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The Role of Strategic Entrepreneurship In Agriculture: A case Study of Dotito Irrigation Scheme in Mashonaland Central Province, Zimbabwe

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Abstract

Farmers at Dotito Irrigation Scheme were trained to be successful entrepreneurs and the government encouraged them to be business minded whenever running their farming activities. These people also attend workshops on entrepreneurship skills organised by the government. Dotito Irrigation farmers were trained to manage their resources strategically. They depend on their farm produce to meet their day to day needs. The feasibility and practicability of the questionnaire was studied through the pilot test. Analysis of data was done using content analysis. The research also examined the hypothesis and has shown that strategic entrepreneurship has a significant correlation with an increase in agricultural productivity at Dotito Irrigation Scheme.

Key Words: *Strategic entrepreneurship, practicability, feasibility, hypothesis and agricultural productivity.*

Introduction

Strategic entrepreneurship has become popular and famous in the contemporary world. Currently, it is considered as the prominent weapon for economic development in both Less Economically Developed Countries (LEDC) and in More Economically Developed Countries (MEDC). However, little attention has been paid to the role of strategic entrepreneurship in the agricultural context. The current business and economic environment is characterized by profound changes which are as a result of market price fluctuations, temperature and rainfall variations. Strategic entrepreneurship may enable farmers to increase their productivity despite the fact that there are numerous changes which are taking place in the contemporary world. The reason why strategic entrepreneurship needs to be seriously applied in the agricultural context is that it has been recorded as the major weapon used by the most successful and competitive business organizations. For that matter, agriculture is considered and valued as a business organization which enhances the country's economic development, reduce poverty, and create employment as well as ensuring food security.

The main research questions in this research are 'what role does strategic entrepreneurship play in agriculture and is strategic entrepreneurship of much significance in the agricultural sector? If so how significant is it? In this research the main emphasis is on strategic entrepreneurship and agricultural productivity. This is

because of the fact that, increasing agricultural productivity is key to poverty reduction (FAO, 2013). Although, food security has been erratic in most developing countries of the region due to the absence of integrative, holistic and comprehensive policies, the transformation of agriculture to be efficient and effective is most promising provided that strategic entrepreneurship has been incorporated into the sector (UNDP, 2012). Agricultural productivity is enhanced through farming skills development programmes and the adoption of strategic skills in agriculture. Extension services, enhancement of entrepreneurial skills and

developing exports to niche markets contribute to sustainable employment creation and capacity development (FAO,2013).Climate change is expected to have a major impact on agriculture and food security (IPCC, 2010).

Shadbolt et al (2009) notes that both entrepreneurship and risk management are being promoted as areas requiring improvement in farming. Detre et al (2006) also identifies that changes in the industry are creating new and different uncertainties compared to traditional operational and financial uncertainties that agribusinesses have faced in the past. Thus, strategic entrepreneurship in the agricultural sector is fast becoming very important. Strategic entrepreneurship skills in the farming sector are important now with recent increased vitality in market prices (Rabobank, 2010). One of the strategies to reduce food insecurity in small holder communal areas which was also advocated for by the aid organizations, policy makers, academics and lay people is the technology in the form of irrigation schemes for low rainfall environments. In addition to that, farmers also need strategic entrepreneurship skills for their agricultural business to function effectively. FAO (1997), in a brief general overview of the smallholder irrigation sub-sector in Zimbabwe, concluded that small holder irrigation has brought success stories to farmers.

In 2011, the Government of Zimbabwe introduced strategic entrepreneurship skills workshops for all the farmers. Farmers were taught skills such as resource management, business management, innovation, networking, environmental assessment, marketing, creativity and adaptation. In fact, the Government of Zimbabwe introduced these skills to equip farmers with strategies that would increase their agricultural production.

McElwee (2005) notes that the role of a farmer is changing as the farmers have to develop new skills to be competitive. Farmers need to be strong strategic entrepreneurs. The focus on management and business capability and the extent to which they are entrepreneurial actors is contested by Carter (1998) and McNally (2001). They suggested that the methods used to analyze business entrepreneurs in other sectors can be applied to farming. For these authors farmers were traditionally entrepreneurial and indeed, Carter and Rosa (1998) argued that farmers are primarily business owner managers and that farms can be characterized as business. McElwee (2005) also highlights that management of the small farms is of special interest. For generations, the Dotito community small farms were managed within the family. McNally (2001) posits that these small farms are vulnerable to the economic changes brought about by the market and by the World Trade Organization (WTO) reforms in recent years. Larger farm units particularly those over

100 hectares benefit from economies of scale, being better able to spread their fixed costs and are often better equipped as far as buildings and machinery concerned compared to smaller farms Alsos et al (2003). Due to these economies they are generally less vulnerable to economic pressures and more capable of meeting the increasingly demanding market specifications for farm products. All these explanations clearly reveal that the application of strategic entrepreneurship in the farming context is very crucial.

Statement of the Problem

Various stakeholders introduced programmes to assist the local farmers (rural farmers) conduct their agricultural activities. The Government of Zimbabwe introduced Irrigation Schemes in some parts of the rural areas. Non-governmental Organizations responded to climate change by providing foreign expertise, fertilizers, drought resistant seeds and exotic technologies. The Government of Zimbabwe, in collaboration with Non –governmental Organizations, has heralded the use of indigenous knowledge systems in agriculture. Surprisingly, the country is still facing acute food challenges. Poverty is also becoming a persistent phenomenon in the country. Nonetheless, strategic entrepreneurship has increasingly proclaimed to be an effective weapon in increasing productivity in every business. Currently, the Government of Zimbabwe introduced entrepreneurship training workshops for farmers especially in rural areas.

More so, entrepreneurship skills and development has been introduced as a course for every student in vocational training colleges such as Mount Darwin Vocational Training and Chaminuka Training Centers. It is because of this background that this research focuses on the role of strategic entrepreneurship in agricultural productivity since agriculture is also a business. Agricultural productivity is of significance in this research as it contributes greatly to the economic development of the country as well as increasing food security.

Research Objectives

- To assess the role of strategic entrepreneurship in agriculture;
- To identify the opportunities and constraints faced by the farmers;
- To examine the ways in which farmers are exploiting the opportunities and solving the challenges; and
- To give recommendations on improved policies that can increase rural agricultural productivity.

Research Questions

1) What is the role of strategic entrepreneurship in agriculture?
2) What are the opportunities and constraints encountered by the farmers?
3) How are the farmers solving the challenges and exploiting the opportunities**?**
4) What are the recommendations for improved rural agricultural productivity?

Methodology

Research Design

This study falls within the quantitative and qualitative paradigm. The researcher used both the qualitative and quantitative paradigm in order to improve the validity and the credibility of the research. While qualitative and quantitative research methods have strengths and weaknesses, they can be effective when used in combination (Blaikie, 2010). The data was analyzed using content analysis. The researcher selected themes from the most fundamental issues that emerged from the data which was collected .The researcher also made use of tables to present the information.

Sampling

A sample size of 76 farmers from a population of 95 was determined using the formular $\mathbf{s=X^2NP\ (1\text{-}P) \div d^2\ (N\text{-}1) + X^2P\ (1\text{-}P)}$ given by Krejcie and Morgan (1960) where,
s=required sample size;

$\mathbf{X^2}$=the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841);

N=Population size;

P=Population proportion (assumed to be 50 since this would provide the maximum sample size); and

d=the degree of accuracy expressed as a proportion.

Among 76, 35 were female farmers and 35 male farmers. The researcher used stratified sampling to select the respondents. Farmers at Dotito Irrigation Scheme were put into 2 groups that is, female and male farmers.

They were then randomly selected. This method was chosen by the researcher because each element in the population has an equal chance of being selected (Blaikie, 2010). This means that, an objective mechanism is used in the selection procedure and there is no human interference in this process.

The researcher also made use of purposive sampling to select 1 village headman, 1 Non-Governmental - Organization (Ngo) representative working with the farmers, 2 managers from different supermarkets in Mount Darwin who buy produce from the Dotito Irrigation Scheme in bulk, the chairperson and the district administrator. These have specialized roles in the project.

Following Flyvberg's (2006) recommendation, the selection of Dotito Irrigation Scheme as a research area was based on information-orientated sampling as aided by the fact that Dotito was one of the areas where the Irrigation project was also introduced by the government and local farmers in this area received training on how to be successful entrepreneurs. Thus, this enables access of rich information to the subject matter under study. Dotito Irrigation Scheme is also one of the case studies of the doctoral thesis (PHD). Being a holder of a piece of land at Dotito Irrigation Scheme was a precondition for participation in the research. The researcher tried her best to include equal numbers of male and female farmers since they are not a monolithic group. Thus, attempts were made to incorporate the voices of both male and female farmers.

Data Collection Tools

Questionnaire

The questionnaire was used as a data collection tool from the farmers. The questionnaire asked the farmers if they were attending strategic entrepreneurship training workshops and how that training helped them in their agricultural business. The questionnaire included the open ended questions to give a platform for the farmers to explain clearly how the application of strategic entrepreneurship skills affected their agricultural activities. The researcher pilot-tested the research instrument to four respondents to check for mistakes and accuracy purposes before the data collection started in earnest.

The questionnaire was also designed in such a way that the respondents could not spend more than thirty minutes on it. Maree (2007) notes that the use of a questionnaire allows the researcher to collect data from large population within a short period of time. Data from the use of this tool is also easier to analyze Blaikie (2010). These questionnaires also collected qualitative data through the use of open ended questions. However, the respondents have a tendency of lying and the researcher tried to solve this problem by conducting structured interviews with the people who had key positions in the group. That is the researcher conducted interviews with the district administrator, village head, the chairperson, the chief and managers from different supermarkets who buy agricultural produce from these farmers.

Structured Interviews

The research used the structured interviews to collect data from the people in key positions in Dotito Irrigation scheme. Interviews were conducted with the district

administrator, the chairperson of the project, village head, 2 managers from different supermarkets and the chief. The questions were prepared ahead of time and the interviewer read the questions to each of the respondents. The structured interview has the advantage over an unstructured interview of allowing better comparisons of the responses across different individuals because the questions, time frame and response format are controlled to be the same for each respondents (Stangor, 2011).The research was conducted with respondents' consent with regards to the use of tape recorder.

Hypothesis

- There is a positive relationship between strategic entrepreneurship and agricultural productivity.
- An increase in agricultural productivity is determined by the size of the land.

Ethical Considerations

The purpose of the study was explained to the District Administrator for the researcher to gain access to the area of the study. With the letter of approval signed, an approach was made to all the respected members of the area under investigation such as the councilor, the chief, the village heads and the political gate keepers. All the protocols were done before the collection of data started. Members of the Dotito Irrigation Scheme were called and they were all briefed about the study. The research assured anonymity, privacy and confidentiality to the respondents. Permission to use the tape recorder when interviewing the people in key positions was sought and obtained. After the collection of data, the results of the study were explained to all the members of the irrigation scheme.

The Study Area

Dotito Irrigation scheme started in 2003.It has ninety-five farmers each with not more than two hectares. The irrigation is alongside the tarred road two and half kilometers from Dotito shopping center. These farmers use irrigation water from the dam which is located approximately four km away from the irrigation scheme. The farmers use overhead irrigation scheme. There are both men and women in this project. The main crops that these farmers grow are tomatoes, leafy vegetables, onions, green- mealies, green beans, pumpkins and peas.

Presentation and Discussion of Findings

This section serves to give the in-depth presentation and discussion of the findings of the study obtained from the field work which was undertaken at the Dotito Irrigation Scheme. Presentation and discussion were done simultaneously in thematic format.

Age of the Respondents

The farmers who were surveyed had shown a considerable experience in farming with 74% aged forty and above. About 26% were below the age of 40.This demonstrated the absence or the limited number of youths involved in farming activities and those who need to be trained more on strategic entrepreneurship skills in agricultural business so that they too value agriculture. The majority of the respondents were middle aged people, while youths in the scheme were very few. Further, the majority of the respondents indicated that they were in the scheme since it was formed.

The Role of Strategic Entrepreneurship to the Farmers and Agricultural Productivity

80% of the Dotito Irrigation farmers started to see their farms as business which enabled them to earn profits in the year 2011. Majority of these farmers have shown that they have developed passion for their agricultural business as a result of attending strategic entrepreneurship workshops which were introduced by the government. One farmer on the open ended questionnaire explained that:

"*Before we got deeper knowledge about strategic entrepreneurship in farming, we thought of selling our land and migrate to urban areas for employment. We were not able to pay school fees for our children and there was not enough food to feed our family. We even failed to meet our day to day needs. In fact, whenever we grew crops, the harvest was just discouraging. Yields were decreasing year after year. There was also no market for our outputs such as beans which was as a result of being of poor quality. We had little knowledge on how to grow crops in a way which would give it a good quality. Our employees would sometimes refuse to work with us saying that we were not paying them well. We did not even know how to produce quality outputs. We only became enlightened when the government introduced strategic entrepreneurship in the farming business training programs. We have seen a remarkable change in our agricultural productivity as a result of applying strategic entrepreneurship skills in our agricultural business. The application of strategic entrepreneurship skills in our farming has also enabled us to improve in packaging of our products".*

Farmers have shown that they are now willing to take calculated risks to make their farms profitable. 80% of the farmers explained that strategic entrepreneurship skills enabled them to respect each other, the employees, the traders, transporters and other important stakeholders in the agricultural processes. They reported that they are now working together with the suppliers, customers, transporters and other stakeholders to make the whole system work better and be more profitable. 95% of the farmers accepted that they are now able to identify opportunities as a result of gaining knowledge about strategic entrepreneurship skills.

The majority of the respondents also reported that strategic entrepreneurship knowledge helped them to choose the vegetables that grow well in their area and with a high demand which is what they could not do before they attended the strategic entrepreneurship workshops.

There is indisputable evidence that the imparting of strategic entrepreneurship skills to the farmers leads to increased agricultural productivity. 86.7% of the farmers reported that strategic entrepreneurship skills enabled them to make use of effective strategies in marketing their produce. Majority of the farmers reported that training workshops on strategic entrepreneurship enhanced their farming skills as well as enabled them to manage their resources strategically. 67% of the farmers reported that they are now equipped with entrepreneurial skills and 78% of the farmers reported that they have noticed a remarkable increase in their harvest as a result of attending strategic entrepreneurship skills workshops.

Furthermore, the respondents in key positions and 67% of the farmers explained that before the training on strategic entrepreneurship skills, the members of the irrigation scheme were using an individualistic approach when marketing their outputs. However, the introduction of strategic entrepreneurship skills training allowed the members of the irrigation scheme to market together as a group. This marketing strategy has given them bargaining powers to sell their produce at a reasonable price which allow them to make profit.

The Effects of Irrigation Scheme to the Community

The study found that irrigation enabled the local farmers to successfully practice their farming throughout the whole year and therefore earn income continuously. Awulachew, Hagos, Makombe and Namara (2009) note that at the micro level, irrigation leads to an increase in yield per hectare and subsequent increases in income, consumption and food security. The majority of the farmers noted that irrigation has allowed them as smallholder farmers to diversify cropping patterns. Farmers are also able to meet their day to day needs through this project.

Although their hectrage is small, the outputs produced from the irrigation farming have afforded them money to send their children to school, buy cattle, residential stands as well as access private doctors when there is a need for medical care. Irrigation can benefit the poor specifically through higher production,

higher yields, lower risks of crop failure and all year round farm and non-farm employment (Hussain and Hanjra, 2004). Farmers and the respondents in key positions reported that irrigation scheme enabled them to enjoy human dignity as they are producing their own food instead of depending on external food assistance .In fact, the study revealed that irrigation enables humanity to feed its population if practiced intensively.56% of the farmers explained that irrigation allow double cropping which also contribute to the improvement of people's standards of living and reduce extreme poverty in the area. Irrigation water has increased food security and improved standards of living in many parts of the whole world (Schoengold and Zilberman, 2007). All the respondents in key positions reported an increase in employment created for the locals as a result of irrigation.

They however, explained that the area of land for farming per farmer is too small and therefore, people are employed on temporary basis. The majority of the farmers 72%, on the questionnaire, highlighted that irrigation schemes empowered women economically in the area. Women are coming from distant areas around Mount Darwin including those from Dande area, which is seventy kilometers away from the scheme, to buy tomatoes, vegetables and beans at a cheaper price and sell them at higher prices. This clearly depicts that irrigation has economically empowered the rural women. 60% of the respondents in key positions reported that the irrigation scheme brought more benefits to the local people such as improving the standards of living.

Crops Grown in Dotito Irrigation Scheme

Table 1: Crops Grown by Dotito Irrigation Farmers: 2003-2010

CROP NAME	% RESPONDENTS WHO GROW THE CROP
BEANS	96
OKRA (*GUSHA/JEKWA*)	92
TOMATOES	90
CHILLI	89
LEAFY VEGETABLES	87.3
PEAS	80
PUMPKIN	78
SWEET POTATOES	78
CABBAGE	69
ONIONS	56
CARROTS	34
MAIZE	34

Table 2: The Main Crops Grown At Dotito Irrigation Scheme since 2011

CROP NAME	% NUMBER OF THE RESPONDENTS
CHILLI	19
OKRA(GUSHA/JEKWA)	28
CABBAGE	38
PUMPKIN	40
SWEET POTATOES	45
PEAS	44
MAIZE	67
CARROTS	74
BEANS	87.5
TOMATOES	93
ONIONS	94
LEAFY VEGETABLES	96

The study by Schoengold and Zilberman (2007) revealed that irrigation scheme bring more benefits to the local people and these included the expansion of food supply, improvement of the welfare of the native population and a relative decrease of deforestation of land for agriculture. The respondents also reported that irrigation enabled them to produce high value crops. This also tallies with the results found from the study by FAO (1996). FAO (1996) revealed that in Asia, yields from most crops increased by 100-400% after irrigation had been utilized.

Majority of the farmers in the scheme grow leafy vegetables, tomatoes, onions, beans and carrots. These crops have a ready market and they are needed by the majority of the customers. The demand for these crops is very high. Farmers also reported that these crops increase their income. Very few farmers grow crops such as cabbage; pumpkins, chillies and peas. Quite a large number of farmers grow maize as well. This gives them food and a quick income especially during the dry season when there will be no green maize. Maize is grown because it is a staple food.

The results clearly show the importance of strategic entrepreneurship in the farming context. When they started farming in the irrigation scheme, a large number of farmers used to grow chillies and peas yet there was not a ready market for these crops. The introduction of the strategic entrepreneurship skills for farmers by the government enabled these farmers to grow crops which have a higher demand. Thus, strategic entrepreneurship skills are very crucial in the farming context. Farmers are able to exploit their opportunities by growing crops which are on demand so that they can as well increase their income.

Challenges Faced by the Farmers at Dotito Irrigation Scheme

The farmers have reported that thieves were greatly affecting them as they steal some of the immature crops at night. In addition to that, the farmers reported that they wanted a fence to be installed to prevent the domestic animals such as cattle from entering into their project and destroy the crops. Farmers were also facing challenges in marketing their produce because they did not have established markets and cold rooms. There are people who come to buy their produce at low prices from Harare because they have such facilities that keep the produce for a long time and these people get more profit than the farmers themselves.

The farmers reported that they face problems because of the lack of electrical professionalism when their poles fall since their irrigation is powered by electricity. They explained that their crops suffer as a result of power cuts which impede the supply of water .This further reduces the quality of outputs which will be produced and selling these poor quality products to the supermarket will be very difficult. They reported that they ended up selling them to the local people who will then buy at lower prices because these people do not have money. Farmers at Dotito Irrigation scheme also reported that they are facing difficulties in accessing commercial credit finance due to lack of collateral and credit history .They reported that they are trying their best to solve some of these challenges.

Solutions to the Challenges Faced by the Farmers

They reported that strategic entrepreneurship workshops they attended enabled them to have connection and cooperation skills and these skills are enabling them to solve the above mentioned problems. Farmers reported that they are now working together as one, to protect their crops. They have made a duty roster where they will be providing security. They have also hired guards from the local community whom they pay a monthly wage. The farmers also reported that they were practicing intercropping and mulching in order to keep moisture when there is high temperature. The respondents gained most of these skills after they had attended strategic entrepreneurship skills which were introduced by the government. These skills enabled them to increase productivity and this demonstrates that strategic entrepreneurship skills enhance agricultural productivity.

Farmers' Opportunities

Farmers indicated that they have a bigger chance of exporting their outputs with government assistance. 58% of the farmers highlighted that their opportunities of becoming popular providers of horticultural products in the country are very high provided that there are no energy woes. They reported that some of their outputs such as beans (green beans) meet international standards. Managers of the supermarkets reported that the farmers are producing quality outputs. However, they are unable to consistently supply large quantities because they all have smaller pieces of land which do not allow them to produce continuously. The government is providing technical support to these farmers and this ensures that the best practices are followed in the irrigation scheme.

Farmers Level of Education

Only 19 % of the farmers possess advanced certificates or are with degrees and diplomas. 81 % of farmers have ordinary level or less. None of the respondents have a marketing, management or farming qualification .They reported that, strategic entrepreneurship skills training which was introduced by the government in 2011 had enlightened the majority of them.

The respondents reported that they have managed to establish sound links with supermarkets which is what they could not do before they received strategic entrepreneurship training skills. They noted that, the introduction of these strategic training workshops enabled them to gain more marketing and management skills. Gate et al' study (2010) found that the farmers really needed training on strategic entrepreneurship skills. These researchers noted that the interviews which they conducted in their study showed that the majority of the farmers could not keep records to show their business transactions. This training however, taught them to keep records of their farming activities.

Table 3: Level of Most of The Farmer's Education.

Level of education	% number of respondents with the qualification
Basic and ordinary level	81
Certificate	17
Diploma	2
Degree	0

Conclusion and Recommendations

The study has shown that strategic entrepreneurship farming skills significantly contributed to the increase in agricultural productivity. The improvement in agricultural productivity has led to an improvement in the local people's standards of living, reduced food shortages, created employment as well as enabling the local people in Dotito to meet their day to day needs. Strategic entrepreneurship skills enabled the farmers to be innovative and creative to the extent that that they are no longer affected by the profound changes on the environment. Therefore, the study confirmed or accepted the first hypothesis which states that there is a positive relationship between strategic entrepreneurship and agricultural productivity. The study has shown that there is a direct positive relationship between strategic entrepreneurship and agricultural productivity. The research has also shown that the incorporation of strategic entrepreneurship in the agricultural sector has resulted in improvements in the local people's standards of living. Thus, the study revealed that the application of strategic entrepreneurship skills made a significant contribution to poverty alleviation, food security and increased income. As such the government should continue and be encouraged to implement strategic entrepreneurship training programmes to all the farmers in the country.

The government and private institutions are recommended to work together in implementing comprehensive strategic entrepreneurship strategies to all farmers so as to ensure employment as well as

ensuring food security. The irrigable land should also be extended so that farmers can grow more food for their consumption such as maize and not only horticultural crops. In addition to that, the area under irrigation should be expanded for farmers to grow staple food for the Strategic Grain Reserve (SGR) for government so that there is food security.

Furthermore, the research findings rejected the second hypothesis which states that an increase in productivity is determined by the size of the land used. The study has shown that, farmer's entrepreneurship skills enhance his or her capacity to increase productivity.

The incorporation of strategic entrepreneurship should therefore not be overlooked in the agricultural business as it has been shown that it contributes largely to the increase in agricultural productivity. Farmers in the entire country should be equipped with strategic entrepreneurship skills as this will result in massive improvement in agricultural productivity which will consequently lead to the overall economic development of the country. In addition to that, the incorporation of strategic entrepreneurship skills in agriculture restores farmers' confidence which was overthrown by the profound social, economic and political changes in the contemporary society. Also, to reduce the dependence syndrome on external aid, all the farmers should be encouraged to apply strategic entrepreneurship skills in their farming business.

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