



Understanding the Contemporary Innovation Orientation of Informal Micro-Enterprises

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The existence of innovation fostering and limiting factors in a firm's micro, market, and macro environment determines whether the firm is oriented towards or against innovation. Little is known about the innovation orientation of informal micro-enterprises. Thus, this study sought to determine the contemporary innovation orientation of informal micro-enterprises. Through the application of sequential explanatory mixed-methods research and pragmatism research philosophy, both quantitative and qualitative data were collected from 400 informal micro-enterprises in four townships of the Gauteng Province, South Africa. The data were analysed using descriptive statistics, factor analysis, thematic, and constant comparison methods. The results revealed that curiosity drives innovation among informal micro-enterprises, whereas customers' lack of disposable income limits innovation activities. Moreover, there is more innovation fostering than limiting factors among informal micro-enterprises. Thus, the study concludes that the informal sector is conducive to innovation activities. Nonetheless, there is a need for researchers, the government, and other relevant role-players to determine solutions or alternatives to the existing innovation limiting factors.

Key words: *Informal micro-enterprises, innovation orientation, Gauteng Province, South Africa.*



Introduction

Globally, micro-enterprises operate in both the informal and formal sectors (Mendi and Mudida, 2018). This study focused on micro-enterprises that operate in the informal sector of the Gauteng Province, South Africa. Links, Hart and Jacobs (2014) assert that the informal sector is a dwelling to approximately half of the global population. Similarly, Mendi and Mudida (2018) explained that a noticeable characteristic of most developing countries, including South Africa, Kenya, Ghana, Nigeria, and so forth is the existence of a huge informal sector. Informal micro-enterprises substantially contribute to economic growth, job creation, and poverty alleviation. Without the informal sector, the unemployment rate in South Africa would rise to shocking levels (De Beer and Armstrong, 2015).

Gauteng Province, which is one of the nine provinces in the Republic of South Africa, is home to the biggest townships when compared to the other eight provinces. In 2015, the Gauteng Province had a 31% share of 1,497,860 South African informal micro-enterprises (SEDA, 2016). Although South Africa is not short of informal micro-enterprises, it is estimated that 70-80% of all new informal micro-enterprises fail in the first year, and those that survive the first year rarely exist for more than five years (SEDA, 2016; Asikhia and Van Rensburg, 2015; Rogerson, 2000). Whereas at least 55% of their counterparts in developed countries fail in the fifth year (Remund, Ortiz and Gehrke, 2017).

Innovation, which is the act of introducing new or improved products, services, marketing strategies, and so forth in the market and within the firm, has been recognised as a vehicle that increases small firms' probabilities to survive. Innovating small firms are likely to grow faster than those that do not innovate; they stay relevant; they increase their export probabilities; and can become a source of highly technical, high-paying jobs in the future (Mendi and Mudida, 2018; Links, Hart and Jacobs, 2014; La Porta and Shleifer, 2014).

The ability to innovate is a crucial feature of both formal and informal firms (Naqshbandi and Singh, 2015). Moreover, the existence of innovation fostering and limiting factors in the firm's micro, market, and macro environment determines whether the firm is oriented towards or against innovation. Accordingly, the innovation orientation of a firm influences its ability to innovate.

Previous empirical innovation orientation studies conducted in South Africa and other countries mostly focused on the formal sector and government-funded innovation activities (Abdu and Jibir, 2017; Claudino *et al.*, 2017; Rose, Jones and Furneaux, 2016; Booyens, Molotja and Phiri, 2012; De Beer and Armstrong, 2015). Subsequently, little is known about the contemporary innovation orientation of informal micro-enterprises. As pointed out by Veronica *et al.* (2020), literature reporting on scholars' attempts to comprehend and practically assist in the innovation orientation of small businesses is still limited. Moreover, De Beer and



Armstrong (2015) assert that the innovation activity of micro-enterprises on the African continent remains an under-explored area with many gaps to be filled.

This study thus sought to determine the contemporary innovation orientation of informal micro-enterprises in the townships of the Gauteng Province, South Africa. To understand the contemporary innovation orientation of these firms, we determined the existence of innovation fostering and limiting factors.

The identified problem led to the formulation of the following research question: What is the contemporary innovation orientation of informal micro-enterprises in the townships of the Gauteng Province?

The aforementioned research question was divided into the following sub-questions:

- a) What are the contemporary innovation fostering factors that exist among informal micro-enterprises in the townships of the Gauteng Province?
- b) What are the contemporary innovation limiting factors that exist among informal micro-enterprises in the townships of the Gauteng Province?

The conceptual and theoretical framework

The informal sector and its schools of thought

Small businesses' definitions vary from one country to the other. South African micro-enterprises are defined as firms that have up to 10 employees and an annual turnover of up to R10 million (Republic of South Africa, 1996). Chimucheka (2013) posits that micro-enterprises often operate informally and their owners are less educated or illiterate. Subsequently, these firms have low productivity, lack access to formal loans, and cannot hire highly-skilled personnel. Examples of such businesses are household industries, hair salons, taverns, and tuckshops. Despite the horrendous picture painted by Chimucheka (2013), informal micro-enterprises significantly contribute to economic growth and job creation. Moreover, they have the potential to transform into viable well-established businesses (Fu, Mohnen and Zanello, 2018). Contrary views about informal micro-enterprises are best explained by their associated schools of thought.

There are three schools of thought pertaining to the informal sector. The first is the dualist, the second is the structuralist, and the third is the legalist school of thought. The dualist holds the view that the informal sector is a transitional sector that temporarily provides employment and income for the poor, in particular, those who cannot get employment in the formal sector. The structuralist holds the view that the informal sector is subordinate to the formal sector. Whereas the legalist school of thought holds the view that some firms choose to operate informally, thereby avoiding the costs and responsibilities of the strict rules and regulations imposed on

the formal sector by governments (Links, Hart and Jacobs, 2014; De Beer and Armstrong, 2015). This study was conducted with the legalist and dualist schools of thought in perspective.

Innovation theories

Innovation is classified as one of the emerging disciplines. Thus, there is a limited number of theories that can explain the innovation phenomena, which are innovation management theory(s); innovation diffusion theory, and destructive innovation theory (Naqshbandi and Singh, 2015).

From the aforementioned theories, we limit our discussion to two theories due to their relevance to this study. On one hand, before the 1940s and post this period, Joseph Schumpeter, an Austrian economist, referred to by some scholars as the founder of the innovation concept devoted a tremendous amount of time to comprehend innovation dynamics in both large and small firms. Subsequently, he theorised that small firms are more able to innovate than large firms as large firms lack flexibility due to their well-established structures. Nonetheless, he later abandoned this view and hypothesised that large firms are more able to innovate due to monopolistic power, resource power, and market power. This has been referred to as Schumpeter's innovation management theory (Naqshbandi and Singh, 2015).

On the other hand, Arrow (1962) hypothesised that small firms are more innovative than large firms, as small firms are in a race to increase their market share and this has been referred to as Arrow's innovation management theory. Similar to Arrow's (1962) theory, we are of the view that informal micro-enterprises are more innovative than large firms as they are in sustainability warfare. If they do not constantly innovate to respond to the changing needs of their customers, they are destined to lose customers and run out of business.

Innovation orientation

Several studies were conducted in the past to determine innovation fostering and limiting factors among small firms. The findings of these studies are briefly discussed in the following sections.

Innovation fostering factors

The review of the existing literature revealed several key innovation fostering factors. The first being management and leadership support, which involves creating an environment where people within the firm are encouraged to be creative and formulate new ideas (Claudino *et al.*, 2017; Rose, Jones and Furneaux, 2016; Booyens, Molotja and Phiri, 2012). The second being the diversity of competencies in the group responsible for innovation; innovative small firms often have diverse innovation teams (Claudino *et al.*, 2017). A study conducted by Agwa-Ejon and Mbohwa (2015) revealed that the informal sector is diverse and diversity is considered a

source of knowledge necessary to engage in innovation activities. Nonetheless, Agwa-Ejon and Mbohwa (2015) further argued that in spite of diversity, informal micro-enterprises' owners need to acquire the necessary skills to enable them to be more creative and to adopt and adapt new ideas and that the government must support them in doing so. Moreover, they have to invest in research and development (Agwa-Ejon and Mbohwa, 2015).

The third being the use of efficient communication channels to implement innovation, there has to be an efficient flow of information between managers and staff (Claudino *et al.* 2017; Rose, Jones and Furneaux, 2016). The fourth being the availability of financial, material, and technological resources. Booyens, Molotja and Phiri (2012) explained that access to finance, equipment, external linkages, and collaborations for the adoption of new technologies are crucial innovation fostering factors.

The fifth being research and development (R&D) investment, collaboration networks and government support. Investing in R&D, collaboration networks, government support, formal training, a firm's size, exporting status, competitors, location, type, and sector, or activity of firms all positively drive the propensity of a firm to innovate (Abdu and Jibir, 2017). According to the European Commission (2014) and Mendi and Mudida (2018), very small firms – mostly informal micro-enterprises are unable to invest significantly in R&D activities as they are typically financially constrained and are unlikely to hire specialised employees, and thus they have low research and innovation (R&I) development and absorptive capacity.

Innovation limiting factors

Several innovation limiting factors were identified from the existing literature. The first being the limitation of people, which relates to a lack of knowledge, skills, and attitudes required for innovation (Rose, Jones and Furneaux, 2016; Booyens, Molotja and Phiri, 2012). The second being the limitation of financial resources, this relates to difficulties to access and effectively use financial resources required for innovation (Booyens, Molotja and Phiri, 2012; Costa and Olave, 2014). Informal micro-enterprises are often unable to generate adequate savings to invest in R&D or innovation activities due to social tax or the need to share profits with family members and friends (Mulibana and Rena, 2020).

The third being the limitation of technological resources, to a certain extent, innovation requires constant use of contemporary technologies. Hsieh and Chou (2018) explained that the effective application of technologies can significantly enhance the effectiveness of information processing, enhance the efficiency of processes, and also enhance employees' productivity. Technological deficiencies often lead to a low frequency of radical innovations and an increased existence of incremental innovations (Silva and Dacorso, 2013).

The fourth being obstacles originating from the external environment (Booyens, Molotja and Phiri, 2012). In the developing countries, regulations often do not adequately support

innovation, infrastructure is often poor (e.g., inconsistent energy supply), markets tend to be underdeveloped, and potential local customers have limited disposable income (Fu, Mohnen and Zanello, 2018; De Beer and Armstrong, 2015). The fifth being priority to the core or short-term activities, this involves prioritising the firm's core activities or short-term activities (Rose, Jones and Furneaux, 2016; Booyens, Molotja and Phiri, 2012; Costa and Olave, 2014).

Lastly, fear of innovation consequences is another innovation limiting factor, fear triggered by the uncertainties of the innovation process, such as risk aversion, rejection of innovative ideas, fear of the unknown, fear of making mistakes, fear of investment in innovation, and the possibility of cuts and layoffs (Rose, Jones and Furneaux, 2016; Booyens, Molotja and Phiri, 2012; Costa and Olave, 2014).

Methodology

In cognisance of the identified research problem and question(s), the study was based on the application of sequential explanatory mixed-methods research and pragmatism research philosophy. The quantitative data were collected and analysed before the qualitative data could be collected and analysed. As explained by Onwuegbuzie and Leech (2006), the overall mixed methods research would be sequential instead of concurrent when the quantitative phase of the study would inform the qualitative phase.

We adopted the sequential explanatory mixed-methods research to ensure that the most appropriate participants were sampled, for illustration, and to ensure that complete data were collected, analysed, and interpreted accordingly. A sampling frame of South African informal micro-enterprises that engaged in innovation activity between January 2016 and December 2018 does not exist. Thus, the use of the quantitative approach, in particular, the collection of data using the questionnaire assisted with the sampling of the most relevant participants, who were further interviewed for illustration and completeness of data.

Population and sampling

The subjects of investigation are informal micro-enterprises in the townships of the Gauteng Province, Republic of South Africa. Due to the informality of the research population and the subsequent unavailability of a sampling frame, this study adopted a convenience sampling method during the quantitative phase and purposive sampling during the qualitative phase.

Leedy and Ormrod (2014) explained that if the population size exceeds 5,000, the population size is almost irrelevant and a sample size of 400 will be adequate. Accordingly, this study sampled 400 respondents for the quantitative phase and 44 participants for the qualitative phase. Unincorporated townships' micro-enterprises with one to ten employees and often not registered with the Companies and Intellectual Property Commission (CIPC) were sampled for the quantitative phase. The qualitative phase was limited to informal micro-enterprises that

engaged in innovation activity between January 2016 and December 2018 without formal research and development investment, government support, and innovation aimed collaboration networks with large enterprises and universities.

Data collection and analysis

Primary data were collected through a questionnaire and a semi-structured interview. During the quantitative phase, 400 questionnaires were physically distributed in four townships of the Gauteng Province in two months. These townships are Soweto, Katlehong, Vosloorus, and Soshanguve. We physically visited each township to randomly distribute the questionnaires. As the questionnaires were being distributed, we established a sampling frame for the qualitative phase by recording the basic identification information of respondents. Details such as business name and physical address. About 207 completed questionnaires were received from the respondents. This constitutes a response rate of 52%.

The received questionnaires were checked for completeness and coded. Following the coding process, data were captured on the Statistical Package for Social Sciences (SPSS) version 25 software. We then tested the reliability of the research instrument (i.e., the questionnaire) using Cronbach's alpha (α) reliability coefficient (see Table 1):

Table 1: Reliability analysis

Subscale	Cronbach's Alpha (α)	Number of items	Mean	Standard deviation	Internal consistency
Innovation orientation	0.7	12	3.4	0.9	Acceptable

Source: Primary data

Cronbach's alpha coefficient in Table 1 is about 0.7. This suggests that the respondents have responded consistently to the survey items.

The captured data were then analysed through descriptive statistics and factor analysis. In terms of the results, 44 participants met the interview criteria. Based on the results of the quantitative phase, pre-formulated interview questions were refined. Following this, face-to-face semi-structured interviews were conducted. We planned to interview 44 qualifying participants. Nonetheless, we only interviewed 21 participants as we reached the data saturation point. It is possible that the data saturation point was reached at the 16th participant. However, we decided to continue to interview participants who were next in line hoping to discover new information. Unfortunately, by the 21st participant, there was still no new information and we decided to cease the interview.

Data collected through the semi-structured interview were analysed through the thematic and constant comparison method. Interview notes were transcribed in short summarised sentences. The responses were closely reviewed and compared. Themes were extracted, compared, and interpreted.

Findings and discussion

Guiding question and sub-questions: What is the contemporary innovation orientation of informal micro-enterprises in the townships of the Gauteng Province? What are the contemporary innovation fostering factors that exist among informal micro-enterprises in the townships of the Gauteng Province? And what are the contemporary innovation limiting factors that exist among informal micro-enterprises in the townships of the Gauteng Province?

Quantitative phase

Section one of the questionnaire solicited responses relating to the demography of the respondents and firm background. The analysis of data collected through this section revealed several new developments that are worth noting and are explained below, before we present the results and discussion on innovation fostering and limiting factors that exist among informal micro-enterprises.

Informal micro-enterprises' demography and background

(i) A shift in gender representation

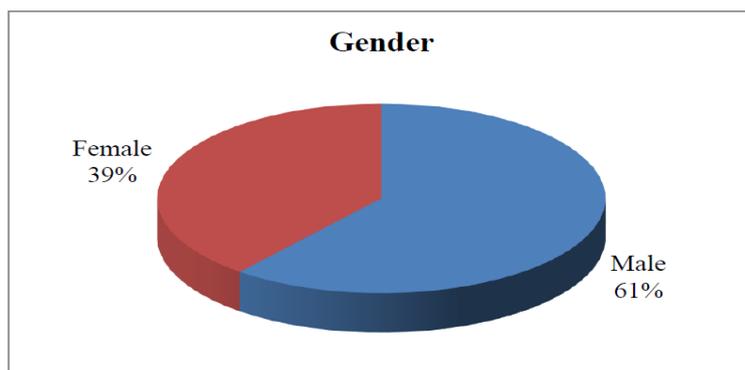


Figure 1: Gender representation

Source: Primary data

Figure 1 depicts that 61% of the respondents are male whereas 39% of the respondents are female. This suggests that there has been a shift in gender representation among townships' informal micro-enterprises. Prior studies revealed that informal micro-enterprises were mostly operated by women (De Beer and Armstrong, 2015; Chimucheka, 2013). These studies denoted

that these women are single parents of households who established businesses to survive and feed their families.

This has since changed, as the contemporary data reveal that the contemporary owners and employees of informal micro-enterprises are mostly young men and are in business to respond to the needs of their local communities. These business-oriented people not only bring existing goods and services closer to the people but also identify new business opportunities and exploit them.

(ii) Owners and employees of informal micro-enterprises are more literate than anticipated

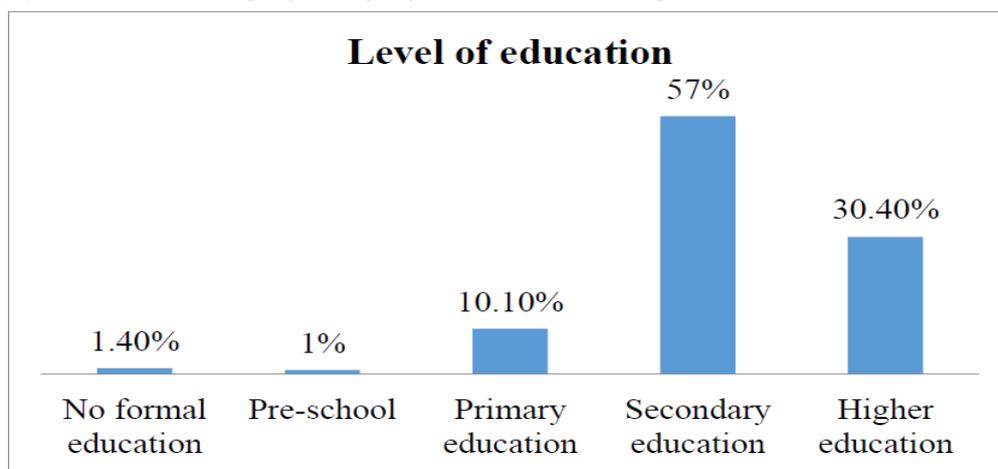


Figure 2: Level of education

Source: Primary data

As portrayed in Figure 2, owners and employees of informal micro-enterprises are more literate than anticipated with 57% of the respondents possessing secondary education and 30.40% of the respondents possessing higher education (i.e., qualifications from universities, colleges, and other higher education institutions). This finding is contrary to the findings of the previous studies that described owners and employees of informal micro-enterprises as uneducated (Fu, Mohnen and Zanello, 2018; Chimucheka, 2013).

It can thus be argued that literacy levels in the informal sector have changed over the years. On one hand, this suggests that owners and employees of informal micro-enterprises have been to institutions of higher learning and they have obtained tertiary qualifications. On the other hand, this suggests that due to high unemployment rates in South Africa, unemployed graduates decided to venture into business instead of seeking employment in well-established formal firms or the government.

(iii) Informal micro-enterprises are more innovative



The results revealed that 82.6% of the respondents engaged in innovation activity between January 2016 and December 2018. This is in line with Arrow's (1962) innovation management theory and contrary to the previous studies that argued that informal micro-enterprises are less innovative (De Beer and Armstrong, 2015; Links, Hart and Jacobs, 2014; WIPO, 2013; La Porta and Shleifer, 2014). Nonetheless, the innovations that occurred in the aforementioned period were mostly incremental rather than radical. This is in accordance with the findings of the previous studies that pointed out that informal micro-enterprises often engage in incremental rather than radical innovation (Mulibana and Rena, 2020; La Porta and Shleifer, 2014).

Thus, guidance on how to engage in radical innovation is of utmost importance in the informal sector. Particularly because radical innovations often give rise to new industries. The rise of new industries often leads to economic growth and the creation of jobs, which is what developing countries like South Africa need.

Innovation fostering factors

Seven innovation fostering factors were tested. Respondents were asked to indicate the existence or nonexistence of the seven innovation fostering factors in their businesses by agreeing or disagreeing with the statements on a Likert-scale type of questions ranging from 1 to 5. Table 2 depicts the results.

Table 2: Frequency of responses on innovation fostering factors

Likert scale for means: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

Key: SD = strongly disagree, D = disagree, NS = not sure, A = agree, SA = strongly agree

No	Innovation fostering factors	SD(%)	D(%)	NS(%)	A(%)	SA(%)	Mean	Skewness
1	The owner of the business is visionary	4.3	7.2	3.4	12.1	72.9	4.4	-1.9
2	Employees of the business are visionaries	4.8	12.6	9.7	30.9	42	3.9	-1.0
3	The owner of the business encourages employees to formulate new ideas	4.3	13.5	6.8	43	32.4	3.9	-1.0
4	Risks and mistakes are tolerated in the business	6.3	7.7	7.7	49.8	28.5	3.9	-1.2
5	The business embraces changes	3.9	2.9	1.9	56.5	34.8	4.2	-1.8
6	Funds, material and technological resources are adequately available	31.9	34.3	7.7	18.8	7.2	2.4	0.7
7	The business is made up of people of different age, gender, race, and qualifications	17.4	13	4.8	36.2	28.5	3.5	-0.6

Source: Primary data

Negative skewness values suggest that the respondents agree with the statements listed in Table 2, whereas positive skewness values imply that the respondents disagree. Mean values greater than 3 indicate that the respondents agree, whilst mean values less than 3 indicate that the respondents disagree with the items that were tested. Accordingly, respondents agreed that six



of the seven tested innovation fostering factors exist in their firms. They indicated that the owners and employees of informal micro-enterprises are visionaries; employees are encouraged to formulate novel ideas; risks and mistakes are tolerated; they embrace changes and they are diverse.

Innovators are visionaries, businesses that encourage employees to formulate novel ideas tend to be more innovative; as long as such businesses tolerate risks and mistakes, and also embrace changes. Innovation activities are risky and some innovations vigorously fail, thereby causing a serious financial and non-financial loss to the firm. Thus, to constantly engage in innovation activities, a firm must be open to disappointments. Nonetheless, measures must be put in place to minimise chances of failure, as successful innovations have great rewards. Lastly, diversity often leads to creativity. Firms that have a labour force that is different in terms of age, gender, qualifications, ethnicity, race, cultural and traditional backgrounds tend to be more innovative.

Innovation limiting factors

Five innovation limiting factors were tested. Respondents were asked to indicate the existence or nonexistence of the five innovation limiting factors by agreeing or disagreeing with the statements on a Likert-scale type of questions ranging from 1 to 5. Table 3 portrays the results.

Table 3: Frequency of responses on innovation limiting factors

Likert scale for means: 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

Key: SD = strongly disagree, D = disagree, NS = not sure, A = agree, SA = strongly agree

No	Factors that limit innovation within the business	SD(%)	D(%)	NS(%)	A(%)	SA(%)	Mean	Skewness
1	Lack of knowledge, skills, competencies, and attitudes required for innovation	27.5	31.9	2.9	25.6	12.1	2.6	0.4
2	Lack of financial resources	4.8	9.7	2.9	36.7	45.9	4.1	-1.4
3	Lack of technological resources	9.2	18.8	2.9	30	39.1	3.7	-0.7
4	Fear of innovation	41.1	45.9	2.4	4.3	6.3	1.9	1.6
5	Comfortable with the current status quo	49.8	27.5	4.8	9.7	8.2	2.0	1.2

Source: Primary data

As depicted in Table 3, respondents disagreed that three of the five tested innovation limiting factors exist in their firms. The respondents indicated that their ability to innovate is not limited by the lack of knowledge, skills, and competencies required for innovation. This suggests that owners and employees of informal micro-enterprises have the knowledge, skills, and competencies required to innovate. This can be substantiated by their levels of education as discussed earlier in this paper.

Respondents also indicated that they are not afraid of innovating and are not comfortable with the current status quo. If a firm is not afraid of innovating, it suggests that they can take risks which is a key feature of innovators and entrepreneurs. Furthermore, a firm that is not comfortable with its status quo is always eager for change. The desire for change is also an important feature of innovators and entrepreneurs.

Notwithstanding the above, it is imperative to acknowledge that the limitation of financial and technological resources remain as major innovation limiting factors among informal micro-enterprises.

Factor analysis

Table 4: Component Correlation Matrix

	Statements	Component		
		1	2	3
V1	The owner of the business is a visionary	.712	-.266	-.073
V2	Employees of the business are visionaries	.732	-.210	-.133
V3	The owner of the business encourages employees to formulate new ideas	.760	-.177	-.053
V4	Risks and mistakes are tolerated in the business	.479	-.237	.305
V5	The business embraces changes	.694	-.128	.076
V6	Funds, material and technological resources are adequately available	.429	.386	-.387
V7	The business is made up of people of different age, gender, race, and qualifications	.389	.239	-.294
V8	Lack of knowledge, skills, competencies, and attitudes required for innovation	.227	.573	.026
V9	Limitation of financial resources	.147	.047	.809
V10	Limitation of technological resources	.245	.304	.618
V11	Fear of innovation	.132	.820	.155
V12	Comfortable with the current status quo	.144	.705	-.175
	PERCENTAGE OF TOTAL VARIANCE	23.64	16.81	12.10
	CUMULATIVE PERCENTAGE OF VARIANCE	23.64	40.45	52.55

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Table 4 portrays the correlation coefficients of the three extracted principal components (factors), percentages of the total variance, and cumulative percentages of variance. Components 1, 2 and 3 explain 23.64%, 16.81% and 12.1% of the total variance, respectively. The first two components account for 40.45% and all three components account for 52.55% of the total variance.

The first component is highly correlated with variables V1, V2, V3, and V5. Component 1 may be thought of as a management factor. The second component (Component 2) is highly correlated with variables V8, V11 and V12, Component 2 appears to be an attitude factor. The third component (Component 3) is highly correlated with variables V9 and V10. It may be thought of as a resource factor.

Qualitative phase

We conducted face-to-face semi-structured interviews with 21 participants to determine the contemporary innovation fostering and limiting factors that exist among informal micro-enterprises.

Innovation fostering factors

Participants were asked to indicate in their view what fosters innovation in their businesses. The following themes emerged following the analysis of the qualitative data using thematic and the constant comparison method.

(i) Curiosity drives innovation in the informal sector

On contrary to R&D investment, this study revealed that curiosity drives innovation in the informal sector. About 48% (10 of 21) of the participants indicated that they can innovate because they are curious about what customers want and what their competitors are doing. This curiosity enables them to determine customers' problems and market opportunities. Based on the problems and market opportunities identified, they then think of solutions that can be introduced to please the customers.

Among others, participant 4 said the following, "I am often curious about the contemporary trends in the market. Therefore, I attend public gatherings and also spend some time on social media to familiarise myself with trending stuff that is relevant to my business. If I see something I like which customers will also like, I emulate it and produce it in my business to stay relevant".

Moreover, participant 20 said the following, "I am often curious about what customers want and what my competitors are doing. Therefore, as customers come to my shop, I ask them what can be added to the shop to make them happier. I also walk around the township, pretend to be

a customer, and enter my competitors' shops to see what they are doing. If I see something interesting that is not available in my shop, I introduce it to my customers. In some instances, I would identify something that my competitors are not doing but customers might like, and introduce it in my shop".

In cognisance of the above, curiosity is different from R&D as research is systematic or structured and researchers don't pretend due to ethical requirements in research.

(ii) Knowledge also drives innovation

About 57% (12 of 21) of the participants cited knowledge as one of the innovation fostering factors. They indicated that knowing the importance of bringing goods and services closer to the customer and knowing how to bring such goods and services enables them to innovate.

For instance, participant 3 explained that her parents were business owners, so she learned from them. Whereas, participant 13 explained that in addition to studying a course in business management, he also acquired his innovation knowledge from his previous employment. Furthermore, participant 20 explained that he acquired in-depth knowledge of financial management through formal learning. Thus, he saves profits and invests them in the firm to fund innovations.

Innovation limiting factors

We also conducted face-to-face semi-structured interviews with 21 participants to determine the contemporary innovation limiting factors that exist among informal micro-enterprises. The following are the themes that emerged following the analysis of the qualitative data using thematic and the constant comparison method.

(i) Potential customers' lack of disposable income

About 38% (8 of 21) of the participants denoted that a major innovation limiting factor in their businesses is customers' affordability of innovations. Customers of informal micro-enterprises have limited disposable income as they often depend on piece jobs, grants, and low-paying jobs for a living. This has proven to negatively affect customers' ability to afford informal micro-enterprises' innovations. For instance, participant 21 said the following, "customers often complain that innovations are expensive. Therefore, you end up being discouraged to innovate because they will probably not afford to buy the innovations".

In our view, the problem is deeper than customers' lack of disposable income or lack of an effective pricing strategy. To set affordable prices, there must be efficiency throughout the value chain. Thus, it can be argued that informal micro-enterprises face a challenge to engage in innovation activity in a manner that the subsequent innovations will be affordable to the

customers that they serve. This argument is based on the fact that there is little they can do about their customers' lack of disposable income. This could be a long-term problem that is dependent on many economic factors. Moreover, if there is no immediate solution to this, they may have to venture into other market segments that will afford their innovations.

(ii) Lack of external sources of funding

About 33% (7 of 21) of the participants cited lack of external sources of funding as one of the innovation limiting factors. They further pointed out that, their abilities to transform innovative ideas into innovations solely depend on how much profit they make and how much of that profit can be saved and invested in the firm.

In cognisance of the above, our intuitive senses dictated that we ask what could be an alternative means of funding. Accordingly, one of the participants said the following, "Since we often struggle to access funding, I and a few owners of other small businesses in this township established a *stokvel* to assist each other when we require additional funding. I used the *stokvel* money to extend my tavern so that my customers can have proper shelter in sunny and rainy seasons".

In light of the above, we are of the view that the aforementioned funding mechanism can be used to fund innovations as well. For instance, if one of the members of the *Stokvel* (crowdfunding) formulates a novel idea to introduce a novel product and there are no sufficient funds to implement the idea, the member could approach other members of the *stokvel* to seek assistance with funding. Criteria for admissibility of novel ideas can be agreed upon and feasible novel ideas can be collectively funded.

(iii) Lack of equipment

About 29% (6 of 21) of the participants cited lack of equipment as one of the innovation limiting factors. Among others, participant 12 said the following, "lack of reliable electricity supply and latest machinery makes it difficult for us to engage in innovation activities". South Africa just like many other developing countries has challenges in maintaining a reliable energy supply. Nonetheless, this should not be accepted as a norm, the government should strive to resolve this problem. Moreover, informal micro-enterprises should collaborate with other small businesses to complement their innovation capabilities.

(iv) Lack of sufficient security

Lastly, 14% (3 of 21) of the participants cited a lack of adequate security as an innovation limiting factor. Participants denoted that they are often reluctant to innovate as there are high levels of theft and robbery in the townships. Sometimes during xenophobic attacks, looters randomly loot their shops. Such criminal activities limit innovation activities.

Participant 15 said the following, “there is too much theft and robbery in kasi (township). Therefore, I am reluctant to introduce too many new things, as I would lose in case of theft, robbery or xenophobic attacks”.

Integration of the quantitative and qualitative findings

We compared the quantitative and qualitative findings for similarities and differences to draw coherent conclusions.

In relation to the innovation fostering factors, the results of the quantitative phase revealed that owners and employees of informal micro-enterprises are visionaries. Employees are encouraged to formulate new ideas, risks and mistakes are tolerated, changes are embraced and informal micro-enterprises are diverse. Moreover, in terms of the factor analysis results, the innovation fostering factors identified can further be classified as management and attitude factors. Suggesting that informal micro-enterprises are managed in such a manner that fosters innovation and attitudes of owners and employees of informal micro-enterprises favor innovation activities. The qualitative phase results revealed that curiosity and knowledge foster innovation among informal micro-enterprises. While knowledge was identified in both the quantitative and qualitative phases, curiosity was only identified in the qualitative.

The explanation for the difference between the findings of the two phases could be that factors tested during the quantitative phase were identified from the existing literature. Whereas, during the qualitative phase, participants were asked to express their views about what fosters innovation in their businesses without a hint of what the literature says this.

In relation to the innovation limiting factors, lack of financial and technological resources were revealed as innovation limiting factors during the quantitative phase. Accordingly, the two innovation limiting factors have been classified as resource factors. Moreover, the factor analysis results revealed that lack of innovation-related cooperation between informal micro-enterprises and other role players in the national innovation system such as the government, universities, and large enterprises is a major open innovation limiting factor. During the qualitative phase, participants denoted that their innovation activities are limited by customers’ lack of disposable income, lack of sufficient security, lack of finance, and equipment.

Lack of equipment is closely related to a lack of technological resources. Thus, lack of finance and equipment were identified as innovation limiting factors in both the quantitative and qualitative phases. Customers’ lack of disposable income and lack of sufficient security were only identified as innovation limiting factors during the qualitative phase.

Recommendations for future research

This study revealed that customers' lack of disposable income is a major innovation limiting factor among informal micro-enterprises. Thus, future studies should determine how informal micro-enterprises can innovate in such a manner that their innovations would be affordable to the customers that they serve, while at the same time they remain competitive.

The study further revealed that there is a high level of theft and robbery in the informal sector and these often discourage informal micro-enterprises from introducing novel products and services. Thus, future studies should determine appropriate security measures that can be introduced in the informal sector to enhance the safety of informal micro-enterprises.

Limitations

At the time of writing this paper, there was a limited number of studies that focused on the innovation orientation of informal micro-enterprises. Thus, we drew some insights from studies that focused on the innovation orientation of formal small businesses. Nonetheless, there was also a limited number of studies that focused on the innovation orientation of formal small businesses.

Conclusion

There are several positive innovation-related new developments in the informal sector. Subsequently, there is more innovation fostering than limiting factors among informal micro-enterprises. The existence of more innovation fostering than limiting factors suggests that the informal sector environment is conducive to innovation activities. This is contrary to other innovation studies that concluded that the informal sector environment does not favour innovation activities (La Porta and Shleifer, 2014; De Beer and Armstrong, 2015). This conclusion was mostly based on the lack of R&D investment and adequate resources required to engage in innovation activities.

Lack of two or more innovation-fostering factors and the existence of two or more innovation limiting factors surely cannot be a justifiable basis to deem the informal sector unfavourable to innovation activities. It is the responsibility of researchers, the government, and other concerned participants to determine alternative means through which informal micro-enterprises can engage in both radical and incremental innovation. This will turn threats into opportunities.



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