

Relationship between Entrepreneurial Competencies and Entrepreneurial Intention among South African University Students: A Gender Perspective

Mmakgabo Justice Malebana and Moshe Moses Vhukeya

Tshwane University of Technology, Department of Management and Entrepreneurship, Faculty of Management Sciences, South Africa

malebanamj@tut.ac.za

Abstract: Promoting entrepreneurial activity is considered vital for stimulating job creation, innovation, and economic development. However, prior research emphasises the importance of entrepreneurs' confidence in their capability or skills as a driver in their decision to launch a new venture, and in facilitating opportunity recognition on which the entrepreneurial process rests. Thus, success in launching, managing, and ensuring the survival and growth of a new venture is dependent on entrepreneurs' competencies. Entrepreneurial competencies can be a differentiating factor between individuals with strong entrepreneurial intentions and those who have no entrepreneurial intentions. Despite the broad nature and variety of entrepreneurial competencies, there is some consensus among researchers that entrepreneurial competencies are learnable, and they can be developed through entrepreneurship education. Due to the realisation of their importance, there has been growing concerted research efforts directed at uncovering the nature and types, and the role of entrepreneurial competencies in achieving venture performance, and how they can be taught. Despite the fact that individuals can be taught to acquire entrepreneurial competencies, there is paucity of research on the effect of entrepreneurship education on entrepreneurial competencies. The objectives of the study were to determine gender differences in entrepreneurial competencies and entrepreneurial intention, test the relationship between gender and entrepreneurial competencies, to determine the effect of entrepreneurship education on entrepreneurial competencies and entrepreneurial intention, and the relationship between entrepreneurial competencies and entrepreneurial intention. The study was conducted based on a quantitative survey in which 585 South African university students completed a structured questionnaire. Data were analysed using the Statistical Package for the Social Sciences (SPSS) by means of regression analysis, Mann-Whitney *U* test and descriptive statistics. Findings indicate that entrepreneurial competencies had a significant positive relationship with entrepreneurial intention. Entrepreneurship education had an insignificant relationship with entrepreneurial competencies, and no significant differences were found between entrepreneurial competencies of the respondents who had had entrepreneurship education and those who did not. The results further revealed that gender had a significant positive relationship with entrepreneurial competencies. Additionally, the results revealed significant gender differences in entrepreneurial competencies and entrepreneurial intention.

Keywords: Entrepreneurial competencies, gender, entrepreneurship education, entrepreneurial intention, university students.

1. Introduction

Promoting entrepreneurial activity is considered vital for stimulating job creation, innovation and economic development (Tehseen et al., 2019; Hill et al., 2022). In view of the rising unemployment rates, it is crucial to encourage the youth to engage in entrepreneurship and equip them with the necessary entrepreneurial skills and competencies so they can create jobs for themselves and others (Mahlaole and Malebana, 2021). Prior research emphasises the importance of entrepreneurs' confidence in their capability or skills as a driver in their decision to launch a new venture (Arenius and Minitti, 2005; Bayon et al., 2015). Thus, success in launching, managing, and ensuring the survival and growth of a new venture is dependent on entrepreneurs' competencies (Bird, 1995, 2002). Entrepreneurs need not only possession of entrepreneurial competencies but should demonstrate them through their behaviour and actions (Man et al., 2002; Man et al., 2008a). Entrepreneurial competencies refer to "a higher-level characteristic encompassing personality traits, skills and knowledge that can be seen as the total ability of the entrepreneur to perform a job role successfully" (Man et al., 2002:124). These competencies are comprised of motives and traits, social role and self-concept, and behaviours, knowledge, and skills (Bird, 2002).

Among these entrepreneurial competencies, skills, knowledge and behaviours are easy to observe and can be changed through entrepreneurship education (Bird, 2002). Despite the broad nature and variety of entrepreneurial competencies (Bird, 2002; Malebana, 2012; Mitchelmore and Rowley, 2010), there is some consensus among researchers that entrepreneurial competencies are learnable (Bird, 1995, 2002; Man et al., 2008a). Therefore, entrepreneurship education should equip students with entrepreneurial competencies necessary to create and ensure the survival of the new venture, and those that could lead to the growth and performance of the venture (Bird, 2002). Thus, in line with these views, entrepreneurial competencies are

defined as the structured and integrated abilities, skills, knowledge, and motivation needed by an entrepreneur to perform entrepreneurial tasks and solve entrepreneurial problems (Onstenk, 2003; Izquierdo et al., 2005; Man et al., 2008a). Entrepreneurial competencies can be a differentiating factor between individuals with strong entrepreneurial intentions and those who have no entrepreneurial intentions (Brice and Spencer, 2007), and can differentiate entrepreneurs from non-entrepreneurs (Xiang, 2009). It has also been found that entrepreneurial competencies enhance venture survival and performance (Tola and Chimucheka, 2018; Barazandeh et al., 2015). Due to the realisation of their importance, there has been growing concerted research efforts directed at uncovering the nature and types (Mitchelmore and Rowley, 2010; Tittel and Terzidis, 2020), and the role of entrepreneurial competencies in achieving venture performance (Tola and Chimucheka, 2018; Barazandeh et al., 2015).

The fact that entrepreneurial behaviour is not a response to a stimuli but occurs as a result of intentional, deliberate, and planned efforts driven by the belief that one can successfully perform the associated tasks (Krueger et al., 2000), creates no doubt that possessing entrepreneurial competencies should stimulate entrepreneurial intention. The stronger an individual's entrepreneurial intention, combined with high confidence in one's entrepreneurial competencies should translate into entrepreneurial behaviour. While entrepreneurial competencies research began three decades ago (Bird, 2002), there are limited studies that have investigated these competencies rigorously in entrepreneurship literature (Mitchelmore and Rowley, 2010). According to Sheet and Sheet (2006), researchers should examine the determinants of both entrepreneurial intention and competencies to shed more light on the precursors of entrepreneurial behaviour. Even though individuals can be taught to acquire entrepreneurial competencies, there is paucity of research on the effect of entrepreneurship education on entrepreneurial competencies and the relationship between entrepreneurial competencies and entrepreneurial intention (Botha and Taljaard, 2021; Hou et al., 2023). Moreover, fewer studies have examined gender differences in entrepreneurial competencies (Gupta et al., 2009). Prior research has shown that there are gender differences in entrepreneurial intention, the determinants of entrepreneurial intention (Haus et al., 2013; Zhang et al., 2014; Malebana, 2015) and participation in entrepreneurial activity (Herrington et al., 2015). Furthermore, it has been reported that women lack confidence in their own business skills (Grichnik and Hisrich, 2005; Mitchelmore and Rowley, 2013), while other studies found that women entrepreneurs who possess entrepreneurial competencies are able to achieve business success or better performance (Irene, 2017, Tola and Chimucheka, 2018). In view of these gender differences, efforts directed at finding better solutions that could empower women to contribute meaningfully to the economy are vital to the achievement of Sustainable Development Goals (Global Entrepreneurship Research Association, 2022). Therefore, studies that examine gender differences in entrepreneurial intention and competencies can help in guiding the development and implementation of support programmes that are aimed at empowering women. This study attempts to address these mentioned gaps. The objectives of the study were to determine the relationship between entrepreneurial competencies and entrepreneurial intention, gender differences in entrepreneurial competencies and entrepreneurial intention, test the relationship between gender and entrepreneurial competencies, and to determine the effect of entrepreneurship education on entrepreneurial competencies and entrepreneurial intention.

2. Literature review

The creation of a new venture follows the formation of entrepreneurial intention (Shook et al., 2003). Subsequently, the entrepreneur searches for, discovers, evaluates and exploits opportunities in the market (Shook et al., 2003; Ardichvili et al., 2003). Successful execution of the tasks involving the identification, discovery, and evaluation of opportunities as well as the ultimate creation of a new venture are dependent on the entrepreneur's competencies (Ucbasaran et al., 2008; Izquierdo and Buyens, 2008). These entrepreneurial competencies help to initiate, manage and sustain the new venture and lead to its superior performance (Bird, 1995, 2002; Onstenk, 2003; Ahmad et al., 2010; Zainol and Al Mamun, 2018; Tehseen et al., 2019).

Adopting the process dimension of entrepreneurial competencies that focuses on the tasks or behaviours carried by entrepreneurs presents researchers with a viable alternative for predicting entrepreneurial outcomes such as venture creation, survival and performance (Man et al., 2002; Man et al., 2008a). Since competence is behavioural and observable, the process or behavioural dimension can provide a means of analysing the relationship between individual differences and venture outcomes than the personality trait approaches (Bird, 1995). Entrepreneurial competencies that have been identified by Man et al. (2002) are widely researched and tested (for example, Man et al., 2008a, 2008b; Xiang, 2009; Ahmad et al., 2010; Al Mamun et al., 2019). Researchers who have applied these entrepreneurial competencies found that they have a positive effect on

venture performance (Al Mamun et al., 2019) and can be successfully applied to discriminate entrepreneurs from non-entrepreneurs (Xiang, 2009). These entrepreneurial competencies include opportunity competencies, relationship competencies, conceptual competencies, organising competencies, and strategic competencies (Ahmad et al., 2010; Man et al., 2002; Man et al., 2008a, 2008b).

To undertake the entrepreneurial process, entrepreneurs should identify and evaluate opportunities (Izquierdo and Buyens, 2008; Onstenk, 2003; Zainol and Al Mamun, 2019). Prospective entrepreneurs should make personal sacrifices to ensure that their businesses get started and become sustainable (Brice & Spencer 2007; Man et al., 2002; Malebana, 2012). They should formulate the vision, set, evaluate and implement strategies for their businesses; establish and maintain relationships with various stakeholders in order to access resources and sell products/services; and engage in clear and persuasive communication about issues that affect the business (Onstenk, 2003; Izquierdo and Buyens, 2008; Tehseen et al., 2019). To successfully operate in uncertain and turbulent environments and make the right decisions, entrepreneurs should be able to absorb, interpret and comprehend complex information, and identify and weigh the risks; and they should organise and allocate resources, build teams, lead and train employees, and control business performance (Man et al., 2002; Zainol and Al Mamun, 2019)

2.1 Gender and entrepreneurial competencies and entrepreneurial intention

Extant literature indicates that women have low entrepreneurial intentions (Haus et al., 2013; Zhang et al., 2014) and low entrepreneurial activity rates compared to men (Bowmaker-Falconer and Meyer, 2022; GERA, 2022). These low entrepreneurial intentions and entrepreneurial activity rates are attributed to gender differences in the antecedents of entrepreneurial intention (Maes et al., 2014; Haus et al., 2013; Wilson et al., 2007; Malebana, 2015). Many scholars acknowledge the difference between men and women regarding entrepreneurial competence (Kacperczyk and Younkin, 2019). The lack of entrepreneurial competencies among women is compounded by the societal perceptions of traditional gender roles and inhibiting social norms that have predominantly favoured men (Kacperczyk and Younkin, 2019; GERA, 2022), which hinder women to perform at the level of male entrepreneurs (Wang, 2019). It has been found that possession of entrepreneurial competencies enhances the performance of women entrepreneurs (Tola and Chimucheka, 2018). Additionally, Diaz's (2022) findings indicate that there are no major differences between males and females in entrepreneurial competencies, whereas Devi (2023) reports significance difference between male and female students in opportunity competency and relationship competency.

2.2 Entrepreneurship education, entrepreneurial competencies and entrepreneurial intention

Researchers argue that to be effective, entrepreneurship education should change the antecedents of entrepreneurial intention and stimulate entrepreneurial intention (Fayolle and Gailly, 2015; Nabi et al., 2017), equip students with entrepreneurial knowledge, skills and competencies and contribute positively to entrepreneurial behaviour (Galloway and Brown, 2002; Matlay, 2008; Alakaleek et al., 2023). Previous research has found that exposure to entrepreneurship education has a positive effect on entrepreneurial intention (Lv et al., 2021; Mahlaole and Malebana, 2021; Pham and Le, 2023). In addition, entrepreneurship education increases entrepreneurial knowledge (Matlay, 2008), has a positive impact on entrepreneurial competence (Lv et al., 2021) and promotes start-up behaviour (Galloway and Brown, 2002; Dickson et al., 2008; Alakaleek et al., 2023). Despite these positive results from previous research, there are studies which could not find a significant relationship between entrepreneurship education and entrepreneurial intention (Ndofirepi and Rambe, 2017; Malebana and Zindiye, 2017; Mahmoud et al., 2020). Devi (2023) found that organising competencies and strategic competencies have a significant positive relationship with entrepreneurial intention. In another study, Botha and Taljaard (2021) observed that there is positive association between entrepreneurial competencies and entrepreneurial intention among nascent entrepreneurs.

3. Research methodology

3.1 Sample

This study surveyed 585 final year diploma students from two South African universities that have campuses in the Eastern Cape, Gauteng, Mpumalanga and Limpopo province. Since the aim of the study was to determine, in particular, the effect of entrepreneurship education on entrepreneurial competencies, the sample involved students who had exposure to entrepreneurship education and those who were not. The sample was chosen

because as final year students they were in process of making career decisions upon completion of their studies, which could include the entrepreneurial career option (Liñán and Chen, 2009; Malebana and Zindiye, 2017; Malebana, 2012). A convenient sampling technique was used to obtain the sample, as only students who were in class during the data collection days completed the questionnaire.

3.2 Data collection and measures

Data were collected using a structured questionnaire that involved questions that were adopted from prior studies on entrepreneurial competencies and entrepreneurial intention (Appendix A). Entrepreneurial intention was measured by means of a five-point Likert scale (1=Strongly disagree, 5=Strongly agree), with seven items that were adopted from Liñán and Chen (2009). Entrepreneurial competencies measures were developed from Man et al. (2002); Onstenk (2003); Malebana (2012); Man et al. (2008b); Izquierdo and Buyens (2008); Ahmad et al. (2010); and Chiru et al. (2012). These entrepreneurial competencies were based on a five-point Likert scale consisting of 11 items measuring opportunity competency (two items), relationship competency (one item), communication competency (one item), commitment competency (two items), organising competency (one item), conceptual competency (two items), and strategic competency (two items). Previous research that has tested the effects of entrepreneurial competencies on entrepreneurial intention and business performance or success of women also measured similar entrepreneurial competencies (for example, Irene, 2017; Zainol and Al Mamun, 2018; Devi, 2023). Entrepreneurship education and demographic variables were collected as categorical data (Yes or No). Ethical clearance was obtained from the two universities before commencement of the data collection process.

4. Data analysis

Data were analysed by means of the Statistical Package for the Social Sciences (SPSS), using both descriptive analysis and hierarchical regression analysis. Prior to data analysis the reliability and validity of the data were checked by conducting exploratory factor and reliability analysis. In terms of reliability, entrepreneurial competencies had Cronbach's alpha value of 0.913 while entrepreneurial intention had 0.911, indicating that the internal consistency of the data collection instrument was good (Field, 2013). The results of the exploratory factor analysis that was conducted using principal component analysis revealed a two-factor solution which accounted for 58.5% of the variance. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.926. As this value was well above the minimum criterion of 0.5, the sample size was suitable for factor analysis. Bartlett's Test of Sphericity was also significant ($p=0.000$). Data were also verified for independence of errors and multicollinearity. The values of the Durbin-Watson statistic were well within the acceptable limits of between 1 and 3 (Field, 2013) and ranged from 1.939 to 1.981. The variance inflation factors (VIF) ranged from 1.000 to 1.034 and tolerance values ranged from 0.967 to 1.000. The VIF values of below 10 and tolerance values of above 0.2 indicate that multicollinearity was not a problem in the study (Field, 2013).

5. Results and discussion

5.1 Demographic profile of the respondents

Of the 585 respondents as shown in Table 1, 57% were female and 42% were male while one percent did not indicate the gender. The majority (67.4%) of the respondents were between 18 and 24 years, followed by 25% between 25 and 34 years and 6.8% between 35 and 64 years. Less than one percent of the respondents did not indicate their age. With regards to exposure to entrepreneurship education, 81.2% did not study entrepreneurship education while 18.8% were enrolled for the diploma in entrepreneurship. More females (64.5%) had exposure to entrepreneurship education than men (35.5%).

Table 1: Demographic characteristics of the respondents

	Description	Frequency	Percentage
Gender	Male	245	41.9
	Female	336	57.4
	Other	4	0.7
	Total	585	100

Age	18 – 24 years	394	67.4
	25 – 34 years	146	25
	35 years and above	40	6.8
	Other	5	0.8
	Total	585	100
Entrepreneurship education	No	475	81.2
	Yes	110	18.8
	Total	585	100
Exposure to entrepreneurship education by gender	Male	39	35.5
	Female	71	64.5
	Total	110	100

5.2 Differences in entrepreneurial competencies and entrepreneurial intention based on gender and entrepreneurship education

The Mann-Whitney U test was used to test whether there are differences in entrepreneurial competencies and entrepreneurial intention among the sample based on gender and entrepreneurship education. As shown in Table 2, the results reveal that males were significantly different from females in entrepreneurial competencies. Males had higher mean rank values (314.54) than females (273.83) on entrepreneurial competencies ($U = 35392.500$, $p = 0.001$). Male and female respondents differed significantly in entrepreneurial intention, with males displaying higher mean rank values (327.17) than their female counterparts (264.63) ($U = 32299.000$, $p = 0.001$). These findings support previous research which has shown that men and women differ regarding entrepreneurial competencies and entrepreneurial intention. These results corroborate previous research that has found that women have low entrepreneurial intention (Haus et al., 2013; Zhang et al., 2014) and low entrepreneurial competencies (Thébaud, 2015; Kacperczyk and Younkin, 2019; Devi, 2023). Additionally, there were no significant differences in the mean rank values for entrepreneurial competencies of the respondents who had had entrepreneurship education and those who did not. The results suggest that the respondents who had had entrepreneurship education and those who did not had similar levels of entrepreneurial competencies.

Table 2: Mann-Whitney U test results for differences in entrepreneurial competencies and entrepreneurial intention

	Mean rank	Test statistics
Entrepreneurial competencies	Males = 314.54 Females = 273.83	Mann-Whitney $U = 35392.500$ Wilcoxon $W = 92008.500$ $Z = -3.285$ $P = 0.001$
	Entrepreneurship education = 296.44 No entrepreneurship education = 272.89	Mann-Whitney $U = 23913.000$ Wilcoxon $W = 30018.000$ $Z = -1.503$ $P = 0.133$
Entrepreneurial intention	Males = 327.17 Females = 264.63	Mann-Whitney $U = 32299.000$ Wilcoxon $W = 88915.000$ $Z = -5.024$ $P = 0.001$

5.3 Regression analysis results

The relationship between age, gender and entrepreneurial competencies was tested prior to testing the effects of entrepreneurship education on entrepreneurial competencies, and entrepreneurial competencies on entrepreneurial intention. The results in Table 3 (Model 1) show that there is no significant relationship between

age and entrepreneurial competencies, while gender ($\beta = 0.140$, $p < 0.01$) has a positive significant relationship with entrepreneurial competencies. In Model 2, the results indicate an insignificant relationship between entrepreneurship education and entrepreneurial competencies ($\beta = -0.062$, $p > 0.05$). These findings contradict the view that entrepreneurial competencies can be developed through entrepreneurship education (Bird, 1995, 2002; Man et al., 2008a; Lv et al., 2021; Hou et al., 2023). Model 3 tested the joint effects of gender, age and entrepreneurship education on entrepreneurial competencies. The results show that age and entrepreneurship education were non-significant while gender ($\beta = 0.136$, $p < 0.01$) had a positive significant relationship with entrepreneurial competencies. The findings on the relationship between gender and entrepreneurial competencies corroborate those of Hou et al. (2023). In line with the results of Botha and Taljaard (2021); Devi (2023) and Hou et al. (2023), findings (Model 4) indicate that entrepreneurial competencies have a positive effect on entrepreneurial intention ($\beta = 0.188$, $p < 0.000$). Additionally, the results in Model 5 show that relationship between entrepreneurship education and entrepreneurial intention was not significant. These results contradict those of Hou et al. (2023) in which a positive relationship was found between entrepreneurship education and entrepreneurial intention. The findings are consistent with those of previous research that reported an insignificant association between entrepreneurship education and entrepreneurial intention (Ndofirepi and Rambe, 2017; Malebana and Zindiye, 2017; Mahmoud et al., 2020; Alakaleek et al., 2023)).

Table 3: Hierarchical analysis results

	Entrepreneurial competencies			Entrepreneurial intention	
	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Control variables:</i>					
Age	-0.022		-0.033		
Gender	0.140**		0.136**		
<i>Independent variables:</i>					
Entrepreneurship education		-0.062			0.018
Entrepreneurial competencies			-0.060	0.188***	
Multiple R	0.138	0.062	0.150	0.188	0.018
R Square (R^2)	0.019	0.004	0.022	0.035	0.000
Δ Adjusted R^2	0.016	0.002	0.017	0.034	-0.001
Δ F-Ratio	5.609	2.224	4.393	21.339	0.184
Significance of F	0.004**	0.136 n.s.	0.005**	0.000***	0.668 n.s.

* $P < 0.05$ ** $P < 0.01$ *** $P < 0.001$

6. Limitations and directions for future research

The study was cross-sectional and therefore it is not possible to infer the relationship between entrepreneurial competencies and the likelihood of new venture creation and performance. The study used self-reported measures of entrepreneurial competencies and thus, it cannot be concluded with certainty that the respondents indeed possessed entrepreneurial competencies. Additionally, the small sample of the respondents who enrolled for entrepreneurship education and the use of a convenient sample could bias the results. To address the stated limitations, future research should adopt the longitudinal approach to assess the link between entrepreneurial competencies and entrepreneurial behaviour in terms new venture creation and performance.

7. Conclusion

This study tested the relationship between entrepreneurial competencies and entrepreneurial intention and entrepreneurship education, and gender differences in entrepreneurial competencies and entrepreneurial intention. Findings revealed a positive relationship between entrepreneurial competencies and entrepreneurial intention, and between gender and entrepreneurial competencies. Additionally, an Insignificant relationship was found between entrepreneurship education and entrepreneurial competencies. There were no significant differences between entrepreneurial competencies of the respondents who had had entrepreneurship

education and those who did not. Thus, the study advanced the research on entrepreneurial competencies by filling the research gap on the relationship between gender and entrepreneurial competencies, and the effect of entrepreneurial competencies on entrepreneurial intention as well as the relationship between entrepreneurship education and entrepreneurial competencies.

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Appendix A: QUESTIONNAIRE

A. Entrepreneurial intention

For each of the statements in the table below, choose only one of the five options, ranging from "strongly disagree" to "strongly agree" and mark your answer with a cross.

		Strongly disagree	Disagree	Unsure	Agree	Strongly agree
1	I am ready to do anything to be an entrepreneur.	1	2	3	4	5
2	My professional goal is to be an entrepreneur.	1	2	3	4	5
3	I will make every effort to start and run my own business.	1	2	3	4	5
4	I am determined to create a business venture in the future.	1	2	3	4	5
5	I do not have doubts about ever starting my own business in the future.	1	2	3	4	5
6	I have very seriously thought of starting a business in the future.	1	2	3	4	5
7	I have a strong intention of ever starting a business in the future.	1	2	3	4	5

B. Entrepreneurial competencies

For each one of the statements in the table below, choose one of the options, ranging from "very little confidence" to "very confident" and mark your answer with a cross.

		Very little confidence	Little confidence	Unsure	Fairly confident	Very confident
1	My ability to recognise and evaluate opportunities in the market.	1	2	3	4	5
2	My ability to identify and define a viable market niche.	1	2	3	4	5
3	My ability to develop relationships with other business people for mutual learning and collaborative working to achieve common objectives.	1	2	3	4	5
4	My ability to persuade and discuss with various stakeholders about the issues that involve the business.	1	2	3	4	5
5	My ability to make sacrifices to ensure that the business gets started.	1	2	3	4	5

6	My willingness to take action on my own and eagerness to overcome obstacles.	1	2	3	4	5
7	My capacity to organise resources for the business.	1	2	3	4	5
8	My ability to make decisions that involve complex situations.	1	2	3	4	5
9	My ability to observe and interpret business information.	1	2	3	4	5
10	My ability to formulate a vision and mission statement for my business.	1	2	3	4	5
11	My ability to develop and implement a strategic plan.	1	2	3	4	5