

The Influence of Demographic Factors on the Creativity Level of Undergraduate Agricultural Students

Mbulaheni Lordwin Mavhungu

Tshwane University of Technology, Mbombela Campus, South Africa

MavhunguML@tut.ac.za

<https://orcid.org/0000-0002-8135-1093>

Abstract: The purpose of this study is to establish the influence of demographic factors on the creativity level of undergraduate agricultural students. It seeks to understand how gender, status of family owned business, field of study, and place of upbringing affect the creativity level of these students. The research adopts a quantitative approach, using a self-administered questionnaire. The survey data, collected from 421 participants, is analyzed using structural equation modelling. Hypotheses are statistically tested to establish the relationships between demographic factors and creativity level of undergraduates students. The survey data for this research was collected through a self-administered questionnaire. The participants were undergraduate agricultural students from various South African universities. To statistically test the hypotheses and analyze the relationships between demographic factors and the creative level, structural equation modelling was used. The study reveals that all demographic factors do not significantly influence creativity level of agricultural students. This suggests that gender, status of family owned business, field of study, and place of upbringing are not reliable indicators to test creativity level of undergraduate agricultural students. This research adds to the existing creativity literature on entrepreneurship by providing insights into the role of demographic factors in shaping the creativity level of agricultural students. It contributes to an understanding of how these factors influence students' perception on their creative abilities. The findings highlight the grounds of not considering demographic factors when evaluating creativity in educational settings.

Keywords: Creativity, Entrepreneurship, Field of study, Gender, Place of upbringing, Status of family owned business

1. Introduction

Education plays a crucial role in society and it holds the pathway to both future prosperity and an abundance of opportunities. Individuals can benefit much from education because it enhances the standard of living. Depending on the person, a number of elements affect their quality of life. According to Mali and Kumar (2017), variables such as intelligence, creativity and self-concept, enhance the quality of life because creativity is the ability to integrate or change existing ideas and make new ones. Treffinger, Isaksen and Stead-Dorval (2023) detailed that creative thinking significantly improves the quality of human life. Because creativity is the ability to integrate or change existing ideas and make new ones. Creative ideas might be complex, prudent, or straightforward concepts that no one else seems to have thought of yet, while others are astounding and amazing (Kishor, 2012). Due to the lack of a precise definition, scholars have defined creativity in a range of views due to the lack of a definitive concept (Craft, 2003). It is vital to understand that creativity is important for entrepreneurship and the expansion of any organisation (Thomas, Balogun & Oyinlola, 2023), and it affects entrepreneurial behaviour (Shaheen, Al-Haddad, Marei & Daoud, 2023).

Balogun, Attah and Famakinde (2021) confirmed that certain demographic factors such as marital status, familial and religion either enhance or reduce creativity. Balogun et al. (2021) further affirmed that these demographic factors are vibrant to the creative process and most importantly, creativity predicts entrepreneurship (Abdelfattah et al., 2022). The study done by Mavhungu and Dhliwayo (2023) confirmed that creative thinking predicts individual attitude to engage in entrepreneurial activities. Creativity is one of the dimensions of entrepreneurship. South Africa as a country is experiencing a high rate of youth unemployment, the highest unemployment rates were found among youths aged 15–24 and 25–34, with 39.8% and 60.7%, respectively (Stats SA, 2023). Establishing farming enterprises in the agricultural sector could be one way to fight high unemployment rate. Agricultural products are imported from other countries, e.g. malt, rice, poultry meat and wheat amongst others (National Agricultural Marketing Council, 2024). The agriculture sector in South Africa is competitive and resilient with many investment opportunities in livestock farming and crop production fields (Mavilia & Pisani, 2022). Therefore entrepreneurial opportunities are available that young entrepreneurs may take advantage of. According to Balogun et al. (2021), creativity and demographic factors influence entrepreneurship. The purpose of this study is to determine how demographic factors influence undergraduate agriculture students' creative thinking. It seeks to understand how gender, status of family owned business, field of study, and place of upbringing affect the creativity level of these students. This research addresses the following questions: Does gender have an influence on the creativity level of undergraduate agricultural students? Does the place of upbringing play a role in their creativity level? How does the status of family owned business impact their creativity level? Is their level of creativity affected by their field of study?

2. Literature Review

2.1 Creativity and Demographic Factors

Creativity and entrepreneurship contribute to economic growth. According to academics, creativity and divergent thinking are critical for entrepreneurial success (Shadieff, Wang, Liu & Yang, 2022). The establishment of new businesses is also linked to creativity (Shaheen et al., 2023). However, Borges, Lopes, Carvalho, Vieira and Lopes (2021) found that gender also has an influence on creativity and is has been linked to entrepreneurship. The study done by Oniye, Hassan, Saleh, Muhammed, Girei and Mayanchi (2020) established contrary findings with no evidence on the influence of gender, area of residence and field of study differences in the level of creativity of undergraduate students of Kwara State in Nigeria. Perchtold-Stefan, Rominger, Papousek and Fink (2022) revealed that creativity varies between genders. Reflections on the topic suggest that men and women may differ in certain areas of creativity due to biological and/or societal influences (Bart, Hokanson, Sahin & Abdelsamea, 2015). The study done by Nakano, Oliveira and Zaia (2021) found that gender disparities in creativity may vary according on the sample size and type of creativity being evaluated. Some studies show that females score higher than males, while others show the opposite, despite the former being more numerous (Baer & Kaufman, 2008). Nakano, et al. (2021) confirmed that men and women may have different views, showing that gender does not impact creativity. Hora, Badura, Lemoine & Grijalva (2022) established gender's relationship with creative performance. Abraham (2016) report the absence of significant differences between gender and creativity. No significant differences were found gender and creativity of business management student in selected universities in Brazil (Bignetti, Santos, Hansen & Henriqson, 2021).

Family businesses are widely recognised as essential for fostering potential entrepreneurs (Hoffmaan, Junge & Malchow-Møller, 2015), and involvement of entrepreneurs in steering young people towards an autonomous/entrepreneurial job becomes vital (Fraccaroli and Vital, 2001; Odoardi, 2003). These family businesses promote entrepreneurship as a viable career path by providing a setting for exposure-based learning (Sorensen, 2007). On the other hand, the parents' socioeconomic situation has an impact on off spring level of creativity (Battle & Lewis, 2002). Gerei (2020) confirmed that students from successful family business backgrounds are well-exposed to business setups that ultimately enhance their entrepreneurial creativity level. Some studies have revealed no statistically significant link between entrepreneurial parents role models and children's decision to pursue an entrepreneurial career (Cardella, Hernández-Sánchez & Sanchez Garcia, 2020). The more extensive and successful the parents' business is, the greater their children are influenced to engage in entrepreneurial activities (Hundley, 2006). Entrepreneurial success may be influenced by one's family of origin, which can be done by modelling procedures and communication, as well as parental views (Staniewski & Awruk, 2021). Parents can serve as role models and impart genes that promote entrepreneurship (Hoffmann et al., 2015). Having parents who are entrepreneurs increases a one's chances of becoming an entrepreneur (Soares, Jeronimo, Melo & Sampaio, 2022).

According to Matraeva et al. (2020), to foster student creativity, higher education institutions should implement a complete, systematic approach across three levels: personal, procedural, and environmental. Cheung et al. (2003) confirmed that the field of study also predicts the individual creativity level. The findings of the study done by Sumarniand and Kadarwati (2020) revealed that ethno-STEM project-based learning was able to increase students' average critical and creative thinking skills across all variables ranging from low to medium. The study by Gerei (2020) further revealed that the level of study has no influence on their level of creativity. Based on the perspective of the area of residence, perceptions of creative thinking reveal that respondents' (students') perceptions of creative thinking tend to be more complex when they are from rural areas and more knowledgeable when they are from urban areas (Saputro, 2022). Family attributes, community norms, and the rate of participation with friends and families all affect behaviour to act in a particular way (Sabuhilaki, 2016).

We hypothesise that there is a statistically significant relationship between gender, status of family owned business, field of study, and place of upbringing, and creativity level of undergraduate agricultural students.

3. Methodology/Research Methods

This study used a descriptive research design to conduct empirical research using secondary sources. A survey has been used as a means for collecting data. Surveys may be used in studies that are mostly quantitative in nature and aim at providing an in-depth understanding of a representative sample of a large population (Mouton, 2001). Considering the primary objective of the study, the researcher believed that a quantitative approach would be appropriate.

For this study, a non-probability sampling design was considered appropriate. The research population contained third-year students from all 27 South African universities who were enrolled only in agriculture studies; however, only six universities granted permission to gather data. There were 1,123 agriculture students in these six participating universities. The questionnaires were personally distributed to the participants by the researcher. Only 421 students completed the questionnaires, and this number was used in the analysis. A questionnaire was found to be appropriate when the researcher required an analytical technique to investigate relationships between variables. Jansen (2010) reports that when compared to other instruments, researchers choose questionnaires as a data collection method because of its advantages, which include delivery to a large number of respondents at a low cost and a high response rate. As a result, a questionnaire was found suitable for the purposes of this study.

A constructed questionnaire titled Prospective Farmers Profile Questionnaire was used to collect data. The questionnaire questioned agricultural students about their demographic information, namely gender, status of family owned business, field of study, and place of upbringing. The level of creativity of agricultural students has been assessed using a 7-point Likert scale and is analysed further in the data analysis section. Table 1 reflects factor loading after rotation. The following nine constructs were used to measure the creativity of agricultural students. **C1** (I am confident in my ability to manage the process of establishing a business). **C2** (I believe it would be simple for me to come up with a business idea). **C3** (I'm determined to face the challenges that life presents). **C4** (I believe myself to be a creative individual). **C5** (I appreciate taking on difficult projects and creating ambitious objectives). **C6** (I am capable of coming up with unique ideas that may lead to viable plans). **C7** (Developing a shared vision is critical to the long-term achievement of an enterprise). **C8** (I embrace and promote the technique of handling complex and persistent problems in a more effective approach). **C9** (I am confident that the plans I develop always work). The factor loadings for creativity ranged from 0.42-0.71, indicating that the factors had a strong relationship and were essential to the factor creativity. The personal attitude subscale has nine items ($\alpha=.83$), indicating a high level of internal consistency.

Table 1: Factor loading after rotation

Constructs	Factor loadings	Item rest correlation	Cra in the absence of the item	Cronbach's Alpha
C1	0.42	0.455	0.82	
C2	0.59	0.525	0.81	
C3	0.55	0.449	0.82	
C4	0.69	0.611	0.80	
C5	0.67	0.609	0.80	0.83
C6	0.71	0.674	0.79	
C7	0.58	0.519	0.81	
C8	0.61	0.601	0.80	
C9	0.51	0.390	0.83	

Source: Compiled by Author.

4. Results

Figure 1 shows the gender of respondents in percentages, and of the total respondents (N=421), 223 (52.98%) were female and 198 (47.02%) were male. The results show that slightly more females (53%) than males (47%) took part in this study. This is an appropriate representation of the gender of the decomposition of agricultural students based on all respondents of the study. The study reveal no gender prejudice in agriculture programmes enrollment at South African educational institutions. According to the findings of the study, female students were more interested than male students in pursuing agricultural-related qualifications. This is astonishing considering the fact that men are more into agriculture-related enterprises than women in South Africa.

According to Figure 2, of the total respondents (N=421), the families of 118 respondents (28.10%) own a business, whereas the families of 303 respondents (71.90%) do not. According to the findings, the majority of students who participated in the study come from families who do not have a business. Agriculture is the foundation of the majority of African economy. Agriculture and related sectors employed 748,113 people at the

end of June 2017, up from 739,878 in June 2016, representing a 1.1% increase (SSA, 2018). Figure 3 depicts the percentages of respondents' fields of study. According to Figure 3, of the total number of respondents (N=421), 212 (50.36%) were studying animal farming/production, 57 (13.54%) were studying field crops, 102 (24.23%) were studying horticulture, and 50 (11.86%) were studying mixed farming. According to the findings, over fifty percent of the respondents (50.36%) were registered for animal farming/production, while the rest (11.89%) were registered for mixed farming.

Figure 4 reveals that 72 (17.10%) of the total respondents (N=421) were raised in urban areas, 232 (55.11%) in rural areas, and 117 (27.79%) in semi-rural areas. More than half of the students (55.11%) grew up in rural areas, while 17.10% grew up in urban areas. Students raised in rural settings, as opposed to urban and semi-rural pupils, were introduced to agricultural-related activities at a young age, such as caring for livestock and ploughing maize and other vegetables in the fields or backyard. This may be the main reason majority of them choose a career in agriculture.

The results reflect no relationship found between gender and creativity level of agricultural students, $b=0.95$, 95% CI [-1.867; 1.867], $p=1.000$ (see Table 2). According to Table 2, there was no significant relationship between the status of family owned business and the level of creativity of agricultural students, $b=1.08$, 95% CI [-3.124; 1.124], $p=0.355$. The findings further revealed no relationship found between all fields of study and creativity level of agricultural students, $b=1.48$, 95% CI [-.905; 4.905], $p=0.177$; $b=1.18$, 95% CI [-2.311; 2.311], $p=1.000$ and $b=1.53$, 95% CI [-1.008; 5.007], $p=1.192$ (see Table 2). No relationship established between the place of upbringing (rural and semi-rural) and creativity level of agricultural students, $b=1.35$, 95% CI [-1.648; 3.648], $p=0.458$ and $b=1.47$, 95% CI [-3.890; 1.890], $p=0.497$ (see Table 2). According to Table 2, there was no significant relationship between the status of family owned business and the level of creativity of agricultural students, $b=1.08$, 95% CI [-3.124; 1.124], $p=0.355$.

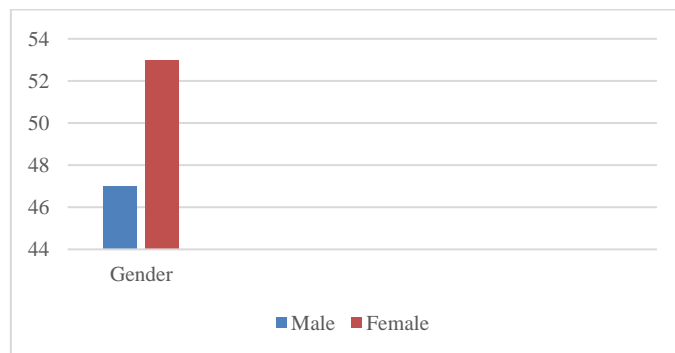


Figure 1: Gender

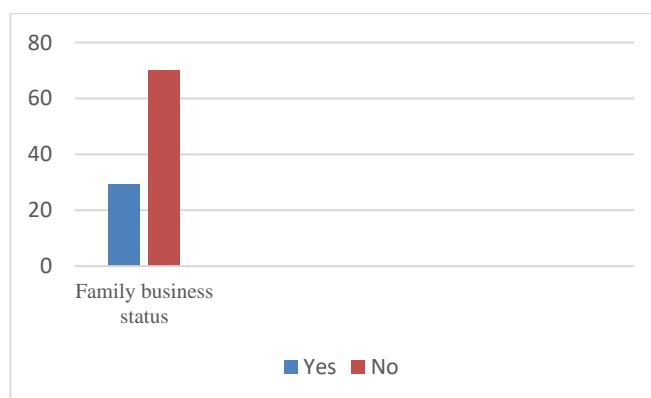


Figure 2: Family business status

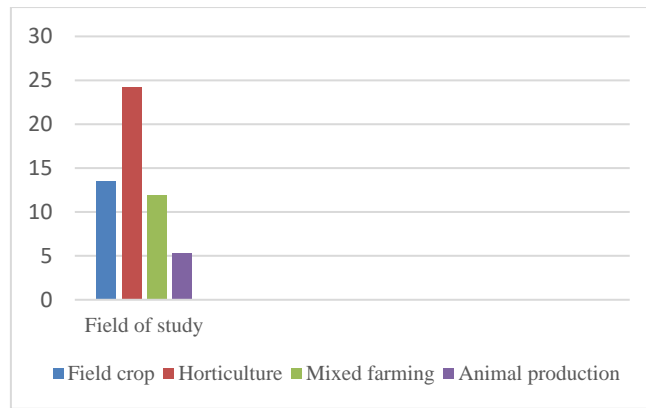


Figure 3. Field of study

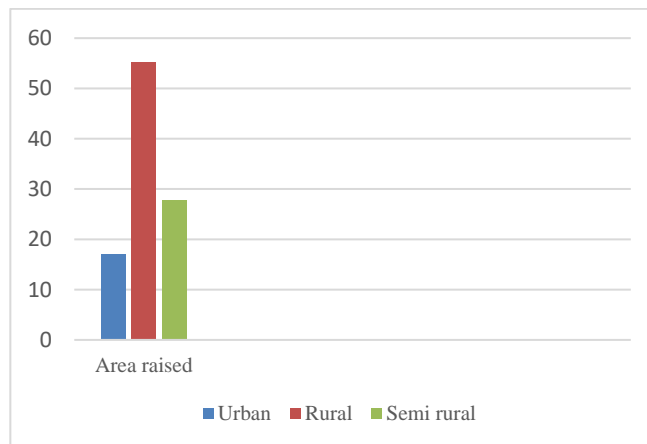


Figure 4. Place of upbringing

Table 2: Factors affecting creativity level of undergraduate agricultural students

Creativity	Coefficient	Std. err	t	P> t	[95% conf]	Interval
Gender						
Female	0	.95	0.00	1.000	-1.867	1.867
3	-4	9.73	-.41	0.681	-23.13	15.13
Field of study						
Field crop	2	1.48	1.35	0.177	-.9053	4.905
Horticulture	0	1.18	0.00	1.000	-2.311	2.311
Mixed farm	2	1.53	1.31	0.192	-1.008	5.007
Area raised						
Rural	-1	1.35	0.74	0.458	-1.648	3.648
Semi-rural	-1	1.47	-.68	0.497	-3.890	1.890
Family business						
No	-1	1.08	-.43	0.355	-3.124	1.124
Cons	70	1.41	-49.6	0.000	67.227	72.77

5. Discussion

H₁ states that: There is a statistically significant relationship between gender and the creativity level of agricultural students. This hypothesis is rejected because there was no relationship found between gender and

creativity level of agricultural students. These results indicate that agriculture students' creativity level is not gender-based. These results are consistent with the findings of the study Karaboga et al. (2022) who established no gender influence on creativity level on task performance but contradict the study done by Perchtold-Stefan et al. (2022) who revealed that creativity varies between genders.

H₂ states: There is a statistically significant relationship between status of family owned business and the creativity level of agricultural students. This hypothesis is rejected. According to Table 2, there was no significant relationship between the status of family owned businesses and the level of creativity of agricultural students. The findings show that the status of their family business has little bearing on their creativity level to engage in entrepreneurial initiatives. The findings of this study contradict Gerei (2020) who established that students from strong family business backgrounds are well-exposed to business setups, which eventually boosts their creativity level.

H_{3a}, H_{3b} and H_{3c} state: There is a statistically significant relationship between the field of study (field crop, horticulture, animal and mixed farming) and the creativity level of agricultural students. This hypothesis is rejected because there was no relationship found between all fields of study and creativity level of agricultural students. The study confirms that the field of study does not influence creativity level of agricultural students. The results contradict those of Cheung et al. (2003) who confirmed that a student's field of study impacts their level of creativity. The findings are might be because to students having similar agricultural worldviews and studying the same courses in the programme, which moulds their worldview. One of the contributing aspects is social media and easy access to news/media since students have the same access to current situations, such as access to resources to start a business. When studying agriculture, for example, topics such as creativity, proactiveness, and innovation will come up amongst others.

H_{4a} and H_{4b} state: There is a statistically significant relationship between the place of upbringing (rural and semi-rural) and the creativity level of agricultural students. This hypothesis is rejected because there was no significant relationship established between the place of upbringing (rural and semi-rural) and creativity level of agricultural students. The results are contrary to the findings of Sabuhilaki (2016) who reported that cultural and social variables such as family attributes, community customs, and the rate of interaction and collaboration with friends, neighbours, and relatives impact creativity. The results reflect that place of upbringing does not influence agricultural students' behaviour towards creativity.

6. Conclusion(s)

The results confirm that there is no statistically significant relationship between demographic factors and the creativity level of agricultural students. Firstly, gender has no influence on the creativity level of undergraduate agricultural students. Secondly, the area where undergraduate agricultural students place of upbringing doesn't play a role in their creativity level. Thirdly, status of family owned business doesn't impact their creativity level. Lastly, the field of study doesn't affect their creativity level. The reasons seem to be the critical role that institutions of higher learning and policymakers are playing in addressing gender inequalities and the importance of creativity as a crucial factor in entrepreneurship through media and public platforms. It is also clear based on the findings that agricultural students are exposed to the approaches and driving forces that enhance creativity such as imagination, incubation, investment and improvement irrespective of gender, their family business background, field of study and geographic area of origin. Therefore institutions of higher learning, government and policymakers should continue to eliminate barriers that demographic factors may impose in discouraging creativity enhancement because creative youth will benefit countries through economic advancement because creativity may lead to entrepreneurship through business establishments.

The study employed a convenient sample of students from only six of South Africa's 27 higher education institutions. More universities and colleagues should be included in future studies to improve the findings' generalizability. The research was limited to third-year students who were pursuing agriculture studies at various universities and colleges. As a result, the study's findings cannot be considered representative of all third-year students enrolled in various programmes in South Africa. Moreover, perceptions of students studying in other disciplines (e.g. faculty of commerce and humanities) were not considered. As a result, the research might be expanded to include such fields.

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