The Adoption of Information and Communication Technologies (ICTs) by the Managers of Spaza Shops in Rural South Africa

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Abstract

Introduction and Background: In the South African context, a 'spaza shop' is an informal microenterprise retail store with limited floor space where customers purchase basic groceries over a small counter. It is usually set up in a container, a shack or garage, from a free-standing building or small house. Spaza shops are an important retail channel, and they contribute significantly to South Africa's township and rural economy. They provide an entry point for persons otherwise excluded from the formal economy – enabling self-employment and addressing unemployment and poverty. However, spaza shops remain understudied, underappreciated and little understood.

Rationale and Aim: The role, impact and adoption of Information and Communication Technologies (ICTs) in the informal retail sector is not well understood because this sector is not officially documented. As a result, there is little clarity on the extent to which ICTs have been adopted within these microenterprises, particularly in the rural areas. This research study therefore focused on rural spaza shops and explored the adoption of ICTs by their managers.

Objectives: The objectives of the research were to determine: (i) the specific types or examples of ICTs used by the managers of spaza shops in the rural areas of South Africa; (ii) how managers of spaza shops use ICTs to run or manage their spaza shops in the rural areas of South Africa; and (iii) the

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perceived benefits and challenges associated with the ICTs used by the managers of spaza shops in the rural areas of South Africa.

Theoretical Framework/ Model: Two models were used as theoretical lenses for the research, namely: (i) The Organisation for Economic Co-operation and Development (OECD) Model Survey on ICT Usage by Businesses; and (ii) the Unified Theory of Acceptance and Use of Technology (UTAUT).

Methodology: The research adopted a descriptive research design. A questionnaire, which included both closed- and open-ended questions, was used to gather data from 80 managers of spaza shops in the rural area of the King Sabata Dalidyebo (KSD) region, Eastern Cape Province, South Africa. Data was analysed using Microsoft Word 2016 and Microsoft Excel 2016.

Results/ Findings: The research findings revealed that electronic calculators, mobile phones (both feature/basic phones and smartphones), Flash devices, and WhatsApp instant messaging were widely used by the managers of spaza shops. Speedpoint devices, Facebook social networking, and e-mail were also used by a few spaza shop managers. They also used mobile phones for phone calls, SMS, WhatsApp, Facebook, and e-mail. Flash devices were used for selling airtime, data and electricity, and for some DSTV payments and LOTTO ticket sales. Retailers also used Speedpoint devices for 'cash back' services, and for accepting payments from the customers. The research findings revealed that ease of use, affordability and accessibility of mobile phones, and availability of Flash devices and Speedpoint devices, provided benefits to the managers of spaza shops. Eskom national grid electricity, solar power, and cellular network connectivity (Vodacom, MTN, Cell-C and Telkom) are the necessary facilitating mechanisms enabling the adoption of ICTs. The absence of Automated Teller Machines (ATMs) in the rural areas provided marketed opportunities for the spaza shops. The research findings also revealed the challenges experienced and, in this regard, crime, the high cost of computers and a lack of computer skills were found to be the primary barriers to the adoption of the use of computers by the managers of spaza shops in these areas.

Contribution and Implications: Since empirical evidence concerning the adoption of ICTs among informal microenterprises in rural areas is limited,

this research provides a valuable additional insight into the current nature and challenges of ICT adoption by spaza shop managers in South African rural areas. The research thus provides information for government institutions (for example, Ministries of Small Business Development, Trade and Industry, and Rural Development), for ICT consultants, and for ICT vendors who can target their interventions and sales efforts towards these microenterprises more accurately as a result of the information gathered.

Limitations: Not all rural areas of the KSD region were covered in this research – only thirty of more than 200 rural areas were investigated. The sample therefore consisted of eighty managers of spaza shops in one deeply rural region of South Africa, namely KSD. This limits the generalisability of the findings. The study could be strengthened by increasing the sample size.

Conclusions and Future Directions for Research: The research concludes that more research into this informal sector is needed in order to fully understand the role, impact and adoption of ICTs from a broader perspective. More extensive research studies on the role, impact and adoption of ICTs within the context of informal microenterprises including not only spaza shops, but also street vending, and tourism, and covering the entire region of KSD, could be profitably undertaken.

Keywords: spaza shops, ICTs, microenterprises, rural areas, King Sataba Dalindyebo Region.

1 Introduction and Background

The research presents empirical findings on the adoption of information and communication technologies (ICTs) by the managers of spaza shops in the rural areas of South Africa. South Africa has a ‘dual economy’, characterised by a developed formal economy and an underdeveloped informal economy (World Bank 2019; OECD 2015). Spaza shops operate within the informal economy as an informal sector of South Africa`s retail economy (Sustainable Livelihoods Foundation 2016). In the South African context, a ‘spaza shop’ is an informal microenterprise retail store with limited floor space where customers purchase basic groceries over a small counter. It is usually set up

in a container, shack or garage from a free-standing building or small house (Mangaung Municipality 2018; Sustainable Livelihoods Foundation 2016; Von Broembsen 2008). Spaza shops are classified as microenterprises, because they usually employ fewer than ten people (Von Broembsen 2008).

Globally, informal microenterprises play a major role in socio-economic development, being instrumental in employment creation, income generation, skills development, poverty alleviation, social inclusion, the creation of sustainable livelihoods and also self-empowerment (Arnold & Fadnis 2018; Christopher & Manoj 2018; World Bank 2018; World Trade Organization (WTO) 2018; WEF 2017). It is estimated that in Africa and Asia, Small and Medium Enterprises (SMEs) and informal microenterprises account for more than 60% of businesses, more than 50% of total employment, and more than 40% of Gross Domestic Product (GDP) output (UNESCAP 2019). Yet informal microenterprises remain understudied, underappreciated and little understood (Al Essa 2018; Sustainable Livelihoods Foundation 2012).

The digital shift brought about by the accelerated growth of ICTs such as the internet, mobile networks, cloud computing, computer technology, the Internet of Things (IoT), and the introduction of tablets and smartphones, has become highly significant for the operation of retail microenterprises, and can influence both their productivity and their competitiveness (ITU 2015). While most owners and managers

of spaza shops have begun to adopt ICTs for managing their microenterprises in the urban areas (Chetty 2016; Afolayan 2014; Matlala *et al*. 2014; Odendaal 2014; Talnot & Marsden 2012; Ongori 2009), there is limited empirical research on the adoption of ICTs among the owners/ managers of spaza shops in rural areas. This research therefore attempts to close this research gap by exploring the adoption of ICTs within the context of microenterprises (spaza shops) in the rural areas.

2 Rationale and Aim of the Research

The role, impact, use, usage and adoption of ICTs in the informal retail sector is not well understood because the informal retail sector is not officially documented. As a result, there is little clarity as to the extent to which ICTs have been adopted within these microenterprises, particularly in the rural areas. The majority of studies on the role, adoption and impact of ICTs have

focused on formal SMEs, and while Chetty (2016), Matlala *et al*. (2014), Odendaal (2014), Makoza and Chigona (2012), and Ongori and Migiro (2010 have conducted research on the adoption of ICTs among the owners/ managers of informal microenterprises, their research was conducted in the urban areas and largely focused on mobile phones. There is therefore still a limited understanding of ICT adoption in rural areas beyond the use of mobile phones, and this is the focus of this study.

3 Objectives

The objectives of the research were as follows:

1) To determine the specific types/examples of ICTs used by the managers of spaza shops in the rural areas of South Africa;

2) To determine how managers of spaza shops use ICTs to run/manage their spaza shops in the rural areas of South Africa; and

3) To determine the perceived benefits and challenges associated with the ICTs used by the managers of spaza shops in the rural areas of South Africa.

4 Spaza Shops in the Context of South Africa

4.1 Historical Background of Spaza Shops

The history of spaza shops can be traced back to the apartheid era. 'Spaza[1]' is an isiZulu word meaning 'hidden'. During the apartheid era, black South Africans were restricted from running businesses. In order to hide their retail business practices and also elude the apartheid authorities, black South Africans in the townships and rural areas established spaza shops alongside their homes. Spaza shops eliminated the inconvenience and costs of traveling to formal shopping places in towns, cities, and malls by setting up small retail

[1] isiZulu is one of the official languages in South Africa. It is the most commonly spoken language in South Africa's households. It is spoken by roughly 23% of South Africa's population (Statistics South Africa, 2012).

outlets close to the customers in the townships and rural areas (Bear *et al*. 2005; Terblanché 1991). The post-apartheid government has since legalised spaza shops under the Businesses Act 71 of 1991 (Mangaung Municipality 2018).

4.2 Defining 'Spaza Shop'

Spaza shops are essentially informal micro-convenience stores with limited floor space which operate within the informal retail sector (Von Broembsen 2008). They are usually set up and run from home in a container, shack or garage, attached to a free-standing building or small house. Customers can purchase basic goods like bread, cool drinks, milk, fruit, vegetables, meat, sweets, cigarettes, soap, and paraffin over a small counter (Mangaung Municipality 2018; Sustainable Livelihoods Foundation 2012; Von Broembsen 2008). Spaza shops predominantly operate in the townships and rural areas, as these are where the majority of the black population live (Piper & Chairman 2016; Sustainable Livelihoods Foundation 2016).

4.3 Business Model and Operations of Spaza Shops

Spaza shops have adopted a retailer-driven model, selling products demanded by consumers at easily accessible locations in the townships and rural areas. According to Osterwalder and Pigneur (2010), the business model of spaza shops is based on a single customer segment (township or rural population), a one-on-one relationship with customers, word-of-mouth marketing, cash payments, buying stock from wholesale retailers, value creation through convenience, customer service and product availability for township and rural residents` needs. Spaza shops can be distinguished from formal SMEs by their pricing strategy, distinctive branding, and daily business operations (Gumbo & Bokolo 2014; Sustainable Livelihood Foundation 2012; Bear 2005; Terblanché 1991). The pricing strategy of spaza shops is based on a mark-up price. For example, prices of some products sold at spaza shops can be marked up by 30-50% above wholesale prices (Gumbo & Bokolo 2014). When it comes to distinctive branding, spaza shops leverage popular brands in the communities where they operate, products often being referred to by their brand names rather than by a product name (Gumbo & Bokolo 2014; Bear 2005; Terblanché 1991). Unlike the formal SMEs, spaza shops typically

trade seven days a week and are open from early morning (around 6 am) until about 10pm. In order to ensure repeat purchases and to promote customer loyalty, some spaza shops also allow their customers to buy goods on credit (Gumbo & Bokolo 2014).

4.4 The Contribution of Spaza Shops to the South African Economy

Spaza shops are an important retail channel, and they contribute significantly to South Africa`s township and rural economy (The Sustainable Livelihoods Foundation 2016). A study conducted by Euromonitor International estimated that South African spaza shops generated an annual revenue of R7 billion in 2017 (Booysen 2018), while another study conducted by the University of South Africa (UNISA) in the same year estimated their contribution at closer to R9 billion. Also in 2017, UNISA estimated that there were about 140 000 retail outlets including spaza shops in South Africa, and that about 300 000 jobs were created by the spaza economy, supporting more than a million people (Tallorder 2018). According to the Sustainable Livelihoods Foundation (2016), more than 30% of trade in the informal sector comes from the spaza sector. Spaza shops also provide entry points for people otherwise excluded from the formal economy, thus enabling self-employment and addressing unemployment and poverty (Sustainable Livelihoods Foundation 2016).

4.5 Future Prospects of Spaza Shops

Banks are currently known to be targeting spaza shops to become 'bank shops' which will be able to offer minimal banking services at lower costs than those charged by full bank branch offices (Fisher-French 2011). Reports also indicate that insurance companies are targeting spaza shops as 'insurance shops' where customers would buy, for instance, funeral cover at a lower cost than would normally be charged (African Unity Life 2017). Also, retail supermarket chain stores such as Pick 'n Pay have launched a 'spaza innovative modernisation programme' which seeks to boost spaza shops by providing support systems (mentoring, training, IT systems, and entrepreneurship development) (Pick 'n Pay 2018). Also, My Spaza Distributions and Consulting Pty (Ltd) (in partnership with Ethekwini Municipality, Ithala Bank, and KwaZulu-Natal Economic Development Ministry) has launched a

programme called 'MySpaza' which seeks to revitalise the spaza shop economy, streamline customer services among spaza shops, and offer bulk buying solutions and mini distribution centres for spaza shops (My Spaza Distributions and Consulting 2018). Finally, the government of South Africa pays out social grants to more than 17 million South African citizens, and, through a hybrid social grant pay-out model, it is also targeting spaza shops as potential 'social grant pay-out shops' where grant-holders could collect their money (Radebe 2017).

4.6 Challenges Faced by Spaza Shops

Owners and managers of spaza shops face a number of significant challenges. These include a lack of business management skills, poor distribution systems, and a lack of the financial skills required to handle financial records effectively and efficiently. There is also a lack of collateral security which would allow them to obtain finance from lenders and thus a lack of sufficient capital required for expansion. In addition, crime, electricity 'load-shedding' (caused by a crisis in electricity provision in the country), a lack of networking/purchasing power to buy in bulk, and the high costs incurred by transportation of stock, along with competition from the growing number of shopping malls now being established in the townships and rural towns, are significant obstacles (Mukwarami 2017; van Scheers 2010).

5 Literature Review (Related Work)

5.1 An International Perspective

Empirical research into the adoption of ICTs among SMEs in urban areas has been carried out by Harindranath *et al*. (2010) in the United Kingdom (UK); by Ahmed *et al*. (2010) and Ashrafi and Murtaza (2008) in Oman; by Ongori (2010) in Botswana; by Frempong (2009) in Ghana; by Ahmed *et al*. (2010) in Pakistan; by Melchioly and Saebo (2010) in Tanzania; and by Esselaa *et al*. (2006) in 13 African countries. In the UK and Oman, a significant number of SMEs were found to have adopted the use of desktop computers, high speed broadband internet, and Enterprise Resource Planning (ERP) systems for stock control, sales, purchasing, marketing, accounting and finance, and document management (Harindranath *et al*. 2010; Ashrafi & Murtaza 2008).

In Botswana, the majority of SMEs had adopted landline phones, per-

sonal computers, cellphones, Microsoft applications, fax-photocopier-printer machines, internet, and e-mail. In Ghana, mobile telephony was the most popular communication technology among the SMEs (Esselar *et al*. 2006). In Pakistan, computers, word processing, databases and spreadsheets were used widely (Ahmed *et al*. 2010). In Tanzania, mobile phones were the most widely adopted form of ICT use among SMEs, and the findings also revealed that this use of mobile phones provided additional economic advantages by improving financial transactions, and enhancing wealth gene-ration and distribution (Melchioly & Saebo 2010). In thirteen African countries, mobile phones were again found to be the most widely adopted form of ICT due to their availability/ accessibility, affordability and ease of use (Esselar *et al*. 2006). There is therefore considerable international re-search data on the use of ICTs by established SMEs – but still very little research on their adoption among microenterprises, particularly by informal microenterprises in rural areas.

5.2 A South African Perspective

Spaza shops operate within the retail sector where ICTs can influence productivity, competitiveness and survival chances in many business functions including communication with customers, suppliers, and business partners. Information Communication Technologies are also important for supporting relations with government, and for financial management. Management of stock/inventory, sales/orders, marketing, and purchasing/ procurement can also be greatly assisted through the implementation of ICTs. The role and relevance of ICTs in the spaza shop economy is highlighted by Biyela *et al*. (2018); TallOrder (2018); Van Rensburg (2017); Makoza & Chigona (2017); Mbuyiswa (2015); Matlala *et al.* (2014); Ngassam *et al*. (2012); Talbot & Marden (2011); Perks (2010); van Scheers (2010); Dorflinger *et al.* (2009); and Bear (2005). These researchers all emphasise the importance and benefits of ICTs through the appropriate use of the internet, mobile phone technology, point of sale systems (POSs), and web-based applications for purchasing/ procurement, stock management, sales management, and communication with customers and suppliers.

Research into the adoption of ICTs by microenterprise owners/ managers in the urban areas of South Africa has been conducted by Biyela *et al.* (2018); Afolayan (2014); Matlala *et al*. (2014); Odendaal (2014); Makoza

and Chigona (2012). The findings by Biyela *et al.* (2018) revealed that SMEs use ICTs such as mobile phones, spreadsheet applications, mobile banking, social media communications (mostly WhatsApp), and e-mail. The findings by Afolayan (2014) revealed that microenterprises had adopted mobile phones, computers, iPads, cloud services, Customer Relationship Management (CRM) systems, Pastel Accounting packages, internet, e-mail communication, and Microsoft applications. Similar findings were obtained by Matlala *et al*. (2014), Odendaal (2014), and Makoza and Chigona (2012). All the above research was however undertaken in urban settings of South Africa. There is therefore still only limited empirical research on ICT adoption in relation to microenterprises such as spaza shops in the context of the rural areas of South Africa.

There are a number of ICT initiatives from ICT vendors and software developers targeting spaza shops including Last Mile for BoP (Base of Pyramid) web-based application, SAP SMS based system, Wi-Fi hotspots, and mobile applications such as Vuleka, Spaza, Selpal, and Flash (Makwaiba 2018; Flash 2018; Selpal 2018; BizTechAfrica 2017; Mengistu *et al*. 2009). The Last Mile BoP web app, Vuleka app, Spaza app, and SAP SMS based systems designed to allow spaza shops to purchase goods in bulk from wholesale retailers (Makwaiba 2018; SpazaApp 2018; BizTechAfrica 2017; Mengistu *et al.* 2009). Selpal app and Flash app are designed to allow spaza shops to sell airtime, data and electricity to their customers; and also to accept DSTV and LOTTO payments from their customers (Flash 2018; Selpal 2018).

6 Theoretical Framework/ Model

Two models were used as theoretical 'lenses' for this research, namely: (i) the Organisation for Economic Co-operation and Development (OECD) Model Survey on ICT Usage by Businesses; and (ii) the Unified Theory of Acceptance and Use of Technology (UTAUT). The OECD Model Survey on ICT Usage by Businesses was used to address the first two objectives of the research. The UTAUT was used to address the third objective of the research.

The OECD Model Survey on ICT Usage by Businesses is a model which was created by OECD in the year 2015. The model is aimed at improving international comparability by encouraging the use of standardised indicators when designing a survey/questionnaire on the use/adoption of ICTs

by businesses (OECD 2015). The model was found to be appropriate for this research because it has core module indicators which are in line with the objectives of the research. These indicators of the model are: electronic devices (computers, mobile devices, etc); connectivity (wired/fixed broadband, fixed wireless and terrestrial wireless/mobile broadband connections); website and mobile applications; information management tools (such as ERP and CRM); e-commerce; security and privacy; e-government; ICT skills; cloud computing services; open source software; social media; main economic activity of the enterprise; and perceived benefits, barriers and impacts of ICTs (OECD 2015).

The UTAUT is a theory that models how users come to accept and use (adopt) a technology (Venkatesh *et al.*). The theory was developed by Venkatesh *et al.* as an extension of the Technology Acceptance Model (TAM). The theory has four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions – and four moderators (age, gender, experience, and voluntariness) related to predicting behavioural intention to use a technology, and actual technology use, primarily in organisational contexts (Venkatesh *et al.* 2003). The UTAUT was found to be relevant for use in this research because the researcher wanted to determine the perceived benefits and challenges associated with the ICTs used by the managers of rural spaza shops.

7 Research Methodology

7.1 Study Area/Site

The data for the research was collected in the rural areas of the King Sabata Dalindyebo (KSD) region. The region is situated in the Oliver Tambo District Municipality (ORTDM) of the Eastern Cape Province, South Africa. The region was chosen by the researcher for four reasons: (i) the region is an entirely rural area in terms of socio-economic development, landscape, and cultural/traditional practices; (ii) the majority of the population in the region reside in these rural areas; (iii) the researcher comes from this region and thus understands the language and culture of the region; and (iv) there are many spaza shops in this region.

In 2016 the region had a total population of 494 000 (of which 98% were black African) and covered an area of 3 019 km². There was a total of 116 243 households, of which approximately 95% were in rural areas and

village settlements. IsiXhosa and English are the most commonly spoken languages in the region. In 2016, regional access to electricity telephone lines, internet and mobile phones were at 85%, 1.9%, 3.2% and 93% respectively. The region had a literacy rate of 62% at that time. The main economic sectors in the region included community and social services (27%), government services (17%), financial services (9%), wholesale and retail trade (8%), transport and communication (2%), manufacturing (4%), construction (3%) and agriculture and forestry (1%) within ORTDM (ECSECC 2017; Statistics South Africa 2016).

The researcher collected data from 30 rural areas out of a population of 200 rural areas (main places and wards) in the region. The principal (main) places that the researcher investigated were: kwaJali, amaHegebe, Gengqe, Darhabe, Mvezo, Buwa, Bijolo, Bityi, Mancam, Ngqungqu, Gogozayo, kwaLindile, Ngweni, Tyolo, Tyumbu, Chris Hani, Xwili, and Mqhekezweni.

7.2 Population

The target population for this research was the managers of spaza shops in all the rural spaza shops in the KSD region. The total population of spaza shops in the KSD region is unknown because the informal retail sector is not officially documented in South Africa. Therefore, the total population of the managers of rural spaza shops in the KSD region is unknown.

7.3 Unit of Analysis (Participants)

The participants selected for the research were the managers of spaza shops in the rural areas of KSD region. In the context of this research, 'manager' refers to a person who deals with daily routine activities such as sales/orders, transactions, bookkeeping and finance and accounting, purchasing, communication with customers and suppliers, and control of stock/inventory. Because spaza shops are microenterprises, there is usually only one manager and sometimes the owner of the spaza shop is also the manager.

7.4 Sampling and Sample Size

The non-probability sampling technique known as 'convenience-purposive sampling' was used. Initially, the targeted sample size was 200 spaza shops;

but owing to time limitations and the scattered nature of settlements in rural areas, the researcher only managed to collect data from 80 (eighty) managers. Therefore, eighty (80) managers (one for each spaza shop) constituted the sample size for this research.

7.5 Data Collection Instrument

The data was gathered using a semi-structured questionnaire, consisting of both open-ended and closed-ended questions. It was designed in line with the OECD Model Survey on ICT Usage by Businesses, and with the UTAUT theoretical framework. The OECD Model's indicators/variables such as connectivity, social media, mobile phones, computers, ICT skills, main economic activity of the enterprise and number of persons employed, were therefore included. The UTAUT constructs and moderating variables such as age, genders, and the highest level of education attained, were also included in the questionnaire.

7.6 Data Collection Procedure and Ethics

The questionnaire was administrated face-to-face by the researcher to the 80 managers. The researcher personally visited the spaza shops to administer the questionnaires. Data was collected during the period October 2018 – February 2019. The anonymity and privacy of the participants were respected and informed consent was obtained from the managers of the spaza shops prior to administering the questionnaires. Ethical clearance was obtained from the University of KwaZulu-Natal, permitting the researcher to collect the data.

7.7 Analysis of Data

Microsoft Word 2016 was used to facilitate the analysis the open-ended responses. Six features of Microsoft Word, namely: '*Find*', '*Go To'*, '*Select*', '*Search*', '*Highlighting*' and '*Comment*' were used. The '*Find', 'Go To, 'Select', 'Search'* features were used to search for common keywords/phrases related to the research objectives throughout the text of the opened-ended responses. The '*Highlighting'*, and *'Comment'* features were used to group the keywords/phrases into different themes/patterns. The findings from the

analysis of the open-ended responses are presented using SmartArt graphics and descriptive narratives. Microsoft Excel 2016 was also used to analyse the closed-ended responses. The results from the analysis of closed-ended responses are presented using tabular descriptive statistics (frequencies and percentages) and charts. The interpretation and discussion of the results/ findings is provided in the next section.

8 Results and Discussions

8.1 Demographic Information of Spaza Shop Managers

Table 1 below shows the demographic information gathered from the spaza shops managers who participated in the research.

Table 1: Demographic Information of Spaza Shop Managers

Demographic Variables	Responses Count (%)						Total (N)
Gender	Male 69(86%)	Female 11(14%)					80
Age in Years	18 – 25 7(8.75%)	26 – 30 11(13.75%)	31 – 35 22(27.5%)	36 – 40 26(32.5%)	41 – 50 9(11.25%)	51 or above 5(6.25%)	80
Race	African 63(79%)	Asian 17(21%)	White 0(0%)	Other 0(%)			80
Highest Level of Education	No Matric 45(56%)	High School 33(41%)	Diploma 2(3%)	Bachelor`s degree 0(0%)	Postgraduate 0(0%)		80
ICT/Computer Training attended	Yes 3(4%)	No 77(96%)					80
Computer Literacy Skills Self-Rating	Low 76(95%)	Moderate (Average) 3(4%)	Advanced/Experienced 1(1%)				80

The majority (86%) of the participants were male and were in the age group 26-50 years. With regards to race, the majority were African (79%), while Asians constituted the balance. Regarding the highest level of education, the majority (56%) of participants indicated that they did not have a matric

qualification. However, a considerable number (41%) indicated that they had high school qualifications. Participants were also asked if they had attended/ completed computer/ ICT training. Very few (only 4%) of the participants indicated that they had. Participants were then asked to rate their computer literacy skills and knowledge as either 'low', 'moderate/average' or 'advanced'; the great majority of participants (95%) indicated 'low'.

The ratings on gender, level of education, computer/ICT training, and computer literacy skills/knowledge are comparable with findings from other research studies. For instance, a study conducted by Sustainable Livelihood Foundation (2013) also found that the spaza economy is male dominated. Research studies on gender and entrepreneurship in the context of SMMEs by Kepler & Shane (2007) and Said *et al.* (2014) suggested that male entrepreneurs showed more effort in search for business opportunities than females. A report by the Cape Digital Foundation (2019) also indicated that many micro-enterprises, including spaza shops, have an inadequately educated workforce, that they often lack the fundamental skills required to run a business effectively, and have low ICT skills.

8.2 Profile of Spaza Shops

Table 2 below shows the profile of spaza shops. Many (74%) had two employees, while a few had one or three employees, but not more than three. There were a substantial number of spaza shops which had been operating for 2–4 years (43%), while 26% had been operating for 5–7 years, and 16% had been in operation for 8–10 years. With regards to their source of power, Eskom national grid electricity (91%) was the main source of power. A few (10%) were using solar technology and generators. Regarding their main business activities, all (100%) were selling food items (e.g. bread and milk) and non-food items such as cigarettes and paraffin. More than three quarters (78%) were selling pre-paid airtime, while more than half (55%) were also selling pre-paid data, with pre-paid electricity also being sold (41%). Just under a quarter (23%) were selling home utensils made of plastic such as brooms and washing basins, and also hardware and building materials such as cement and paint. Very few were accepting payments for DSTV (9%), and Lotto (3%). A small number (8%) reported that they were allowing their loyal customers to buy on credit. Very few (6%) were offering a 'cash back' service.

Table 2: Profile of Spaza Shops

Profile Variable	Responses Count (%)									Total (N)
Number of employees	1 15(18.75%)	2 59(73.75%)	3 6(7.5%)	More than 3 0(0%)						80
Years in Operation	0 – 1 9(11%)	2 – 4 34(43%)	5 – 7 21(26 %)	8 – 10 13(16%)		11 or more 3(4%)				80
Source of Power/Energy	Eskom national grid 72 (91%)	Generator 1(1%)	Solar 7 (8%)	Batteries 0(%)	Other 0(0%)					80
Business Activities (Products / Services Sold)	Food items (e.g. bread, milk, etc) 80 (100%) Non-food items (e.g. cigarette, paraffin, etc) 80 (100%)	Building Material (e.g. Paint, Cement, etc) 18(23%)	Airtime 62(78%)	Data 44(55%)	Electricity 33(41%)	DSTV payments 7(9%)	Lotto 2(3%)	Credit 6(8%)	Cash Back 5(6%)	

This profile of spaza shops reveals some interesting findings. In 2016, access to electricity in the King Sabata Dalindyebo region was at 85% (ECSECC 2017) and therefore some rural areas encountered by the researcher, such as kwaJali, maHegebe, and Tyolo, had not been electrified, and hence there were some spaza shops that were using solar power and generators. Some were also using these sources of power as a backup, in case of Eskom electricity load-shedding.

The research findings reveal that the range of merchandise offered by these informal retail microenterprises is expanding, covering not only traditional everyday necessities such as bread and milk but also covering services such as electricity, airtime, mobile data, a 'cash back' service, the opportunity to buy on credit, and DSTV payments and LOTTO tickets. It is because of these service offerings that banks, insurance companies, retail supermarket chain stores, and government are beginning to see market potential in the spaza economy.

8.3 Objective 1: Specific Types/Examples of ICTs Used by the Managers of Spaza Shops

This section addresses the first objective of the research. The relevant section of the questionnaire was based on closed-end questions and was divided into four parts: Devices; Applications; Connectivity; and Storage/Backup. The research sought to establish which technological devices, applications, internet connectivity/ mobile data network, and cloud storage services were used by the managers of spaza shops.

8.3.1 Technological Devices Used

Figure 1 shows the responses to the question on 'technological devices' used.

All (100%) of the managers indicated that they used an electronic calculator.

Mobile phones (both basic/ feature phones at 63% and smartphones at 81%) were the most commonly used additional technological devices.

A number (41%) were using a Flash Device[2] (not to be confused with a USB flash drive).

Very few (6%) indicated that they were using Speedpoint devices. None were using desktop computers, laptops, tablets, printer machines, fax machines, scanners, game machines, landline telephones, or digital photo/ video cameras in their spaza shops.

These research findings have some interesting implications. For instance, the findings of the research on mobile phones are similar to those established by Ongori (2010), Esselar *et al.* (2006), Biyela *et al.* (2018), Afolayan (2014), Maniwick (2014), and Makoza and Chigona (2012) in the urban areas. This is an indication that mobile phones are bridging the digital divide between the

[2] A Flash device is an electronic machine provided by the company called Flash. It allows retail stores to sell airtime, data, and electricity to their customers and also to accept DSTV and Lotto payments. The device has a built-in printer feature for printing receipts. There is also a mobile app version of the Flash device known as Flash app or Trader App **(**Flash 2018).

rural areas and urban areas. The use of the Flash device and Speedpoint devices by these managers also shows that they have begun adopting value-adding mobile/portable devices other than mobile phones.

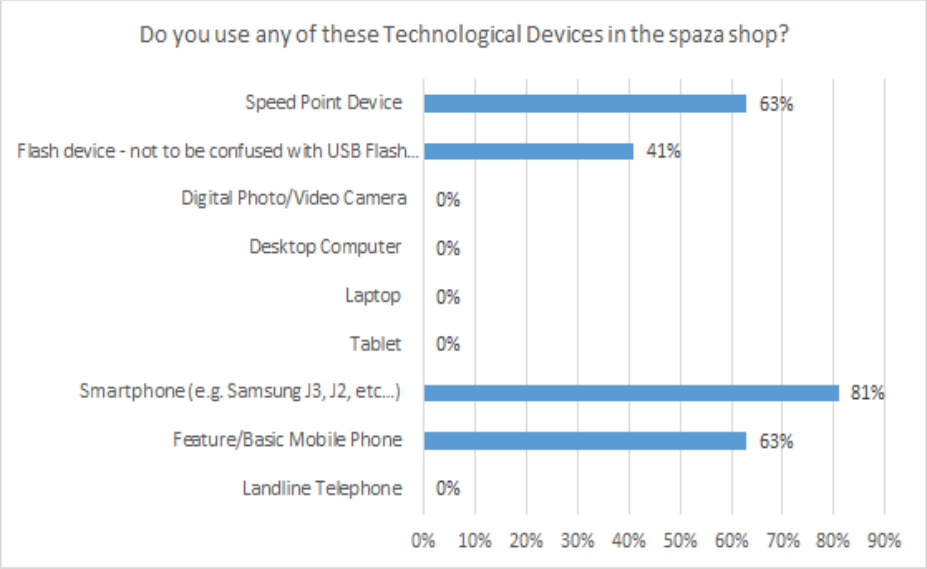

Figure 1: Technological devices used by the managers of spaza shops

8.3.2 Applications Used by the Managers of Spaza Shops

Figure 2 shows the responses on 'applications' used by the managers of spaza shops.

WhatsApp (65%) was the most frequently used application (for instant messaging), followed by Facebook (19%), and e-mail communication (8%).

None of the spaza shop managers indicated that they were using a Money Transfer App such as Mpesa.

It is interesting to note also that none were using a bulk buying mobile app such as Vuleka, and MySpaza. Again, none were using ERP applications, computer-based Point of Sale (PoS) systems, database applications, or spreadsheet applications.

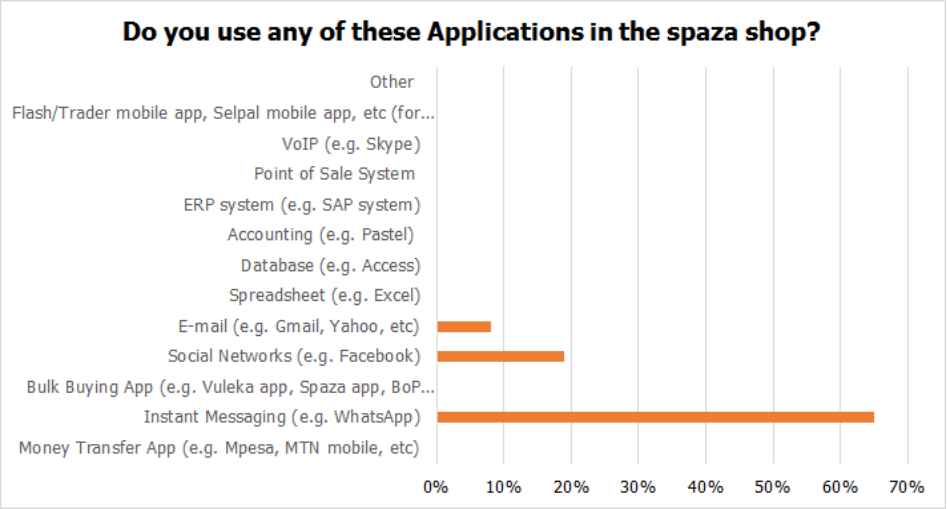

Figure 2: Applications used by the managers of spaza shops

The above findings show that:

- Managers of rural based spaza shops have not yet adopted web-based systems and mobile app-based systems for bulk buying from their retail wholesale suppliers.
- Managers of rural based spaza shops have not yet adopted e-commerce and m-commerce applications.
- Managers of rural based spaza shops have not yet adopted enterprise systems such as ERP, CRM) systems, POSs, and Pastel accounting packages.
- Managers of rural based spaza shops have not yet adopted Microsoft applications such as Access (Database) and Excel (Spreadsheets).

8.3.3 Backup Storage Used

Figure 3 below shows the responses on how the traders backup of critical business data/information. This sub-section of the questionnaire sought to establish whether managers of spaza shops were using a network drive, local drive (for example, a drive on a computer), or cloud services such as

Dropbox Drive, iCloud Drive, SkyDrive, Samsung Cloud, or Google Drive to back up their critical business data/information (e.g. invoices, financial records, customer details, supplier details). The analysis revealed that none of the spaza shop managers were using these devices to back up their business data/information. All (100%) the participants indicated they save their customer contact details and supplier contact details on their mobile phones.

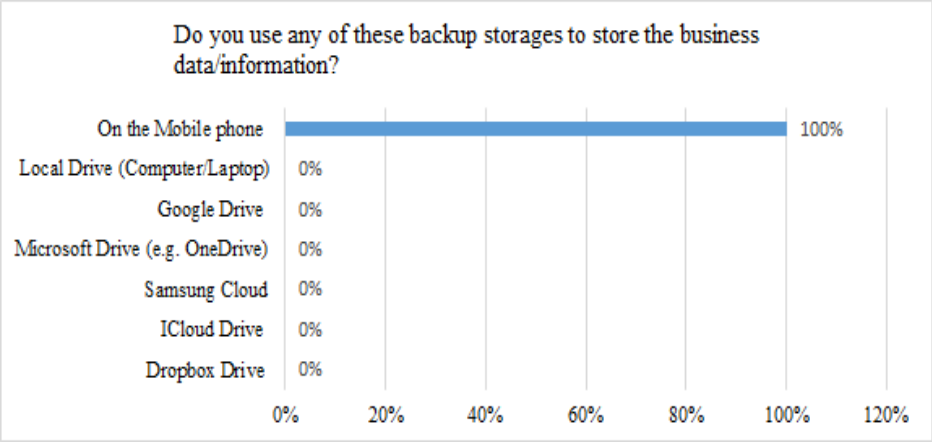

Figure 3: Backup storage used by the managers of spaza shops

Cloud services provide many benefits including flexibility, efficiency, mobility, collaboration, backup, and a competitive edge. However, the research findings have revealed that managers of spaza shops in the rural areas have not yet leveraged the benefits of the cloud.

8.3.4 Internet Connectivity/Mobile Data Networks used by the Managers of Spaza Shops

Figure 4 below shows the responses on 'internet connectivity/mobile data network' used by the managers of spaza shops. MTN mobile data (45%) was the dominant form of internet connectivity used while 21%, 11% and 3% of managers were using Cell-C, Vodacom and Telkom mobile data respectively. None of the managers were using fixed broadband internet such as a Telkom landline/router or Wi-Fi Hotspot.

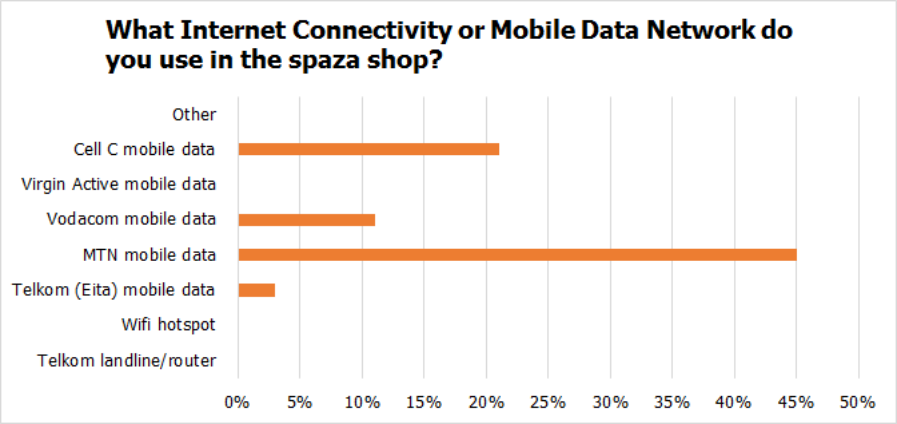

Figure 4: Internet connectivity/ mobile data network used by the managers of spaza shop

The limited access to fixed internet provision in the rural areas, such as the KSD region has provided market opportunities for mobile network operators such as MTN, Vodacom, Cell C, and Telkom. MTN mobile data, Vodacom data and Cell C mobile data are providing internet connectivity to the managers who own smartphones.

8.4 Objective 2: How Managers of Spaza Shops Use ICTs in their Shops

This section addresses the second objective of the research. Participants were asked open-ended questions about how they use their technological devices and applications.

The use of ICTs by managers of spaza shops revolves around two business functions: communication with suppliers and customers, and customer-sales transactions. There is limited use of ICTs in the business functions such as bulk purchasing from suppliers, stock/ inventory control for demand/ supply analysis, accounting and finance, and strategic marketing. Figure 5 below shows a summarised analysis of the responses from the managers as to how they use ICTs in their shops.

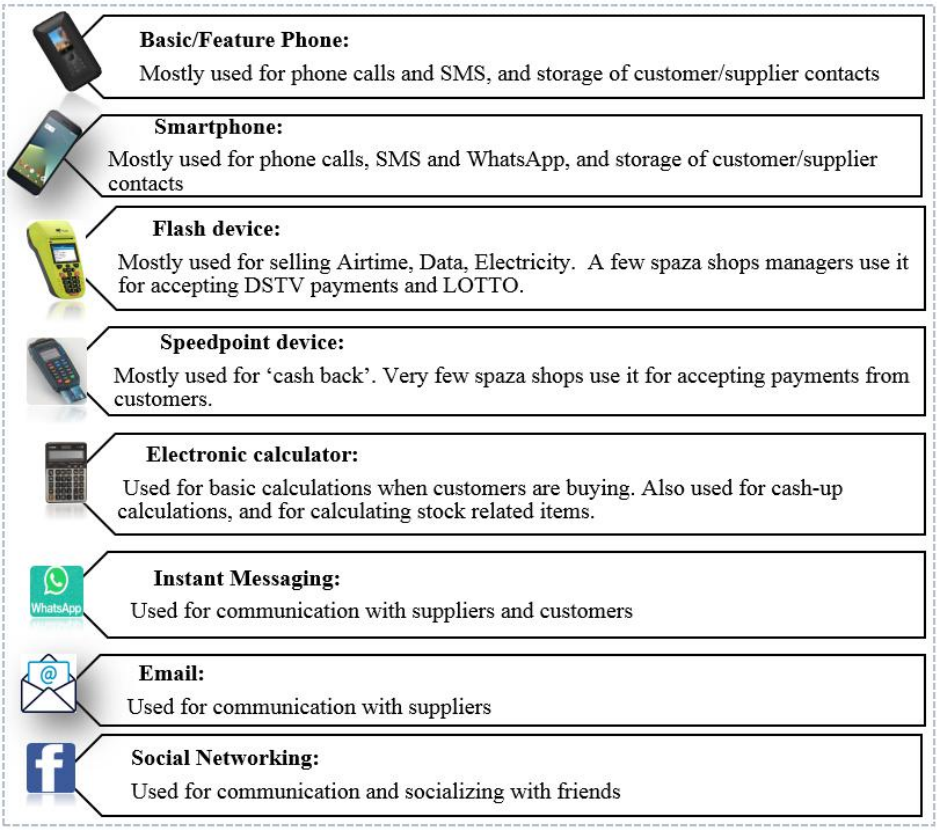

Figure 5: A summarized analysis of the responses on how from the managers of spaza shops use ICTs in their businesses

8.5 Objective 3: The Perceived Benefits and Challenges Associated with the ICTs Used by the Managers of Spaza Shops in the Rural Areas

This section addresses the third objective of the research. The relevant section of the questionnaire had two general open-ended questions, asking the managers about their perceptions of the benefits and challenges associated with the use of ICTs.

Many participants asserted that mobile phones have become their daily communication tools. One participant explained that '*When there is a problem with stock, we can communicate with a supplier using a mobile phone*'. One participant stated that '*Cellphones are easy, you can always carry it [them] around*'. The Speedpoint devices and Flash devices are providing benefits for sales transactions among the spaza shops. One participant mentioned that *'We offer Cash Back services to our customers, there are no ATMs here in the villages. Customers want to buy data and airtime, so we use [the] Flash device'*. One participant stated that *'Old age [Elderly] people want to buy from us, they do not want to go to towns. They want cash back'*. Another participant mentioned that *'Customers do not want to go to towns to buy electricity, so we use [the] Flash device to sell electricity'*. The lack of Wi-Fi networks and fixed landline internet has thus paved the way for mobile data use in the rural areas. One participant mentioned that *'I use MTN data for WhatsApp and Facebook'*. Another participant said: *'Mobile Data, Cell C is cheaper'*. Figure 6 below shows a summarised analysis of the common words/phrases used concerning the benefits associated with use of ICTs by the managers of spaza shops.

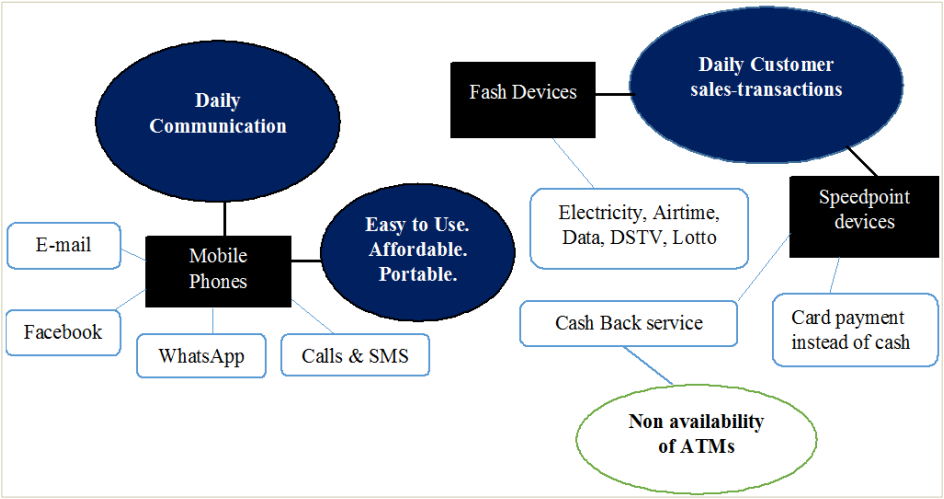

Figure 6: Summarized analysis of the common words/ phrases on the benefits associated with use of ICTs by the managers of spaza shops.

The above analysis shows that:

- The ease of use and affordability of mobile phones, and the availability of Flash and Speedpoint devices, provides positive performance and effort expectancy to the managers of spaza shops.
- The lack of ATMs in the rural areas has provided market opportunities to spaza shops.
- Their position in rural areas, being far away from towns/cities, also provides market opportunities to the spaza shops.

Despite the acknowledged benefits associated with the use of ICTs by the managers of spaza shops, some participants also pointed out the challenges. Reduced or unreliable access to electricity, crime, mobile network problems, the cost of computers, and a lack of computer skills were some of the problems mentioned. One participant explained that *'Electricity is a problem here in this village, sometimes electricity goes off'*. Another agreed that *'Sometimes, the network is not available'*. Another participant stated that '*Crime is a problem, people think you have a lot of money when you offer [the] cash back service'* and another agreed: *'Robbery [is a problem], criminals can come and rob us if we have computers, laptops and fancy things'*. Figure 7 below shows the summarised analysis of the common words/ phrases encountered as to the challenges associated with the use of ICTs by the managers of spaza shops.

9 Significance/ Relevance of the Research

The existing empirical evidence on the adoption of ICTs among informal microenterprises in the rural areas is limited. This research therefore provides additional insights into ICT adoption among these microenterprises. The findings of this research may therefore be useful to policy makers, especially those involved in business development interventions supporting microenterprises. The research may also provide useful insights for government institutions (for example, Ministries of Small Business Development, Trade and Industry, and Rural Development), while ICT consultants, and ICT vendors can target their interventions or promotional efforts towards these microenterprises with more assurance.

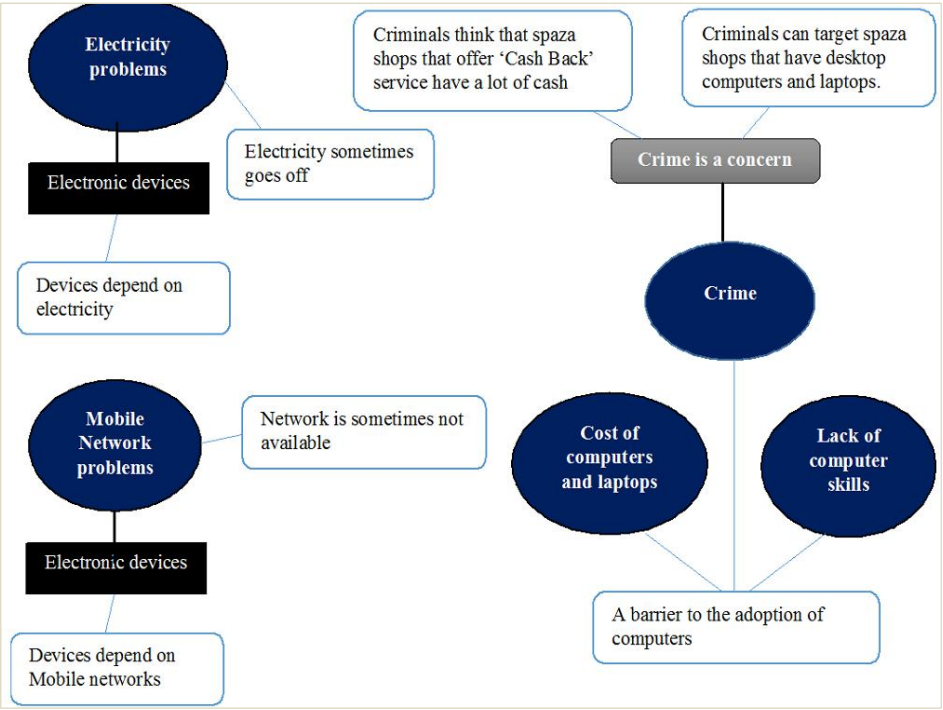

Figure 7: Summarized analysis of the common words/phrases on the challenges associated with use of ICTs by the managers of spaza shops.

10 Limitations of the Research and Future Directions

Like other empirical studies, this research is not without its limitations. Not all rural areas (main places and wards) of the KSD region were covered in this research, only 30 out of more than 200 were covered. The sample size consisted of 80 managers of spaza shops in only one deep rural region of South Africa. This limits the generalisability of the findings.

The study could therefore be strengthened by increasing the sample size and including participants from other deep rural regions of South Africa such as the Mbashe region, the Nyadeni region, and the Ngquza Hill region. With an increased sample size, a more detailed empirical analysis among the

independent variables and the variables that have multiple categories, could be performed. More extensive research studies involving the role, impact and adoption of ICTs within the context of informal microenterprises beyond spaza shops (for instance, street vendors, and tourism guides) covering the entire region of KSD could also be conducted. Potential correlations or associations between some of the demographic variables (for example, the gender, race, and education level of the spaza shop managers) and ICT use variables (devices, connectivity, applications, storage) and other UTUAT variables, could be profitably explored in future research.

11 Conclusion

The purpose/aim of this research was to explore the adoption of ICTs by the managers of spaza shops (informal retail microenterprises) in the rural areas of South Africa. The research findings showed that the adoption of ICTs by these managers is largely based on five portable devices: mobile feature phones, smartphones, Flash devices, Speedpoint devices, and electronic calculators. Managers of spaza shops generally use the devices for communication with suppliers/customers, and for customer-sales transactions.

The informal retail sector in South Africa is not documented. ICT-based research on the informal retail sector within the context of rural areas in South Africa is therefore limited. This research has provided new insights into the adoption of ICTs in the spaza economy (that is, the informal retail sector) within the context of South African deep rural areas. However, the research was conducted in only one region, with only 80 participants and therefore further research into this informal sector is needed in order to understand the role, impact and adoption of ICTs for a broader perspective.

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