

# Determinants of Entrepreneurial Gestation Behaviour: The Mediating Role of Entrepreneurial Intention

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## ABSTRACT

This study contributes to the entrepreneurial gestation behaviour literature based on data from an under-researched developing country context. Specifically, it explores the influence of entrepreneurial competencies (EC) on entrepreneurial gestation behaviour (EGB) as well as the mediating role of entrepreneurial intention (EI).

Predicated on a quantitative research design with survey questionnaire data from 393 respondents, the research findings indicate that each of the EC elements is positively related to EGB. Moreover, all the mediation effects of EI on relationships between EGB and each EC element are statistically significant. The EC elements included ideation, modelling, planning and implementation alongside prior entrepreneurial exposure (PEE) and entrepreneurial education (EE).

The foregoing conclusions imply that policymakers and enterprise support institutions may facilitate the establishment of entrepreneurship support mechanisms to help university students identify and grow their competencies and accelerate the transition from intention to actual business gestation. Lastly, educators may consider enhancing practical entrepreneurship education and linkages to institutional support for the entrepreneurial process.

**Keywords:** Entrepreneurial Competencies, Entrepreneurial Intention and Entrepreneurial Gestation Behaviour

## INTRODUCTION

The extent of economic development in most countries is linked with the progress in entrepreneurship (Aloulou, 2016; Li, Murad, Shahzad, *et al.*, 2020). In developed and developing countries, entrepreneurial activities are encouraged as they are an approach to tackling economic and social challenges thereby fueling economic progress (Ozaralli & Rivenburgh, 2016). Essentially, for every country, entrepreneurship is a catalyst for technological progress, innovation, competition, employment creation and increased national prosperity (Ozaralli & Rivenburgh, 2016). Therefore, this study explores the influence of entrepreneurial competencies (EC) on entrepreneurial gestation behaviour (EGB) as well as the mediating role of entrepreneurial intention (EI) in those relationships.

Concepts such as resources, skills, abilities, assets, capabilities and competencies are frequently interchangeably used (Rasmussen *et al.*, 2011). While some scholars argue that there could be no universal definition of competencies (Draksler & Širec, 2018), other scholars have defined competencies as a set of relations, knowledge, traits and skills (Bacigalupo *et al.*, 2016; Sánchez, 2011). Yet other scholars associate competencies with an individual's behaviours and characteristics crucial for starting, managing and growing a business (Draksler & Širec, 2018).

In Zambia, micro, small and medium-sized enterprises (MSME) constitute over 97% of all firms and offer over 82% of all jobs nationwide (CSO, 2012). Additionally, about 44% of the working population is self-employed (CSO, 2012). Regardless, 72% of unemployed graduates are young people under the age of 35 years (CSO,

2012). Furthermore, 60% of all Zambians live below the poverty line (Zamstats, 2021). In this regard, increased entrepreneurial activities through enhanced competencies may be a viable pathway to address the aforementioned challenges.

Concerning the fact that competencies are learnable and can be acquired and developed over time (Draksler & Širec, 2018), scholars suggest that capitalising on these competencies in university education may result in fewer unemployed graduates and more self-employed individuals in a country. Additionally, practical learning centred on solving business start-up challenges will assist potential entrepreneurs in transforming their commercial ideas into feasible and sustainable actual businesses.

In New Zealand, Kirkley (2016) describes entrepreneurial behaviour as intrinsically motivated, self-determined, self-identified and self-efficacious enterprising behaviour. Additionally, Kirkley (2016) points out four cognitive antecedents that influence entrepreneurial behaviour namely, creativity, independence, daring and ambition.

To understand entrepreneurial behaviour, research on entrepreneurship traditionally concentrates on personality traits and suggests that engagement in entrepreneurship is regulated by the traits of an individual (Obschonka *et al.*, 2012). Researchers on entrepreneurship have long believed that unique personalities are possessed by persons who engage in entrepreneurship (Şahin *et al.*, 2019). In a study based on two countries, USA and Turkey, Ozaralli and Rivenburgh, (2016 p.31) indicate that 'personality is an important predictor of entrepreneurial behaviour'. Many other researchers in Italy (Zollo *et al.*, 2017), and Portugal (Do Paço *et al.*, 2011) corroborate this perspective.

Contradictory to the preceding findings, Obschonka *et al.* (2012) demonstrate that the big five personality traits (openness, extraversion, conscientiousness, agreeableness and neuroticism) are not significantly associated with entrepreneurial behaviour. Thus, in the last ten years (2011-2021), it can be concluded that scholars have reached contradicting conclusions on the subject of personality and its influence on EGB.

The extent, scope and nature of entrepreneurial opportunities and activities vary greatly from country to country (Igwe *et al.*, 2020). A study in Germany reveals that regional cultural context is a significant factor influencing individuals' entrepreneurial behaviour (Arrak *et al.*, 2020). Additionally, different dimensions of culture have other impacts, and these impacts also vary across different stages of entrepreneurship (Arrak *et al.*, 2020).

Generally, the percentage of women in any country involved in entrepreneurship is lower than that of men (Santos *et al.*, 2016). Women's entrepreneurship can be facilitated by supportive social, educational, cultural, occupational, infrastructural, and role-related aspects in the environment (Bullough *et al.*, 2021). Wu *et al.*, (2019) conduct a study to explain the low level of female entrepreneurship participation across 28 countries. Wu *et al.* (2019) reveal a few barriers such as norms, motherhood, finance and entrepreneurial cognitions. The study indicates that low levels of awareness about entrepreneurship and a need for high initial funding are major barriers to entrepreneurship leading to a lower level of female participation in entrepreneurship.

Igwe *et al.* (2020) conducted a study in Nigeria revealing that very few women start their businesses. Additionally, it was found that for the females who start their businesses, the growth of the venture encounters challenges (Igwe *et al.*, 2020) since, culturally, women taking up entrepreneurship are expected to combine domestic roles with business tasks.

Systematic literature reviews (such as Mamabolo & Myres, 2020) observe a need for more research that reveals the multidimensional nature of skills within different social settings, how entrepreneurs learn those skills and how the skills translate into actual behaviour. Thus, the knowledge gaps being explored in this study are threefold. First, generally, the African context is under-researched in entrepreneurial gestation behaviour. Secondly, there is a shortage of empirical evidence on the mediating role of entrepreneurial intention in the relationships between entrepreneurial competencies and gestation behaviour in the Zambian context. The inclusion of entrepreneurship education in the adapted model fills a theoretical gap in knowledge to help understand how learnt skills translate into nascence.

In light of the background and knowledge gaps, this research examines the relationship amongst entrepreneurial

competencies, entrepreneurial intention, and entrepreneurial gestation behaviour. The rest of the paper is structured as follows: the next section reviews the literature and develops the hypotheses predicated on theoretical underpinnings; research methods are then highlighted; and lastly, this is followed by the presentation of results and a discussion thereof.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This section reviews extant literature and develops hypotheses in line with the study's conceptual model.

### Entrepreneurial Gestation Behaviour and Its Antecedents

In South Africa, Seabela and Fatoki (2014) studied the EC of non-business students. It was established that in some EC such as networking and interpersonal skills, non-business students were average. On the other hand, scores below average were reported in idea generation, opportunity recognition and proactivity (Seabela & Fatoki, 2014). Additionally, in Pakistan, Li *et al.* (2020) revealed that opportunity discovery and creativity positively and significantly influence nascent entrepreneurial behaviour. Further, some scholars suggest that opportunity recognition and evaluation are to be embraced by aspiring, nascent and existing entrepreneurs to enhance actual entrepreneurial activity (Botha *et al.*, 2019).

González-López *et al.* (2020) in a study at a Spanish university demonstrated that EC such as organising, planning and commitment have a significant and direct influence on nascent entrepreneurial behaviour. McCann and Vroom (2015) in the USA revealed that engaging in planning activities by nascent entrepreneurs, as they proceed through the implementation phase, is related to a reduction in perceptions of environmental uncertainty.

In Germany, Zapkau *et al.* (2015) studied how PEE influences individuals' EI in a sample of both students and professionals. Two different types of PEE were studied; the first being if the respondents' parents had previously started a business and secondly, whether they previously worked for a small or newly founded firm (Zapkau *et al.*, 2015). Empirical findings showed that attitudinal variables, i.e. subjective norms, perceived behavioural control and attitude mediate the influence of PEE on EI (Zapkau *et al.*, 2015).

In a study of male and female entrepreneurs, Botha (2020) demonstrated the relationship between the PEE and entrepreneurial action with two main findings. First, PEE from parents, relatives, and role models encourages individuals to start business ventures. Second, the rate of business start-ups and the level of EC in male entrepreneurs are different from those of women (Botha, 2020).

A survey in Saudi Arabia aimed at identifying the effects of a person's background on their intention to become an entrepreneur (Aloulou, 2016). The results indicate that freshmen who experienced EE or had relatives who were entrepreneurs showed significant levels of intentions (Aloulou, 2016). Aloulou (2016) further found that innovation and achievement-oriented attitudes were significant predictors of EI.

In Austria, Maresch *et al.* (2016) carried out a cross-sectional study on 4,548 students across 23 institutions of higher learning through an online survey. The scholars hypothesised that if the context is important, scholars should observe diverse results from similar EE lessons delivered to different student groups. The findings demonstrated that differences in contexts exist. Specifically, EE configured to suit a specific target group can address the matter of subjective norms distinctly for business, science and engineering students (Maresch *et al.*, 2016).

A study in Indonesia aimed at assessing EC among students demonstrated the position before and after undergoing EE (Ismail *et al.*, 2015). Before EE, the students possessed some level of EC that supported and predicted EGB. Ismail *et al.*, (2015) indicated that after EE, the pre-test and post-test analyses showed that EC scores were higher after post-treatment. Similar findings were demonstrated in China (Li and Wu, 2019) and Russia (Solesvik, 2013).

In Ghana, a study found that EE has a positive influence on EI and is important in enhancing and equipping students with knowledge and developing entrepreneurial interest (Boahemaah *et al.*, 2020). Amos and Alex

(2014) in Kenya, indicated that entrepreneurial parents, attitudes, academic support, subjective norms and academic support were the factors determining EI.

### Underpinning Theories of the Study

This study conceptualises that entrepreneurial competencies would influence gestation behaviour through entrepreneurial intention. The underpinning theories buttressing the model include the Rubicon model of action phases, the mindset theory of action phases and the theory of planned behaviour.

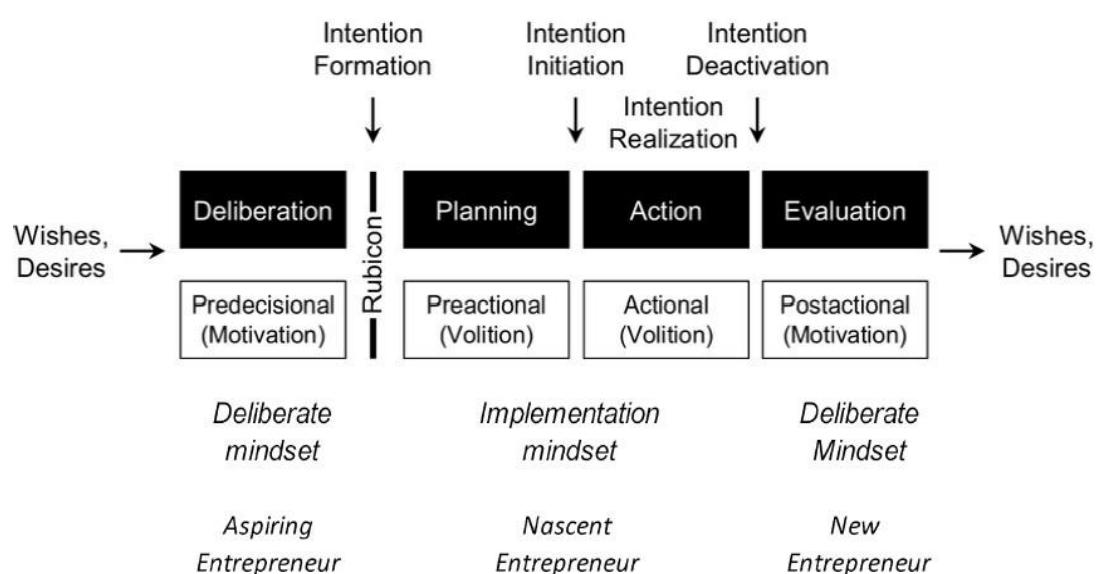
### The Rubicon Model of Action Phases (RMAP)

The RMAP is based on the Mindset Theory of Action Phases (Delanoë-Gueguen & Fayolle, 2019). There are four action phases in the RMAP: pre-decisional, pre-actional, actional and post-actional phases (Keller *et al.*, 2020). The RMAP demonstrates a linear path beginning with an individual's desires or wishes and ending with an evaluation of the action outcomes that have been achieved (Keller *et al.*, 2020).

Each phase has a particular mindset. In the pre-decisional phase, the aspiring entrepreneur has a deliberate mindset (González-López *et al.*, 2020). In the pre-actional and actional phases, a nascent entrepreneur emerges and possesses an implementation mindset throughout the two phases (Delanoë-Gueguen & Fayolle, 2019). The post-actional phase gives rise to a new entrepreneur with a deliberate mindset for growth (Keller *et al.*, 2020).

In each phase, an individual performs different tasks. In the pre-decisional phase, an aspiring entrepreneur deliberates on the potential goals that can be pursued and selects the most appropriate based on considerations of expectancy and value (González-López *et al.*, 2020; Keller *et al.*, 2020). Once wishes possessed are graduated into a goal, the Rubicon has been crossed and the individual enters the pre-actional phase (second phase). In this phase, the nascent entrepreneur's task is to plan where, when and how to implement their choice (González-López *et al.*, 2020; Keller *et al.*, 2020). In the third phase, the actional phase, nascent entrepreneurs here take steps to put the intent into action (González-López *et al.*, 2020). The final stage (post-actional phase) is an evaluation of the results. Here, the new entrepreneur evaluates their progress and possibly decides on whether further goal direction is futile or necessary (Delanoë-Gueguen & Fayolle, 2019; Keller *et al.*, 2020).

Figure 2.1: The Rubicon Model of Action Phases



Source: Adapted from Delanoë-Gueguen and Fayolle, (2019) & González-López *et al.*, (2020)

Various scholars have used the RMAP framework to study the shift from EI or its antecedents to venture creation. The trans-situational stability of the RMAP mindsets can be used to initiate behaviour change (Keller *et al.*,

2020). Empirical studies showed that there is a positive and significant relationship between EI and the start-up status within a year (Delanoë-Gueguen & Fayolle, 2019; Van Gelderen *et al.*, 2015, 2018). Yet, in the gestation period, which is the period between pre-actional and actional phases, the engagement level of nascent entrepreneurs is high and EI is a significant predictor of movement in the direction of venture creation (González-López *et al.*, 2020).

### **The Mindset Theory of Action Phases**

As proposed by the Rubicon Model of Action Phases, the mindset theory of Action Phases is built on stressing the difference between motivation and volition (Gollwitzer, 2012). Poised by German psychologist, Professor Peter Gollwitzer, the theory suggests that different cognitive procedures are activated when individuals tackle goal-selecting tasks compared to when they are implementing them (Gollwitzer, 2012). The Mindset Theory of Action Phases suggests that when selecting a goal, principles of motivation apply while principles of volition apply after the Rubicon is crossed and an individual begins to take action upon the selected goal (Gollwitzer, 2012).

Apart from its use in psychology, entrepreneurial studies in Sweden, France and Spain have used the mindset theory of Action Phases to explain implementation intent and change in behaviour (Delanoë-Gueguen & Fayolle, 2019; Van Gelderen *et al.*, 2018; González-López *et al.*, 2020; Keller, 2019; Keller *et al.*, 2020).

### **The Theory of Planned Behaviour**

More than any other theory in entrepreneurship research, the Theory of Planned Behaviour (TPB) is the most widely used. It suggests that the likelihood of engaging in a particular behaviour is related to the individual strength of intent to engage in that behaviour (Ajzen, 1991). In accordance to Ajzen (1991) aspects that directly influence intentions are the perceptions of subjective norms, perceptions of the extent to which a person has control over their behaviour and an individual's attitude. Professor Icek Ajzen in 1991 postulated this theory and it has been used in psychology, organisational behaviour, human behaviour, and sociology.

### **Hypotheses Development**

Beginning with ideation and modelling competencies, this segment presents the hypothesised relationships under study.

#### **Ideation and Modelling Competencies and Entrepreneurial Gestation Behaviour**

Ideation and modelling competencies (IMCs) include an individual's perception of their ability to recognise an opportunity, conceptualise issues, build relationships, innovate, and be proactive. The capability to recognise and pursue opportunities distinguishes non-entrepreneurs from entrepreneurs (Agarwal & Lenka, 2017; Wickramaratne *et al.*, 2014). IMCs are activities consistent with the tasks of aspiring entrepreneurs in the pre-decisional phase of the RMAP. Empirical research in China by Li, Murad, Shahzad, *et al.*, (2020) found that proactive persons positively influenced the link between EI and entrepreneurial behaviour. Thus, when one perceives that he/she can model relationships, ideate and innovate, he/she is more likely to engage in entrepreneurial gestation activities. Thus, this study posits as follows:

**H<sub>1</sub>** Perceived ideation and modelling competencies have a significant influence on Entrepreneurial Gestation Behaviour

#### **Planning and Implementation Competencies and Entrepreneurial Gestation Behaviour**

Competencies associated with planning and implementation include making financial forecasts, defining the market, writing up a business plan, organising, engaging in market definition, developing financial projections, developing strategy and committing to it (González-López *et al.*, 2020; McCann & Vroom, 2015). These activities are associated with the implementation phase of the RMAP. Studies in Spain (González-López *et al.*, 2020) and Switzerland (Obschonka *et al.*, 2011), demonstrate that an individual's perception of their ability to

implement the planned venture positively influences their entrepreneurial gestation behaviour. Consequently, this study hypothesises as follows:

**H<sub>2</sub>** Perceived planning and implementation competence has a significant influence on entrepreneurial gestation behaviour

### **Prior Entrepreneurial Exposure and Entrepreneurial Gestation Behaviour**

Since most undergraduate students have most likely not worked for any firm, the entrepreneurial experience would be understood to be exposure by observing or working with an entrepreneurial parent, guardian, any entrepreneur or indeed having started or managed one's own business of any shape or form. In the implementation phase of the RMAP, prior entrepreneurial experience is a significant and positive predictor of future entrepreneurial action (Botha, 2020). Studies in China (Zhang *et al.*, 2019), South Africa (Botha, 2020; Botha *et al.*, 2019) and Germany (Zapkau *et al.*, 2015) all confirm that exposure to entrepreneurship is positively and significantly related to entrepreneurial gestation behaviour. With this rationalisation, this study suggests the following hypothesis:

**H<sub>3</sub>** Prior entrepreneurial experience has a significant influence on entrepreneurial gestation behaviour

### **Entrepreneurial Education and Entrepreneurial Gestation Behaviour**

Entrepreneurship education is aimed at providing and enhancing skills, knowledge, attitudes and beliefs. In this way, entrepreneurship education is expected to encourage business startups. Studies focusing on entrepreneurship education are widespread. For example, empirical studies are seen as far as China (Li & Wu, 2019), Ukraine (Solesvik, 2013), Ghana (Boahemaah *et al.*, 2020), United Arab Emirates (Ghafar, 2020). Findings in these studies indicate that entrepreneurship education positively and significantly influences business startups. Therefore this study hypothesises as follows:

**H<sub>4</sub>** Entrepreneurial education has a significant influence on entrepreneurial gestation behaviour

### **Entrepreneurial Intention, Entrepreneurial Competencies, and Entrepreneurial Gestation Behaviour**

This study suggests that EI mediates the influence of IMC, PIC, PEE and EE on EGB. The preceding hypotheses development paragraphs have theorised that individuals with high levels of IMC, PIC, PEE and EE are expected to take on EGB activities. Since scholars have empirically established that intention is the best predictor of actual behaviour (Adam & Fayolle, 2015; Kautonen *et al.*, 2013), it is expected that EI will mediate all the antecedents of EGB. Individuals with higher intentions will have a higher likelihood of initiating the steps necessary to start up a business. Therefore, this study proposes the following hypothesis:

**H<sub>5</sub>** Entrepreneurial intention mediates the relationship between Entrepreneurial Gestation Behaviour and its antecedents.

**H<sub>5a</sub>** Entrepreneurial intention (EI) mediates the influence of Ideation and Modelling Competencies (IMC) on Entrepreneurial Gestation Behaviour (EGB)

**H<sub>5b</sub>** Entrepreneurial intention mediates the effects of PIC on EGB.

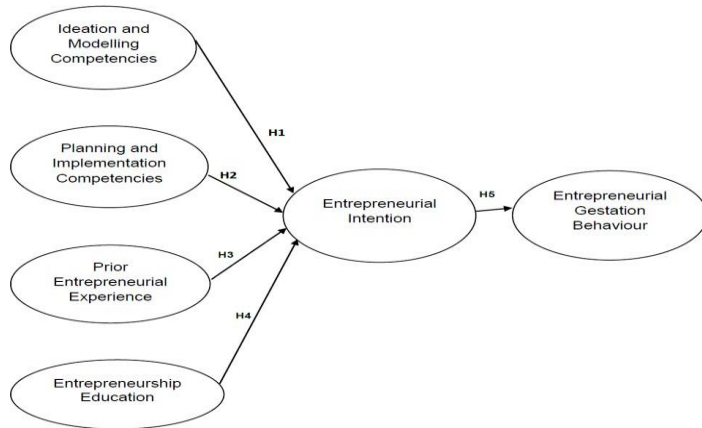
**H<sub>5c</sub>** Entrepreneurial intention mediates the influence of PEE on EGB.

**H<sub>5d</sub>** Entrepreneurial intention mediates the effects of EE on EGB

### **Conceptual model**

In line with the foregoing hypotheses, the following conceptual model was crafted to illustrate the relationships being examined. Each of these relationships led to the formulation of hypotheses in the preceding section.

Figure 3.1 Antecedents of Entrepreneurial Gestation Behaviour



Source: Adapted from González-López *et al.*, (2020)

## METHODS

The purpose of this study was to examine the relationships among EC, EGB and EI. As such, a quantitative research design was appropriately adopted to examine the associations between the variables (Creswell, 2014).

Before each potential participant could answer a self-completion survey questionnaire, the purpose of the study was explained and informed consent was taken. Prior entrepreneurial research used a sample of 403 in Malaysia (Al Mamun & Fazal, 2018), 221 in China (Li & Wu, 2019) and 253 in Turkey (Şahin *et al.*, 2019). Scholars recommend that for unknown populations, the sample size should be a minimum of 200 or 10 respondents per questionnaire item. This ensures that the dataset is robust enough to meet the requirements of statistical parametric tests and measurement model reliability analyses (Mwiya, 2014; Pallant, 2020). This study targeted university students from both public and private universities in Zambia. Using the Raosoft calculator and a population size of 20,000, a sample size of 377 was required at a 95% confidence level and 5% margin of error. This study obtained a sample size of 393 respondents and a systematic sampling technique for every 5<sup>th</sup> student encountered determined who could be part of the sample (Acharya *et al.*, 2013). Sample properties are shown in Table 1.

Table 1 Sample Properties

Table 1 Sample Properties

Sample Variables	Responses	Frequency	Valid Percent
Gender	Male	259	65.9
	Female	134	34.1
Age	16-25	327	83.2
	26- 35	66	16.8
Study Year	1	52	13.2
	2	48	12.2
	3	73	18.6
	4	165	42
	5	42	10.7
	6	13	3.3
University	Public	376	95.7
	Private	17	4.3
Program	Mathematics and Natural Sciences	208	52.9
	Business	164	41.7
	Humanities	21	5.3
Occupation Father	Private Sector	84	21.4
	Public Sector	141	35.9
	Self Employed	111	28.2
	Unemployed	39	9.9
	Retired	18	4.6
Occupation Mother	Private Sector	47	12
	Public Sector	139	35.4
	Self Employed	131	33.3
	Unemployed	66	16.8
EE	Yes	144	36.6
	No	249	63.4

From the sample properties presented in Table 1, it can be observed that 65.9% of the respondents were males compared to 34.1 % females. This can be attributed to the fact that generally, universities in Zambia have significantly more male students than female students. The results also indicate that students in the age range of 16-25 represented 83.2% while those aged 25-35 represented 16.8 of the sample. The average age range of students in universities is about 16-26. This proves that indeed university students responded to the questionnaire. Students who responded from public universities were 95.7% while private universities were represented by 4%. This poses a limitation to the study as private university students were under-represented. Students in the field of mathematics and natural sciences represented 52.9% of the sample while those in the fields of business and humanities represented 47% and 5.3 % respectively. This shows that there was a closely even ratio between business and non-business students represented in the study.

### Measurement Model and External Validity

Table 2 is a tabulation of the constructs that constitute the measurement model for this study. A questionnaire is an instrument that was used to collect data. The scales used to measure this study's constructs were adopted from González-López *et al.* (2020) and Mwiya *et al.* (2019).

To measure EGB, 7 items were adopted from González-López *et al.*, (2020). On a 5-point Likert scale, respondents selected to what extent they had performed activities on each item. Where 1= Not at all, 2= Small Extent, 3= Some Extent, 4= Large Extent, 5= Completed. EI and PEE questionnaire items were adopted from Mwiya *et al.* (2019). Similarly, a 5-point Likert scale was used and respondents indicated their level of agreement with statements; 1= strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

Perceptions in IMC and PIC were measured using 6 items for each, adopted from González-López *et al.*, (2020). Respondents had to indicate how competent they perceived themselves in the activities described on a scale of 1 to 5; 1= Very Incompetent, 2 = Incompetent, 3 = neutral, 4 = Competent, 5 = Very Competent. Lastly, EE was a dichotomous contrast and participants responded 'yes' or 'no' if they had taken or currently taking an entrepreneurship course/module at the university.

All antecedents were measured on a five-point Likert scale despite the seven-point Likert scale that has been used in previous research from which the conceptual model was adapted. This is because researchers have found the five-point Likert scale to be superior to the seven-point as it increases the response rate, and quality and reduces the frustration level of the respondents (Averin *et al.*, 2017; Beglar & Nemoto, 2014).

Table 2 Reliability Analyses

Variable	Cronbach's Alpha
Ideation and Modelling Competencies (IMC)	0.845
Planning and Implementation Competencies (PIC)	0.873
Prior Entrepreneurial Experience (PEE)	0.735
Entrepreneurial Intention (EI)	0.839
Entrepreneurial Gestation Behaviour (EGB)	0.845

Statistical checks were conducted to ensure that the data met various requirements necessary to conduct further bivariate and multivariate analyses. Specifically, checks for missing data, outliers, normality and common method bias were conducted. The case processing summary in SPSS indicated that missing data for the variables and respondents was 0.0%. The Skewness value indicates the symmetry of the distribution and Kurtosis provides information about the 'peakedness' of the distribution (Pallant, 2020 p.57). The normality of the distribution was checked and both Skewness and Kurtosis were within the acceptable range of  $\pm 2.0$  while Kolmogorov Smirnov statistics were not significant (George & Mallery, 2003).



## RESULTS

The findings are presented here beginning with correlations among all variables before highlighting the regression and mediation results.

### Correlation Analyses

Table 3 Correlation Matrix

No. Variable	Mean	Std. Dev	N	1	2	3	4	5	6	7	8	9	10
1 Entrepreneurial Gestation Behaviour	2.314	0.807	393	-									
2 Entrepreneurial Intention	4.315	0.672	393	.419**	-								
3 Gender	0.340	0.475	393	-.274**	-.255**	-							
4 Age Group	1.170	0.374	393	0.096	-0.060	-0.065	-						
5 Study Year	3.350	1.297	393	0.007	-0.029	0.069	.306**	-					
6 Study Field	0.471	0.500	393	.137**	0.076	0.074	-.110*	-.106*	-				
7 University	0.040	0.204	393	0.057	-0.006	-0.021	.172**	-0.009	-0.025	-			
8 Ideation and Modelling Competencies	3.712	0.741	393	.205**	.274**	0.030	0.072	.251**	-.162**	0.021	-		
9 Planning and Implementation Competencies	3.588	0.811	393	.350**	.312**	-0.014	0.055	.189**	0.051	0.044	.696**	-	
10 Prior Entrepreneurial Experience	3.588	0.811	393	.350**	.312**	-0.014	0.055	.189**	0.051	0.044	.696**	1.000**	-
11 Entrepreneurship Education	0.366	0.482	393	.369**	.150**	-0.046	-0.017	-0.020	.277**	-0.006	-0.070	0.053	0.053

\*\* Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at 0.05 level (2-tailed)

### Correlation between control variables and Entrepreneurial Gestation Behaviour

In this study, control variables are gender, age group, study year, study field and university type. It can be seen from the results that, university type, study year and age group have no significant effect on entrepreneurial gestation behaviour. However, the study field ( $r=0.137$ ,  $p<0.01$ ) has a significant relationship while gender ( $r=-0.274$ ,  $p<0.01$ ) indicates a significant negative relationship. This means that business students are more likely to engage in gestation behaviours than non-business students, this may be due to exposure to business knowledge. Additionally, females are less likely to engage in gestation behaviours compared to males.

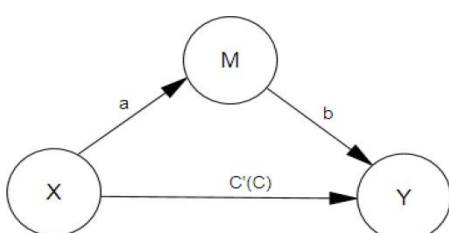
### Correlation between Independent variables and Entrepreneurial Gestation behaviour

Table 3 reflects that the proposed conceptual model is supported. All four antecedents of EGB are positively significant ( $p<0.01$ ). Specifically, the correlations are as follows: Entrepreneurial Intention ( $r=0.419$ ,  $p<0.01$ ), Ideation and modelling competencies ( $r=0.205$ ,  $p<0.01$ ), Planning and Implementation Competencies ( $r=0.350$ ,  $p<0.01$ ), Prior Entrepreneurial Experience ( $r=0.350$ ,  $p<0.01$ ) and Entrepreneurship Education ( $r=0.369$ ,  $p<0.01$ ).

### Statistical Mediation Analyses

To test that EI is an intermediate variable in the existing link between EGB and entrepreneurial competencies, this study followed contemporary procedures (Baron & Kenny, 1986; Preacher & Hayes, 2008). Scholars suggest that for a variable to be a mediator, three conditions should be met. Firstly, the independent variable must be a significant predictor of both the dependent and mediator variables (Preacher & Hayes, 2008). Secondly, the mediator variable must be a significant predictor of the dependent variable. Thirdly, the effect of the independent variable on the dependent variable is reduced when the mediator variable is added to the regression model (Baron & Kenny, 1986). Figure 1 reflects an example of a three-variable non-recursive causal model.

Figure 1: A three-variable non-recursive causal model



Source: Adopted from Turnes and Ernst (2015)

In this study, M represents Entrepreneurial intention (the mediating variable) while Y represents Entrepreneurial Gestation Behaviour (the ultimate dependent variable). Lastly, X represents the entrepreneurial competencies under study (independent variables).

Table 3 Mediation Analyses

Model/ Hypothesis	Independent Variable ( X )	Mediating Variable ( M )	Dependent Variable ( Y )	Effect of IV on Mediator ( a )	Unique Effect of Mediator ( b )	Direct Effect ( c` ) ( c )	Total Effect ( c )	Sobel Test ( Z )	Degree of Mediation
1	Ideation and Modelling Competencies	Entrepreneurial Intention	Gestation Behaviour	0.249***	0.471***	0.106*	0.223***	4.643***	Partial
2	Planning and Implementation Competencies	Entrepreneurial Intention	Gestation Behaviour	0.258***	0.412***	0.242***	0.349***	4.850***	Partial
3	Prior Entrepreneurial Experience	Entrepreneurial Intention	Gestation Behaviour	0.258***	0.412***	0.242***	0.349***	4.850***	Partial
4	Entrepreneurship Education	Entrepreneurial Intention	Gestation Behaviour	0.209**	0.447***	0.523***	0.617***	2.820**	Partial

\*\*\* represents unstandardized coefficients p<0.001

\*\* p<0.01

\* p<0.05

### Entrepreneurial Intentions’ Mediating Influence in the Relationship between Ideation and Modelling Dimension and Entrepreneurial Gestation Behaviour

It is indicated in Table 3 that the effect of the Independent variable ideation and modelling competencies on entrepreneurial intention is positively significant (a= 0.249, p<0.001). It is also reflected that entrepreneurial intentions’ influence on entrepreneurial gestation behaviour is significant (b= 0.471, p<0.001). The ideation and modelling dimension has a significant total effect on entrepreneurial gestation behaviour (c= 0.223, p<0.001) which decreases when the entrepreneurial intention is included in the equation (from c= 0.223, p<0.001 to c` = 0.106 p<0.05). Additionally, Table 3 indicates that ideation and modelling competencies’ influence on gestation behaviour via entrepreneurial Intention is significantly positive (Z=4.463, p<0.001). From these results, entrepreneurial intention significantly partially mediates the relationship between ideation and modelling competencies and entrepreneurial gestation behaviour.

### Entrepreneurial Intentions’ Mediating Influence on the Relationship between Planning and Implementation Competencies and Entrepreneurial Gestation Behaviour

The independent variable planning and implementation competencies’ effect on the mediating variable entrepreneurial intention is also positively significant (a=0.258, p<0.001). The results reflect that entrepreneurial intention's influence on entrepreneurial gestation behaviour is significant (b= 0.412, p<0.001). The planning and implementation competence has a significant total effect on entrepreneurial gestation behaviour (c= 0.349, p<0.001) which decreases when the entrepreneurial intention is included in the equation (from c= 0.349 to c` = 0.242). In addition, the Sobel-Test revealed a positive and significant influence of planning and implementation competence on gestation behaviour via entrepreneurial intention (Z=0.4850, p<0.001). Therefore, it can be concluded that entrepreneurial intention partially mediates the relationship between planning and implementation competencies and entrepreneurial gestation behaviour.

### Entrepreneurial Intentions’ Mediating Influence on the Relationship between Prior Entrepreneurial Exposure and Entrepreneurial Gestation Behaviour

Table 3 indicates that the effect of the independent variable prior entrepreneurial experience on the mediating variable entrepreneurial Intention, is positively significant (a= 0.258, p<0.001). The results depict that entrepreneurial intentions’ influence on entrepreneurial gestation behaviour is significant (b= 0.412, p<0.001). Prior entrepreneurial experience has a significant total effect on entrepreneurial gestation behaviour (c= 0.349, p<0.001) which decreases when the entrepreneurial intention is added to the equation (from c= 0.349, p<0.001 to c` = 0.242 p<0.001). Further, Table 3 indicates that the influence of prior entrepreneurial exposure on gestation behaviour via entrepreneurial intention is significantly positive (Z=4.850, p<0.001). From these results, entrepreneurial intention significantly partially mediates the relationship between prior entrepreneurial exposure and gestation behaviour.

## Entrepreneurial Intentions' Mediating Influence on the Relationship between Entrepreneurship Education and Entrepreneurial Gestation Behaviour

Table 3 reports that the effect of the independent variable entrepreneurship education on the mediating variable entrepreneurial intention is positively significant ( $a = 0.209$ ,  $p < 0.01$ ). Additionally, the entrepreneurial intention's influence on gestation behaviour is significant ( $b = 0.447$ ,  $p < 0.001$ ). Further, entrepreneurship education has a significant total effect on gestational behaviour ( $c = 0.617$ ,  $p < 0.001$ ) which decreases when entrepreneurial intention is included in the equation (from  $c = 0.617$ ,  $p < 0.001$  to  $c' = 0.523$ ,  $p < 0.001$ ). Furthermore, Table 3 indicates that the influence of entrepreneurship education on gestation behaviour via entrepreneurial intention is positively significant ( $Z = 2.820$ ,  $p < 0.01$ ). Therefore, it can be deduced that entrepreneurial intention significantly partially mediates the relationship between entrepreneurship education and gestation behaviour.

## DISCUSSION

This study sought to examine the relationships amongst entrepreneurial competencies (EC), entrepreneurial intention (EI) and entrepreneurial gestation behaviour (EGB). Owing to the combination of results obtained in correlation analysis, and according to the recommendations of Preacher and Hayes (2008) as well as Baron and Kenny (1986), it is plausible to affirm that EI is an intermediate variable in the relationship between EC and EGB. Furthermore, entrepreneurial competencies namely: ideation and modelling, planning and implementation, prior entrepreneurial exposure and entrepreneurship education have a positive significant influence on EI and EGB. These findings resonate with those in other jurisdictions such as the Spanish (González-López *et al.*, 2020) and South African (Botha *et al.*, 2019).

These conclusions have five implications. Firstly, these findings demonstrate that when a person has ideation and modelling competencies, they are more likely to have higher intents to start up a venture. Consequently, they are more likely to start engaging in gestation activities. This is consistent with studies in other jurisdictions such as the United Arab Emirates (Ghafar, 2020). Be that as it may, other findings demonstrate otherwise such as in Spain ideation and modelling play an indirect role concerning EI and EGB (González-López *et al.*, 2020). Secondly, individuals with high implementation competencies are more likely to have higher entrepreneurial intent and engage in activities relating to gestation. This complements studies in Spain (McCann & Vroom, 2015) and South Africa (Seabela & Fatoki, 2014).

Thirdly, prior entrepreneurial exposure also heightens intent and engagement in entrepreneurial gestation behaviour. This is consistent with findings in Germany (Zapkau *et al.*, 2015) and China (Zhang *et al.*, 2019). Fourth, entrepreneurial education likewise enhances intent and engagement in entrepreneurial gestation behaviour. This complements studies in the Netherlands (Rauch, 2012) and Malaysia (Farooq & Radovic-Markovic, 2016).

Finally, EI mediates all four competencies' influence on gestation behaviour. This complements studies that found that EI is the most immediate antecedent of EGB as demonstrated by Farrukh *et al.*, (2018) in Pakistan and Ozaralli and Rivenburgh, (2016) in the USA and Turkey. Since some of these competencies are perceived, the introduction of entrepreneurship support programmes to help students identify and grow their competencies is cardinal. Most non-business students in this study recorded lower scores in entrepreneurial competencies. The influence of business education is unmistakable. Therefore the introduction of these support programmes and education should be for everyone regardless of the study field. This will in turn yield an enhanced growth in the number of new businesses, as individuals will feel more confident about their start-ups.

Several ECs are identified in the literature and scholars have sought to group them in various ways. Further research focused on other forms of competencies, for example, strategic competencies will shed more light on the entrepreneurial field.

This research responds to the call to implement the same model in different contextual, cultural and geographical settings to reveal a deeper and more generalised understanding of the variables under study (Nawi *et al.*, 2017). Additionally, a theoretical gap was narrowed by the addition of EE in the conceptual model that was not present in González-López *et al.*, (2020). Further, as opposed to being a control variable in González-López *et al.*,

(2020), PEE was an independent variable that reflects an attempt to close the theoretical gap.

Overall, the study sheds light on the entrepreneurial intention and entrepreneurial gestation gap, by offering evidence of how entrepreneurial competencies when learned and developed can reduce this gap. Lastly, the findings have fashioned building blocks for further studies on other variables of entrepreneurial competencies, for example, strategic Competencies were not considered in this study.

## CONCLUSION

Based on a quantitative research design with survey questionnaire data, this study sought to explore the mediating role of entrepreneurial intention in the relationships between entrepreneurial competencies and entrepreneurial gestation behaviour. The study undertook robust statistical checks to ensure data suitability for analysis, confirming that there were no missing data, and that the distribution was normal. The correlation and mediation analyses revealed significant relationships among entrepreneurial competencies, entrepreneurial intention, and entrepreneurial gestation behaviour. The specific competencies included ideation, modelling, planning and implementation alongside prior entrepreneurial exposure and entrepreneurship education. The findings of this study suggest that individuals with strong entrepreneurial competencies are more likely to develop higher entrepreneurial intentions. Which in turn leads to great engagement in entrepreneurial activities. This highlights the critical role of entrepreneurial education and targeted support programmes in fostering these competencies. Future research should explore other forms of competencies such as strategic competencies, across different cultural and geographical contexts to deepen our understanding of entrepreneurial behaviour.

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