age			Nationality	
	Male	Female	Less than 18	18-24	25-34	International	Local
173	0%	100%	.6%	1.7%	97.7%	2.9%	97.1%

Table 3 Research sample descriptive2

Educational Programme			Volunteering Work		Work years	Experience	Entrepreneurship course		Extra curriculum		
Business	Accounting	Investment and Finance	Yes	No	0	<2	3-5	Yes	No	Yes	No
74.6%	20.2%	5.2%	16.2%	83.8%	84.4%	13.3%	2.3%	35.8%	64.2%	24.3%	75.7%

Table 4 Research sample descriptive3

Parents were born in a different country			
Both parents	One parent	Neither parent	
3.5%	8.7%	87.9%	
Parents have a university degree			
At least one parent	Neither parent		
74.6%	25.4%		
Self-employed family members or friends			
Friends	One of my parents	Other relatives	No one
5.2%	16.2%	53.8%	24.9%

Several steps were considered to increase the reliability and validity of the measurements. First, measurements were chosen based on the conceptual and empirical framework of the ASTEE Survey, tested for its validity and reliability. Second, the scale from 1–7 was considered in answering the questions in the survey. Third, a reliability test was applied for all variables, and the test approves the reliability of all measurements, as Cronbach's Alpha was higher than .7 for all measurements. For more details, see the appendix for all SPSS tests.

All variables are normally distributed based on normality test and histogram. The significance of the normality test for all variables is .00, meaning that all variables are normality

distributed. For more details of the normality test results and histogram of all variables, see the appendix. Therefore, factor analysis was applied to answer the research question.

Factor analysis was conducted to answer the research question. Kaiser-Meyer-Olkin (KMO) and Bartlett’s test of sampling adequacy shows a highly accepted value, and the significant value of the test is .000. See Table 5 for more details of KMO and Bartlett’s test. Two components were extracted. The first component is extracted for its high variance, and the second for the low variance. For more details, see Table 6 Total Variance and Figure 1 Scree Plot. The Component Matrix in Table 7 shows that the first extracted component is highly related to all variables, where the second component is merely related to all variables.

Table 5 KMO and Bartlett’s test

KMO And Bartlett’s Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.939
Bartlett’s Test of Sphericity	Approx. Chi-Square	1295.857
	df	55

Table 6 Total Variance

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.654	60.487	60.487	6.654	60.487	60.487	6.093
2	1.065	9.678	70.165	1.065	9.678	70.165	4.688
3	.589	5.355	75.519				
4	.518	4.706	80.226				
5	.470	4.270	84.495				
6	.393	3.574	88.070				
7	.340	3.088	91.158				
8	.314	2.850	94.008				
9	.260	2.368	96.376				
10	.216	1.961	98.337				
11	.183	1.663	100.000				

Extraction Method: Principal Component Analysis

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

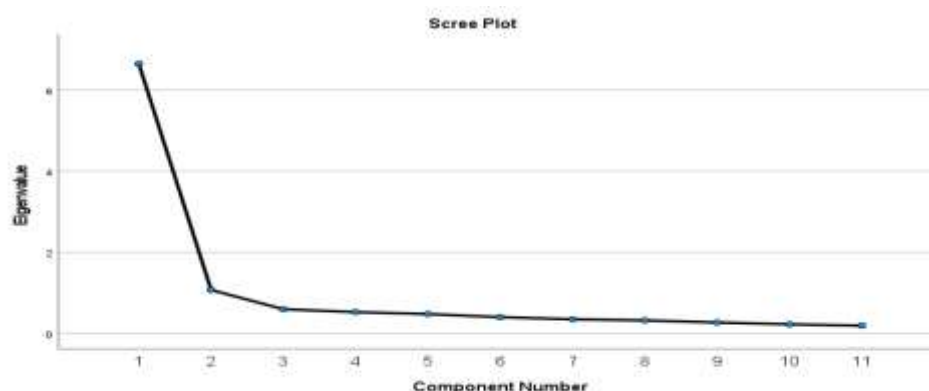


Figure 1 Scree Plot

Table 7 The two extracted components

Component Matrix		
	Component	
	1	2
EMT	.721	.426
CSET	.754	.344
EAT	.581	.569
EKT	.805	.260
CT	.892	-.058-
FLT	.753	-.324-
MAT	.755	-.356-
RMT	.852	-.150-
PlanT	.874	-.120-
IET	.800	-.124-
EIntT	.718	-.293-
Extraction Method: Principal Component Analysis		
a. Two components extracted.		

The Correlation Matrix shown in Table 8 indicates that items of each variable are related significantly, meaning that each variable can be explained noticeably (.4–.7) by their items. Also, the results show that all items are significantly related to entrepreneurial intention (EInt). In details, among all items, EInt is positively affected the most by entrepreneurial skills that include planning (PlanT), creativity (CT), marshalling resources (RMT), financial literacy (FLT) and managing ambiguity (MAT), as the influence ranges between .65–.53. On the other hand, EInt is influenced the least by the items of mindset; these include entrepreneurial mindset (EMT), core-self-evaluation (CSET) and entrepreneurial attitude (EAT), as the positive effect ranges between .38–.534. Entrepreneurial knowledge (EKT) is highly correlated to all items, by the most to CSET with almost 70%, and the least to EAT with 50%.

Table 8 Correlation Matrix in Factor analysis

Correlation Matrix												
		EMT	CSET	EAT	EKT	CT	FLT	MAT	RMT	PlanT	IET	EIntT
Correlation	EMT	1.000	.652	.514	.603	.587	.428	.403	.535	.564	.517	.404
	CSET	.652	1.000	.465	.694	.628	.492	.465	.535	.559	.534	.431
	EAT	.514	.465	1.000	.506	.488	.266	.283	.454	.450	.383	.304
	EKT	.603	.694	.506	1.000	.691	.515	.511	.605	.668	.595	.458
	CT	.587	.628	.488	.691	1.000	.706	.623	.766	.750	.668	.647
	FLT	.428	.492	.266	.515	.706	1.000	.626	.659	.616	.530	.532
	MAT	.403	.465	.283	.511	.623	.626	1.000	.677	.657	.628	.518
	RMT	.535	.535	.454	.605	.766	.659	.677	1.000	.762	.630	.579
	PlanT	.564	.559	.450	.668	.750	.616	.657	.762	1.000	.710	.650
	IET	.517	.534	.383	.595	.668	.530	.628	.630	.710	1.000	.584
	EIntT	.404	.431	.304	.458	.647	.532	.518	.579	.650	.584	1.000
a. Determinant = .000												

Table 9 and Figure 2 illustrate the frequency of all items for each score. It can be said that a significant percentage of the sample had a high score (5 and higher). In details, at least 30% of the students have a high score in all items of the mindset and entrepreneurial knowledge.

More than a quarter of the students have a high score in all items of entrepreneurial skills and connectedness to the labour market.

Table 9 Percentage of frequency of all items

Variable	Items	Percentage of Frequency						
		1	2	3	4	5	6	7
Mindset	EMT	2%	5%	6%	13%	22%	34%	18%
	CSET	2%	3%	3%	9%	16%	39%	28%
	EAT	0%	0%	1%	20%	29%	37%	13%
Entrepreneurial Knowledge	EKT	4%	3%	3%	9%	14%	35%	31%
Entrepreneurial Skills	CT	3%	2%	6%	11%	17%	36%	24%
	FLT	4%	3%	9%	25%	25%	23%	9%
	MAT	3%	3%	13%	17%	29%	26%	9%
	RMT	3%	5%	6%	11%	20%	35%	20%
	PlanT	4%	2%	5%	13%	16%	36%	24%
Connectedness to the labour market	IET	3%	3%	3%	10%	13%	30%	38%
	EInT	3%	3%	6%	18%	24%	26%	20%

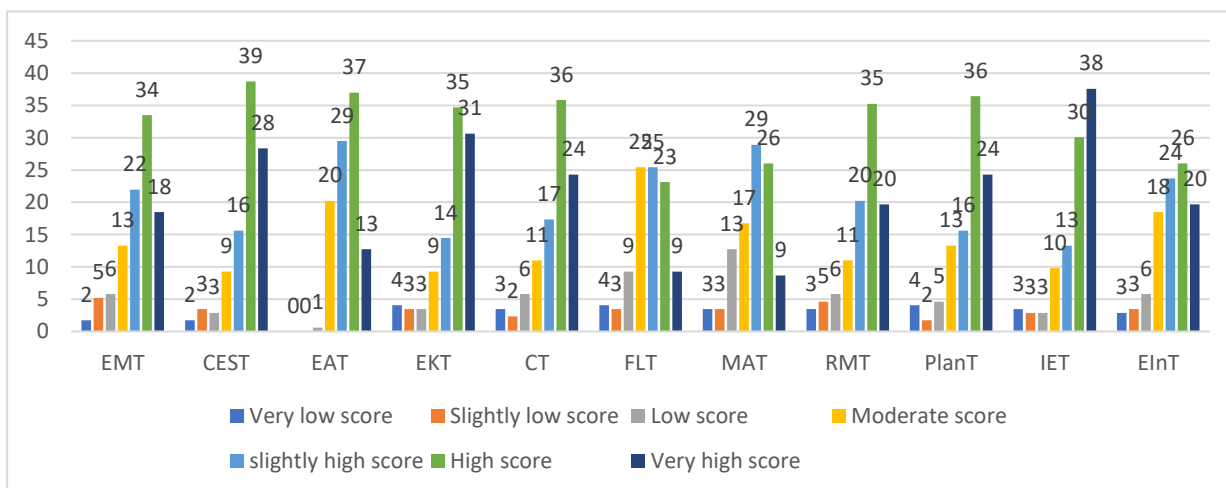


Figure 2 Frequency of All Variables' Score

Figure 3 illustrates the experience with self-employment for the students. The figure indicates that more than 70% of students have not started a business and did not operate a business, yet half of them are trying to set up a business.

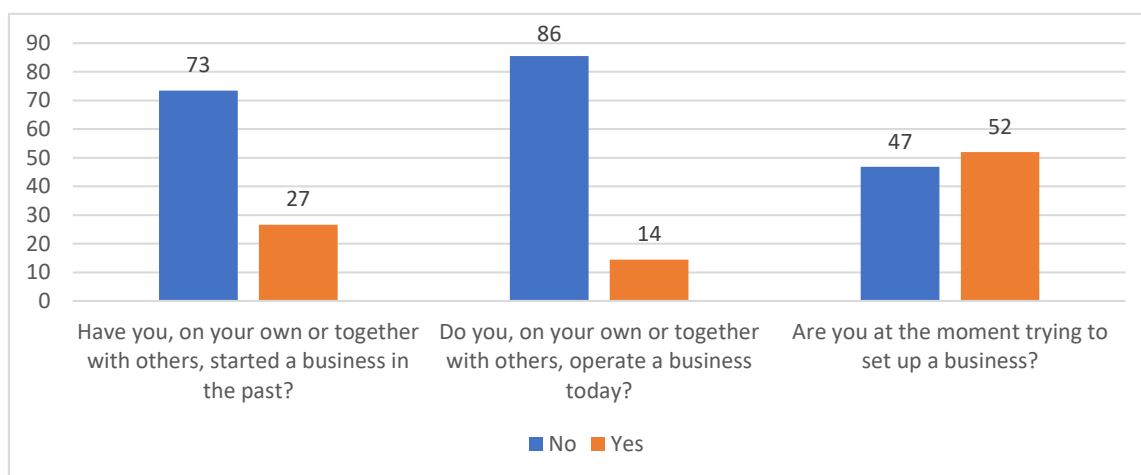


Figure 3 Experience with self-employment (EST)

4. RESULTS

As the article aims to analyse what influences female nascent entrepreneurs to start their own business through the ASTEE survey, the results of the study can be summarised as follows:

- The majority of the students are aged (25–34), from the Business Department, have no work experience and did not volunteer.
- A significant percentage of the students did not take an entrepreneurship course and did not have extra curriculum.
- A significant percentage of the students have self-employed relatives.
- Regarding the main components of entrepreneurship education:
 - Students' Mindset: more than 70% have a high entrepreneurial mindset, core self-evaluation and entrepreneurial attitude.
 - Entrepreneurial Knowledge of the students: mostly 80% of them understand the role entrepreneurs play in society, know why people start a business and know that some business ideas work, and others do not.
 - Entrepreneurial Skills of the students: more than half have entrepreneurial skills, including creativity, financial literacy, managing ambiguity, marshalling resources and planning.
 - Connectedness to the labour market: between 70–80% are innovative employees and have entrepreneurial intentions.
- Regarding the experience with self-employment: although more than 70% of students have not started a business and did not operate a business, half of them are trying to set up a business.
- Accordingly, entrepreneurship education might significantly influence the female nascent entrepreneurs, as all factors are significantly related to entrepreneurial intention.
- In addition, their entrepreneurial intention is most influenced by entrepreneurial skills and least influenced by the mindset.

5. DISCUSSION AND CONCLUSION

The main aim of this article is to investigate the influence of entrepreneurship education on the intention of female students to start a business since it is essential to strengthen their economic role in the Saudi economy. As mentioned, it is important to strengthen the economic contribution of females since they can play an obvious role in tackling the high rate of female unemployment (57% in 2019) (General Authority of Statistical, 2020). One of the key factors that might influence the intention to start a business is training and education. Thus, Saudi universities integrated entrepreneurship into their academic programmes, including providing curricula based on innovation and entrepreneurship, networking with leaders, industry and securing capital, consolidating the culture of entrepreneurship and investment. In addition, stimulating entrepreneurship among students to increase their efficiency and to enable them to achieve their goals. Developing entrepreneurship education can influence entrepreneurial intention, and thus strengthen their economic contribution. This is because entrepreneurial education develops certain skills, knowledge and the mindset that influence opportunity identification, opportunity evaluation and how they react to it, which can be in the form of starting their own business. Thus, this research focuses on analysing the aforementioned factors and how these factors influence their intention to start a business. Accordingly, this article indicates that entrepreneurial education influences a significant percentage of female students

in Jouf University to start a business, as the analysis shows that a significant percentage of the students have an entrepreneurial mindset, knowledge and skills.

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