

THE INFLUENCE OF INTRINSIC FACTORS ON PERSONAL ATTITUDE TO START A FARMING BUSINESS: THE MODERATING ROLE OF GENDER

Mbulaheni Mavhungu^{1*}, Shepherd Dhliwayo²

¹Tshwane University of Technology, South Africa

²University of Johannesburg, South Africa

e-mails: ¹mavhunguml@tut.ac.za; ²sdhliwayo@uj.ac.za

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ABSTRACT

Objective: The aim of this study was to determine the influence of intrinsic factors (proactiveness, motivation, creativity) on the personal attitude of agricultural students to start a farming business in South Africa. This relationship was looked at from gender perspective. **Research Design & Methods:** An estimated 3,486 students were enrolled for various agriculture-related qualifications in various 27 institutions of higher learning in South Africa when this cross-sectional, quantitative study was carried out. Data from 421 agricultural students were collected through a Prospective Farmers Profile Questionnaire at six institutions of higher learning in South Africa. **Findings:** The study finds no significant gender influence on all intrinsic factors and also on the personal attitude of agricultural students to start a farming business. The results further revealed that personal attitude to start a business is predicted by intrinsic factors, motivation, and creativity, but not proactiveness. **Implications and Recommendations:** Entrepreneurial syllabi should aim to equip students with intrinsic factors as these shape the personal attitude to start a business. It is a positive personal attitude that will likely result in a start-up. Farming entrepreneurship, especially among the youth will assist in employment creation as well as food security, two problems that many countries are currently facing. **Contribution & Value Added:** Proactiveness is one of the most important dimensions of entrepreneurship but agricultural students do not consider it significant in their personal attitude to start a business. Proactiveness should be built into the syllabi for students to be better acquainted with this critical business start-up element.

Keywords: agricultural students; creativity; gender; motivation; personal attitude; proactiveness.

JEL codes: M13, L26

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INTRODUCTION

The study done by [Nabi & Holden \(2008\)](#) and [Smith & Beasley \(2011\)](#) reflects that graduate entrepreneurship around the globe continues to be viewed as a vital engine for economic growth and development. Entrepreneurs play a vital role in creating wealth through establishing businesses ([Debarliev et al., 2015](#)). Fostering a positive attitude that can shape entrepreneurship is paramount because the action might ultimately lead to business start-up intention. [Hussain et al. \(2021\)](#) posited that personal attitude has a significant moderating role in strengthening the relationship between entrepreneurial knowledge and entrepreneurship. Entrepreneurial knowledge activates proactivity, motivation and creativity amongst other important business start-up factors. Establishing a new business is not free from challenges ([Palacios-Marqués et al., 2015](#)) and [Brewer & Gibson \(2014\)](#) identify several important business start-up factors. For example, the study done by [Iakovleva et al. \(2014\)](#) indicates that a lack of self-motivation is a serious challenge to the entrepreneurship of Information Technology

students from European countries. Several factors such as personality, marketing skills, timing and innovation were assessed by Tookham (2021) and found to be possible impediments to entrepreneurship if not prevalent. Results of the study done on Saudi university students showed a strong relationship between proactiveness and entrepreneurship (Al-Mamary & Alshallaqi, 2022). Proactive creation and identification of opportunities have contributed to enhancing the ability to start a business (Tang et al., 2014). Reijonen et al. (2015) describe proactiveness as an individual's ability to take the initiative to actively seek and pursue market opportunities, acquire first-mover advantages and nurture the direction of the setting.

Antonioli et al. (2016) investigated entrepreneurship among academic scientists at the University of Ferrara in Italy and found that they are mostly driven by intrinsic motivations. Fatoki & Patswawairi (2012) and Rosique-Blasco et al. (2018) identified creativity as one of the business start-up factors. Valdez-Juárez et al. (2020) confirmed that creativity is an intrinsic factor that university students of the Technological Institute of Sonora (ITSON) experienced negatively for the development of entrepreneurship. This is a very serious concern because creativity is one of the key factors of entrepreneurship. Through entrepreneurial education, these students should be orientated to this factor because of its important role in business start-ups. Karimi et al. (2013) highlight that entrepreneurship is differently influenced by gender hence research on women and entrepreneurship has increased over the last two decades and there is much research yet to be done (Sullivan & Meek, 2012).

The relationship between gender and business start-up is problematic across the globe and it is generally accepted by many scholars that men are more involved in new business creation than women are (Shinnar et al., 2012). The critically limited number of female entrepreneurs is an unfortunate reality. According to Shinnar et al. (2012), gender is vital when it comes to perceptions of factors in new business start-ups. From the synopsis introduced, it is clear that gender does influence business start-ups. Although there seems to be no agreement among scholars as to whether one gender is more entrepreneurial than the other (Meyer et al., 2022). This study is not attempting to enter that debate. Instead, its focus is to establish the influence gender may have on how a select set of intrinsic factors; innovation, motivation, pro-activeness and personal attitude have on starting a business. The intrinsic factors adopted for the study are selected based on them having been included in related previous studies, (student business start-ups) and from different parts of the world (alluded to earlier as earlier as). In our view, this supports the factors' universal applicability and does not necessarily justify them as the best measures. We replace "innovation" in the three factors which are usually used to define entrepreneurship (innovation, creativity and pro-activity; Morris 2011), with motivation because, according to psychologists, Deci (1971) Self-Determination Theory (SDT), this is an important intrinsic driver. The study makes a unique literature contribution through this intrinsic factors combination. The other important aspect of this study is its focus on agricultural start-ups, associated with rural entrepreneurship, an area not well-researched in Sub-Saharan, Africa. We also use the term "personal attitude to start" instead of the usual "intention to start" used in many previous studies with the understanding that Attitude is a psychological trait of a person and intention is a mental ability of a person according to the theories of Theory of planned behaviour (Ajzen, 1991). This is on the premise that an attitude represents a disposition to manifest specific behaviour regarding some goal and need and that attitude is our basic motivational unit (Ray, 1998). This is also because we believe that intentions are not a sufficient impetus for action and that the attitude-intention link is hypothesized to depend on conative processes (Bagozzi, 1992) which we will not delve into in the study.

The study aims to establish the relationship between select intrinsic factors on the attitude of students to establish agricultural start-ups and secondly to establish the role of gender in this relationship. A literature review under the following themes: personal attitude, motivation, creativity, proactiveness, and the role of gender is presented first, then, methodology, results and discussion and finally, the conclusion. In this study, business start-up is viewed broadly as being synonymous with entrepreneurship.

LITERATURE REVIEW

The personal attitude to start a business is discussed first and then its relationship with intrinsic factors

proactiveness, motivation and creativity is analysed next. Gender influence on each intrinsic factor is discussed afterwards. Hypotheses are developed from these discussions.

Personal Attitude

The study done by [Amofah & Saladrighes \(2022\)](#) found a significant relationship between personal attitude and entrepreneurship. [Sulastri et al. \(2021\)](#) and [Mahfud et al. \(2020\)](#) also found that attitude towards the behaviour had a significant effect on entrepreneurship. According to the Theory of Planned Behaviour, personal attitude is the degree to which an individual holds a positive or negative personal valuation of becoming an entrepreneur ([Autio et al., 2001](#)). [Debarliev et al. \(2015\)](#) state that attitude to the act (of entrepreneurship) reflects the person's valuation of the individual desirability of establishing a new business. [Liñán & Chen \(2009\)](#) report that beliefs are antecedents of attitudes because beliefs explain attitude, while attitude explains intention. [Cañizares & García \(2010\)](#) emphasise that psychological and non-psychological factors (demographic, training and experience) are pertinent in clarifying the existence of entrepreneurial attitudes. The findings of [Malebana \(2014\)](#) confirm that attitude to becoming an entrepreneur, perceived behavioural control and subjective norms predict the intention to establish new businesses among rural university students in the Limpopo province of SA. Personal attitude is significant to business start-ups. [Debarliev et al. \(2015\)](#) argue that attitude to the act, favourable social norms and entrepreneurial self-efficacy influence the intention to establish a new business. [Phipps et al. \(2015\)](#) report that the basic assumption of Ajzen's Theory of Planned Behaviour is that behavioural intentions are the function of three latent factors. These factors are attitude to the act (that is the favourability of the person's evaluation of behaviour), social norm (that is perceived social demands to perform the behaviour), and perceived behavioural control (that is the ease or difficulty of performing the behaviour). [Phipps et al. \(2015\)](#) further indicate that Ajzen's theory explores the interaction of social norms, individual attitudes and subjective perceptions that entail the intention of a person, which influences individual decisions and actions.

Proactivity

Successful entrepreneurs should have the capacity to prepare their start-ups and adapt to new products and services, as opposed to simply responding to events in the future while they occur ([Al-Mamary & Alshallaqi, 2022](#)). The findings of the study by [Al-Mamary & Alshallaqi \(2022\)](#) on business students from two public universities in Saudi Arabia imply that proactivity does indeed have a favourable impact on entrepreneurship and is already in alignment with and consistent with previous literature (e.g., [Al-Mamary et al., 2020](#); [Koe, 2016](#)). The findings suggest that lack of proactivity hinders personal attitude to start a business.

Proactivity is an amazing opportunity mindset that encompasses issuing innovative business ideas as well as dealing with the expectation of possible demand to create transformation and influence its surroundings ([Lumpkin & Dess, 2001](#)). This type of mindset is one of the key elements required for a successful business start-up. Persons who can take action to influence their environment and consciously manage to change unfavourable social and economic environments to meet their needs are considered proactive ([Zhao & Smallbone, 2019](#)). Proactiveness is a pervasive phenomenon in entrepreneurship; therefore, its absence in an entrepreneur may limit the ability to be successful in the business start-up process. The study by [Kozubíková et al. \(2017\)](#) shows that entrepreneurs, consider proactiveness to be an important element for business start-ups. [Rahaman et al. \(2021\)](#) further support this notion by pointing out that proactiveness is a significant predictive variable of business start-up. Therefore, proactiveness is an important attribute that entrepreneurs should possess because its low level can prevent the pursuit of new market opportunities and taking a leadership stance. The study, therefore, hypothesises that;

H1: Proactiveness predicts the personal attitude of agricultural students to start a farming business

Motivation

Motivation is a complex process, driven by several different factors, such as financial rewards and personal growth. It is ordinarily used to achieve a particular objective and is a key function in starting and succeeding in a business ([Jang et al., 2015](#)). [Thapa et al. \(2009\)](#) who found that motivation leads to

successful entrepreneurial activities. A review of the literature leads some scholars to conclude that there are two key factors of entrepreneurial motivation, pull (desire for independence and monetary motivations) and push (job dissatisfaction and changing world of work) among others (Kirkwood, 2009). Findings by Gódány et al. (2021) indicated that people quit their jobs because of certain push factors, which have a fundamental influence on the decision or motivation to start their own business.

According to Tamulevičienė & Androniceanu (2020), the decision to start a business can be rational and motivational. The motivational aspect is in the sense that the decision-makers have expectations to satisfy either pull or push factors. In addition, Gódány et al. (2021) ascertain that when assessing entrepreneurship motivation in the 21st century in terms of pull and push factors, the greatest motivating factor for business start-ups is the desire for independence. Sulikashvili et al. (2021) identified four components for motivations that might influence either positively or negatively someone's decision to start a business, which are extrinsic motivation, intrinsic motivation, independence and autonomy, and family safety and well-being. Ismail (2022) confirmed that entrepreneurial start-up motivations such as a desire for achievement, financial rewards, social recognition and a desire for independence are positively and significantly linked to entrepreneurship. In line with this finding, the second hypothesis is that;

H2: Motivation predicts the personal attitude of agricultural students to start a farming business

Creativity

Creativity implies the ability to reimagine the problem; the objective is to start something new, or something not done before, or an improved version of something, or do something in a different way (Barnard & Herbst, 2019). According to Barnard & Herbst (2019), several factors separate creative people from non-creative ones', namely, how intuitive they are, how much foresight they have, how proactive they are, how much initiative they show and how open a person is to suggestions. Zhang (2016) notes that creativity also helps businesses to be more competitive and differentiated from their competitors in the market they compete in. High responsibility and creativity also increase individual competencies to perform their duties (Blašková, 2014). Creative persons should have the ability to produce work that is both novel (e.g. original, unexpected) and appropriate (e.g. useful, adaptive) concerning task constraints (Hauwah, 2019). Creativity seems to be a skill useful in solving organizational problems, fostering motivation and initiative in the field of entrepreneurship (Siemieniak & Rembiasz, 2021). There are expectations that entrepreneurs should be creative. Zhang (2016) stated that innovation is decisive to the feasibility of creative ideas. A high level of creativity can also assist entrepreneurs to discover threats and opportunities in their respective markets constantly and strategise accordingly to enhance efficiency and effectiveness (Zhang, 2016). It is therefore evident that creativity is an essential driving force to entrepreneurship because to be a successful entrepreneur, it is significant to think creatively.

The study done by Siemieniak & Rembiasz (2021) shows that creativity is one of the competencies required in the modern labour market. On another hand, the study done by Nguyen et al. (2021) on undergraduate students from 30 universities in Vietnam revealed that creativity has no significant direct effect on entrepreneurship. However, the results further reflect an indirect effect of creativity on entrepreneurship through attitude, subjective norms, and behavioural control. This means that creativity creates a more positive attitude in undergraduate students' minds leading to business start-up initiatives. Whitbeck (2003) mentioned that people are required to be creative to be able to exercise responsibility in what they do. Based on the literature it is therefore evident that creativity is an important business start-up factor. Blašková (2014) found that individuals with high-level creativity are determined to achieve their set objectives and competencies to perform. It is therefore hypothesised that;

H3: Creativity predicts the personal attitude of agricultural students to start a farming business

The Role of Gender

According to Riley et al. (2017), some studies show no effect of gender on entrepreneurship while others suggest it has. Some authors, for example, Civelek et al. (2016) believe that there is no difference in the dimension of proactiveness between men and women to start a business. The findings might be different

for female entrepreneurs in South Africa because studies on women's enterprises by [Pfefferman & Frenkel \(2015\)](#) confirmed that considerably fewer women established businesses than their opposite gender. On the other hand, the study done by [Tian et al. \(2022\)](#) indicates that gender moderates the relationship between proactive personality and entrepreneurship. The findings of the study done by [Tian et al. \(2022\)](#) confirmed a close relationship between proactive personality and entrepreneurship for both males and females; however, the relationship between proactive personality and entrepreneurship was more significant in women than in men in Chinese private colleges. The findings between these two genders in a South African context might favour males. In South Africa, women entrepreneurs are confronted with gender-based challenges, including the inability to clarify business goals and being risk averse, which hinder them to succeed when engaged in entrepreneurship activities ([Meyer & Mostert, 2016](#)). It is indeed important to investigate the influence of gender on the proactiveness of agricultural students in South Africa because more males than females are engaged in agricultural entrepreneurship. More opportunities and funding are available for females though, they seem to show less interest in farming entrepreneurship.

[Lauderdale et al. \(2015\)](#) affirm that gender influences people's motivation status and it is important to note that males are driven more by extrinsic motivation to become entrepreneurs while females are driven by intrinsic motivation. If the source of motivation was found to be different, it becomes important to establish the position regarding students studying a specific speciality area, agriculture. The role of entrepreneurship in economic performance varies across frameworks of rural or urban/metro or non-metro, and gender and motivation ([Figueroa-Armijos & Johnson, 2013](#)). [Civelek et al. \(2016\)](#) found that men are more motivated to become entrepreneurs than women because of their high levels of individual orientation. [Karimi et al. \(2013\)](#) indicate that females are motivated by social factors while males are driven by instrumental factors to pursue a career in a particular field of their choice. For example, [Solesvik et al. \(2019\)](#) indicate that women are often motivated to pursue business opportunities to satisfy social needs, rather than traditional business outcomes such as growth or profit. According to [Agustina & Myint \(2020\)](#), factors such as unemployment, underemployment, supporting family income, the need to accommodate work and home roles, and no reliable man in the family, and pull factors; the desire for achievement, the desire for being own boss, and independence, motivates women entrepreneurs in Mandalay for example, to undergo entrepreneurship. On the other hand, male entrepreneurs are motivated by external factors such as enjoying the direct benefits of higher status and influence in the community, rising to a higher position and proving that they can be successful in business ([Meyer et al., 2022](#)). [Jumbri et al. \(2019\)](#) found that women entrepreneurs are motivated by a high need for achievement, a slightly high need for power and a moderate need for affiliation. [Kong & Choo \(2022\)](#) also confirmed that the indirect effect of achievement motivation on entrepreneurship was stronger for women than for men. Understanding agricultural students' motivation towards entrepreneurship is important since that will assist in the identification of pertinent mechanisms to address their position for the better.

[Zampetakis & Moustakis \(2006\)](#) and [Douglas & Shepherd \(2000\)](#) consider creativity as a dimension that directly affects male and female entrepreneurs. [De Waele \(2020\)](#) showed that gender does not moderate the relationship between creativity and entrepreneurship. The finding is in line with the study done by [Antoncic et al. \(2015\)](#) who also found that gender does not significantly influence the relationship between creativity and entrepreneurship. The findings of [Camacho-Miñano & del Campo \(2017\)](#) show that Spanish business students' desire for entrepreneurship is not associated with their creativity level but with gender. The influence of intrinsic factors of Agricultural students in South Africa on personal attitude to start an enterprise may also be moderated by gender.

H4: It was predicted that there should be a significant gender influence in:

H4a: the relationship between proactiveness and personal attitude of agricultural students to start a farming business.

H4b: the relationship between motivation and personal attitude of agricultural students to start a farming business.

H4c: the relationship between creativity and personal attitude of agricultural students to start a farming

business.

The study's methodology is presented next.

METHODS

This study utilised a descriptive research design. A survey was used as the data collection method. Given the primary objective of this research, the researcher deemed the quantitative method applicable. A non-probability sampling design was deemed appropriate for this study. The research population comprised third-year students enrolled solely for agriculture programmes at all 27 South African universities and permission to gather data was granted by six institutions. The number of agricultural students in these six participating institutions was 1,123. The researchers personally distributed questionnaires to the participants. Only 421 students returned completed questionnaires and all were found to be usable for the analysis. Data was collected using a self-developed questionnaire during first, second and third week of July 2019 and was named Prospective Farmers Profile Questionnaire (PFPQ). The questionnaire contained questions on the agricultural students' responses to business start-up factors, namely proactivity, motivation and creativity, measured on a seven-Likert scale.

The constructs used in the study (including their measures) are shown in Table 1. Proactivity is derived from the literature; Al-Mamary & Alshallaqi (2022), Koe (2016) and motivation is derived from Yap Peng Lok et al. (2019), Góday et al. (2021), Tamulevičienė & Androniceanu (2020) and lastly, creativity is derived from Barnard & Herbst (2019), Siemieniak & Rembiasz (2021), Zhang (2016) and Nguyen et al. (2021) amongst others. The constructs underwent a factor analysis and the results are shown in Table 1. All the factors were found to be reliable as shown by Cronbach's Alpha, the minimum of which is 0.561 for creativity.

Table 1. Factor Loading After Rotation

Constructs	Factor loadings	Item-rest correlation	Cronbach's Alpha in the absence of the item	Cronbach's Alpha
Personal Attitude (number of items =5)				
A career as an entrepreneur is attractive to me.	0.83	0.70	0.695	0,785
Being an entrepreneur would give me great satisfaction.	0.86	0.76	0.679	
If I had the opportunity and resources, I would love to start my own business.	0.7	0.58	0.745	
Being an entrepreneur brings with it more advantages than disadvantages, in my opinion.	0.51	0.48	0.770	
I am inspired by role models in the industry to start a business.	0.42	0.37	0.816	
Proactiveness (number of items =7)				
I place little value on developing new business ideas.	0.34	0.29	0.639	0,651
I rarely search for new business opportunities.	0.32	0.34	0.630	
I am not willing to invest time in identifying new farming-related business opportunities or markets to target now or when I complete my studies.	0.44	0.43	0.600	
It is unnecessary to continuously monitor any unarticulated or evolving needs when it comes to consumers.	0.73	0.45	0.591	
It is not important to proactively anticipate customer needs when considering products and services.	0.69	0.45	0.591	

Table 1. *Continued*

Constructs	Factor loadings	Item-rest correlation	Cronbach's α in the absence of the item	Cronbach's Alpha
I do not plan ahead when it comes to projects.	0.40	0.39	0.611	
I lack the ability to help people respond to challenges that already exist in their lives.	0.41	0.26	0.646	
Motivation (number of items =6)				
I enjoy having the freedom to choose my own activities.	0.69	0.42	0.792	0,797
I value my independence regarding business operations.	0.59	0.56	0.763	
I appreciate being my own boss.	0.56	0.67	0.740	
I enjoy having authority.	0.51	0.61	0.753	
Having the power to make my own decisions is important to me.	0.67	0.55	0.768	
I value the realisation of my personal ambitions.	0.63	0.49	0.780	
Creativity (number of items =11)				
I can identify with the goals of the farming industry.	0.39	0.48	0.822	0,842
I feel confident that I would be able to control the process involved in starting a business.	0.42	0.49	0.820	
I think It will be easy to start a farming business and keep it viable.	0.59	0.31	0.842	
I am familiar with all the practical aspects of starting a business.	0.42	0.47	0.824	
I am determined to deal with the challenges of life.	0.55	0.41	0.827	
I consider myself a creative person.	0.69	0.59	0.814	
I enjoy performing challenging tasks and setting high goals.	0.67	0.58	0.814	
I have the ability to discover original and novel ideas that lead to feasible courses of action.	0.71	0.67	0.806	
Building a shared vision is important for the success of a business.	0.58	0.50	0.820	
I make use of and encourage the process of approaching complex and persistent problems more effectively.	0.61	0.57	0.816	
I believe that competing aggressively is not a characteristic of successful individuals.	0.51	0.42	0.826	

Source: Compiled by Authors

Factor loading after rotation is reported in Table 1. Factor loadings for personal attitude ranged from 0.42 – 0.86, which indicates that factors are closely related. The personal attitude subscale consisted of 5 items and has a good internal consistency ($\alpha = .79$). The creativity subscale which of 12 items and the factor loadings ranged from 0.39 to 0.71 also has a good internal consistency ($\alpha = .83$). The importance of each factor is noticed in column 4 where if a specific item was to be deleted the scale reliability would decrease. The motivation subscale consisted of 6 items with a good internal consistency of $\alpha=0.80$ and the factor loading was high, ranging from 0.51 to 0.69. Lastly, the proactiveness subscale consisted of 7 items and the calculated $\alpha = 0.65$, which was lower compared to other subscales is still favourable. Furthermore, the factor loadings for the motivation construct were also lower compared to other ranges (0.32 – 0.73). As illustrated in Table 1, all the assessed variables had the acceptable reliability coefficient α ranging from 0.65 to 0.83. Therefore, the research measures are satisfactory for conducting further

data analysis through inferential statistics to test the research hypothesis.

FINDINGS

Quantile regression for the median was adopted for this study after we found the error terms were not normally distributed. The normality was assessed using the histogram and the normal probability plot, see Figure 1. Table 2 presents the factors influencing the personal attitude towards starting a farming business. Motivation (coef: 0.092, 95% CI [0.005; 0.178] p-value=0.038) and creativity (coef: 0.223, 95% CI [0.181; 0.267] p-value<0.005) positively and significantly influence personal attitude while there was a non-significant influence of proactiveness on personal attitude (coef: -0.05, 95% CI [-0.116; 0.016] p-value=0.134). An increase in the measures of creativity and level of motivation would increase the personal attitude by 0.223 and 0.092, respectively. The results show that there was no significant gender influence on personal attitude to start a business; $b=4.263$, 95% CI [-4.169; 12.695], p-value=0.321. The results also reflect that female agricultural students had a slightly higher personal attitude towards starting a farming business ($b=31.258$, 95% CI [30.63, 31.88], $p<.001$) when compared to their male counterparts ($b=31.13$, 95% CI [30.46, 31.79], $p<.001$) (Table 3).

Table 2. Factors Affecting Personal Attitude to Start the Farming Business

Personal Attendance	Coefficient	P>t	95% Confidence Interval	
Intercept	12.34	0.000	7.914	16.776
Proactiveness	-0.050	0.134	-0.116	0.016
Motivation	0.092	0.038	0.005	0.178
Creativity	0.223	0.000	0.180	0.267

Source: Compiled by Authors

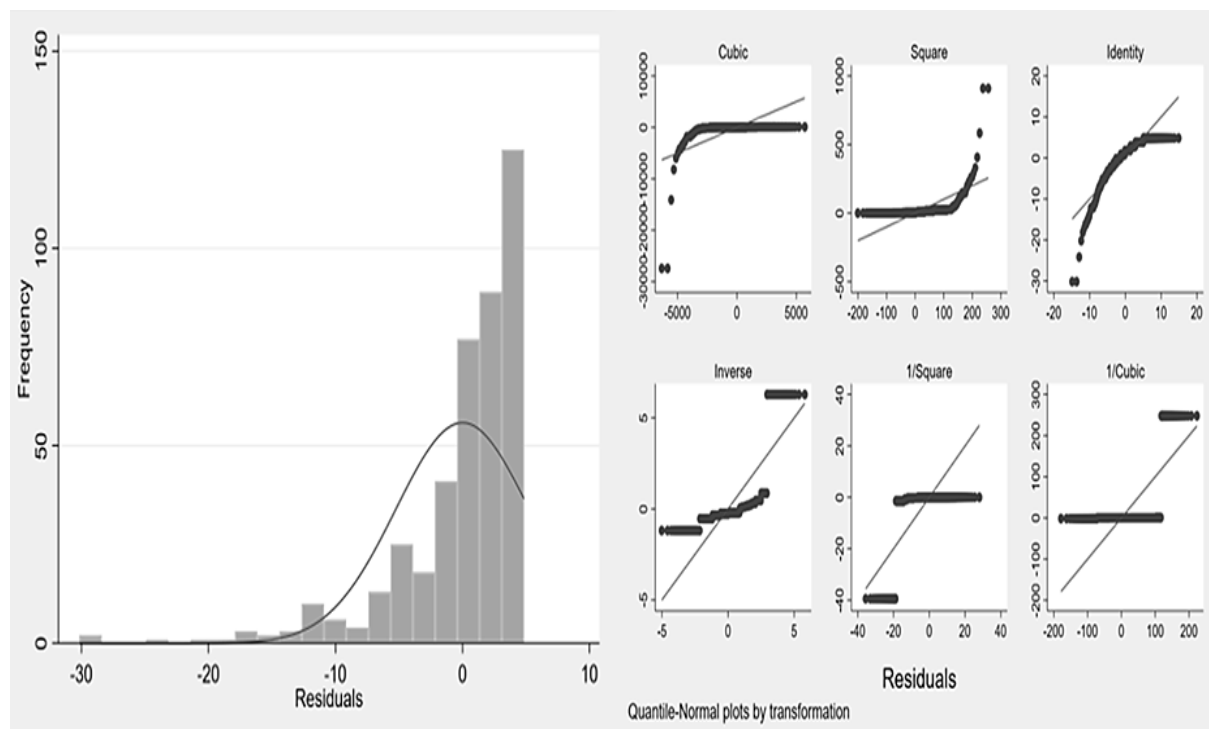


Figure 1. Histogram and the Normal Probability Plot

Source: Compiled by Authors

Hypothesis 1 (H1) stated that: Proactiveness predicts the personal attitude of agricultural students to start a farming business. The findings of the study reveal that $b= -0,050$, 95% CI [-0.116; 0.016], $p=0.134$. H1 is rejected because the empirical results of the study indicate that the personal attitude of agricultural students to start a farming business is not predicted by proactiveness. Hypothesis 2 (H2) stated that: Motivation predicts the personal attitude of agricultural students to start a farming business. The results reflect that $b= 0.158$, 95% CI [0.02; 0.295], $p=0.024$. H2 is accepted. There was a significant

positive relationship between motivation and personal attitude. Hypothesis 3 (H3) postulated that Creativity predicts the personal attitude of agricultural students to start a business. The findings reflect that $b = 0.224$, 95% CI [0.161; 0.286], $p < .001$. H3 is also accepted. Creativity was found to significantly predict personal attitude to start a farming business;. The predicted moderation role of gender on the relationship between proactiveness and the personal attitude of agricultural students to start a farming business fell away (H4a) with no significant dependence of personal attitude on proactiveness found in the hypothesis 1 test. Hypothesis 4b (H4b) stated that: It is predicted that there should be a significant gender influence the relationship between motivation and personal attitude of agricultural students to start a farming business. The results reflect that $b = -0.123$, 95% CI [-0.314; 0.068] $p\text{-value} = 0.208$. There was a non-significant influence of gender found, on the relationship between motivation and personal attitude of agricultural students to start a farming business. Hypothesis 4c (H4c) stated that: It is predicted that there should be a significant gender influence the relationship between creativity and personal attitude of agricultural students to start a farming business. The findings reflect that $b = 0.004$, 95% CI [-0.088; 0.097], $p\text{-value} = 0.926$. They hypothesised that there should be a gender-significant moderation in the relationship between creativity and the personal attitude of agricultural students to start a farming business. H4c is rejected. There was a non-significant influence of gender found, on the relationship between creativity and personal attitude of agricultural students to start a farming business.

Table 3. Moderation Effects of Gender on Creativity, Motivation and Personal Attitude

Personal Attitude	Coefficient	P>t	95% confidence interval	
Intercept	9.105	0.002	3.296	14.914
Motivation	0.158	0.024	0.0213	0.295
Sex	4.263	0.321	-4.169	12.695
Creativity	0.224	0.000	0.161	0.286
Sex vs Motivation				
Male	0.00	-	-	-
Female	-0.123	0.208	-0.314	0.068
Sex vs Creativity				
Male	0.00	-	-	-
Female	0.004	0.926	-0.088	0.097
Margins [Delta method]				
Sex				
Male	31.126	0.000	30.458	31.794
Female	31.258	0.000	30.634	31.883

Source: Compiled by Authors

DISCUSSION

The study indicate that the personal attitude of agricultural students to start a farming business is not predicted by proactiveness. Callaghan & Venter (2011) also revealed that proactiveness is associated with leadership because leaders should be able to take the initiative by anticipating and pursuing new business opportunities. Furthermore, the findings by Quaye et al. (2015) indicate that proactiveness has a direct impact on personal attitudes to business start-ups and their success. The results reflect that agricultural students do not consider proactiveness as a vital factor that influences their personal attitude to entrepreneurship. There was a significant positive relationship between motivation and personal attitude. These results are in line with findings by Thapa et al. (2009) who found that motivation leads to successful entrepreneurial activities. Rugutt & Chemosit (2009) further established that motivation theory has a role to play because of the influence it has on human success in any trade. This is in line with the findings of Chatterjee & Das (2015), Thapa et al. (2009), and Rauch & Frese (2000) who reported that motivation drives individual interest in entrepreneurship. Agricultural students consider motivation a factor that predicts their personal attitude to start a business. This is also in line with the study by Ismail (2022) who confirmed that entrepreneurial start-up motivations such as a desire for achievement, financial rewards, social recognition and a desire for independence are positively and significantly linked to entrepreneurial success. Generally, as stated by Blašková (2014) individuals with high levels of motivation are determined to achieve their set objectives.

Creativity was found to significantly predict personal attitude to start a farming business. The results are in line with Phipps & Prieto (2015) who found that creativity is positively allied to personal attitude and

is one of those abilities individuals often associate with entrepreneurial success. This is because creativity is a human skill that deals with the challenges of life and supports psychological and social adaptation (da Costaa et al., 2015; Whitbeck, 2003). The results show that agricultural students consider creativity as a business start-up factor. It is therefore evident that lack of creativity is an obstacle to business start-ups. The results reflect that agricultural students consider creativity skills as one of the important tools when engaging in entrepreneurship. To test hypothesis 4, a moderation test was run; with proactiveness, motivation and creativity as the predictors, personal attitude as the dependent factor, and gender as a moderator, see Table 3. The relationship between motivation and business start-up intention of agricultural students is therefore not influenced by gender. The results are in line with the findings of Brush (1992) who showed that women are similar to men in many ways regarding their motivations for starting a new business. Lim & Envic (2013) provide further clarification, reporting that when females want to become entrepreneurs, their need for achievement and independence is similar to their male counterparts. Thapa et al. (2009) and Chatterjee & Das (2015) argued that independence is one of the motivational factors that lead to successful entrepreneurial activities and this is common between the genders. Gender does not play a significant role in this relationship. The results are in line with the study done by De Waele (2020) and Antoncic et al. (2015) who found that gender does not moderate the relationship between entrepreneurial creativity and entrepreneurship.

Therefore, agricultural students irrespective of gender should have the same intention to start a business. This could be explained by the fact that agricultural students irrespective of gender attend the same classes, are taught the same curriculum by the same facilitators, live, and socialize in the same environment. This means that, even if inherent gender biases existed, these would be diluted by socialisation. By extension, it can also be concluded that biases can be created or awakened (if inherent) through socialisation. Our educational institutions are critical centres of socialisation. As such, how we use them to advance equality and solve humanity issues such as food security through agricultural entrepreneurship becomes critical. From these results, it can be concluded that the effect of motivation, creativity and proactiveness on personal attitude is not moderated by gender. Although it was found that female agricultural students had a slightly higher personal attitude towards starting a farming business when compared to their male counterparts. This is a very important finding if one takes into account that in most developing countries, it is more women that are involved in agriculture (Damisa et al., 2007). For example, as pointed out by Fresco (1998) they constitute 70% of agricultural workers, 80% of food producers, 100% are involved in the processing of essential foodstuffs and 60 to 90% undertake marketing. Although this is a rather old reference, the situation has not changed today. It is, therefore, encouraging that the women students have a slightly higher urge/attitude to want to start and therefore own these businesses. Business ownership equates to successful entrepreneurship. Ownership in itself is a tool for empowerment and equality. Gender equality is a topical issue. For example, due to cultural and legal constraints in land inheritance, women own and use, less than 20% of agricultural land (Food and Agriculture Organization of the United Nations (FAO), 2011).

Based on the findings of this study, higher education sector institutions of higher learning in particular should design entrepreneurial syllabi with inclusivity of aiming to equip students with intrinsic factors as this shapes the personal attitude to start a business. It is a positive personal attitude that will likely result in a start-up. Farming entrepreneurship, especially among the youth will assist in employment creation as well as food security, two problems that many countries are currently facing.

CONCLUSION

The personal attitude to start a business is predicted by motivation and creativity, but not proactivity. Proactiveness is one of the most important dimensions of entrepreneurship but agricultural students do not consider it significant in their personal attitude to start a business. Therefore, institutions of higher learning should embed proactiveness in the entrepreneurship syllabi for students to be better acquainted with this critical business start-up element. Policies made for combating agricultural entrepreneurship by the national government of the Republic of South Africa should target institutions of higher learning to identify potential future farmers and groom them to become business owners through collaborating with other state institutions, such as the Land Bank and the Department of Agriculture. This initiative

will allow them to learn the skills and expertise of running an agricultural business under professional supervision. This recommendation applies to other developing countries especially where there is high youth unemployment and untenable rural-urban migrations. Agricultural entrepreneurship is one possible solution to youth unemployment. It can contribute to food security and should therefore be a government's focus area. For example, point out that on average, women comprise 43% of the agricultural labour force in developing countries, so if they had the same access to productive resources as men, they could increase yields on their farms by 20–30%.

It further reported that female agricultural students had a higher personal attitude towards starting a farming business than their male counterparts. Participation of both genders in entrepreneurship should be encouraged. It is puzzling that females have a higher personal attitude to start a business than males while in reality South Africa as a country has more male farmers than females. It is evident based on the results, that there might be impediments to female entrepreneurs participating in agricultural-related business activities, which need to be identified and addressed. This intervention needs a gender bias. The government especially the National Department of Agriculture, Forestry and Fisheries and Institutions of higher learning should, however, provide entrepreneurial education to agricultural students both males and females without a gender bias since the affirmative bias is not warranted. It is also not clear if female agricultural students have a higher personal attitude towards starting a business when raised in rural or urban areas. It will be interesting to understand the perception of students based on these demographics (how they influence their intention to start a business). It should also be pointed out that; these results do not guarantee or translate to the perception of farmers' behaviour because agricultural students are still undergraduates not exposed to a real farming environment. Therefore, this finding cannot be generalised. Future research can therefore assess if the area where a student was raised, that is rural or urban influences their attitude to start a business. Comparative country studies of the same factors (as in this study) could be carried out to see if our findings are country-specific or not. This might be important for example, to compare countries where agriculture (and related land ownership) is driven by small-scale farming and those run by large-scale farm operations, as in South Africa.

CONFLICT OF INTEREST STATEMENT

There are no known conflicts of interest related to this article.

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