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Student Entrepreneurship and Food Security: Achieving SDG 2 at the University of Limpopo

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Abstract

The Sustainable Development Goal 2 (SDG 2), endorsed in 2015, aimed to ensure food security, eliminate hunger, promote sustainable agriculture, and improve nutrition. It provided a global action plan for the year 2030. Consequently, a disparity has emerged in South Africa (SA) between the existing initiatives and the anticipated attainment of SDG 2 in time. Thus, this study sought to investigate the role of student entrepreneurship on food security to propose strategies that promote sustainable student entrepreneurship in South African universities, particularly at the University of Limpopo (UL). A quantitative methodological approach was utilised to gather primary data through an online survey. The sample consisted of 42 student entrepreneurs from the UL, who were selected using purposive sampling techniques. This study was prompted by the financial burden faced by students at South African universities, which led to a rise in student entrepreneurship to address hunger. The findings showed that student entrepreneurship alone could not fulfil SDG 2, which expressed a need for support. This study concluded that student entrepreneurship merely held significant promise for enhancing food security, and sufficient institutional, educational, and policy initiatives should back it.

Keywords: Student Entrepreneurship, Food Security, Sustainable Development Goal 2,University of Limpopo.

Introduction and Background

Sustainable Development Goal 2 (SDG 2) aims for Zero Hunger, highlighting the vital role of nutrition and food security in sustainable development (Otekunrin, Otekunrin, Fasina, Omotayom & Akram, 2020). Currently, approximately 346 million individuals in Africa are classified as undernourished (Hoteit, Khadra, Fadlallah, Mourad, Chahine, Skaiki, Al Manasfi, Chahine, Poh & Tzenios, 2024). Projections indicate that the prevalence of food insecurity is anticipated to decrease from 40. 5% in 2020 to 24.4% by 2030 (Hoteit *et al*., 2024). However, Sub-Saharan Africa (SSA) is projected to exhibit the slowest advancement in food security. In 2021, the World Bank reported that approximately 7.2 million individuals in East Africa are at risk of experiencing hunger, while an estimated 26.5 million individuals encounter severe food insecurity (World Health Organisation (WHO, 2022).

According to Sabi, Kolanisi, Siwela, and Naidoo (2020), food security is a growing concern among university students. Schimperna, Nappo, and Marsigalia (2021) emphasise the need for students to develop teamwork, risk assessment, problem-solving and effective communication skills, particularly in interactions with investors, as it will allow individuals to create and implement solutions to challenges, and foster innovation. In SA, a study by Sabi *et al*. (2020) reported that students who were on financial aid were at risk of experiencing food insecurity compared with those who had other means of financing their studies. However, student enterprises were found to be a critical tool to enhance traditional technology transfer activities by universities, which would contribute towards achieving food security (Ferrante, Federici & Parisi, 2019).

Ajani (2024) asserts that entrepreneurship education has garnered significant attention from researchers and policymakers within the realm of agricultural education in developing countries, notably South Africa. This increased focus is attributed to the critical role that entrepreneurship education plays in fostering entrepreneurial skills and knowledge among students (Colombelli, Loccisano, Panelli, Pennisi & Serraino, 2022; Liu, Gorgievski, Qi & Paas, 2022). Maheshwari and Kha (2022); Soam, Rathore, Yashavanth, Dhumantarao, and Balasani (2023) assert that fostering students' interest in entrepreneurship is essential in contemporary society to address food insecurity, poverty, and unemployment. This interest not only contributes significantly to the national economy but also facilitates the creation of employment opportunities and fosters innovation within the agribusiness sector (Soam et al., 2023). Furthermore, entrepreneurship education plays a vital role in equipping students with the necessary competencies for future endeavours. According to Sixesha, Aderibigbe, Chimucheka, and Delport (2022), while the South African government has made efforts to enhance food security amongst the university students and youth by implementing entrepreneurship education programs through various agencies, including the National Youth Development Agency (NYDA) and Small Enterprise Development Agency (SEDA), significant potential for further improvement in this area still exists. Moreover, government agencies have been instrumental in providing individuals with essential business information, financial support, and various resources vital for the establishment of new enterprises. The implementation of governmental interventions was necessitated by a significant decrease in entrepreneurial activity observed among South Africans (Sixesha *et al*., 2022).

Food security among students is a growing concern in South African universities (Wagner, Kaneli & Masango, 2021). Moreover, recent studies indicate concerning food shortage levels (Mei, Lee & Xiang, 2020; Sabi et al., 2020). According to Wagner *et al*. (2021), the prevalence of food shortages in the studied population of students was 73% and 23% experienced food insecurity, while 5% reported severe hunger. Ntshangase and Ezeuduji (2023) emphasise that entrepreneurship is recognised by scholars and policymakers as a potential solution to youth challenges in SA and beyond. It was also indicated that despite government and educational initiatives promoting entrepreneurship as a career, student interest remains low (Indarwati & Syahran, 2024). This study was prompted by inadequate funding that led to increased unsustainable student entrepreneurship among university students to achieve food security. As a result, this study aimed to investigate the role of student entrepreneurship on food security in South African universities. Also, the study's objectives were to conceptualise student entrepreneurship and its role in food security, to examine factors influencing food security in universities, and to evaluate the university-based initiatives and bursary support for student food security. This study is divided into 14 sections. The first section is the

introduction and background, which introduces the reader to the content of the study. It is followed by the theoretical framework.
The third section is a literature review, followed by the research questions. The fourth section is materials and methods of the study, which followed the quantitative method approach. The fifth one is the research paradigm, followed by the research design, population and sample, data collection tools, data analysis, ethical consideration, presentation of results, and discussion of findings. These sections are followed by a conclusion and a recommendations section. The last section is a declaration, followed by the list of references used.

Theoretical Framework

This study's theoretical framework was based on the Entrepreneurial Event Model (EEM) by Shapero and Sokol (1982). This model outlines how cultural and social factors influence perceptions that lead to business establishment (Shapero & Sokol, 1982). Indarwati and Syahran (2024) contend that the occurrence of an entrepreneurial event is fundamentally influenced by three key factors: perceived desirability, feasibility, and an individual's propensity to act. Perceived desirability pertains to the degree to which an individual considers the concept of entrepreneurship to be attractive (Indarwati & Syahran, 2024). So, if students at South African universities recognise food security as an appealing and significant concern, they are likely to exhibit a greater propensity to establish enterprises that concentrate on sustainable food production, agricultural innovation, or food distribution. Perceived feasibility is defined as an individual's confidence in their ability to successfully initiate a business (Indarwati & Syahran, 2024). Therefore, for students who are interested in food security, it is essential to cultivate confidence in their capacity to effectively manage a sustainable agricultural enterprise or a food-related venture. The propensity to act denotes an individual's readiness to participate in entrepreneurial endeavours following the decision to embark on an entrepreneurial path (Indarwati & Syahran, 2024). As a result, when students view the entrepreneurial landscape as encouraging and favourable for attaining SDG 2, they are more likely to participate in entrepreneurial ventures that improve local food systems.

Uctu and Al-Silefanee (2023) assert that entrepreneurship education has the potential to enhance students' attitudes towards engaging in entrepreneurial ventures. Therefore, by implementing the EEM, South African universities have the potential to significantly influence students' intentions regarding ventures that not only provide economic opportunities but also align with the broader objectives of SDG 2. Universities should cultivate entrepreneurial initiatives among students by offering educational programs that prioritise sustainable practices within the domains of agriculture, food distribution, and food-related enterprises. However, such an approach should aim to empower students to engage in entrepreneurial ventures that not only enhance food security and mitigate hunger but also promote sustainable production and consumption of food resources. Lastly, this framework was employed to investigate the entrepreneurial intentions and behaviours of students engaged in the operation of businesses focused on achieving food security within South African universities.

Literature Review

Student entrepreneurship increasingly contributes to tackling food security in universities. Students develop creative approaches to satisfy food requirements while engaged in their

academic pursuits. These efforts can enhance access to sustainable and affordable food options. Nonetheless, food security is affected by elements such as income, institutional assistance, and the availability of food. Grasping these dynamics reveals the possible influence of student-driven initiatives on campus food systems.

Conceptualisation of Student Entrepreneurship and Its Role in Food Security

Student entrepreneurship has become a prominent and influential subject within the field of entrepreneurship research, particularly as universities, including those located in South Africa, have initiated the provision of entrepreneurship courses and the establishment of supportive frameworks (Passavanti, Ponsiglione, Primario & Rippa, 2023). This transition has necessitated a reconsideration of conventional pedagogical methodologies. Central themes of scholarly investigation within this field encompass the entrepreneurial intentions of both students and faculty, the defining characteristics of entrepreneurial education (Secundo, Mele, Sansone & Paolucci, 2020), and the implications of academic entrepreneurship (Fini, Perkmann & Ross, 2022). The heightened focus on student entrepreneurship within public discourse is exemplified by the success narratives of prominent entrepreneurs, including Mark Zuckerberg, Larry Page, Sergey Brin, Michael Dell, and Jerry Yang, all of whom initiated their business endeavours during their academic pursuits (Passavanti *et al*., 2023). The narratives presented underscore the pivotal role that student-led enterprises play within the frameworks of university entrepreneurship ecosystems. The evolution of student entrepreneurship has been significantly influenced by the emergence of various challenges (Schimperna *et al*., 2021). However, in developing nations including South Africa, the growth of student-led enterprises has exhibited limitations (Lu, Song & Pan, 2021). The technological revolution has facilitated the emergence of novel opportunities for the development of entrepreneurial skills, strategic planning, and knowledge transfer, contrasting with enterprises initiated outside the academic sphere (Ferrante et al., 2019; Barbini *et al*., 2021). Furthermore, a study conducted by Uctu and Al-Silefanee (2023) in the Kurdistan region in Iraq indicates that entrepreneurship education significantly enhances students' entrepreneurial attitudes. Concurrently, research in South Africa highlights the critical role of enterprises initiated and operated by students and graduates in enhancing food security (Iwara & Kilonzo, 2022). Consequently, student entrepreneurship is progressively recognised as a crucial factor in promoting innovation, facilitating knowledge creation, and generating employment opportunities, particularly within the context of developing countries.

The capacity to swiftly adopt technology and foster innovation within the agricultural sector is demonstrated by students, often referred to as millennial farmers (Rokhati, Kusworo, Prasetyaningrum, Hamada, Utomo & Riyanto, 2022). Zumaeroh, Prabawa, Muntahanah, Adhitya, and Purnomo (2023) assert that student entrepreneurship within the agricultural sector in South Africa is instrumental in enhancing food security. This phenomenon addresses critical challenges, including unemployment, food insecurity, and environmental sustainability.

Moreover, despite an observed decline in interest among the younger generation toward the agricultural sector, young South African student entrepreneurs possess the potential to address the marketing and distribution challenges encountered by their older counterparts (Zumaeroh et al., 2023). Moreover, this engagement could contribute to the establishment of a more efficient food system. To counteract this trend, education assumes a crucial role in engaging young students in the field of agriculture (Adhitya, Prabawa & Kencana, 2022). Agricultural entrepreneurship, particularly in the realm of precision farming, presents significant environmental advantages by enhancing resource productivity, minimising

inefficiencies, and augmenting the coordination within the food supply chain (Bakar, Hajar, Abdullah, Liew, Nor, Norhafizah, & Rosli, 2022). Moreover, young student entrepreneurs tend to exhibit a greater propensity for adopting technology, positioning them as significant catalysts for innovation within the industry (Zumaeroh et al., 2023).

Iwara and Kilonzo (2022) emphasise the growing recognition of student entrepreneurship as a significant driver of the South African economy and food security. This recognition stems from the capacity of student entrepreneurs to transform innovative ideas into successful enterprises, which, in turn, generate employment opportunities, enhance the income of local households, and foster sustainable wealth creation that can potentially achieve SDG 2. According to Klein, de Vasconcelos, Lima, and Dufloth (2021), the establishment of the Entrepreneurship Development in Higher Education (EDHE), an initiative under the auspices of South African universities, represents a significant milestone in the promotion of entrepreneurship within higher education institutions. The EDHE initiative is principally focused on fostering a culture of entrepreneurship within academic institutions. Furthermore, EDHE seeks to facilitate the transformation of universities into entrepreneurial and innovative ecosystems, which encompasses the formulation of pertinent policy frameworks (Iwara & Kilonzo, 2022). Entrepreneurial activity serves as a catalyst for enhancing productive capacity within the economy, yielding significant contributions to economic growth and facilitating the creation of new employment opportunities (Lose & Cheteni, 2024). In response to this phenomenon, several nations, notably South Africa, have integrated entrepreneurship as a foundational component of their higher education curricula (Lose & Khuzwayo, 2021). The facilitation of entrepreneurial activities represents a paramount objective within the economic policy framework of virtually all nations.

Factors Influencing Food Security in Universities

Worldwide, an estimated two billion individuals experience moderate to severe food insecurity (UNICEF, 2024). According to Alasow, Hamed, and Shahid (2024), climate-induced shocks to food production, such as droughts, can result in food shortages and subsequent price increases, thereby contributing to food insecurity. In 2007, a synchronous crop failure occurred in both Lesotho and its sole trading partner, South Africa, resulting in a significant period of food insecurity even in universities (Verschuur, Wolski & Otto, 2021; Mokati, Ncube & Bahta, 2024). According to Tigchelaar, Battisti, Naylor, and Ray (2018), climate variability is responsible for approximately 30% of the fluctuations observed in global agricultural yields. This variability contributes to an increased uncertainty regarding food production and prices across multiple geographical scales, thereby posing a significant threat to food security (Verschuur *et al*., 2021). However, climate-induced risks to food insecurity are influenced by exposure to climatic extremes (e.g. Extreme drought events and the susceptibility of the food supply system to production shocks necessitate a comprehensive analysis of their interrelationships. (Alaslow *et al*., 2024).

Salvucci and Tarp (2024) identify that the effects of diminished production and price surges are frequently experienced disproportionately by low-income consumers, who allocate a significant portion of their household budgets to essential food items. This financial strain may compel these individuals to reduce their consumption or may ultimately propel them into deeper levels of poverty.

Ben Hassen and El Bilali (2022) contend that armed conflict has the potential to impede progress towards the Sustainable Development Goals (SDGs), particularly impacting SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 12 (Responsible Consumption and Production). The Russian invasion of Ukraine has precipitated significant and rapid increases in the prices

of international grain and oilseed markets, thereby exacerbating acute food security concerns in numerous regions globally, including South Africa and its academic institutions (Abay, Breisinger, Glauber, Kurdi, Laborde & Siddig, 2023). In the year 2020, Ukraine and Russia collectively accounted for significant portions of global agricultural exports, specifically 28% of wheat, 16% of maize, 65% of sunflower oil, 23% of sunflower seeds, and 13% of rapeseed (Abay *et al*., 2023). A substantial proportion of these essential food commodities is directed towards low-income countries in the Middle East and Africa (van Meijl, Bartelings, van Berkum, Cui, Kristkova & van Zeist, 2024). Moreover, escalations in prices and disruptions in trade exacerbate the prevalence of malnutrition by constraining the availability of humanitarian aid essential for the prevention and treatment of acute malnutrition (Osendarp *et al*., 2022). The World Food Programme (WFP) projects an increase in the number of individuals experiencing acute hunger, estimating that an additional 47 million people will be affected. This projection is based on a pre-war baseline of 276 million individuals currently suffering from acute hunger (Crises & Vos, 2020).

The emergence of the COVID-19 pandemic in South Africa, accompanied by subsequent lockdown measures, significantly impacted nutrition, food security, and hunger levels (Van der Berg, Patel & Bridgman, 2022). Considering the swift proliferation of COVID-19, governments worldwide have instituted localised lockdown measures, which have resulted in heightened levels of unemployment and have significantly disrupted both local and international transportation networks and supply chains (Dasgupta & Robinson, 2022). These measures have led to widespread job losses among various demographics, including parents of university students, exacerbating issues such as food shortages and the increase of food prices, even within university settings (Cariappa, Acharya, Adhav, Sendhil & Ramasundaram, 2021).

The fulfilment of food and nutritional needs remains a challenge for students and households, even in affluent countries such as the US, where 12. 7% of the population faced issues of hunger in 2015 (Leung, Wolfson, Lahne, Barry, Kasper & Cohen, 2019). Soldavini, Berner, and Da Silva (2019) identified key factors affecting food security at a large public university in the Southeast United States, such as employment status, perceived health, race, financial aid, and unique patterns were revealed among specific demographic groups, with undergraduate students showing a higher prevalence of food insecurity than graduate students. A 2018 study at the university in the Appalachian region in the Eastern United States on student food insecurity found that 38% of respondents felt increased financial aid would improve their access to food (McArthur, Ball, Danek & Holbert, 2018). In South Africa, a study from 2007 to 2010 found that financially aided students at the University of KwaZulu-Natal from resource-poor backgrounds were especially vulnerable to scarcity of food (Munro, Quayle, Simpson & Barnsley, 2013).

In response, the University of KwaZulu-Natal launched the Food Security Programme (FSP) in 2012, and following the implementation of the FSP, there was a lack of documentation on food insecurity among students (Sabi *et al*., 2020). Consequently, this underscores the necessity for students to receive support in attaining food security. Thus, it is imperative to invest in educational programs that will equip them with the entrepreneurial skills necessary to achieve food security effectively.

University-Based Initiatives and Bursary Support for Student Food Security

Worldwide, universities in nations such as Nigeria, Australia, the United States, and China have established food safety initiatives to safeguard campus communities (Akinwehinmi,

Ogundari & Amos, 2022; Ng, Shao & Ling, 2022). These initiatives include hygiene training and adherence to regulations, along with routine cafeteria inspections and nutrition education, highlighting the essential role that universities have in maintaining safe and healthy food settings for students (Ng *et al.,* 2022). In addition to providing immediate assistance, several South African universities are emphasising long-term solutions by encouraging student-run agricultural initiatives and integrating food security into their institutional policies (Ndlovu & Lefera, 2024). Additionally, projects such as campus gardens, hydroponics, and entrepreneurship centres enable students to cultivate their own food while acquiring skills and earning opportunities. Mhlanga (2021) states that the Department of Higher Education and Training urges universities to incorporate food security into student wellness strategies, acknowledging its effect on academic achievement.

Universities in South Africa have launched multiple initiatives to address student food insecurity, such as food banks, meal vouchers, and subsidised meal programs (Sabi, Unathi, Naidoo & Siwela, 2021). Universities such as the University of Limpopo, University of Western Cape, University of the Free State, and University of Pretoria provide food aid to students in financial need, frequently backed by Non-Governmental Organisations (NGOs), student organisations, and benefactors (Cohen, Hecht, McLoughlin, Turner & Schwartz, 2021; Karriem & Bayat, 2022). Although significant, these initiatives encounter obstacles such as insufficient funding, logistical problems, and a lack of student awareness (Wudil, Usman, Rosak-Szyrocka, Pilař & Boye, 2022). Enhancing these initiatives are scholarships and financial assistance programs such as the National Student Financial Aid Scheme (NSFAS), which offers meal stipends in addition to tuition and accommodation support (Raciti & Motala, 2025). Additionally, universities provide internal scholarships and emergency funds to assist students facing food insecurity, although worries persist about the promptness and adequacy of these supports.

Research Questions

The general research question is: How does Student Entrepreneurship affect Food Security?

Specific Research Questions Are:

- What is student entrepreneurship and its role in food security in universities?
- What are the factors influencing food security in universities?
  What forms of university-based initiatives and bursary support exist to address student food insecurity, and how effective are they?

Materials and Methods

This study used a quantitative research approach to gather data for statistical analysis, aiming to assess the extent to which student entrepreneurship contributes to the realisation of SDG 2 within South African universities. This study targeted students at the University of Limpopo, specifically focusing on those who owned businesses. Secondary data was obtained from a desktop analysis of scholarly journals, whereas primary quantitative data were gathered from student entrepreneurs at the University of Limpopo via an online survey administered through Google Forms.

Research paradigm

According to Mumba and Alici (2021), a research paradigm includes fundamental principles that guide scientific inquiry, such as methodological preferences, epistemological beliefs, and ontological commitment. This study adopted the positivism paradigm which systematises the

knowledge generation process through the adoption of scientific methods with the help of quantification to enhance precision in the description of variables and the relationship among them (Kumatongo & Muzata, 2021). Moreover, this paradigm was concerned with uncovering truth and presenting it by empirical means.

Research design

This study employed an explanatory design by uncovering the fundamental mechanisms and quantifiable effects of challenges faced by student entrepreneurs. The explanatory design aids in creating evidence-driven conclusions and policy suggestions, rendering it a suitable and strong design for grasping student entrepreneurship dynamics. To improve the design, a quantitative and desktop approach was utilised, merging primary quantitative data with secondary data. This approach provided a thorough and detailed insight into both the quantifiable effects and the experiences of student entrepreneurs in different contexts. This integration improved the study's ability to deliver practical evidence-driven recommendations for enhancing business sustainability in university' settings.

Population and sample

This study utilised purposive sampling to select 100 participants from a total of 708 students in the "UL Market Place 2024" WhatsApp group. This group, acting as the sampling frame, was accessed digitally throughout the entire field research process. Purposive sampling was considered suitable based on the research aims, which necessitated choosing individuals involved in the digital marketplace environment. Figure 1 below presents a screenshot captured during the field study, depicting the online setting from which the participant group was selected and emphasising the context of the sampling process.

Figure 1: UL Market Place 2024 WhatsApp group Picture

Figure 1 above depicts the intended population for this study, visually showcasing the digital environment from which participants were chosen. The researchers concluded that a sample of 100 individuals would adequately represent the larger group, considering the makeup of the WhatsApp community. Though the group had 708 members, it was acknowledged that not everyone was an active student entrepreneur; some participants were probably consumers or inactive observers. Consequently, purposive sampling targeted specifically individuals recognised as student entrepreneurs. From the 100 student entrepreneurs invited

to engage through a shared survey link, 42 participants fully completed the questionnaire, providing data suitable for analysis.

Data Collection Tools

This study collected primary data through an online survey, using Google Forms for the participants to best understand and answer the questions. However, secondary data was gathered from various sources such as books, scholarly journals, and government documents to investigate the role of student entrepreneurship on food security in South African universities.

Data Analysis

The study used descriptive statistical analysis through Statistical Package for the Social Sciences (SPSS) software to analyse quantitative primary data. This is an advantageous method for summarising data using graphs, tables, and stats (Nasir & Sukmawati, 2023). The study also used thematic analysis via NVivo software to analyse qualitative secondary data. In thematic analysis, raw data is coded to form thematic maps and identify themes (Braun & Clarke, 2023). The identification and classification of the major themes shaped analysis, and the findings of the study.

Ethical Consideration

The study respected the following research ethics:

Non-Maleficence

This basic principle of research ensures that participants must not be harmed by participating in the research project. Therefore, the researchers protected the participants from harm by seeking the information in a way that did not create anxiety, discomfort, and invasion of privacy or harassment. This was ensured by assuring the participants of the confidentiality of the information and giving them sufficient time to decide if they wanted to share the information. The researchers also gave participants assurance that they were free to discontinue their participation at any time without being required to offer an explanation.

Beneficence

The principle of beneficence requires that research potentially contribute to the well-being of others. Therefore, the researchers returned to the participants, including the University of Limpopo's management, to pass on the research results, conclusions, and recommendations. This would help in making informed decisions about what needs to be done so that people's lives can be improved. The researchers will also communicate the research results to the scientific community by publishing them and giving credit to all individuals who contributed to the research findings.

Informed Consent and Voluntary Participation

The researchers ensured informed consent and voluntary participation by respecting potential participants' autonomy and obtaining their signed consent before involving them in the study. Moreover, the participants were made adequately aware of the type of information needed from them, why the information was being sought, what purpose it was put to, and the consent was voluntary without pressure of any kind.

Copyrights and Intellectual Property

The researchers respected copyrights and intellectual property rights by ensuring proper acknowledgement of all materials used. The researchers also avoided misrepresentation of data, which includes changing its format, context or content, because this would lead to a different interpretation of the original data, which is illegitimate and unethical.

Permission for a Field Study

The researchers obtained approval from the Turfloop Research Ethics Committee (TREC), which is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031. This study was part of the main research project registered with the Department of Development Planning and Management at University of Limpopo. It has received an Ethics Clearance Certificate (PROJECT NUMBER: TREC/1793/2024: PG) to ensure ethical compliance.

Anonymity and Confidentiality

Lastly, the researchers ensured anonymity and confidentiality by keeping the participants' information confidential and using it only for this study's purposes. The researchers also ensured that the information provided by participants, particularly sensitive and personal information, was protected by not associating it with the name of the participant or any other identifier.

Presentation of Results and Discussion of Findings

The primary quantitative data were analysed using descriptive statistical analysis through IBM's Statistical Package for the Social Sciences (SPSS) software. Moreover, analysis was conducted to assess demographics, evaluate reliability, and compute descriptive statistics.

Demographic Characteristics of Respondents

Table 1 below displays the demographic breakdown of the 42 survey participants according to gender. Most participants identified as female (54.8%), followed by male respondents (42.9%), and a small minority (2.4%) chose not to reveal their gender. These percentages give an understanding of the gender makeup of the sample and provide context for analysing results concerning student entrepreneurship in the group.

Table 1: Demographic Information

		Frequency	Percent	Valid %	Cumulative %
Valid	Female	23	54,8	54,8	54,8
	Male	18	42,9	42,9	97,6
	Prefer not to say	1	2,4	2,4	100,0
	Total	42	100,0	100,0	

Additionally, while the gender distribution in Table 1 shows that a larger percentage of the survey participants were female (54.8%), this finding alone is not enough to claim that female students make up most entrepreneurs at the University of Limpopo (UL). The information provided in this study pertains solely to individuals who completed the survey and does not represent the whole population of student entrepreneurs at the university. Consequently, any conclusions drawn from this sample must be taken with cautious.

This understanding aligns with the results of Alkaabi and Senghore (2024), who suggest that gender might not be a statistically significant element affecting students' entrepreneurial

involvement or skills. Their research focused on "Student entrepreneurship competency and mindset: examining the influence of education, role models, and gender".

Indicates that although gender differences might be evident in basic participation statistics, fundamental entrepreneurial skills, including innovation, risk-taking, and self-efficacy, do not inherently align with one's gender identity.

As a result, although the existing data might indicate most female participants in this specific sample, it would be hasty to draw a general conclusion about gender and entrepreneurship at the University of Limpopo (UL). Future studies with a larger, more representative sample will be essential to make dependable conclusions regarding gender dynamics in student entrepreneurship at the institutional level.

Reliability Assessment of Survey Items

Table 2 below provides the reliability statistics for the research tool utilised in this study. The Cronbach's alpha coefficient for the 22 survey items was 0.845, reflecting a strong degree of internal consistency. This indicates that the items consistently assessed the target construct.

Table 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
0,845	0,850	22

According to Alkaabi and Senghore (2024), reliability evaluates the internal consistency of the constructs and a Cronbach's alpha above 0.6 is considered a suitable threshold for evaluating measurement reliability. In this study, Cronbach's Alpha was used to assess the reliability of the constructs. Table 2 shows that the overall Cronbach's Alpha for the 22 constructs was 0.85. This value exceeds the recommended threshold of 0.6 as proposed by Alkaabi and Senghore (2024). Therefore, this finding suggests a high level of reliability in the measurements utilised in this study.

Descriptive Statistics on Business Operations and Food Security Perceptions in the University of Limpopo

Table 3 below displays descriptive statistics from 42 participants, concentrating on their perceptions of business operations and food security. The outcomes summarise responses to 6 essential items chosen randomly from the 22 constructs in the complete questionnaire. Even though just six items were analysed, they significantly represent the larger themes encompassed by all 22 constructs. Responses were assessed using a 5-point Likert scale (1= Strongly Agree, 2= Agree, 3= Neutral, 4= Disagree, 5= Strongly Disagree). A reduced mean signifies greater consensus, whereas an elevated mean implies disagreement or indifference (Franc, Hung, Pirisi & Weinstein, 2023). In addition, the Standard Deviation (SD) indicates the degree of variation in the responses. A low SD signifies that most respondents provided similar answers, whereas a high SD reflects greater diversity in opinions (Franc *et al.*, 2023).

Table 3: Respondent Insights on Business Income and Food Security

Code	Item Statement	Mean	Standard Deviation (SD)	N
A1	It is important to define my business by focusing on income generation.	3.40	1.014	42
A2	I am capable of effectively overcoming challenges within my business operations.	3.98	1.000	42
A3	Food security indeed provides reliable access to affordable and nutritious food.	3.69	1.115	42
A4	I have access to food that is both affordable and nutritious.	3.45	0.993	42
A5	My business plays a significant role in contributing to food security.	3.07	1.156	42
A6	It is true that with the income generated from my business, I purchase food that sustains me until the month end.	3.40	1.326	42

Table 3 shows significant trends in participants' views on business resilience and food security. Item A2 achieved the highest average score of 3.98 (SD = 1.000), indicating robust confidence among participants in managing entrepreneurial challenges. This is consistent with (Lu, Song, & Pan, 2021), who emphasised how universities in China foster entrepreneurship via institutional efforts that enhance graduate-led ventures for job creation and economic growth. Likewise, considering the evident perseverance of student entrepreneurs at South African universities, there is a strong argument for local institutions and government bodies to invest in organised entrepreneurship support systems, reflecting compelling global examples. Mubangizi (2013) noted that Local government can bolster the broader efforts in food security by, for example, ensuring greater access to local information and by mobilising local social capital for policy reinforcement. More importantly, local institutions can play a crucial role in promoting trade that will improve inputs of food production on the one hand, and trade that will improve distribution and increase access to food items on the other.

Items A1 and A6 (mean = 3.40) reflect a moderate consensus on the significance of income in business objectives and their impact on monthly food accessibility. Nonetheless, the significant SD of A6 (1.326) indicates considerable financial differences among students. This change signifies a demand for specific economic assistance, especially as Salamzadeh, Sangosanya, Salamzadeh, and Braga (2022) highlight the significance of national initiatives that focus on student entrepreneurship through funding and training, echoing the developing function of universities in achieving a "third mission" of promoting an entrepreneurial mindset. Moreover, A3 garnered substantial consensus (mean = 3.69, SD = 1.115), indicating a fundamental understanding of food security. This, along with a moderate consensus on A4 (mean = 3.45, SD = 0.993), highlights overall assurance in individual food access, though with differing levels of certainty. These results align with Fynn (2025), who recorded the ongoing issue of food insecurity in rural South African households, including university students, indicating that food availability continues to be an inconsistent reality even for entrepreneurs.

Significantly, A5 achieved the lowest average score (3.07, SD = 1.156), reflecting uncertainty regarding the wider societal influence of student enterprises. This perceived constraint underscores the disparity between individual entrepreneurial potential and group impact. According to Maheshwari, Kha, and Arokiasamy (2023), entrepreneurship education has

increased in popularity worldwide due to its impact on fostering innovation and regional development. Integrating this type of education into university programs could better prepare student entrepreneurs with practical skills and a deeper awareness of their possible roles in addressing social issues such as food insecurity.

Conclusion and Recommendations

This study indicates that although student entrepreneurship alone cannot fulfil SDG 2, it holds significant promise for enhancing food security through income creation and resilience. The analysis indicates that student entrepreneurs at the University of Limpopo exhibit significant confidence in handling business challenges and have a strong knowledge of food security concepts. Despite this, doubts persist regarding the overall impact of their businesses on community well-being, particularly concerning access to food. The disparity between personal resilience and acknowledged social influence offers a significant opportunity for universities and policymakers to create initiatives that strengthen individual and communal entrepreneurship objectives. South African universities should enhance their entrepreneurship support systems by learning from global examples such as those in China, providing ongoing mentorship, financing, and training options. Incorporating entrepreneurship education into university programs could better equip students to innovate and address community challenges more efficiently. Additionally, considering the financial inequalities and inconsistent food access highlighted in the findings, policies should tackle the socioeconomic vulnerabilities of student entrepreneurs. Ultimately, subsequent research ought to investigate the influence of gender on entrepreneurship in greater detail since gender-related patterns could affect resource access, business performance, and resilience, which are elements that this study did not fully address but are essential for creating inclusive and effective support systems.

Declarations

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