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Incorporating technology into South African entrepreneurial training

by

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Submitted in fulfilment of the requirements for the degree

PhD (INFORMATICS)

in the

DEPARTMENT OF INFORMATICS

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

UNIVERSITY OF PRETORIA

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Date of submission:

4 May 2015

Abstract

In the hope of addressing the e-skills shortage in the country, a collaborative project between government and tertiary institutions was launched. A need for improving multi-sectorial issues, such as e-skilling was identified in order to uplift the people of South Africa in an attempt to decrease certain social issues, such as unemployment and crime; unemployment is one of the biggest concerns relating to South Africa's economic growth. The need for collaboration between various stakeholders was identified as this is the only way to address a skills and specifically an e-skills shortage and transform a country into an ICT powerhouse. E-skills are regarded as the food of the future that will assist the participants in a country's economy as well as its residents to survive in this ever-changing world of technology. Small medium enterprises (SMEs) are seen as the driving force behind a country's economy. Entrepreneurs who do not raise their e-skills level will be left behind on platform "shortage". The strong relationship formed between government and tertiary institutions creates the opportunity to develop interventions that are relevant and applicable to the current environment. As many countries are realising the importance of entrepreneurs and small firms in relation to their contribution to the economy, it is not surprising that one of the focus areas identified by the South African government is entrepreneurs, or more specifically micro enterprises and their capability to adopt information communication technology (ICT) innovatively.

This thesis focuses on the current ICT levels of the survivalist entrepreneurs, in other words *"what I make today puts bread on the table tonight"* entrepreneurs. By following an interpretive approach, using both questionnaires and interviews, the researcher firstly set out to understand these entrepreneurs and how they are currently using ICT. Secondly, the training provided as part of the government initiative was investigated to see if ICT and specifically e-skill training has changed the success of these entrepreneurs, to ensure it was not only been implemented but also effectively used over time. The first model used to determine the ICT adoption is the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh, Morris, Davis and Davis in 2003. To determine the training of entrepreneurs the "Content model for entrepreneurship education" (E/P) by Van Vuuren and Nieman was investigated; this model is used as part of the government project to train entrepreneurs.

This thesis contributes to the body of knowledge in that it firstly provides an ICT profile of the entrepreneur, explaining how entrepreneurs are currently engaging in ICT. Secondly this thesis determined that for entrepreneurs to become successful, they have to work with fellow entrepreneurs in their communities in not only taking on projects together but also assisting in referrals of their fellow entrepreneurs. This thesis also makes a contribution to theory by incorporating ICT training into the content model of entrepreneurship training as part of the business skills training of the model. The last contribution, related to the previous one, is the actual ICT training program for these entrepreneurs. . This thesis also expands the ICT literature by introducing the E/P model into ICT literature. And lastly, the thesis includes a list of technologies that can assist an entrepreneur in improving his/her business.

Acknowledgements

Thank you Lord for who You are, thank you for what You have done for me, thank you for giving me the wisdom, the courage and the eagle wings to soar through my Ph.D. All honour and glory be to the Lord Jesus Christ. Thank you also for granting me the opportunity to follow my passions in life! I love You Jesus!

To my lovely husband, whom I love dearly, thank you for standing by me and encouraging me to carry on! Thank you for being my soundboard when I needed another opinion! I thank the Lord daily for you in my life and I know we are going to have a long and happy life together … Lastly, sorry for sometimes not being able to make supper, especially in the last two weeks before submission as my head was focused on finishing this! Thank you for standing in and making sure both our little girl and I were taken care of. You are our anchor when life gets tough!

To my baby girl, mommy loves you SO much, more than words can ever say! Thank you for the light you are in my life! From now on we are going to do only fun stuff, like baking cupcakes and decorating them! And maybe there will be a brother or sister soon.

To a very special Mom, always there to stand in, always there to help! I don't think you realise how much you mean to us; you are our strength and we thank God that you are our loving Mom! Thank you for all your love and support. When things got tough during my matric year and undergraduate studies, nothing was ever a problem or a reason for me not to carry on, especially when money ran out!! I honour you for that! Dad, you would have been so proud!

To all my friends, family and colleagues, just too many to name all by name, I love you! Thank you for praying with us and for us. Thank you for encouraging us and raising us up! God truly placed special people on my path to bless me and to give me the comfort to know I can always go to any one of you in times of need!!

My supervisor, Professor Carina de Villiers: thank you for always being willing to listen and allowing me to just rush into your office without an appointment! You are amazing! If I can someday be half the supervisor that you are today I will have very fortunate students.

My co-supervisor, Professor Hossana Twinomurinzi: thank you for teaching me about cultures, for showing me how one has to relate to people across cultures to get the most out of people. Thank you for always encouraging and inspiring me in the way in which you serve our God!

My statistician, "Tannie" Joyce Jordaan, wow, wow, wow! Words cannot explain how much I appreciate you, your help, your kindness and your friendliness. You actually made me like statistics!

To my head of department, Professor Alta van der Merwe, thank you for believing in me and for allowing me to focus on my PhD, for giving me an entire year with my baby girl, actually to do my PhD in between, you can truly get the best out of people!!

Lastly, to a very dear friend and colleague of mine, who told me that a Ph.D. is just a big assignment, and if you write one page a day, you will finish in no time! Pieter, I did it, following your rules!! May you rest in peace!

Key words

Acceptance

Adoption

Entrepreneurs

Entrepreneurial training

Entrepreneurship education

Enterprise training

E-skills

ICT

SME

UTAUT

Table of abbreviations

B/S: Business Skills

EE: Effort Expectancy

E/P: "Content model for entrepreneurship education"

E/S: Entrepreneurial Skills

EX: Experience

FC: Facilitating Conditions

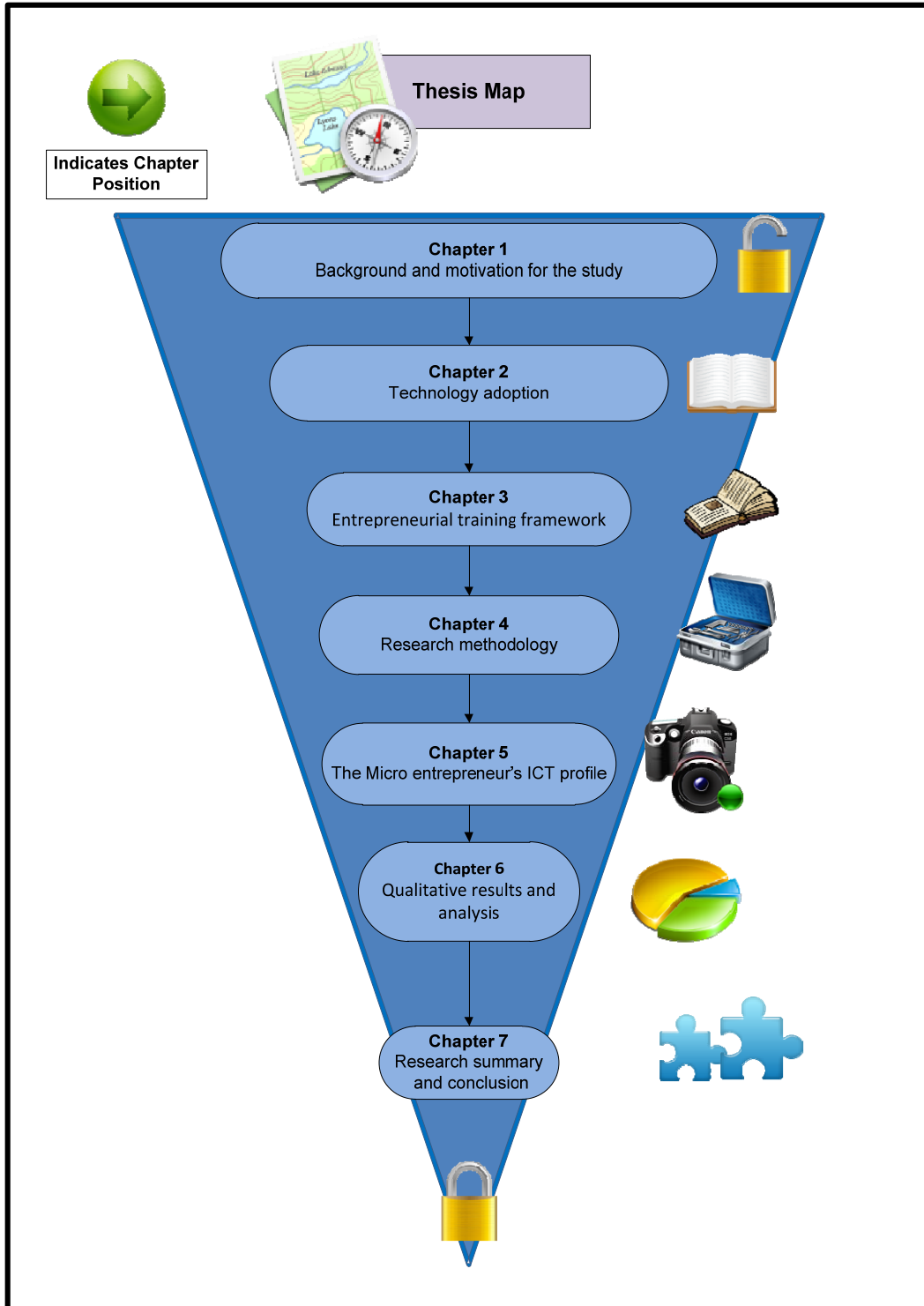ICT: Information and Communications Technology

M: Motivation

PE: Performance Expectancy

SI: Social Influence

SME: Small and Medium Enterprises

UTAUT: Unified Theory of Acceptance and Use of Technology

Thesis map

Indicates Chapter Position

Thesis Map

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1.1 Introduction

In the hope of addressing the e-skills shortage in the country, a collaborative project between government and tertiary institutions was launched. A need for improving multi-sectorial issues, such as e-skilling was identified to uplift the people of South Africa in an attempt to decrease certain social issues, such as unemployment and crime; unemployment is one of the biggest concerns relating to South Africa's economic growth (Antionites and van Vuuren, 2005). The need for collaboration between various stakeholders was identified as this is the only way to address a skills and specifically an e-skills shortage and "*transform a country into an ICT powerhouse*" (Merkofer and Murphy, 2009:1198; Thomas, Packham, Miller and Brooksbank, 2004)*.* South Africa is not the only country that has realised the skills shortage problem; in fact the "*EU member states have put top on their development agenda, capacity building strategies through investing in skills development because of the realization that a shortage of ICT skills is creating a barrier for fully seizing employment potential within the region*" (Mutula and van Brakel, 2007:233); this quotation emphasises global skills development. Already in 2004 Wales recognised this need for collaboration and established networks between government, universities and the private sector to help support smaller businesses (Thomas *et al.*, 2004). To confirm that collaboration is high on governmental development agendas it is noted that "… *governmental involvement is considered crucial for the survival and growth of the struggling medium and small sized organizations. Government can facilitate the adoption process directly through offering financial assistance as well as involving universities and other research organizations to provide infrastructural help for the overall development of ICT implementation"* (Talukder, Quazi and Djatikusumo, 2013:1692). Continuing on the same path, *"many SMEs' success in upgrading their skills and gaining access to technology may depend crucially on subsidized education and training infrastructure provided by their government*" (Kunene, 2008:125). However, there are also many attempts where these initiatives did not result in the desired outcomes (Twinomurinzi, Phahlamohlaka and Byrne, 2012).

E-skills can be regarded as the food of the future that will assist the participants of a country's economy as well as its residents to survive in this ever-changing world of technology, SMEs, on the other hand, are the driving force behind a country's economy. Thus SMEs who do not raise their e-skills level will be left behind and this will mean no growth for their businesses and, in many cases, no food on the table. Various definitions for e-skills exist, such as *"set of skills, knowledge and concepts that are needed for effective consumption-access, locate, operate, manage, understand and evaluate-of e-services provided in different stages …"* (Kahn, Moon, Rhee and Rho, 2012:3)[1]. A standard definition for e-skills that is used throughout this thesis, is the one used in the National e-Skills Plan of Action (e-Skills_Institute, 2013:n.p.) that states that e-skills are *"ability to develop and use ICT to adequately participate in an environment increasingly dominated by access to electronically-enabled information and a well-developed ability to synthesis this into effective and relevant knowledge… ability of people to use and create all forms of ICTs to adequately improve life opportunities in their personal and learning environment, their quality expression, social engagement and to participate in the economy".* As e-skills

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[1] Paper focused on e-government and skills identification and development and e-skills

are regarded as the food for survival of a country and SMEs as the driving force behind a country's economy (Burn, 1989), there is no other choice than to find a synergy between these two terms to address the social issues in the country. A suggested solution to combat issues such as unemployment, poverty and low economic growth across the world is entrepreneurship (Botha, Nieman and van Vuuren, 2007). Even though ICT is regarded as a tool to empower and enhance the knowledge of the people in South Africa, this "advantage" could in fact lead to an even greater "digital divide" (Kirkwood and Price, 2005). Duncombe and Molla (2009:2) note that from past experience, "*intervention for SMEs depends upon building enterprises' competence to process and use externally sourced information and knowledge resources*". This means we should not just provide entrepreneurs with but also equip them to be able to become successful, if we truly want to reduce the digital divide. On the one hand there are South Africans who can be viewed as "always on/never-off" (Ashraf, 2009), as they grew up with technology in their hands. On the other hand there are residents living among us who do not have the same, if any, access to technology and whose concerns are of a more basic nature, often related to poor socio-economic conditions such as food and shelter.

There is an increased need for small businesses to employ ICT to enhance their businesses as part of the country's socio-economic development; however, they also realise that there is a skill shortage that is growing by the day (Mutula and van Brakel, 2007; Uddin, 2005). Mutula and Van Brakel (2007) continue by stating that one of the major challenges faced by developing countries is the elevation of education and literacy in general and digital literacy in particular.

As many countries realise the importance of entrepreneurs and small firms in relation to their contribution towards the economy (Oke, Burke and Myers, 2007; Esselaar, Stork, Ndiwalana and Deen-Swarray, 2006), it is not surprising that one of the focus areas identified by the South African government is entrepreneurs or more specifically micro enterprises and their capability to adopt ICT innovatively. However, support from the public sector has an influence on the success of a firm (Colombo and Delmastro, 2002). SMEs are the driving force behind a country's economy, and are regarded as essential for economic growth (Thomas *et al.*, 2004) as well as an answer to job creation and the reduction of poverty (Esselaar *et al.*, 2006). Thomas *et al.*(2004) continue by stating that in the European Union, 99.8% of all firms are SMEs, which is confirmed by Peris, Blinn, Nuttgens, Lindermann and Von Kortzfleisch (2013); these firms account for 65% of employment, which is also substantiated by Chatzoglou and Vraimaki (2010). Chatzoglou and Vraimaki (2010) also state that in Greece 95% of all companies are SMEs and account for 74% of the employment in the private sector. To better understand the impact that small businesses have on economic growth, one has to understand what a SME and specifically a micro enterprise is, and how it is classified as being a small business within the South African context as each country differs in the classification of small medium enterprises (SMEs) (Esselaar *et al.*, 2006). For example, the US classifies small businesses as those companies having between 20 and 500 employees (Reimenschneider, Harrison and Mykytyn, 2003).

According to Section 4 of the National Small Business Act of 1996 (South Africa) (D.O.T.I., 1996) a small business is defined as a small organisation, corporate and a non-governmental structure that is mostly managed by the owner. Small businesses are categorised according to their sector and size as

well as their income and asset value. This categorisation of small businesses within the South African context can be viewed in Annexure A. Small businesses are categorised as micro, very small, small or medium. This thesis focuses on micro enterprises (ME)[2] that are categorised as having no more than five employees, a total annual turnover of ZAR150 000 per annum and a total asset value of ZAR100 000. Thus the focus of this thesis, is the survivalist or informal operators as well as the informal micro or small businesses run by commercial entrepreneurs, as they are the ones attending entrepreneurial training courses as well as benefiting from the government initiative (A more in-depth classification will following in chapter 5).

It is important to distinguish between an entrepreneur and small business management (van Vuuren and Nieman, 1999). According to Van Vuuren and Nieman (1999) an entrepreneur is *'starting of a business (utilising of an opportunity) and/or the growth and development of that specific business. Small business management is seen as the starting of the business, growth and development up to a certain stage, then losing its entrepreneurial flair"* (van Vuuren and Nieman, 1999:3).

The question that arises at this stage is how these entrepreneurs can enhance their own e-skills and embrace ICT to become more competitive to grow towards becoming a very small, and even small or medium organisation. How can ICT help these businesses to build strong sustainable organisations?

Primarily entrepreneurs have never undergone any form of training or assistance that can help them improve their business which is confirmed when Pretorius, Nieman and van Vuuren (2005:414) state that there is an *"absence of entrepreneurial education in general".* As mentioned earlier and emphasised by various other authors, entrepreneurs are the engine that drives a country's economy (Pretorius et al., 2005; Mutula and van Brakel, 2007; Burn, 1989). Mutula and Van Brakel (2007) mention that 60% of Europe's economic activity is contributed by SMEs and 99% of the total number of companies in Turkey are SMEs. That SMEs are important for the country's economy is not a new phenomenon. During 1990 to 1995, 77% of all new jobs created in the US were due to small businesses (Reimenschneider *et al.*, 2003). Already in the 1980s it was noted that most European governments gave support to see how entrepreneurship could be stimulated among young people (Gibb, 1993). Closer to home Barkhuizen and Bennett (2014) note that in Namibia 20% of employment is contributed to SMEs. Linking up with these figures and bringing the context of this thesis into perspective is that in 2005 Antionites and Van Vuuren (2005) pointed out that in South Africa small firms contributed to 47% of job creation, which shows that already in 2005 these small businesses played a large role in the country and this role is increasing as time goes by.

Another influencing factor to be considered in our current ICT-driven economy is that of using ICT in such a way that it will benefit the growth of the entrepreneur. Oye, Ihhad and Ab.Rahim (2012) note that ICT is a way of distributing knowledge and they continue by saying that we use ICT to meet our specific needs by modifying nature. The focus of this thesis is specifically on the way in which ICT can

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[2] For simplicity's sake this thesis will use the term entrepreneurs throughout

be drawn upon to meet the needs of entrepreneurs to improve their lives and become more successful business owners.

A large number of entrepreneurial efforts are currently running to assist entrepreneurs to expand their businesses; however, most of them do not focus on the real need of the entrepreneur (van Vuuren and Botha, 2010). This creates a gap between what is being developed and what the entrepreneur actually needs to establish a successful and sustainable business. One of the gaps that need to be addressed is that of training entrepreneurs, not only in specific business skills but more importantly in how ICT can benefit and even ensure their strategic growth. Business skills need to complement and even integrate ICT skills to ensure that the organisation is effective and successful to obtain a substantial benefit from the use thereof (Fink and Disterer, 2006; Jackson and Sloane, 2009). Mutula and Van Brakel (2007) emphasise the lack of awareness of the potential that ICT holds for small businesses.

1.2 Research topic justification and motivation for studying the problem

Colombo and Delmastro (2002) investigated Javonic's (1982) model and found that when a company starts up, its members do not know what they are really capable of and that this is only learned over time through their bottom line and profit. Ladzani and Van Vuuren (2002) emphasise the need for a joint venture between government and the rest of the country to join hands and provide the necessary training to assist these entrepreneurs to become succesful business owners.

As the e-skills project was launched specifically to address certain social issues, such as unemployment, which is currently close to 25,2% (STATS_SA, 2013), fighting crime, poverty reduction, to mention only a few, entrepreneur or "*Small Micro Medium Enterprise (SMME) development is an important focus area due to the sector's contribution to economic growth and employment*" (e-Skills_Institute, 2013:n.p.). The focus of this project is also on the upliftment of the people and thus has a large focus on the under-privileged, developing individuals. What did emerge at this point is that in 2005, Antionites and Van Vuuren (2005) stated that there was a focus in South Africa to reduce unemployment from 29% in 2005, to 11% in 2014, and according to the statistics in 2013, this did not happen. One of the biggest concerns at this stage is to ensure that all the initiatives are not only successfully executed but that there is a real tangible impact on all the targeted focus areas, which is not happening. Thus we need more successful entrepreneurs who can not only contribute towards the economy but also address some of the social issues that were mentioned earlier, with a specific focus on unemployment; and it seems as if the obvious choice to be able to address these issues has been identified as ICT. In Italy the high-technology entrepreneurs are not as educated and have less working experience than in other European countries (Colombo and Delmastro, 2002). Latching onto this is Antionites and Van Vuuren's (2005:256) statement: "*One of the main problem areas in this field [entrepreneurship] is the role of education and training in the generation of entrepreneurial activities.*" It is also important to realise that it is no use "just throwing" ICT at the entrepreneurs without providing them with some sort of training and / or support to ensure that they become successful. Thus there is a need to train these entrepreneurs and to incorporate into this training the ICT skills to enable them to

use ICT to their advantage, confirming the necessity of ICT as mentioned by Fink and Disterer (2006) and Jackson and Sloane (2009).

This thesis firstly had to understand the South African entrepreneur as well as the training currently provided to entrepreneurs and how to adopt ICT to see if ICT and specifically e-skill training has changed the success of the South African entrepreneur and has been implemented and used over time.

1.3 Problem Statement

Mutula and Van Brakel (2007) recognise ICT as a tool for socio-economic development; however, the existing skills gap must be addressed first. Uddin (2005) notes the importance of ICT adoption as being at the root of development within any country. It is recognised that a crucial role exists between the relationship that exists between ICT and enterprise development in the success of a business, particularly related to entrepreneurs (Ndubisi and Kahraman, 2005). While investigating e-skills in Europe, the European governments realised the importance of ICT to enhance and ensure business growth, but the greatest obstacle at this stage is the shortage of skills to utilise ICT effectively to expand one's business (Mutula and van Brakel, 2007). Talukder, Quazi and Djatikusumo (2013) mention the strong influence that new technology has on the improvement of an organisation's performance.

Mutula and van Brakel (2007:236) continue to investigate ICT in Africa and have discovered that "*Africa ranks lowest with respect to human capital as far as ICT skills development is concerned among counterparts in the world for various reasons*". Countries that are slow to partake in ICT adoption have serious implications for not only their own growth but also businesses operating in these countries (Spencer, Buhalis and Moital, 2012).

During investigations on ICT skill readiness in Botswana, it was discovered that one of the reasons why some companies are not adopting ICT as they should, is the limited resources to hire and retain these skilled workers (Mutula and van Brakel, 2007). Reimenschneider *et al.* (2003) also mention that a reason for not adopting ICT is because the small businesses want to see a return on investment and anticipated benefits immediately, which is not clear up front. The need to educate SMEs on the importance and benefits of computers emerged as a huge factor why ICT is not being used in small businesses (Esselaar *et al.*, 2006). These benefits might take years before they can truly become evident and smaller businesses cannot afford to wait years to see if something has worked or not. Bhattacherjee and Sanford (2006) mention that adoption is viewed as a one-time decision while the long term effects or post-adoption effects are ignored.

One key factor always to consider when looking at entrepreneurs' training and curriculum design incorporating ICT, is the entrepreneurs' belief in their own ability to become successful entrepreneurs (van Vuuren and Botha, 2010). Ndubisi and Kahraman (2005) also acknowledge this fact by stating that personal traits and characteristics are necessary ingredients for business success. This belief is the result of the entrepreneurs' motivation to want to succeed in their business. Various authors list a wide range of skills required by an entrepreneur and these skills must be focused on during training (van

Vuuren and Botha, 2010; Pretorius et al., 2005; Nieman and Bennet, 2006; van Vuuren and Nieman, 1999; Kunene, 2008; Azim and Al-Kahtani, 2014; Gimmon, 2013; Idrus, Pauzi and Munir, 2013). However, very few authors mention ICT or e-skills as a required competence for a successful entrepreneur. As part of this collaborative project with government, certain e-skills training programs are currently running, specifically focusing on entrepreneurs. Studies on the impact technology has on the organisation were conducted as far back as the 1980s but the researcher is not confident that this question has been answered as yet. For the need to train entrepreneurs in various skills, one model that addresses this training was developed by Van Vuuren and Nieman (1999) and is called the content model for entrepreneurship education (E/P as coined by Pretorius *et al. (2005)*) that is used throughout this thesis. This model is used as the basis for a specific course in entrepreneurship presented at a large urban university in South Africa. It has been successfully implemented in not only a short course in entrepreneurship but also forms the basis of a three-year degree programme in entrepreneurship. It addresses entrepreneur-specific skills only and no attention or focus is given on how and if ICT can be used to ensure entrepreneurial success. The main question is whether incorporating ICT into the entrepreneurial program has an effect on the success of the entrepreneurial business. Another model introduced by Pretorius *et al.* (2005) called the entrepreneurial learning model's constructs also list all the required entrepreneurial skills but it excludes ICT or e-skill training.[3] The importance of ICT or e-skills training requirements becomes even more evident when Wamuyu and Maharaj (2011:67) state "… *the technical hitches experienced when using wireless technologies could be avoided if the service providers offered some basic training to users* …".

In any curriculum design for e-skills training there are barriers preventing entrepreneurs from adopting ICT (Kapurubandara and Lawson, 2007). In Chapter 5 Section 5.3 barriers that could hinder an organisation, especially smaller organisations to engage in ICT for strategic growth are introduced in more detail.

As this project is part of a national initiative by government, one has to be careful not to focus continuously on the expected impact that this project should have on the country. Table 1 was taken from the Ikamva National e-Skills Institute's website and indicates the areas of impact that are expected in this project. For the purpose of this study the only two areas that are focused on are those of the foundation layer – basic user, and basic community and the e-worker level. Table 1 highlights the focus of this thesis on the e-skills project below the text in red.

The areas of impact include citizens at different levels, correlating with the current status in South Africa.

e-Skill level	Areas of impact	
Foundation layer – basic user and basic community	e-Literacy, e-participation and e-democracy	e-Literacy, e-Participation and e-Democracy provide the underlying foundation e-skills required for successful engagement with the emerging South African information society and

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[3] The reason for discussing these two models is their relevance to the South African context as well as the current implementation of E/P in the specific research context.

		global knowledge economy. This foundation layer supports up-skilling and re-skilling youth, women, the unemployed and disadvantaged for work, while enabling necessary understanding and capacity to empower citizen engagement. The only way to ensure consistent delivery of such skills nationwide is through certification, quality assurance and international benchmarking.
e-workers	e-Government and e-Business	Based on these societally-oriented foundation e-skills, e-Government and e-Business skills training provides a framework supporting increased organisational efficiency and productivity in the public and private sectors. Both e-Government and e-Business delivery are based on a premise of workers having basic digital literacy skills, an appreciation of how technology is used in any working environment, whether government, for profit or not-for-profit. e-Government and e-Business skills are essentially focused on how to leverage ICT to streamline and even automate organisational processes, whether internal, external or supply chain related. Such skills are increasingly a necessary requirement of many people in employment today, and will certainly only increase in importance in the future, as ICT adoption becomes ubiquitous.
e-User or knowledge worker	e-User	The next level of e-skills is that required of the e-User or knowledge worker. Knowledge workers (employed across government, business, education, and civil society/labour) typically could not fulfil their job requirements without the use of ICT systems and devices. User skills cover using common generic software tools and specialised tools supporting various sectorial functions outside the ICT industry. While having a sophisticated appreciation of ICT, and often asked by colleagues for assistance and informal training, they are not organisationally responsible for managing, supporting or servicing ICT.
e-Practitioner	e-Practitioner	The top level of e-skills is that of the e-Practitioner who is responsible for researching, developing, designing, managing, producing, consulting, marketing, selling, integrating, installing, administering, maintaining, supporting and servicing ICT systems. The range of responsibilities of ICT practitioners varies according to whether they work in the ICT sector or government, civil society/labour or other business sectors. Certified training is the norm for the ICT practitioner, with a range of certified short courses and vendor certification the norm as part of the professional development employers provide to retain their top employees.

Table 1: NeSPA e-skills levels (e-Skills_Institute, 2013)

This thesis explores the content model for entrepreneurship education that was developed specifically for the South African entrepreneur, as well as ICT adoption to see how the current gap in the model, which is a lack of ICT, can be addressed and improved.

The main focus thus of this thesis is the degree to which ICT adoption improves and has an effect on the entrepreneur after undergoing e-skills training and how this training ensures not only the actual adoption of ICT but also enhances and expands a business. The aim is to contribute to the body of knowledge of entrepreneurs in the South African context and how they see or use ICT, if at all, to assist them in maintaining a successful business. It contributes to E/P and provides guidelines for incorporating ICT into this model by incorporating elements of the Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh, Morris, Davis and Davis (2003), which is discussed in detail in Chapter 2. This thesis will hopefully also expands the ICT literature by introducing the E/P model into ICT literature.

1.4 Research Question

1.4.1 Main research question:
What e-skills (or ICT skills), if any, should be incorporated into entrepreneurial training programs in South Africa?

1.4.2 Sub-questions:
- How can the gap in the content model for entrepreneurship education be addressed?
- What is the current ICT profile of the entrepreneur?
- How innovative are entrepreneurs regarding technology usage?
- Why do entrepreneurs adopt ICT?
- Is there a relationship between e-skills training and ICT adoption by entrepreneurs?

1.5 Research methodology

When conduction research through a structured process it provides validity to data and assists people in making decisions. Research enables us to decide which aspirin will take the headache away, or which milk is the safest to drink and even though these are simple examples of the impact of research, the fact of the matter is there is an impact. Research is used all around us (Saunders, Lewis and Thornhill, 2003), sometimes to introduce new products, technology or tools, and sometimes to justify certain statements or results, such as the reason for unemployment in the country or even the incidence of unemployment. Myers (2009:5) states that *"research is a creative activity leading to the production of new knowledge"*. This is confirmed by Oates (2006:5) who also says we are *"creating some new knowledge"*.

This thesis uses as basis the research process onion as introduced by Saunders *et al.* (2003:83). This process allows the researcher to follow a step by step approach to introduce the research approach and methods used. Chapter 4 introduces the research process onion in detail.

A brief background on the focus group of this study is given next.

The focus group of this thesis is South African entrepreneurs who were trained either in entrepreneurship or e-skills or both as well as entrepreneurs interviewed to see how they view and use ICT. The study is two-fold. Firstly one has to understand entrepreneurs and how they perceive technology and its benefits. This part of the study was conducted by using a questionnaire distributed to a group of entrepreneurs who had attended basic entrepreneurial training but not e-skills-specific training. Interviews were conducted with a large group of entrepreneurs, 87 usable responses were obtained, to identify their perceptions of systems and determine whether they regarded ICT as a tool to assist them in their endeavours. The second part of the study is based on interviews. The interviews were conducted as a "*useful method to gain information on the dynamics of general processes to seek exceptions*" and "*to identify explanations for any contradictory opinions received from others on the theory, based on the respondent's personal opinion and experience*" (Ramani, SadreGhazi and Duysters, 2012:677). These interviews were conducted with two groups of entrepreneurs who received basic entrepreneurial training as well as e-skills-specific training. The first group was trained at the end of 2011 and the second group finished their training in the beginning of 2013. Thus, by conducting interviews with the 2011 group, one was able to measure a long-term (more than one year) effect of ICT on their business; the 2013 group provided a better understanding of their attitude to ICT.

As has been mentioned, this thesis gathered data through various techniques; these assisted with the credibility of the data and generated data that could be used during the interviews to guide certain research questions (Oates, 2006). For this reason a mixed methods approach (Wagner, Kawulich and Garner, 2012) was used in the data collection process where a questionnaire was completed and various structured and semi-structured interviews as well as a focus group discussion were conducted. While establishing the ICT profile of these entrepreneurs, both a questionnaire and semi-structured interviews were used. Due to the social nature of an entrepreneur, and the fact that personality plays a role, the interpretivist approach was followed.

The research methods and approach followed are discussed in Chapter 4.

1.6 Chapter outline

Chapter 1 - Background and motivation for study

In this chapter the researcher has described the problem statement that provides the background to this thesis. This chapter introduces the research questions that are the focus of the thesis. It also provides a brief description of the research methods and the chapter layout.

Chapter 2 - Technology adoption

This chapter investigates how ICT is implemented by various individuals and groups of people. Various adoption models/theories are discussed to understand the motivation for ICT adoption. The UTAUT

model was selected as the most relevant theory for this study as it incorporates eight different adoption models and is relevant to small organisations or individuals such as entrepreneurs.

Chapter 3 - Entrepreneurial training framework

This chapter analyses the E/P model developed by Van Vuuren en Nieman (1999) that provides the foundation for the entrepreneurial program currently running as part of the government initiative. It discusses the model and provides a better understanding of the fundamental characteristics that are required to become a successful entrepreneur.

Chapter 4 - Research methodology

This chapter outlines the research process onion (Saunders *et al.*, 2003) and introduces the structured approach used during the data gathering stage of this thesis. It discusses the philosophy, approaches, strategies and data collection techniques used. It also introduces the research participants used in the data gathering phase.

Chapter 5 - The micro entrepreneur's ICT profile

This chapter investigates general entrepreneurial characteristics across various types of entrepreneur as well as various countries. It introduces reasons why ICT is not accepted by smaller firms. This chapter also highlights that for entrepreneurs individual perceptions play a vital part during ICT acceptance. Data gathered from the questionnaires and structured interviews is presented in this chapter to provide the ICT profile of the entrepreneurs.

Chapter 6 - Qualitative results and analysis

This chapter introduces the research results of the semi-structured interviews conducted with the e-skill trained entrepreneurs. These results are related to the literature in order to make comparisons to see if the gap that exists in the current entrepreneurial training framework can be addressed and thus complement the framework. This chapter categorises the types of entrepreneur interviewed based on the framework introduced by Fink and Disterer (2006).

Chapter 7- Research summary and conclusion

This chapter answers all the research questions introduced in Chapter 1. It also lists the contributions to the field of Information Systems and ICT as well as entrepreneurs, thus addressing the research problem introduced in Chapter 1.

1.7 Chapter conclusion

This chapter introduces the concept of an entrepreneur as well as the problem to be investigated, namely the need for entrepreneurs to address ICT adoption. The need to focus on the development of

entrepreneurs arose as the hope of many to ensure that ICT can assist in solving certain social issues, such as unemployment.

The main research question to be addressed as well as the sub-questions are introduced; when answered correctly, the latter should provide the answer to the main research problem.

The following chapter explores current literature based on ICT adoption, which introduces the theory used throughout this thesis. The chapter after that introduces the content model used for entrepreneurship education, after which the methodology chapter follows. A profile of the entrepreneur is then introduced to ensure the context of this thesis is clear. The results are analysed and discussed after which the research questions are answered.

Chapter 2 - Technology adoption
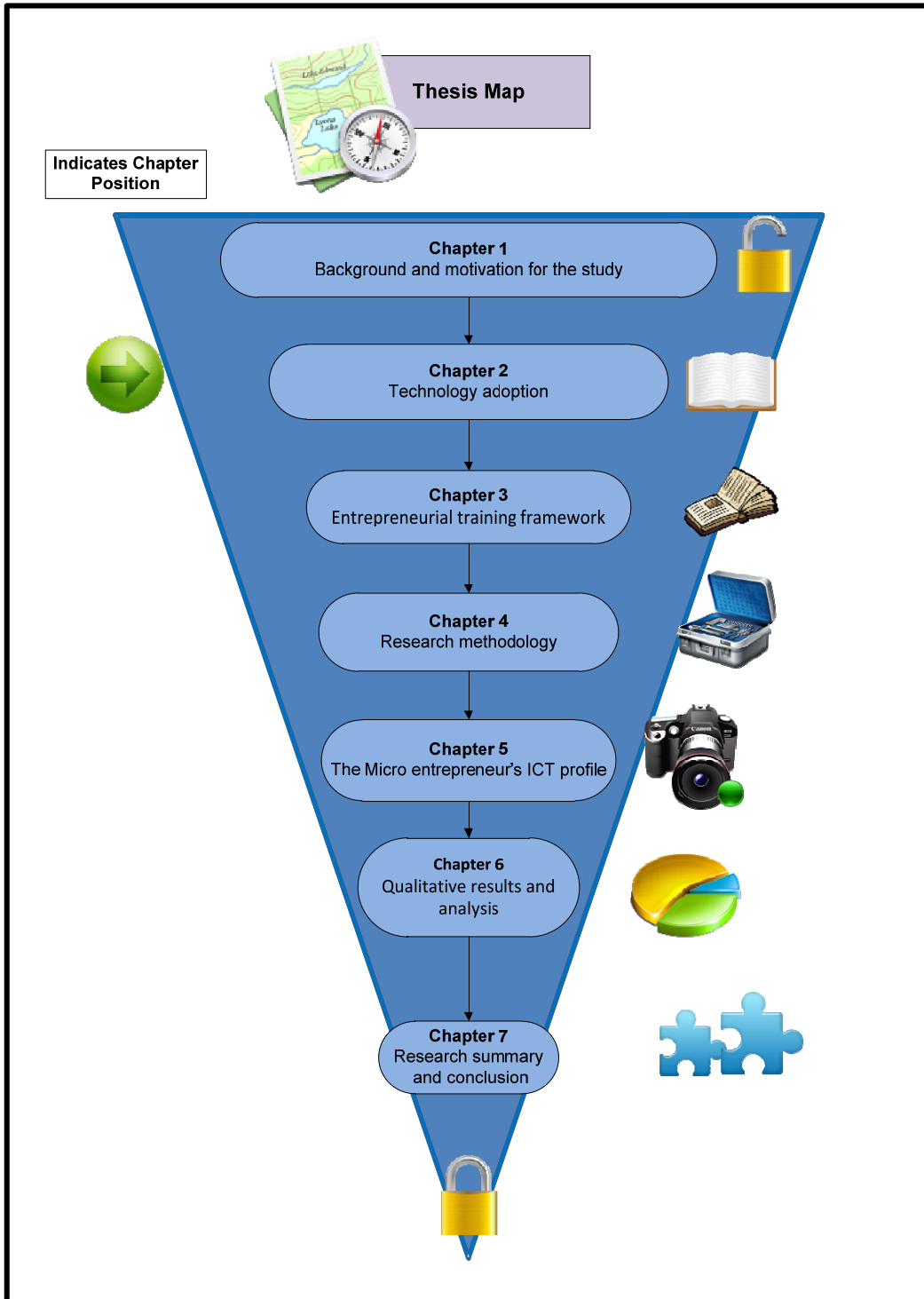
2.1   Introduction

The previous chapter introduces the research problem. It also provides a general overview of the current problem being faced in South Africa and how government is taking measures to combat these problems. One of the sub-questions introduced in Chapter 1 focuses on the reason why entrepreneurs adopt ICT. This chapter focuses on current adoption theories to find the main reasons why ICT is adopted and ultimately used. Even though a number of theories are discussed to provide a better understanding of technology adoption, this chapter will evolve and explain why the UTAUT theory is used throughout this paper.

2.2   Adoption

2.2.1   Decision to adopt

Due to the web and the increased access to ICT, one can almost say that the playing field in small companies has been levelled, as not only the users or owners of these firms but also the customers have more options and thus information available to them (Spencer *et al.*, 2012)[4]. They continue to argue that the most significant driver to adopt ICT is leadership and ownership of the small business as this influences the firms' strategy and resource allocation. Uddin (2005) states that the reason why ICT grows and flourishes is effective management. Seeing that this is most of the time a decision made by an individual, it makes sense that management and leadership are the first focus point of discussion. One has to understand how individuals make decisions, and consequently the reason for exploring various adoption theories. Kabanda (2001) found that management controls the resources and can determine their usage, which means not only does management play a role in the allocation and decision to use ICT, but also in its allocation.

In a model developed by Jackson and Sloane (2009:67)[5] four main quadrants were identified as vital in the adoption of any ICT, namely process, management, human resource and organisational culture. It is stated that all four quadrants have the same weight, even though an organisation may have a stronger tendency towards one or two specific quadrants. However, when testing the model, management itself did not emerge as a main driver of adoption although management has the ability to identify requirements and provide resources and infrastructure but it does not mean adoption thereof will follow. Although management of entrepreneurs are also most of the time the owners, one will need to determine if ICT adoption is influenced by management or some other factors such as external influences. These other influences will emerge during this chapter.

Langley, Mintzberg, Pitcher, Posada and Siant-Macary (1995) state that adoption is not driven only by deep thought rationality, but also through experience. Langley *et al.* (1995) emphasise the role of the individual in organisational decision-making. Spencer (2012:1197) notes Langley *et al.*'s general typologies as:

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[4] The focus of this paper is specifically on technology adoption in small owner-managed travel firms.
[5] This quadrant can be applied across organisations of various sizes.

- Creator – *"an intuitive individual who drives organisational decisions through creative insight".*
- Actor – "*an individual who passively acts in accordance with what happens to the organisations such as problems and opportunities".*
- Carrier – *"an individual who carries with them their experiences and the impact of the world around them".*

The rationale of the individual must be understood in order to determine why certain technologies are adopted and even preferred to others. Ajzen (1991) notes and highlights the importance of the psychological aspects that influence intended behaviour. One has to acknowledge that psychological aspect of decision-making exists and future research is recommended to see if the psychological aspects of human decision-making are not the main driver behind ICT adoption. Leadership, ownership and management seem to be important aspects to investigate when investigating adoption theories, especially in small firms.

Spencer *et al.* (2012) investigate transformational versus transactional leadership, where transformational leadership focuses on morale and the upliftment of the followers; transactional leadership focuses on the immediate self-regard of the followers. Spencer *et al.* (2012:1198) continue to say that "*the creation of "high-involvement individuals" and cost-effectiveness are required for the successful introduction, implementation and continued usage of technological tools".* Transformational leadership is the most relevant type of leadership as it will help and assist the followers to become more creative and innovative. Transformational leadership is therefore explored in more depth in this thesis as it could be a key factor in an entrepreneur's success. However, one has to be subjective as ownership will also influence leadership, especially for an entrepreneur as "*many firms can be seen as a reflection of their owners*" (Spencer et al., 2012:1199). Information sharing and communication is also seen as one of the central points for any business (Jackson and Sloane, 2009).

Most of the time the owner is also the manager and part of the day to day operations of the business; therefore decisions are less likely to be taken by anybody other than the owner and one would want to try and avoid risk as risk-taking has a direct influence not only on the survival of the firm directly, but also that of the family, and this is particularly relevant in the South African context.

Limited resources to hire and retain skilled workers were mentioned earlier as a reason why companies do not adopt ICT as they should (Mutula and van Brakel, 2007). In Chapter 5. Section 5.3 the barriers to ICT adoption are investigated. One first has to understand why people will adopt certain technologies and not others. Then, once one understands this, one has to see why people will or will not accept ICT.

2.2.2   Adoption models

When introducing ICT to entrepreneurs, the first reaction from most is either to consider it as a threat or to question the motive, but as mentioned by Diefenbach (2007) the adoption of ICT by entrepreneurs is an inevitable change. The TINA principle, "*There is no alternative"* can be used as a technique to

assist in managing the adoption. In other words, entrepreneurs who desire strategic growth have no choice but to adopt ICT. However, this technique scares anybody when having to accept change. To change is sometimes seen as taking a different perspective on a specific problem and solution and until this shift in mind-set has been taken and a different perspective is considered, "resistance to change" will be observed (Barlow, 2001:2). ICT is changing at such a rapid pace that one does not have a choice but to try and find a fit between ICT and one's business. As change is seen as inevitable one has to realise that people create mind maps from previous experiences, and these maps need to be torn down and new maps need to be created in order to be able to adapt to new systems (Yu, 2001) to ensure strategic growth. Without a clear understanding of the model and scope of adoption, the result could be that the investment in ICT does not deliver any value (Chibelushi and Costello, 2009) and yet, if technologies are not accepted and used by employees, they will not improve performance at all (Venkatesh *et al.*, 2003).

Nguyen (2009) notes the key reasons for ICT adoption as being survival, growth, competitiveness and enhancing one's innovative capabilities. There are a number of models available that have been developed to assist in ICT adoption within a social context. ICT adoption models have been intensely investigated and scrutinised by numerous authors and applied in various contexts (Im, Hong and Kang, 2011; Hameed, Counsell and Swift, 2012; Bagozzi, 2007; Bhattacherjee and Sanford, 2006; Fadel, Durcikova and Cha, 2008; Handy, Whiddett and Hunter, 2001; Jackson and Sloane, 2009; Lu, Yu, Liu and Yao, 2003; Mehrtens, Cragg and Mills, 2001; Reimenschneider et al., 2003; Spencer et al., 2012; Uddin, 2005; Venkatesh et al., 2003; Wonglimpiyarat and Yuberk, 2005; Suri, 2011; Nguyen, 2009; Burnkrant and Page, 1988; Hansen, Jensen and Solgaard, 2004; Baker and White, 2010; Chatzoglou and Vraimaki, 2010; Oye et al., 2012; Godin and Goette, 2013; Yu, 2012; Anderson and Schwager, 2004; Al Mursalin, 2012; Ramdani and Kawalek, 2009; Cohen, Bancilhon and Jones, 2013; Kumar, 2013; Talukder et al., 2013; Wamuyu and Maharaj, 2011; Cáceres, Agüero, Cavero and Huaroto, 2012; Peris et al., 2013; Marchewka, Liu and Kostiwa, 2007; Escobar-Rodríguez and Carvajal-Trujillo, 2014; Ramalho, Moura and Cunha, 2015; Malebana, 2014). Most of these authors' work is discussed in more depth in the sections to follow. One can add certain constructs to some of these models; however, one has to be able to supply a firm theoretical background to justify these constructs (Baker and White, 2010). The constructs used from these models are justified in this thesis to ensure the validity and appropriateness of the research.

Models such as *"the theory of reasoned action, the ICT acceptance model, the motivational model, theory of planned behaviour, a model combining the ICT acceptance model and the theory of planned behaviour, the model of PC utilization, the innovation diffusion theory and the social cognitive theory"* (Venkatesh et al., 2003:425) and other adoption models have long been investigated over not just years, but decades. Venkatesh *et al.* (2003) continue by saying that one of the most mature research discussions in information systems is that of explaining how users accept certain technologies. Similar models have been investigated by Hameed *et al.* (2012); these are listed in Figure 1 and it also shows which models are most likely to be used in which type of research or analysis. There seems to be an endless list of adoption models available and perhaps the biggest challenge facing anyone at this stage

is which one to choose, or do we pick-and-choose certain elements of various models and see what works (Venkatesh *et al.*, 2003)?

Different theoretical models used in innovation adoption literature.

Innovation theories/frameworks	No. of studies	
	Organizational level analysis	Individual level analysis
Diffusion of Innovation (DOI)	28	3
Perceived Characteristics of Innovation (PCI)	1	0
Technology Acceptance Model (TAM)	11	26
Theory of Planned Behaviour (TPB)	4	12
Theory of Reasoned Action (TRA)	5	14
Technology Acceptance Model 2 (TAM2)	0	2
Technology Organization Environmental (TOE) model	35	0
TriCore	2	0
Task Technology Fit (TTF)	0	1
Unified Theory of Acceptance and Use of Technology (UTAUT)	0	1
None/others	81	12

Figure 1: Hameed *et al.*'s different models of adoption (Hameed *et al.*, 2012)

As mentioned by Bhattacherjee and Sanford (2006:810), Rogers states that "*ICT acceptance is fundamentally a problem of social influence*". Handy, Whiddett and Hunter (2001) note that one has to be careful to view the technical and social side of information systems isolated from each other. Thus there is a huge interaction between humans and the implementation and success of ICT, as has been mentioned earlier. This shows that adoption is not based on certain reasoning only but something such as culture can also play a role in the adoption of ICT (Im et al., 2011).

The stages of adoption can be classified as pre-adoption (initiation), which includes awareness, attitude and proposition; adoption-decision, which includes making the choice to adopt and getting the required resources; post-adoption (implementation), which includes buying or actual investment, acceptance and actual use (Hameed et al., 2012:361). Even though this study focuses largely on the post-adoption stage, one has to understand why there was adoption in the first place to conclude whether it was successful or not. Interestingly, adoption in rural, poorer communities is directly related to their social and cultural environments (Ramani et al., 2012:678). Social structure helps influence the decision and one should not ignore the children and elderly in influencing decisions for the household; for example, rather spend money on food or electricity than on technology.

A model should be developed that can be used in the ICT investment process, the post-adoption phase, "*that counts more on the human capacity as a learner*" (Rantapuska and Ihanainen, 2008:594). They continue by saying that there are three categories that decision-makers within an SME tend to focus on: problem, product and provider. Decision-makers rather look at the problem related to ICT and will see the purchase of some sort of ICT as solving the problem. From a product viewpoint the software product to be purchased is the deciding factor and the decision-makers will choose a provider whom they can rely on. The acquisition of ICT is thus done based on these three categories. On the other hand Oke, Burke and Myers (2007) note that SMEs focus on product, service and process when

considering ICT from an innovation point of view. When deciding on the aspects from various models, these categories have to be considered and taken into account at all times.

One also has to focus on the context within which a model is generally applied. Figure 1 shows that Diffusion of Innovation (DOI) is mostly used on an organisational level, whereas TAM, TPB and TRA focus more on the individual level and thus they are discussed in this thesis. However, DOI was originally formulated for an individual adoption level investigation but has become more popular in analysing organisational behaviour over the last couple of years and is not used in this thesis, although it does form part of the UTAUT model. UTAUT seems to focus on the individual decision-maker, and as UTAUT incorporates eight different models already, it seems like the most obvious model to use in this thesis. Some of these adoption models have to be investigated to understand the process and reasoning behind adoption decisions. The next section introduces various adoption models or theories to understand adoption better and to justify the decision to implement UTAUT in this thesis.

In summary, the following is important to consider for entrepreneurs' adoption of ICT:

a. The role of culture in the pre-adoption of ICT
b. The context of entrepreneurs (To be discussed in more detail in Chapter 3 and Chapter 5)

2.2.2.1 Model discussions

An entrepreneur has certain ideas of and attitudes to ICT before choosing to use it (Oye *et al.*, 2012). This in turn means that we all have certain perceptions and preconceived ideas about ICT, which can have a direct impact on its adoption. However, there is more to the adoption of ICT than just preconceived ideas, which are discussed in the following section. A number of adoption models are briefly introduced, followed by explanations of how these models were constructed and in some cases how they are being used in certain research areas. The reason why these models were chosen is their impact on the social aspects of ICT adoption and the relevance to individual behaviour as well as the fact that the unified model already contains most of the important aspects of the eight formal models mentioned earlier (Venkatesh *et al.*, 2003). Another reason why these models were identified is the statement made by Bagozzi (2007) where he points out that adoption models are reaching a point of chaos and each new model leads to new fragmentations of already created models. Thus one can conduct a never-ending infinite search on various adoption models; however, this is not the focus of this thesis and therefore only the most well-known, relevant models are discussed, and no new model have been developed.

Each model is described according to the following structure:

- Name of model
- Origins of model
- Figure of model and discussion
- Applications and motivation for the study

Name of model: Theory of Reasoned Action (TRA)

Origins of model: TRA was initially introduced by Fishbein and Ajzen in 1975 and was designed to predict and explain specific behaviour across various areas (Davis, Bagozzi and Warshaw, 1989; Al Mursalin, 2012). It explains general behaviour but it should always be used within a specific context as the context within which it is applied, will influence the outcome of the actual behaviour. TRA is widely used, especially in the social psychology field as it is based on certain soft issues such as attitude, subjective norm and motivation (Davis *et al.*, 1989) and it is important to acknowledge that there are certain underlying reasons why ICT are used by individuals and thus one needs to mention these aspects.

Figure of model and discussion:
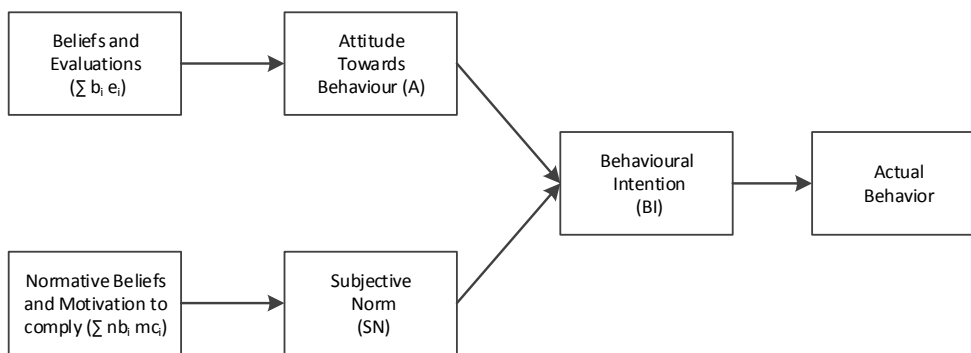
Figure 2: Theory of Reasoned Action Model (Davis et al., 1989:984)

In Figure 2 one notices the two main aspects of TRA, namely attitude towards behaviour (A) and subjective norm (SN), which lead to intention. Intention is the ultimate motivating factor influencing one's behaviour (Ajzen, 1991). "*When someone forms an intention to act, that they will be free to act without limitations*" (Oye et al., 2012:2) which brings about the importance of not applying the TINA principle as mentioned earlier as this will affect adoption. Attitude (A) to behaviour implies that an individual will have certain positive and or negative feelings to a specific behaviour (Davis et al., 1989; Burnkrant and Page, 1988; Godin and Goette, 2013). People believe that behaving in a certain way will result in specific consequences that are then evaluated and thus create or influence attitude. Subjective norm (SN) is how one thinks or belief others think one should behave, thus building on a type of external influence; for example, an entrepreneur might think his family or friends expect certain behaviour and thus act accordingly. Subjective norm focuses more on the beliefs of what others think of one or their expectations of one and what the motivation is for one to comply with their beliefs. What is also interesting about TRA is that there is an indirect influence from external variables on A and SN or on both. Examples of these variables are "*system design characteristics, user characteristics (including cognitive styles and other personality variables), task characteristics, nature of the development or implementation process, political influences and organizational structure*" (Davis et al., 1989:984). Hansen *et al.* (2004) note that behaviour is something that the individual has control over; however, they also note that some studies focus more on the behaviour that an individual cannot control. An

example is a complex process to do online shopping that can hinder the consumer's belief in the process. As this study focuses mostly on an individual, the entrepreneur, one can assume that the entrepreneur has control over his or her own behaviour and thus this will influence his or her attitude to acceptance.

Application and motivation for the study

TRA forms the basis of many other models, such as TAM (Davis *et al.*, 1989), the theory of planned behaviour (TPB) and is even incorporated in the formulation of the unified theory of acceptance and use of ICT (UTAUT) (Venkatesh *et al.*, 2003) and thus needs to be considered when looking at adoption models. Even though this thesis is not about constructing an adoption model per se, one has to realise the part that TRA plays, and the part that one's attitude to ICT plays as well as the subjective norm regarding accepting or even just being open to exploring certain technologies.

Although TRA forms the basis of many other adoption models there are also limitations to it. For this reason TRA will not be used as is for this study but it is important to understand TRA as most other adoption models are based on the principles introduced by TRA. Another reason for not using TRA per se is the general application thereof on various disciplines and not necessarily on ICT specific discipline.

Name of model: Theory of Planned behaviour (TPB)

Origins of the model: TPB used the Theory of Reasoned Action (TRA) and extended it by adding perceived behavioural control (Venkatesh et al., 2003; Ajzen, 1991). The reason why TPB is an extension of TRA is the lack of a person's desire to control that is not in TRA (Ajzen, 1991). How difficult the specific action or behaviour is will determine the consumer's perceived behaviour control (PBC) (Hansen *et al.*, 2004), thus context and the importance thereof start to play a part. Behaving in a specific manner is influenced by the individual's intention, (Baker and White, 2010; Ajzen, 1991) and intention is determined by attitude, subjective norm and PBC. Confidence in one's ability to master a specific task at hand will lead to the successful execution of the specific task (Ajzen, 1991). Simply stated, it is "*a theory designed to predict and explain human behaviour in specific contexts*" (Ajzen, 1991:181) and it is designed for "*dealing with the complexities of human social behaviour*" (Ajzen, 1991:206).

The importance of the context being investigated and the specific reason for interaction start to emerge and thus the reason why one of the chapters in this thesis focuses specifically on the current profile of the entrepreneur, to understand the context within which he or she operates.

Figure of model and discussion
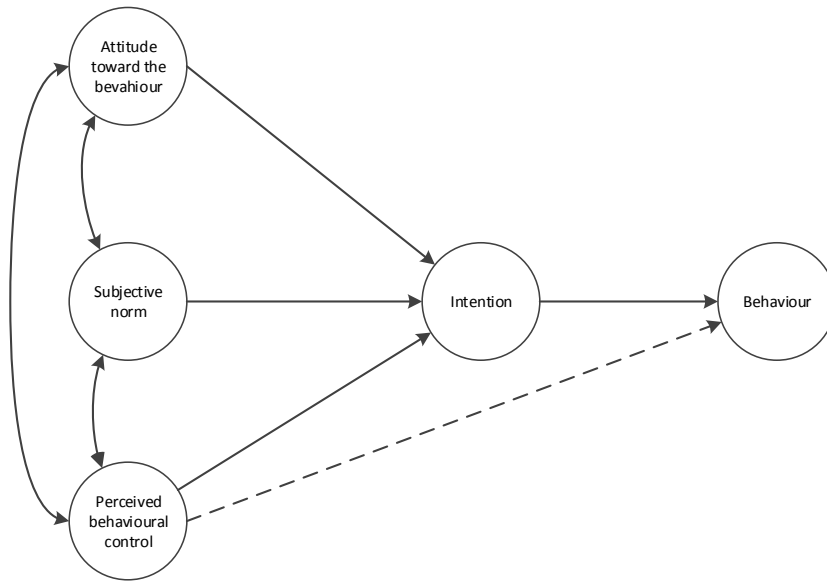
Figure 3: TRA and TPB (Ajzen, 1991:182)

As TPB is based on the underlying principles of TRA, attitude and subjective norm are shown again in Figure 3 with the added construct of perceived behavioural control (PBC). As mentioned previously, attitude refers to the overall evaluation and can be either good or bad, pleasant or unpleasant, easy or difficult (Baker and White, 2010). Subjective norms relate to external pressure or social pressure, and PBC refers to *"the amount of control individuals perceive they have over performing the behaviour"* (Baker and White, 2010:1592); thus the higher the confidence of performing certain actions, the more likely the behaviour to engage and use the ICT will be. Ajzen (1991:183) states that PBC refers to "*people's perception of the ease or difficulty of performing the behaviour of interest",* whereas Al Mursalin (2012:16) states that it is in *"situations where an individual has less than complete control over the behaviour".* If one is scared of something, most of the times one will avoid it. This is the same principle applied by PBC. It is clear that confidence in a specific action and / or tool will boost adoption or actual usage thereof but it is also interesting to see the relation that is emerging with TAM, the perceived ease of use, which will be discussed in the following section. What is important to consider is that behaviour should always be volitional; thus one must have the freedom to decide for oneself whether one wants to perform an action or not (Ajzen, 1991), similar to TRA. This is in contrast with the TINA principle as mentioned earlier and one has to be careful that management and leadership, which were mentioned earlier as possible reasons for adoption, do not force adoption and therefore create a non-volitional engagement with ICT. However, seeing that the business are mostly managed by the owner, there should not be a forced adoption from management as the owner is also the employee, and the entrepreneur. Resources available are also important in the actual control over behaviour, "*to the extent that a person has the required opportunities and resources, and intends to perform the behaviour, he or she should succeed in doing so*" (Ajzen, 1991:182). As entrepreneurs' businesses are

mostly driven by the owners and managers, this should not be a problem but it is important to keep this issue in mind.

One has to focus on the context of the research at hand as variables differ in various contexts (Ajzen and Fishbein, 1970). For example, the normative belief or subjective norm might be what is expected by my family or friends; and in a different context, it relates to what is expected by my direct supervisor or manager and that even through experience this will decrease (Venkatesh *et al.*, 2003) and this will have the same effect on motivation. However Baker and White (2010) note that behaviour is more likely to be influenced by attitude and one's perception of control of the external pressures. Thus external pressures do not influence one's attitude and own beliefs of a specific action or ICT adoption. However, Baker and white (2010) did focus their study on the group norms and highlighted that group norms should be included in TPB. One can almost relate these group norms to cultural background as well, which will become relevant, especially in the South African context. It is interesting to see what the effect of these norms or cultural behaviours are on one's willingness to adopt or accept ICT.

Application and motivation for the study

According to Folley and Liñán (2014) TPB is one of three primary models that can be used to understand and develop entrepreneurial intentions. Similarly Malebana (2014:131) notes that TPB is one of "*two dominant formal, theory-driven models of intentions*" used in entrepreneurial intention studies. It is therefore important to look at, consider and understand TPB if one is engaging in entrepreneurial research.

Hansen *et al.* (2004) compared TRA and TPB in an attempt to predict online grocery shopping. It is important to note the type of shopping as this relates to various other social aspects, such as the basic need for food and cuisine, which differs from online shopping for a pair of shoes, for example. They found that the most important predictor of online shopping was the consumer's attitude and that perceived behavioural control did not play a significant role in online shopping behaviour. External influences, such as family or friends' influence (subjective norm) did have an effect on the attitude to online grocery shopping.

Baker and White (2010) used an extended version of TPB to see what the usage of social networking sites (SNS) is among adolescents. Their study focused on the role that a social group as well as self-esteem plays in the adoption of ICT. Interestingly they reference a few authors who state that a lower self-esteem will result in higher adoption as these individuals are able to socialise better in an online environment than in a face-to-face discussion. However, their findings were different. They were able to relate attitude and PBC as role players in the adoption of SNS among these adolescent. Group norms also emerged as a significant predictor of behaviour; however, self-esteem did not play a significant role. It is interesting to note that the group norms ranked higher in the adoption of ICT than subjective norm, and that group norms might explain external pressures or social influence better than subjective norms. However, one can argue that these two are closely linked; if one does see the similarities

between these two, it confirms the findings of Hansen *et al.* (2004). What is interesting to note is the fact that Hansen *et al.* (2004) did not find PBC to play a part in ICT adoption whereas Baker and White (2010) indicate PBC as a role player in ICT adoption. One of the shortfalls, however, of Baker and White's study (2010) is that they do not distinguish between early adopter and the students who are new to SNS, which might have an influence on the general findings.

A completely different application of TPB is the study conducted by Ramalho *et al.* (2015). They investigated the adoption of hazard analysis and critical control point (HACCP) by small business butcher shops in Portugal. Although their study did not focus on ICT at all, it is interesting to see which of the constructs from TPB emerged as relevant in their adoption process. They classified the businesses based on their past performance regarding food and safety practises as high or low performers. It emerged in the end that the high performers noted attitude and intention towards behaviour as relevant constructs, which influences the intent to adopt HACCP, whereas for the low performers, personal norm emerged as the reason why they will adopt; thus they will adopt if authorities intervene. What is interesting is that none of the two groups indicated social norm or perceived behavioural control as indications of intent of use.

Testing whether final year rural university commerce students intended to start their own entrepreneurial ventures, Malebana (2014) applied TPB. He found that attitude, PBC and subjective norm can indeed be seen as predicting factors for the intention to start entrepreneurial ventures, with attitude being the highest predictor. Thus entrepreneurship should be made a desirable career. What is interesting in his research is the fact that he pointed out that the reason why these entrepreneurs valued this as a viable career was because family, friend and colleagues would also approve their decisions to start their own businesses. This relates to a construct called social influence that will be discussed later on in the discussion of UTAUT.

It is important to note that TPB is a general theory, and is applied within various contexts as can be seen above and even though the constructs can be applied to specific contexts across various disciplines (drinking, getting an A, weight-loss, to mention a few (Ajzen, 1991)); it is not a technology-specific model and thus one should be cautious of its pure application in the ICT context.

Name of model: Technology Acceptance Model (TAM)

Origins of the model: Bagozzi (2007) mentions that TAM was introduced by Davis *et al.* in 1986 (Davis, 1986) although Bagozzi himself played a large part in the early introduction of TAM in 1989 along with Davis and Warshaw (Davis *et al.*, 1989). TAM has been the lead model of technology acceptance for more than two decades (Bagozzi, 2007; Godin and Goette, 2013; Oye et al., 2012). TAM uses TRA as the basis for its framework (Davis et al., 1989) and has added perceived usefulness and perceived ease of use. TAM is not viewed as general and as being applied in various contexts as TRA or even TPB is and thus can only be applied to computer acceptance.

TAM is used to indicate the way in which users accept and use new types of technology, more focused on the individual than on the organisation (Reimenschneider *et al.*, 2003). In other words, it is used to measure and determine if there is a way in which an end user's perception of the acceptance of technology can be measured. It tends to focus on the end user's attitude, which clearly puts the focus on the social side of ICT adoption.

Figure of model and discussion
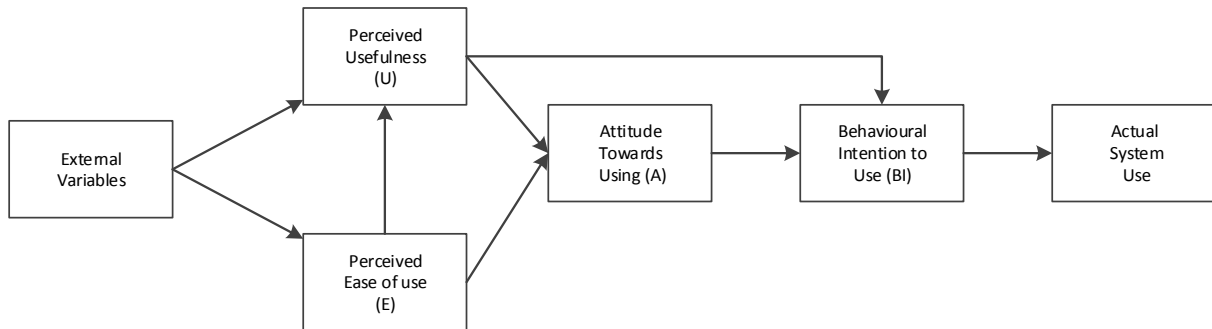
Figure 4: Technology Acceptance Model (Davis et al., 1989:985)

Reimenschneider *et al.* (2003) divide TAM into two cognitions, namely perceived usefulness (U) or ease of use (EoU), and attitude (A). Lu, Yu, Liu and Yao (2003:207) as well as Hameed *et al.* (2012:364) define Davis's TAM theory of ease of use and usefulness as follows:

> Perceived ease of use: Extent to which a system can be used without any mental effort, "*free of mental effort".*

> Perceived usefulness: *"Extent to which a person believes the system would enhance his/her job performance."*

As TAM's roots are derived from the Theory of Reasoned Action, Lu *et al.* (2003:207) state that TAM focuses on "*consciously intended behaviours*". In other words, attitudes lead to intentions that lead to behaviours. The primary "belief" of TAM is that all ICT adoption relates to ease of use and usefulness, as is also indicated above. Lu *et al.* (2003) continue by stating that attitude is the deciding factor of the intention to adopt a specific system. The importance of the part one's attitude plays is emerging more and more. This leads to the psychological aspect of the individual and how willing he/she is to try something new. Van Vuuren and Botha (2010) note that the entrepreneur's own belief in his/her ability to become a successful entrepreneur is starting to emerge as crucial. Ndubisi and Kahraman (2005) confirm that the perception of the usefullness of technology influences the attitude to the adoption of technology. Fayolle and Liñán (2014:663) also note that "*the theories shifting to the entrepreneurship field belong to the area of social psychology, namely cognitive psychology*", which confirms the psycological effects that attitude has on the entrepreneur's decision-making.

Application and motivation for the study:

The most likely model to be used for ICT adoption in small businesses, due to the social approval of this model, is TAM (Reimenschneider *et al.*, 2003). According to a study conducted by World Wide Worx (Goldstuck, 2009) 80% of South Africa's SMEs noted that ease of use is an important criterion for adopting wireless ICT, with 79% stating that quality is important. Continuing with the findings of the study, 74% noted that maintenance is important and 72% chose reliability. Price was ranked as only the fifth most important aspect why SMEs will adopt wireless ICT. These findings are a clear indication that certain parts of TAM can be used as the basis for ICT adoption within smaller firms. Ease of use is one of TAM's measurements that is rated as the number one reason for adoption within the South African market as seen above.

TAM is a model used to explain computer usage. Three factors were identified by Mehrtens (2001) that ultimately influence or affect the adoption of the Internet by small firms. These factors are perceived benefits, organisational readiness and external pressures. One thing to keep in mind is that Mehrtens investigates SMEs which, as stated earlier, usually involve one owner who tends to be the decision-maker, the same as in an entrepreneur's business. Yu (2001) also states that the owner's perceptions are mostly the cause of the sluggish ICT adoption, confirming the statement made by Spencer *et al.* (2012) that leadership and ownership play an important part in ICT adoption. Very few SMEs adopt ICT as a result of external pressures, but rather to gain a competitive advantage, to enhance operational efficiency as well as to improve their services to their customers and to satisfy their staff (Dyerson, Harindranath and Barnes, 2009). As mentioned earlier, one of the issues faced by SMEs during ICT adoption is attitude (Chibelushi and Costello, 2009). What is also clear is that adoption is related to context, or perhaps one can say it is driven with a specific goal or output in mind; whether that goal or output can be measured is another question. This thesis hopes to incorporate a way in which these goals can become clear to the adopter.

Hameed *et al.* (2012) state that TAM can be implemented especially in post-adoption studies as this can help to evaluate the acceptance and adoption of ICT. One of the reasons for not using TAM as is, is the fact that one of its limitations of is that is does not consider barriers why ICT will not be accepted (Oye *et al.*, 2012). This thesis focuses on the barriers of ICT adoption in Chapter 5 Section 5.3 as it is important for this research.

In an e-commerce for entrepreneurs textbook designed specifically for entrepreneurship training in the South African context, a small number of pages, only 10 pages of an almost 500 page textbook, briefly mentions TAM as a tool to measure technology acceptance (Nel, 2009). However, it was also noted that additional variables are needed to be added to TAM in the context of e-commerce, such as trust, risk, privacy and security. It is also noted that if one uses TAM and it does not significantly explain adoption, then one needs to identify additional constructs based on the context. Looking at the context of this thesis, one needs to find a model that addresses technology adoption in more depth in the entrepreneurship context and thus TAM is not the best model to be used. TAM does form part of

UTAUT, which is discussed next, so TAM is not completely irrelevant, but rather seen as part of the foundations on which UTAUT builds.

Another reason why TAM is not used as is in this thesis, is even though TAM was created specifically for the adoption of ICT, one can assume that in today's day and age ICT is embedded into our everyday lives; perhaps one must start to think not along the lines of actual adoption but rather effective adoption of ICT.

Name of model: Unified Theory of Acceptance and Use of Technology (UTAUT)

Origins of the model: Venkatesh *et al.* (2003) conducted a study to create a unified acceptance model that took eight prominent adoption models into consideration and proposed the UTAUT model that was later tested on a large real-world dataset (Im *et al.*, 2011). UTAUT was specifically designed to focus on technology and its adoption and usage. The eight models that were used as the basis for UTAUT are Theory of Reasoned Action (TRA), Technology Acceptance (TAM and TAM2), Motivation Model (MM), Theory of Planned Behaviour (TPB), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilisation (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT) (Venkatesh et al., 2003; Godin and Goette, 2013). Some of these models have been discussed earlier because of their significance to this study; the other models are not discussed as they are already incorporated into UTAUT. It is however acknowledged by Venkatesh *et al.* (2003) that the model still requires some additional research. The foundations of UTAUT are discussed next.

Figure of model and discussion
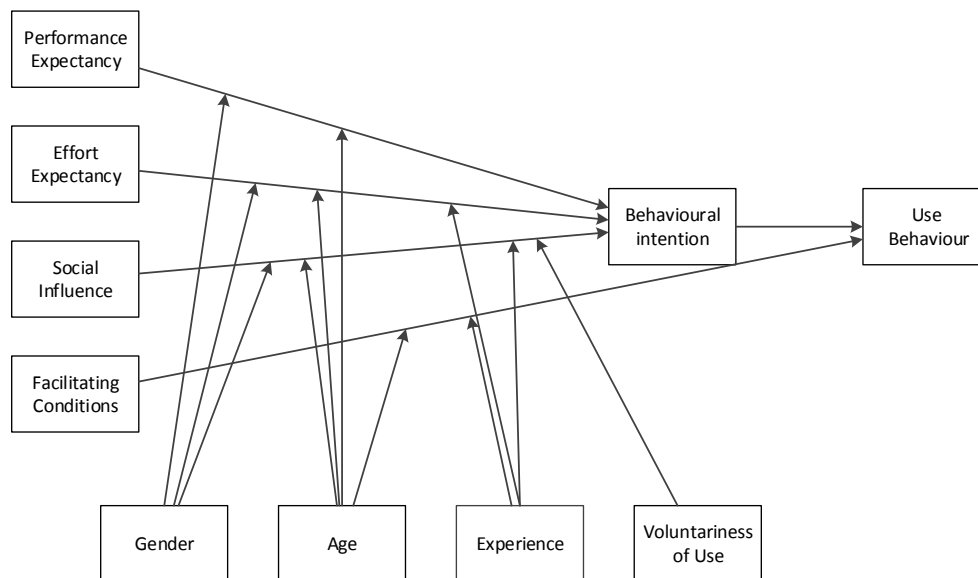
Figure 5: UTAUT (Venkatesh et al., 2003:447)

Figure 5 was constructed after intensive studies into eight different research models had been conducted. The UTAUT model was designed after a longitudinal study by Venkatesh *et al.* (2003) in

which they developed UTAUT by capturing the essential elements or constructs of these different models (Yu, 2012; Talukder et al., 2013). There seems to be seven constructs that have a direct influence on the intention of ICT usage among the various individual models. Venkatesh *et al.* (2003) have identified four constructs or building blocks that play a considerable part in determining user acceptance as well as behaviour. These four construct or building blocks are performance expectance, effort expectancy, social influence, and facilitating conditions. Figure 6 is a summary of UTAUT derived from Venkatesh *et al.* (2003) with a brief explanation of each construct below it. Applying UTAUT should assist in management interventions (Talukder *et al.*, 2013).
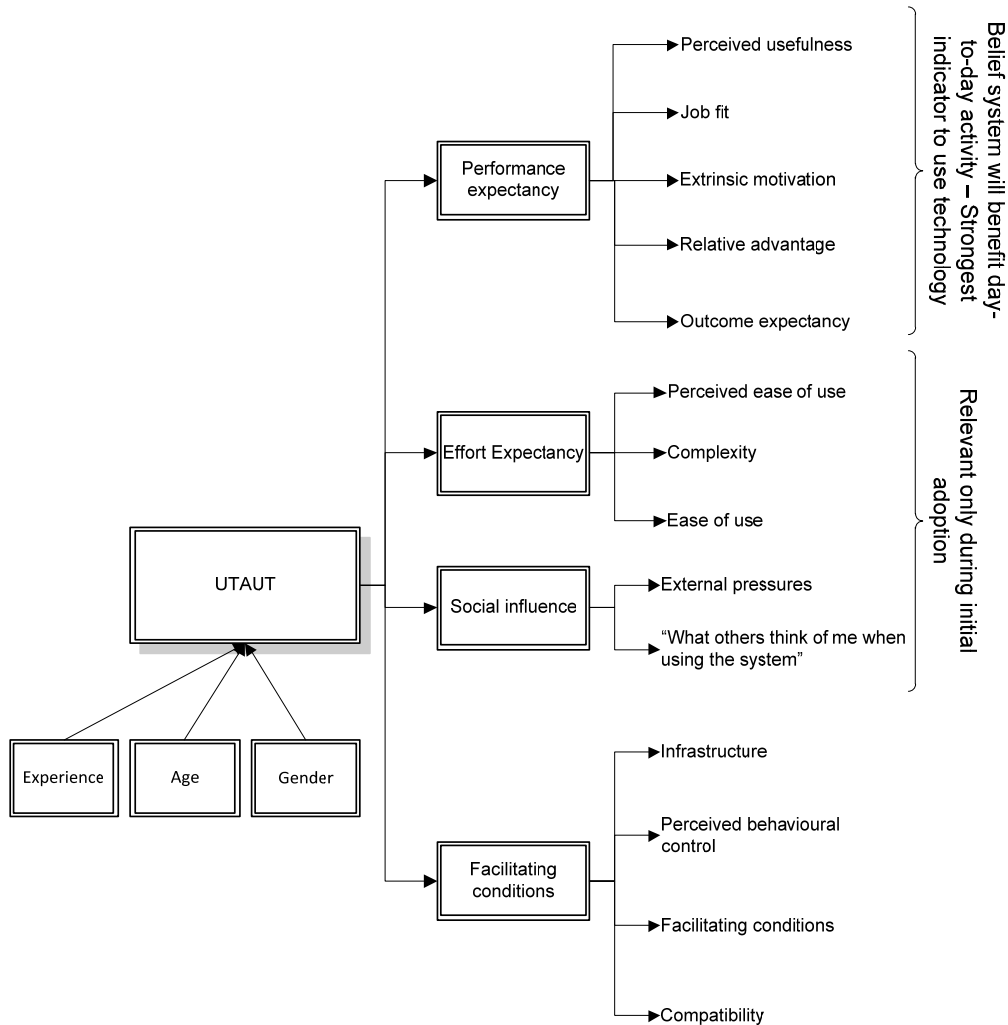
Figure 6: UTAUT summarised

Performance Expectancy (PE): This includes beliefs related to job performance that an individual has. This means that performance expectancy relates to the way in which one believes that a specific system or ICT will benefit one in one's day to day activities, *"the extent an individual believes the system will help them do their jobs better"* (Oye et al., 2012:15). They continue by saying that gender and age also determine the way in which a system is perceived to enhance the performance of the individual. It is

important to note that this study does not focus on a specific gender but on all genders. However, it does seem as if the traditional entrepreneurial ventures are male-dominated (Ndubisi and Kahraman, 2005). Cohen *et al.* (2013) found that performance expectancy has the largest impact on the adoption of technology among all the constructs. This could be due to the fact that one would assume entrepreneurs want to grow and expand their business. Therefore their performance is directly related to the success, or not, of their business.

Lu *et al.* (2003) continue by saying that the adoption of wireless Internet via a mobile device is strongly influenced by prior experience as well as the adopters' level of innovation, which could be related to motivation. They say that the more innovative one is, the more one tries new things and should then develop more positive perceptions of new ICT. Gender and age also play a major part in the adoption of wireless Internet especially (Lu *et al.*, 2003). Lu *et al.* (2003) noted that Germany, the United Kingdom and Italy have a male-dominated mobile phone market. Godin and Goette (2013)[6] found that the effect of performance expectancy was the highest for young men. Even though this is not the main focus of this thesis, it is worth looking into the gender of various entrepreneurs and see whether there is a correlation between successful adoption of ICT and gender. Of the four building blocks identified, performance expectancy is the strongest indicator of the intention to use ICT; however, it is context-based. For example, Yu (2012) did not find performance expectancy to be the main reason for adoption of mobile banking but mobile banking is directly related to a personal need, whereas performance expectancy is related to a business or job specific need and thus it is seen as the strongest indicator within an organisation or for an entrepreneur. Gibb (1993) focused on small business or entrepreneur training and task structure and noted that someone who starts an own business has to determine his or her own tasks, and find his or her own clients. Thus, in the context of performance expectancy, first of all he/she creates his/her own expectance and secondly, the technology used must fit into the task structure or job of the owner.

Miller and Garnsey (2000:461) as innovators and adopters of ICT state that an entrepreneur should ask three questions when being the driver of ICT innovation. The first two questions relate to performance expectancy whereas the third question deals with facilitating. The first one question is, *"What are the opportunities for the growth of the entrepreneurial firms in question?"* The second question is, "*What are the capacities of the founding entrepreneurs?"*. These questions will assist in the data gathering process to determine if the entrepreneurs have the capabilities of ICT adoption or perhaps innovation to adopt.

In the context of this thesis, performance expectancy can be viewed as the degree to which an entrepreneur feels that ICT assists him/her in the day to day operations of running a business. The question is whether ICT does improve the day to day operations. This relates to the sub-question asked in Chapter 1: How innovative are the entrepreneurs regarding ICT usage? In conjunction with this section, Chapter 5 addresses this question.

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[6] This paper reviewed the virtual teamwork training model and UTAUT

Effort Expectancy (EE): Venkatesh *et al.* (2003) state that effort expectancy plays a part only during the introduction of new ICT and is overshadowed as time goes by and experience is gained. EE is the perception a user has that using technology is an increased effort and thus it could lead to lower adoption (Cohen *et al.*, 2013). It is interesting to note that older individuals tend to find the processing and focusing on the system more difficult and thus have an influence on the perceived ease of use. The age of the entrepreneurs has to be determined, as this might play a part in the willingness to adopt or not; Godin and Goette (2013) found that the effect was the highest for young women with minimal experience.

This thesis, looks into the time and effort spent by an entrepreneur to complete the training and then gaining confidence for the initial usage of ICT. It also determines which technologies the current entrepreneurs feel comfortable with and are at ease to work with. These technologies are discussed in more detail in Chapter 5.

Social Influence (SI): Social influence is based on the individual's perception of what others think of him/her after using the system (Venkatesh *et al.*, 2003). Most of the time these "others" influence the individual's behaviour, especially as these influences are from the more senior staff or perhaps family. As is the case with effort expectancy, social influence comes into play only during the early stages of adoption. This relates to the subjective norm as identified earlier. Talukder, Quazi and Djatikusumo (2013:1687) note that there is a direct correlation between acceptance of technology and what they call "social networks", which is the "*extent to which individuals are influenced by other individuals or organisations*". Their findings confirm this by stating that *"virtual social networks encourage the adoption of ICT innovations"* (Talukder et al., 2013:1691) and they add that *" virtual networks have a positive and significant impact on the attitude of individuals towards adoption of ICT innovations…".*

What is important is that this construct can be influenced, as ICT adoption is either voluntary or mandatory; the mandatory influence has a direct effect on the intention to use ICT. Talukder *et al.* (2013) also continue to state that women are more sensitive and the intention to use ICT, based on the social influence, becomes more relevant. Godin and Goette (2013:44) confirm this by saying that *"older women under mandatory conditions with little experience have the strongest effect".* However, this effect will decline with experience.

At this point in this thesis, the perceptions of the entrepreneur within the community as well as regarding competitors have to be considered. This thesis has to investigate who assists in decision-making as well as who makes the final decision.

Facilitating Conditions (FC): *"The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system"* (Venkatesh et al., 2003:453). Factors such as control over the system, necessary knowledge in using the system, available guidance and compatibility of a specific function within the organisation are issues that play a part in this construct. It is also important to know that there is support on how to use the system. Miller and Garnsey's (2000:461) third question, *"Do the founding entrepreneurs have sufficient resources?"* becomes

relevant at this point in time. Cohen *et al.* (2013) found that provding the correct resources and infrastructure can lead to an increase in trust as well as a decrease in effort expectancy, which in turn leads to an increase in performance expectancy.

The available resources and connectivity available to the entrepreneur are considered as entrepreneurs have to provide their own infrastructure; thus public availability for connectivity becomes an important indicator of adoption and an important factor in the context of this thesis.

Behavioural Intention (BI): The intention to use ICT influences and predicts the actual behaviour of the individual (Yu, 2012) that influences the actual usage or adoption of ICT. However, there is a significant difference between the intention to use ICT and its actual adoption, which one should be cautious of (Yu, 2012).

In the UTAUT model, except for facilitating conditions, the other three constructs influence the behavioural intent; thus if the three constructs are addressed, the impact on behavioural intent emerges and becomes evident.

Moderating variables

There are four moderating variables or factors in UTAUT: "age, gender, expectancy and voluntariness" (Im et al., 2011; Venkatesh et al., 2003). Interestingly experience, age and gender play the most significant part in ICT adoption when examining the UTAUT model (Im *et al.*, 2011). However, as entrepreneurs also seem to be the decision-makers and the owners, voluntariness does not seem to play such a great part in the adoption as they will adopt technology to assist them in the performance and growth of their business and is not regarded as a moderating factor in this thesis.

It is important to note that Escobar-Rodríguez and Carvajal-Trujillo (2014) found that BI and FC affect the actual usage of technology whereas PE, EE and SI have an effect on BI only, and not necessarily the actual usage of technology. It is for this reason that they argue that UTAUT2 is necessary for their study. UTAUT2 introduces three new constructs, namely Price Value, Habit and Hedonic (intrinsic) Motivation. Although these new constructs are interesting, this thesis does not look into UTAUT2, but only into the original UTAUT model. The reason why UTAUT2 is not used is the fact that it investigates in much more depth the physiological aspect of the user, with a stronger focus on these than on technology usage itself and this lies outside the scope of this thesis.

In the context of this thesis it is obligatory to consider the four moderating variables during the analysis phase to see if they are at all relevant.

In constructing the questions to be used during the data gathering section of this thesis, a large number of questions emerged due to the constructs of UTAUT. In Chapter 5 and Chapter 6 these questions are introduced, answered and tied back to UTAUT.

Application and motivation for the study: Oye *et al.* (2012) wanted to see if academic staff at a Nigerian university's ICT adoption could be determined by using UTAUT. They found that even though the intention to use ICT should be voluntary, the adoption and usage of ICT is directly related to the four constructs of UTAUT. They also found that in this specific context, effort expectancy and social influence were the most influential predictors of the adoption of ICT. However, what is important to note is whether entrepreneurs have a strong social influence predictor as they do not necessarily have colleagues who influence them, but they do have competitors in the market who could have an influence and family and friends who might also influence them. This is important to determine during the interviews and questionnaires with the participants.

Adoption models such as TRA and TAM do not have a high hit rate in the actual predictability of ICT adoption and this has forced researchers to search for a better adoption model that can better predict the adoption of ICT (Oye *et al.*, 2012). TAM is only capable of successfully predicting a 30% adoption and TAM2, which is an extension of TAM, has a 40% predictability success rate. Because UTAUT takes eight different models into consideration, and incorporates four main constructs and four moderating factors, the success rate of predicting adoption by using UTAUT is 70% (Oye et al., 2012; Venkatesh et al., 2003; Peris et al., 2013; Martins, Oliveira and Popovic, 2014). This makes UTAUT more attractive to use as the adoption model for this thesis as it is argued that it, being a combination of various other adoption models, can now "*serve as the benchmark for the acceptance literature*" (AlAwadhi and Morris, 2008:3). *"UTAUT … is considered as the most recent and comprehensive coverage of a range of ICT adoption/acceptance models"* (Al Mursalin, 2012:17). Martins *et al.* (2014:4) also point out that UTAUT is the "*most complete model to predict information technology adoption…"*. Even though Marchewka *et al.* (2007) are of the opinion that UTAUT should be applied in larger organisations and that it was initially developed to measure the intent of employees to use ICT (Escobar-Rodríguez and Carvajal-Trujillo, 2014). Various studies have been able to apply UTAUT successfully to smaller organisations and even to entrepreneurs as well as from different viewpoints and contexts, such as consumers and daily users. Relevant examples are discussed briefly.

In their study AlAwadhi and Morris (2008) use the following guidelines for measuring UTAUT in the adoption of e-Government service in Kuwait:

> Performance expectancy: perceptions of using services in terms of time saving and money; the effort required to use; improvement of the delivered services; communication.
>
> Effort expectancy: perceptions of ease of use as well as ease of learning how to use the services.
>
> Social influence: "*Perceptions of how peers affect students' use of service*" (AlAwadhi and Morris, 2008:4).
>
> Facilitating conditions: access to resouces and training; support and the ICT fit into their lifestyles.

Although their study focuses purely on e-Government and the adoption of ICT within that context, some of these guidelines can be used in this thesis as means to measure adoption by the entrepreneur.

Yu (2012) used UTAUT to see which factors influence the adoption of mobile banking, but added certain constructs to UTAUT before the data collection. A structured questionnaire was used from which 441 usable responses emerged. The results revealed that social influence, perceived financial cost, performance expectancy and perceived credibility, in this order, were the main reasons for adoption of mobile banking in Taiwan. What is interesting is that the main driver behind mobile banking adoption seems to be the social influence – what others think of them, linked to word-of-mouth reports and peer groups. The second factor, perceived financial cost, is linked to the cost of using mobile services. This becomes relevant in South Africa as mobile service providers have to find a way of reducing their operating costs to ensure access to all.

It will be interesting to see what the results are with regard to the South African entrepreneurs and mobile service providers; thus a question was incorporated into the questionnaire and interview questions during the data gathering process for this thesis. To investigate the usage of mobile technologies in Kenya, Wamuyu and Maharaj (2011) used a combination between task technology fit (TTF) and UTAUT. Once they had managed to define what user acceptance was, they decided to use only performance expectancy as well as social influence in their study. They did not clearly indicate why the other two constrcuts were not used. However, they did find a direct correlation between usage and performance, namely if technology will help one's job performance, one will use it. *"The people who use the technology expect improved organizational performance"* (Wamuyu and Maharaj, 2011:65). Prasarry, Astuti and Suyadi (2015:32) conducted a similar study in which they used a combination of UTAUT and TTF to determine the factors that influence SMEs to adopt mobile commerce. They also found that performance expectancy directly influences behavioural intent, thus *"the higher performance expectancy, then the higher behavioural intention will be".* They also found that effort expectancy also has a marked influence on the intent to use technology and that social influence has no effect on the intention to adopt, which is in contrast to the findings of Yu (2012) who did find social influence to have a significant influence on adoption. This ties into what Talukder *et al.* (2013)[7] state, namely that performance is directly influenced by technology adoption. Kumar (2013) too notes that technology has a direct influence on the productivity of an organisation. Prasarry *et al.* (2015) did not find facilitating conditions to play a significant role in the intent to adopt technology, *"when the adoption of M-Commerce does not seem to bring profit or financial benefit, even in the presence of complete facilities, then SMEs will be reluctant to adopt it"* (Prasarry et al., 2015:33). It was interesting to see what the outcome of this was during the data gathering phase. They also found that task characteristics from TTF, meaning flexibility, effectiveness, support to activities etc. play a significant role in the "fit" of technology, which influences adoption but technology characteristics do not influence adoption; thus some owners prefer

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[7] The study investigated the impact of social influence on individuals' adoption of social networks in SMEs Talukder et al. (2013).

laptops, some tablets and some mobile phones. Technology characteristics themselves do not influence adoption.

Cohen *et al.* (2013)[8] as well as Escobar-Rodríguez and Carvajal-Trujillo (2014) add trust and price value to UTAUT in the hope of seeing if these additional constructs also have an influence on technology adoption. However, Cohen *et al.* (2013) did not find price to have any effect on adoption. Trust as well as effort expectancy ensures that positive perceptions of technology impact are formed and that these perceptions have a direct relation to adoption (Cohen *et al.*, 2013). It is interesting to note that although they did not find trust as well as effort expectancy to be the reason for technology adoption, these two constrcuts have a direct effect on performance expectancy. It does, however, seem that the cost of technology may have an effect on the entrepreneurs' adoption and therefore price or cost has to be incorporated into the research questions. Like Cohen *et al.*, Escobar-Rodríguez and Carvajal-Trujillo (2014) did not find price to lead to the actual usage or adoption of technology although price might influence the intention to adopt it. It will be interesting to see what the effect of cost is on the adoption of technology by entrepreneurs.

By combining UTAUT and perceived risk factors from Featherman and Pavlou in Martins *et al.* (2014) Martins *et al.* managed to show that this combinantion explains 81% of the change in one's behaviour, which could have an effect on adoption. The reason why risk was included in their studies is the fact that the context of the study was Internet banking. This involves peoples' money and people become more sensitive when their finances are involved. Thus, even though risk plays a significant role in adoption in this instance, for this thesis risk is not seen as having any relevance, although one will have to ask the research participants what their perceptions in this regard are and whether security issues are a reason for not adopting certain technologies.

UTAUT has been widely used across various disciplines to determine the adoption of technology in different sectors as well as in various organisations. This section shows how UTAUT has been applied to evaluate the adoption of technology across various contexts, from student technology adoption at a university to e-prescription technology of health care providers. The fact that UTAUT can be applied across various contexts, and as this thesis focuses on the South African entrepreneur across various industry sectors, make UTAUT the most appropriate model to be used. As the rest of this thesis developed, interview questions and questionnaire questions were formulated, keeping UTAUT in mind.

It seems as if context does play a significant role in each one of the cases discussed above. It is for this reason that the researcher proposed an interim calculation for UTAUT to be determined in this thesis. Age, gender and experience were noted with the following variables: age (z), gender (g) and experience (x) as it seems as if they have an influence on all the constructs of UTAUT, resulting in this fragment: UTAUT or $T = zgx * (PE)(EE)(SI)(FC)$. Although, according to the literature, EE and SI are only relevant

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[8]The paper investigated the South African physicians' acceptance of e-prescribing technology by using UTAUT (Cohen et al., 2013).

during the actual adoption and initial adoption of technology phase. This thesis attempts to suggest an augmentation of the model discussed in Chapter 3 to create a sustainable long-term solution for e-skills training for entrepreneurs; therefore one should determine the relevance of not only EE and SI in this context but also that of PE and FC.

2.3   Chapter conclusion

This chapter introduces the concept of ICT adoption and explains various adoption models and their relevance to the study. Eventually the UTAUT model proved to be the most relevant for this thesis and is consequently used throughout this study. Its comprehensive design incorporating eight other adoption models ensures the strong foundational background required for this thesis.

This chapter sets out to find a starting point for answering some of the sub-questions introduced in Chapter 1:

- **Why do entrepreneurs adopt ICT?**

    This chapter investigates how technology adoption in general can be viewed and measured. It does not explicitly answer the above research questions but it does form the basis on which the thesis is built to answer this question.

The next chapter explores the entrepreneurial framework used. It explains the underlying principles of the framework as well as the gap that exists in terms of ICT.

Chapter 3   - Entrepreneurial training framework

Thesis Map

Indicates Chapter Position

Chapter 1
Background and motivation for the study

Chapter 2
Technology adoption

Chapter 3
Entrepreneurial training framework

Chapter 4
Research methodology

Chapter 5
The Micro entrepreneur's ICT profile

Chapter 6
Qualitative results and analysis

Chapter 7
Research summary and conclusion
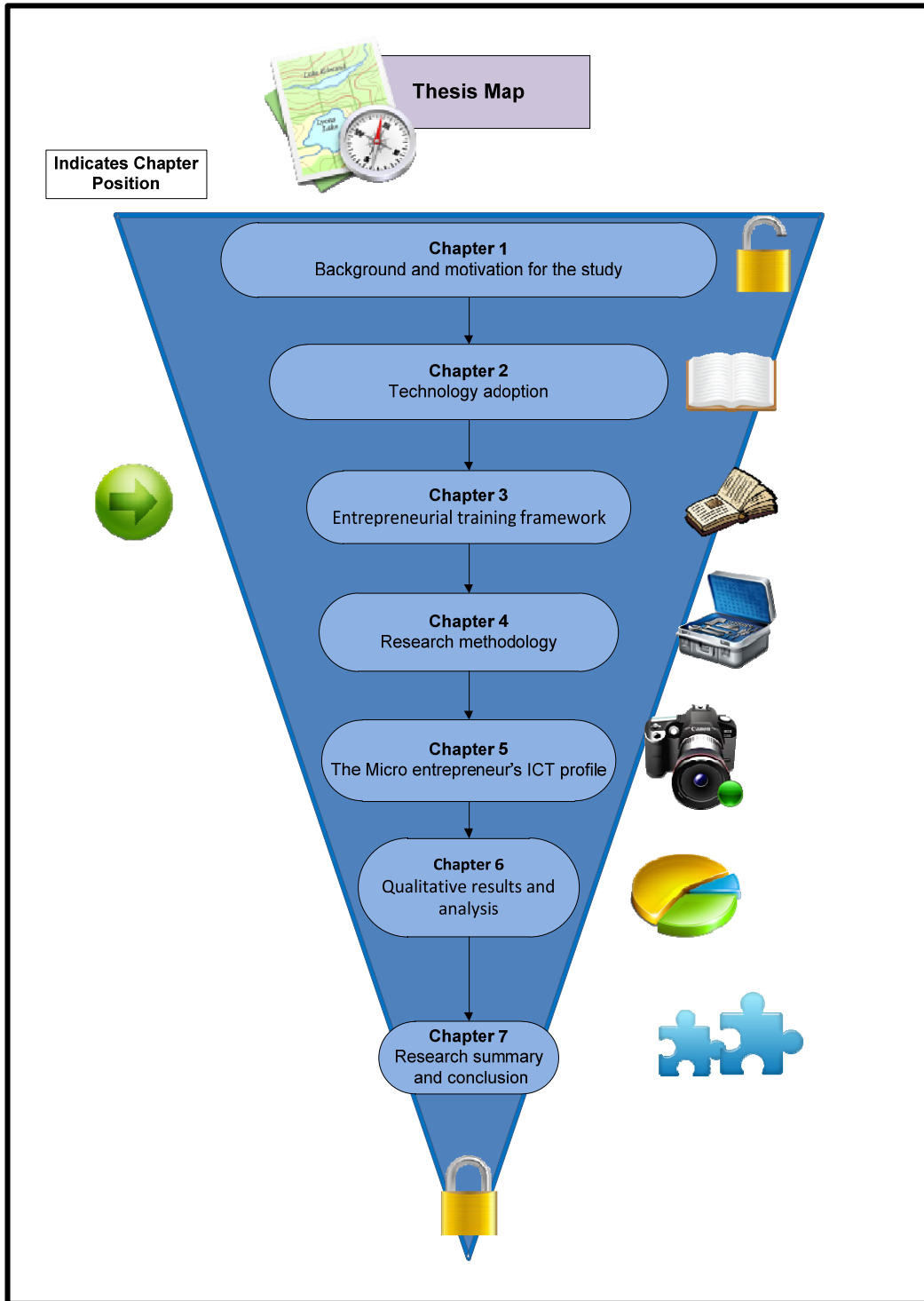
3.1   Introduction

At this stage it is clear that one has to use a framework as the basis to see if there is a correlation between the training provided and the adoption and implementation of ICT. The previous chapter determined that various adoption models exist and that one can almost get lost in the number of adoption models available. The UTAUT model was selected as the best-fit model for this thesis as it incorporates not only eight adoption models but also human and social variables that in turn relate to barriers or reasons why people will not adopt ICT.

This chapter briefly looks at the skills that entrepreneurs need as discussed by various authors. It introduces the model used in this thesis after which it looks at various entrepreneur training models that are currently running in South Africa and in the world to see what is currently being taught in entrepreneurship. This discussion highlights the gap currently existing in the training of entrepreneurs, which is the absence of ICT. It will be helpful to see how ICT can be incorporated into entrepreneurial training to assist in its effective adoption (Gibb, 1993).

3.2   Required skills for the entrepreneur

There are a number of debates around entrepreneur education, with the main question whether entrepreneurship can be taught (Azim and Al-Kahtani, 2014). Entrepreneurs are sometimes introduced as having "*extraordinary genetic endowment*" (Garavan and O'Cinneide, 1994:3). Even though this may be the case, there is a big demand and call for contributions to train entrepreneurs across the world; even though the need for entrepreneur training exists, one has to realise that there might be certain individuals that will never become an entrepreneur. It is, however, true that certain skills can be acquired and developed over time to assist an entrepreneur in becoming successful; therefore one has to consider all the skills required by an entrepreneur that can be taught.

Firstly one has to understand that there is a difference in terminology used throughout the world, as mentioned by Gibb (1993); he notes that entrepreneurship education is labelled *enterprise* within the UK educational system. This *enterprise* focuses more on individual development and not necessarily on making profit. This thesis utilises the term *entrepreneur training* that is discussed in more detail in this chapter.

Another key factor always to be considered when looking at entrepreneur training and curriculum design to incorporate ICT is the entrepreneur's belief in his/her own ability to become a successful entrepreneur (van Vuuren and Botha, 2010). This belief is the result of the entrepreneur's motivation to want to succeed in business. Ndubisi and Kahraman (2005) point out the correlation between personality traits, such as innovativeness and the ability or willingness to take risks and actual ICT usage.

Carney and Turner (1987) in Van Vuuren and Botha (2010:610) refer to the following 12 core enterprise skills required to be a successful entrepreneur: "*assess and appreciate one's strengths and weaknesses and evaluate one's performance; to communicate with other people; to negotiate; to deal with people in power and authority; to resolve conflict; and to cope with stress and tension. In addition,*

making decisions, planning one's responsibilities and solving problems were highlighted." As these skills are based on enterprise skills, more specifically interpersonal skills, one would hope that these skills can be taught as part of business skills entrepreneurial training. Antionites and Van Vuuren (2005) state that there is a general lack in an acceptable theory for this entrepeneurial training and that training ventures touch on one aspect in a list of requirements only. Table 2 provides a short summary of various authors' viewpoints of the required business skills required by an entrepreneur.

Skills list	Authors
• Business plan • Financial management • Marketing • Operational skills • Human resources • Legal skills • Communication • Management	Van Vuuren and Nieman (1999)
• General management • Legal skills • Cash flow management	Pretorius *et al.* (2005)
• General management • Marketing management • Financial management • Human resource management • Production and operations management • Corporate communications management • Information management and e-business • Purchasing and materials management	Van Vuuren and Botha (2010) Niemand and Bennet (2006) Pretorius *et al.* (2005)
• Legal skills • Business plan compilation • Cash flow management	Van Vuuren and Botha (2010)

Table 2: Business skills required per entrepreneur

In a textbook prescribed for graduate students the following themes are listed in the table of contents (Nieman and Nieuwenhuizen, 2009):

- Entrepreneurship and entrepreneurs
- The entrepreneurial process
- Alternative routes to entrepreneurship
- Post-start up challenges
- Corporate venturing

Under each theme various discussions and skills are listed, but the most interesting and perhaps most relevant to this thesis is under the entrepreneurial process, where Nieman and Nieuwenhuizen (2009) introduce the following topics:

- Creativity and business opportunity
- The window of opportunity
- The business plan
- Resources requirements and legal and related aspects
- Getting started
- Financing an entrepreneurial venture
- Networking and support

Under the post-start up challenges there is a topic called *e-commerce opportunities*. Taking an in-depth look at this, these prove to be high-level guidelines to develop a website and it also briefly mentions TAM (Nel, 2009) as an adoption model. There is not any mention of technology other than these in this chapter. However, one can argue that this textbook is prescribed for students studying a degree at a university where one can assume they do have some kind of technology incorporated into their degree in various other modules; this excludes the use of such a textbook by entrepreneurs not studying at a university.

The content model of entrepreneurship education is now discussed after which various other training models are mentioned.

3.3 Content model for entrepreneurship education framework introduced

Various training initiatives exist in South Africa to assist entrepreneurs, not only in setting up their business but also in running their business. However, a lack of proper or any training whatsoever, is one of the main reasons why SMEs fail (Botha *et al.*, 2007). The demands for entrepreneurship training are increasing and have led to various training models being developed. One of these initiatives that are currently running is a training model that is implemented in both short and degree programmes at an academic institute in South Africa. This training is based on the model proposed by Van Vuuren and Nieman (1999:3), called the "content model for entrepreneurship education" (E/P):

"E/P = a + bM[(cE/S x dB/S)]"

Where:

E/P = Entrepreneurial performance

M = Motivation

E/S = Entrepreneurial skills

B/S = Business skills

A, b, c and d are co-efficients.

The background of E/P is supported by the expectancy theory of the motivation model that was developed in 1964 by Vroom (van Vuuren and Nieman, 1999). Van Vuuren and Botha (2010:4) state that this model, E/P, "*is concerned with elements that drive entrepreneurial performance and was developed to guide syllabi and curriculum development.*"

The researcher discusses the entrepreneurial model developed by Van Vuuren and Nieman (1999), and tries to relate it to the ICT theory, namely UTAUT discussed in the previous chapter. It is not clear at this point whether ICT forms part of the model or is to become an underlying construct that can be added on if and when needed. This should become apparent as the research unfolds.

Before each of the constructs is discussed one has to take cognisance of the following: One of the authors, Van Vuuren, supervised a PhD student in 2008 (Kunene, 2008:64)[9]. During the student's dissertation, the researcher investigated various entrepreneurial skills training models and found that ICT should be incorporated as part of the business skills construct. A new construct, namely technical skills was added. However, in this sense, the technical skills required refer to skills required to be able to produce or manufacture products, "*including vocational and specialized expertise that enables the business to develop and produce the products and services at the acceptable quality.*" Contrary to this statement, Botha *et al.* (2007:165) note that "*taking advantage of technology*" can also be part of technical skills. However, ICT is regarded as part of eight other skills that form part of the entrepreneurial skills to assist management (Kunene, 2008), although ICT is not seen as a crucial part of survival for the business. In the second part of her literature review, Kunene (2008) found that ICT does not form part of the crucial skills required by an entrepreneur but indeed forms part of the supportive skills needed. She found that ICT was only required for the first stage, which is the incubation stage, this is discussed in more detail in the business skills section, section 3.3.4. As mentioned earlier, it is important to see where ICT fits into the model according to the literature.

Before the detail of the model is discussed, it is important to determine the meaning of the variables a, b, c and d in the model. These variables mean that at each construct implies some basic skills exist, and thus the assumption is that these skills will feature on various levels and will have a direct influence on the construct under discussion.

3.3.1   E/P = Entrepreneurial Performance

It is noted that two concepts exist, namely opportunity or rather the utilisation of an opportunity, and the growth of the business influencing E/P. What is important to note is that should any one of the following constructs be missing for the entrepreneur, there will be no increase in his or her performance (Kunene, 2008). Van Vuuren and Botha (2010:5) mention that E/P can be presented as the following:

1. Increase in productivity
2. Increase in the number of employees employed
3. Net value of the business

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[9] A critical analysis of entrepreneurial and business skills in SMEs in the textile and clothing industry in Johannesburg, South Africa

4. Increase in profitability
5. Completion of the first market-related transaction.

Personality and work environment can increase the performance of the entrepreneur.

3.3.2   M = Motivation

Motivation was introduced in the previous chapter and relates to the performance expectancy of the UTAUT model. This means that performance expectancy relates to the way in which one believes that a specific system or ICT will benefit one in one's day to day activities (Venkatesh *et al.*, 2003). Van Vuuren and Nieman (1999) point out that the relation between motivation and performance is the desire to be successful, *"Motivation is seen as the entrepreneurs' level of need for achievement"* (Ladzani and van Vuuren, 2002:156). Van Vuuren and Botha (2010:5) simply ask, "*What motivates a person to start his/her own business?"*

Success seems to be directly related to the difficulty of the task at hand; in other words, "*the easier the task the greater the humiliation at failing*" (van Vuuren and Nieman, 1999:4). Regarding the mathematical argument of motivation and the tendency to perform a task, motivation is described as follows by Van Vuuren and Nieman (1999:4):

- *"Ms = strength of the motive to approach success*
- *Ps = subjective probability of success*
- *Maf = avoid failure*
- *Pf = probability of failure*
- *Is = incentive value of success*
- *If = incentive value of failure*

Thus the tendency to approach success is then defined as (Ms x Ps x Is) and the tendency to avoid failure as (Maf x Pf x -If). The final tendency to perform some task T is the difference between the two tendencies.

Therefore:

T = (Ms x Ps x Is) - (Maf x Pf x -If)

= Ms - Maf(Ps[1-Ps])"

This means that people who are highly motivated seem to be more willing to take risks and work hard to achieve their goals. It is almost clear that they are driven by success if one looks at the constructs above and success seems to be measured in monetary value. These highly motivated people spend more time "*figuring out"* more difficult tasks (van Vuuren and Nieman, 1999). As mentioned earlier, there seems to be a strong correlation between motivation in the entrepreneurial training model and performance expectancy in the UTAUT model. Performance expectancy focuses on "*Perceived usefulness, job-fit, extrinsic motivation, relative advantage and outcome expectations"* (Venkatesh et al., 2003:447) and performance expectancy is the strongest construct when looking at ICT adoption or even just the intention to use ICT. An entrepreneur should be motivated to be successful but for him- or herself, not because it is required by society (Pretorius *et al.*, 2005). This is in contrast with the social

influence construct of UTAUT that focuses on what others think of one when using the system as well as on other external pressures. It is noted at this stage that for an entrepreneur to be successful, this part of the construct of UTAUT might not be relevant although these individuals might be influenced by external pressures, such as families and friends they should not feel they have to prove something to anybody; this is investigated in more detail in Chapter 5 and Chapter 6.

Van Vuuren and Nieman (1999) state that performance motivation can be developed if included in a training program and provided with a network of support. Van Vuuren and Botha (2010) point out that a need to achieve plays an important part and that this need can be fostered through training interventions. This motivation is the motivation to become a successful entrepreneur, to make money; however, this can also relate to ICT acceptance and adoption. By including training in specific technologies one can improve the motivation to adopt these technologies.

3.3.3   E/S = Entrepreneurial Skills

The reason for stating that one needs specific entrepreneurial skill is the fact that one has to distinguish between an entrepreneur and a manager as they are two different aspects as mentioned earlier. Whereas one can train someone in a specific work domain with the relevant knowledge and skills required to perform certain tasks, such as an accountant for example, life in the entrepreneurial domain cannot be taught as there are no real life actual theories that can be tested. One can teach an entrepreneur fundamental knowledge but there are no theories to assist in everyday uncertainties that entrepreneurship will bring about (van Vuuren and Nieman, 1999).

Van Vuuren lists the following necessary skills or characteristics that are incorporated in their model:
- Creativity and innovation:
  - Creativity

    It is interesting to note that Couger, Higgins and McIntyre (1993) mention the need to be able to solve problems creatively in this competitive environment, to be innovative, solve problems in new ways. Antonites (2003) conducted a study of 70 different training programmes globally and found that creativity and innovation are included in 74% of them; there is a global recognition of creativity in entrepreneurial training.

    There are various definitions of creativity (Couger et al., 1993; Dinicaa, Dinescua and Miron, 2010; Tsai, 2012; Barlow, 2001; Seidel, Muller-Wienbergen and Becker, 2010). One such definition is, "*Creativity is the ability to see a challenge or problem in a new light and thus to find solutions that have not have been obvious before*" (Dinicaa et al., 2010:3732). Couger *et al.* (1993:376) list various other definitions, including a quotation from Ciardi (1956), saying *"Creativity is the imaginatively gifted combination of known elements into something new"*. In integrating the above definitions for creativity *"creativity is seen as an ability to see a problem in a different way and being able to use known elements to either*

create something new or to find solutions to existing problems" (Steyn, Matthee and Turpin, 2013:2).

Teece (2007) indicates that opportunity identification relates strongly to the individual's capability to think creatively, especially for an entrepreneur as *"opportunity discovery and creation can originate from the cognitive and creative ('right brain') capacities of individuals"* (Teece, 2007:1323). Seeing and identifying opportunities and acting on them early enough ensures that an entrepreneur is proactive as explained by various authors, such as Kreiser, Marino and Weaver (2002), and Wickland and Shepherd (2005) in Dhliwayo and Van Vuuren (2007); this could lead to addressing a gap in the market first and thereby seizing the opportunity and shaping the environment. The question asked by Van Vuuren and Nieman (1999:6) is *"whether a person needs to be creative to be an entrepreneur?".* It seems as if the answer is negative, although creativity can assist one in becoming more innovative.

o   Innovation

Innovation is defined by various scholars as the process of new idea development and these new developments are then taken to the market (Wonglimpiyarat and Yuberk, 2005). It is also seen as something new to whoever needs to adopt it (Hameed *et al.*, 2012). Rogers in Hameed *et al.* (2012) state that to adopt innovation, one intends to use it to its full extent, thus for its intended purpose.

Innovation is also only seen as being successful if it has been integrated into the specific context and used over an extended timeframe (Hameed et al., 2012), they continue to say that innovation is either due to a reaction to a change in the environment or where routine operational functions require some kind of new action. Entrepreneurs bring something new to the table, something innovative and they essentially have to be the creators of the vehicle used to diffuse ICT or technological innovation (Miller and Garnsey, 2000).

Even though creativity and innovation seem to go hand in hand, Van Vuuren and Nieman (1999) note that it is more important for an entrepreneur to be innovative than creative.

▪ Risk taking

One either takes risks or avoids them and it seems that the more knowledge an entrepreneur has of a specific situation, the easier and more inclined he or she is to take risks (van Vuuren and Nieman, 1999). Thus it becomes evident that entrepreneurs will search for information on a specific topic to increase their knowledge, which could be a reason to train entrepreneurs in effective information searching on the Internet.

▪ Identification of opportunities

One can only be successful if opportunities are taken. One has to distinguish between an idea and an opportunity (van Vuuren and Nieman, 1999). Kirzner (1973) in Teece (2007) indicates that opportunities, especially for entrepreneurs, open up the business market to newcomers, and these opportunities are noticed by enterprise due to two factors. The first is the notion of having access to current information, and the second, opportunity created by new knowledge

and information. For a business to stay ahead of the pack, the current markets constantly have to be scanned to identify new opportunities, and trends. Teece (2007) indicates that when opportunities lurk on the horizon, one cannot just jump into these opportunities blindly; one must first understand these opportunities, identify the specific market segment, and investigate which technologies to pursue to ensure a competitive business venture. He continues by saying that even though entrepreneurs should be able to identify gaps or needs in the markets and see how they can address these needs, they should also be able to see the gaps or needs in ICT or how ICT can be used to assist them in bridging these gaps and engaging in these opportunities. For example, once an opportunity is realised by the entrepreneur, ICT such as the Internet can be used to see if there are available solutions that he or she can bring to the specific market segment or whether e-mail can be used to place orders with vendors. Together with resources (finance) and an entrepreneur team (HR), marketing skills (response to the opportunities) are seen as crucial for the survival of the business as these three could cause the business world of an SME to collapse (Kunene, 2008). There seems to be a strong correlation between seizing market opportunities and addressing or grasping those opportunities by using ICT. Thus the notion of being able to search relevant information effectively on the Internet becomes important.

3.3.4   B/S = Business Skills

Van Vuuren and Nieman (1999) list a number of business skills that are required for an entrepreneur. It does seem that these business skills are the more practical aspect of the entrepreneurial training model:

• Business plan

• Financial management: a number of financial management skills are noted by Van Vuuren and Nieman (1999:8). These are "*Keeping financial records, understanding taxes as well as cash flow management, including knowledge regarding a cash budget, ratio analysis, interpreting business ratios and understanding financial statements*". Although the curriculum will not ensure that whoever completes the course is a financial expert or accountant, the basic fundamental financial principles are important to understand. Van Vuuren and Nieman (1999) continue by dividing a business into four stages, namely incubation, infancy, breakthrough and maturity, which are the phases a business will go through as it grows. However, for the purpose of this thesis it seems as if only incubation and infancy are relevant. During incubation an entrepreneur needs to be able to plan the business start-up, understand a cash flow budget and perform a breakeven analysis. During the infancy phase, one should be able to do short-term planning, manage one's working capital, start record keeping of financial transactions and source finance if required. Ladzani and Van Vuuren (2002) note that the propability of failure for small firms increases with a lack of financial control. As the entrepreneurs focused on in this thesis are all novices, one had to see how they can, if at all, use ICT to assist them in financial skills; one of the opportunities is to see if they can use something such as MS Excel to assist them in their financial management.

- Marketing: a successful entrepreneur is one who knows the target market and customers' needs and can address those needs. ICT can be used to assist entrepreneurs in creating their own website, or even a presence on a social media site such as Facebook, which can assist them in connecting with a much larger target audience than before.
- Operational skills.
- Human resources skills.
- Legal skills: it is not necessary for an entrepreneur to become a legal expert but to understand basic legal aspects and terms as this can help setting up and managing various contracts such as employment contracts, sales contracts, and lease agreements. It will also be beneficial to be able to draft a contract by using a tool such as Microsoft Word to structure an outgoing documentation effectively.
- Communication: an entrepreneur must have good writing skills, listening skills and be able to talk to anybody. One way in which ICT can be used to assist entrepreneurs in enhancing their communication, is by ensuring not only access to a mobile device but also to an email account, which is another gap identified in the training.
- Management: leadership is one of the key aspects for an entrepreneur as this assists in having control over one's business.

It is clear at this stage that this model has to focus on business needs; there is no link to ICT. A basic mapping was done by the researcher that can assist the entrepreneur in deciding which ICT training to undergo. The need for e-skills training that starts to emerge is the following:

- Business plan – Microsoft Word
- Financial management – Microsoft Excel
- Marketing – Website design from a template, social media
- Legal skills – Microsoft Word
- Communication – mobile device, email account

These ICT skills are explored in this thesis to determine whether they are relevant or not. Thus one can tentatively state that ICT training is part of B/S training, which could change the E/P constructs as follows: where T = ICT training and e means the same as a, b, c, and d, which says that everybody will have some kind of knowledge or experience already that might influence their adoption or not.

$$\text{"E/P} = a + bM[(cE/S \times (dB/S + eT))]\text{"}$$

As this study focuses on a government initiative currently in place, certain levels for e-skills training have already been identified (e-Skills_Institute, 2013). These levels are basic literacy, intermediate literacy, advanced computer literacy, software-specific literacy and business literacy. For the entrepreneurial focus of this thesis, only basic literacy is relevant as the entrepreneurs were either in their incubation or infancy phase, and the researcher was confident that the findings would corroborate this.

The research by Van Vuuren and Nieman (1999) introduces the model and discusses various other traits that needed to be developed. However, they have all been categorised into the constructs above and focus more on the personality traits, such as expectations of success and failure, the will to fulfil a need, and so on. Even though they are important for the model, they are irrelevant to this thesis as they relate to the psychological aspects of the entrepreneur.

3.3.5   Implementation of the model

One of the biggest gaps related to entrepreneurship training is the relevance and impact of these training interventions on the entrepreneur. Even though numerous interventions and models exist, and the E/P model was selected for this study, it is important to show that this model has been implemented in various entrepreneurship training interventions and to prove that the constructs mentioned above can be practically implemented. E/P is currently implemented as part of a three year degree in entrepreneurship or post-graduate studies (van Vuuren and Nieman, 1999; Pretorius et al., 2005). Marcati *et al.*(2008) recommend that policies should not focus on external barriers only but rather on the human capital, and that greater investments should be made, both in primary and secondary education levels that will focus on basic creativity training. At higher education levels, such as a university, more focus and support should be given to entrepreneurs and to help these entrepreneurs form connections with the business world, which is indeed happening at this stage of the model.

Ladzani and Van Vuuren (2002) acknowledge that all the constructs of this model must be in balance to ensure successful entrepreneurs and that entrepreneurship training should be one of the basics in starting a business. Even though this program is successfully implemented in a degree program, it is also implemented as part of various short courses. Examples of short course implementations are discussed next as the short courses make more sense to reach the maximum number of people in a short time frame and this thesis focuses more on short courses than degree programs.

During a practical implementation study of the model of Van Vuuren and Botha (2010), incorporating ICT training into the business skills section, which is recommended by Kunene (2008), did not take place. This model was implemented at three different training interventions, namely business start-up, basic entrepreneurship and advanced entrepreneurship programs. As this thesis focuses on assisting the government initiatives to get more entrepreneurs participating in the country's economy, it focuses on the intervention called the business start-up entrepreneurship program only.

According to Van Vuuren and Botha (2010:3) the business start-up program assists entrepreneurs in starting their own businesses, where the basic entrepreneurship program guides entrepreneurs "*how to run and manage their micro businesses more effectively and respondents on the Advanced Entrepreneurship programme are assisted to grow their established businesses.*" Each one of the programs is followed by a mentorship program, which then assists all the entrepreneurs with specific individual needs.

The business start-up program is designed to equip delegates with the basic concept and principles of entrepreneurship to assist them in starting their own business. "*The target audience are individuals with a business idea but has never operationalized this idea*" (van Vuuren and Botha, 2010:11). "*Critical skills such as the content, strategies, and processes of entrepreneurship, creativity, innovation and opportunity recognition as well as an introduction to basic business skills are included in this programme.*" It is important to point out that no mention is made of any ICT or e-skills required; not even in the basic entrepreneurship or advanced entrepreneurship program is ICT mentioned. Each delegate selected to complete one of these courses was interviewed by the course leader and he then placed the candidate in the course he thought was the best. Training takes place as follows: a.) Five consecutive days' onsite training during one week (40 contact hours); b.) A 12-week mentoring program with the entrepreneurs who have successfully completed part A. The mentors have 60 minute sessions each week with each individually trained entrepreneur working through a step-by-step process to guide him or her in starting his/her business (van Vuuren and Botha, 2010). Van Vuuren and Botha (2010) point out that there are various entrepreneur training models that exist; however, not many of these models are practically implemented or measure the impact on the entrepreneur. This research set out to do just this. Prerequisites for the start-up program are the following:

a.) Business idea but not operationalised.

b.) Having at least a grade twelve qualification.

c.) Training needs matching those of the start-up requirements based on the interviews conducted as mentioned earlier.

In their paper that investigated the practical implementation of the start-up program, 247 entrepreneurs were investigated (van Vuuren and Botha, 2010). In the quantitative study they measured the entrepreneurs three times, before the training, directly after the training and then ten weeks after they had completed the training.

The results showed that between the pre-test and post training tests, skills transfer did take place and that the trainees did gain general managerial (business) skills, thus confirming that the B/S training can be applied to this group of entrepreneurs. They also found that performance motivation increased for all the entrepreneurs after completion of the training; thus this means that motivation is seen as an indicator and relevant in the training model. In the end they found that all the constructs of E/P can practically be implemented in a training intervention. An important observation to make at this stage is that the questionnaire that was distributed to the trained entrepreneurs in this thesis, was sent to a large number of the entrepreneurs trained in the study by Van Vuuren and Botha (2010) and it will be interesting to see the success, or not, of their businesses in a few years' time.

3.4 Additional entrepreneurs' training models and programs

Even though this thesis is based on a specific program incorporated into the e-skills project based on the model discussed in the previous section, it is important to understand entrepreneurship education in various other contexts fully. Although there is an almost unlimited supply of models and programs a few were investigated and discussed to understand the way in which they are applied in different contexts. This assisted in understanding how the model used in this thesis was selected and can be applied.

In a Ph.D. study conducted by Kunene (2008), she investigated numerous entrepreneurship training programs of which three were specifically designed to focus on the South African context. One of the models she discusses is the content model for entrepreneurship education (E/P) that is the core training framework used in this thesis. The remaining two models as well as other entrepreneur education or training models are discussed next. Each model or program follows a similar format that is used when the adoption models are introduced:

- Name of the model or program
- Origin and design of the model or program

Name of model or program: The Entrepreneurial Education Model (E/E)

Origin and design of model or program; E/E was designed in the South African context with its foundations based on the E/P model as developed by van Vuuren and Nieman (1999). The only construct that was added is that of the facilitator (Kunene, 2008; Pretorius et al., 2005) where the facilitator's motivation, knowledge and skills influence all of the other entrepreneurial efforts. This highlights a new issue where one might need to look at the way in which education is being delivered, thus looking at the how and not necessarily the content of the entrepreneur training but rather pedagogy (Pretorius *et al.*, 2005). Although this thesis is not based on the pedagogical delivery of the training, Section 3.5 looks into this:

> Where: "E/E = f{aF(bA x [cB/P x dE/S x eB/S)]}"
> E/E = entrepreneurship education for start-ups
>
> F = Facilitator's skills, knowledge and motivation
>
> A = Approach used by facilitator
>
> E/S = entrepreneurial success themes and knowledge
>
> B/S = Business skill and knowledge
>
> B/P = Business plan utilisation
>
> a, b, c, d and e are co-coefficients

Except for adding the facilitator, this model has separated the business plan from the business skills and knowledge section; the rest of the model is similar to E/P.

Name of model or program: The Education for Improved Entrepreneurial Performance Model (ED of ↑E/P Model) (Pretorius *et al.*, 2005)

Origin and design of model or program: In a study called "*Critical evaluation of two models for entrepreneurial education: An improved model through integration*" (Pretorius *et al.*, 2005) found that both the above mentioned models can be improved by incorporating various additional constructs. The new model proposed is the following:

Where: "Ed for E/PP = f{aF x bM x [cE/S x dB/S x (eA + fB/P)]}"
F = Facilitator's ability, skills and experiences
M = Motivation
E/S = entrepreneurial skills
B/S = business skills and knowledge
A = approaches to learning used
B/P = Business plan utilisation as an approach
a, b, c, d, e and f are constants coefficients

Again this model focuses on the E/P as the foundation with the facilitator construct added, which includes ability, skills and experience, which is different from E/E that includes motivation as part of the facilitator. Now motivation is regarded as a separate construct. The learning approach is now more important and not necessarily just the approach used by the facilitator.

Name of model or program: Women Entrepreneurs Program (WEP)
Origins and design of model or program: In a study on women entrepreneurs Botha *et al.* (2007) developed a program called Women Entrepreneurs Program (WEP). The model they used for the training consists of a combination of models, including the E/P model. In fact, al the constructs of E/P were used, with added constructs such as the facilitator's ability, the facilitator's learning approaches and business plan utilisation.

Even though these extra constructs were included in WEP, the basis of E/P was of interest to the researchers (Botha et al., 2007) and was the focus of the investigation. What is interesting is that in their study, their data gathering technique followed the same pattern as Van Vuuren and Botha (2010) and although the two papers share two authors, the focus groups are different but it seems as if the way of measuring is a standard test that can be used in measuring the effectiveness of entrepreneurial training.

The questionnaires were a pre-test, a post-test and then a post-post-test. Botha *et al.* (2007) found that the entrepreneurs were much more motivated after WEP, to such a degree that during the post-post-test most of the entrepreneurs trained had a significant increase in their financial indicators, such as turnover, profit, ROI and assets. They also found that the training assisted the entrepreneurs in enhancing their business and entrepreneurial skills. The fact that the businesses expanded so much

over a short period of time was unexpected for the researchers; however, it confirmed the positive impact that WEP training had on the entrepreneurs. Table 3 show the skills that should be included in entrepreneur training based on WEP.

Entrepreneurial performance (E/P)	Performance motivation (M)	Entrepreneurial skills (E/S) and entrepreneurial success themes	Business skills (B/S)	Facilitator and program context (F)	Approaches to learning (A)	Business plan utilisation (B/P)
Establishment of own business	Motivation	Risk propensity	General management Skills	Previous experience of facilitator and participants	Involvement of participants	Elements
Growth in net value of business	Mentorship	Creativity and innovation	Marketing skills	Outcomes of the program	Learning approaches used	Preparation
Recruitment of employees	Role models	Opportunity identification	Legal skills	Needs analysis of participants		Presentation
Increasing productivity levels		Role model analysis (success factor)	Operational skills			Evaluation
Increasing profitability		Networking	Human resource skills			
		Leadership	Communication skills			
		Motivation	Financial management			
		Attitude of participant	Cash flow management			
		Social skills				
		Start-up skills				

Table 3: Improved entrepreneurship training model (Botha et al., 2007:166)

What is evident from all these authors is that almost none of them recognised ICT or technology as a required skill that should be included in some kind of training. This is a problem as small businesses are regarded as the engine that drives a country's economy (Pretorius et al., 2005; Mutula and van Brakel, 2007) as mentioned earlier. Mutula and Van Brakel (2007) mention that 60% of Europe's economic activity is contributed by SMEs and 99% of the total number of companies in Turkey are SMEs. Another influencing factor to be considered in our current ICT driven-economy is that of using ICT in such a way that it will benefit the growth of the entrepreneur or SME. This thesis hopes to address this problem and provide guidance on the ICT skills required by an entrepreneur to use technology to become successful.

Name of model or program: Process Model of Entrepreneurship Education

Origin and design of model or program: This model was introduced by Hynes (1996:12) and "*was developed … in the context of experience at the University of Limerick plus observations from other educational and training institutions*", and was implemented as part of a university degree. Although the model focuses on various aspects of business, the role of facilitators is extremely important as they are the only ones who can establish a balance between theory and the practitioner. Hynes (1996) continues to say that for any training or education program, clear goals should be defined as one needs to determine what needs to be taught as well as "how to" and "who with".

In Figure 7 the Process Model of entrepreneurship education can be seen. Although this model includes a large number of focus areas, technology is mentioned only as part of the macro environment and when the assessment and evaluation is proposed, it is proposed that presentations must be done using visual media; one can assume that technology is included in this part of the program but it is not one of the focus areas.

Inputs	Process		Outputs
Students	**Content focus**	**Teaching focus**	**Outputs**
Prior knowledge base	Entrepreneurship defined	Didactic (reading/ lectures)	Personal (confidence communication)
Motivation	Intrapreneurship	Skill building (case studies group discussions, presentations, problem solving, simulations, teamwork, projects)	Knowledge (enterprise, initiative, self-employment, business, management and market skills, analytical, problem solving, decision making, communication, presentation, risk taking)
Personality	Innovation		
Needs/interests	New product development		
Independence	Idea generation		
Attitudes	Market research		
Parental influence	Feasibility of idea	Discovery (brainstorming, personal goalsetting, career planning, consultancy)	Career (improved knowledge, broader career options, broader less structured career perspective)
Self-esteem	Finance		
Values	Production		
Work experience	Regulations		
	People management		
	Teamwork		
	Business		
	Marketing		
	Management		

Note: "Environment" includes local learning environment and broader macro environment

Figure 7: Process model of Entrepreneurship Education (Hynes, 1996:13)

This model by Hynes (1996) was successfully implemented in a course at the university and he encountered a few problems; one mentioned was the lack of resources and facilities. This once again underscores UTAUT's facilitating condition needs as discussed in Chapter 2.

Searching for additional entrepreneurship education training programs led to a literature survey recently conducted by Azim and Al-Kahtani (2014), based on entrepreneurship education and training in which they summarise the content that various authors identified as required in entrepreneurship education and training (EET) programs; they are shown in Table 4.

Study	Contents
Timmons, Muzyka, Stevenson and Bygrave (1987)	• Business plan
Johannisson (1991)	• The know-why (attitudes, values, motivations) • The know-how (abilities) • The know-who (short and long-term social skills) • The know-when (intuition) • The know-what (knowledge)
Noll (1993)	• By researching customer insights, conducting a self-assessment of personal creativity, conducting a feasibility study, and identifying various business entry strategies. • By assessing personal resources and financial status, researching and evaluating the risks necessary to get started, writing a working business plan, and approaching others for money and other resources. • By learning to allocate resources, using various marketing strategies, and managing money and personnel.
Garavan and O'Cinneide (1994)	• The formation stage: Emphasis: General business knowledge content: The business world, the nature of entrepreneurship, the characteristics of effective teams and the nature of business transactions and activities. • The development stage: Emphasis: Skills and attitude. Content: Business planning, market selection, financial planning, product identification and making financial presentations. • Implementation stage: Emphasis: General knowledge and attitude Content: Financial planning, managing company growth, management functions and attitudes and making the transition from entrepreneur to manager.
Kourilsky (1995)	• Opportunity recognition: The identification of unfulfilled needs in the marketplace and the creation of business ideas. Observation of the market, insight into customer needs, invention and innovation. • Marshalling and commitment of resources: Willingness to take risks as well as skills in securing outside investment. • The creation of an operating business: financing, marketing and management skills.
Rae (1997)	• Communication skills, especially persuasion • Creativity skills • Critical thinking and assessment skills • Leadership skills • Negotiation skills • Problem-solving skills • Social networking skills • Time-management skills

Hisrich and Peters (1998)	• Technical skills: Include written and oral communication, technical management and organising skills. • Business management skills: Include planning, decision-making, marketing and accounting skills. • Personal entrepreneurial skills: Include inner control, innovation, risk taking and innovation.
Vesper and Gartner (2001)	• Concept of entrepreneurship • Characteristics of an entrepreneur • Value of entrepreneurship; • Creativity and innovation skills. • Entrepreneurial and ethical self-assessment. • Networking, negotiating and deal-making • Identifying and evaluating opportunities • Commercialising a concept • Developing entry strategies • Constructing a business plan • Finding capital • Initiating the business • Growing the business • Harvesting strategies
Onstenk (2003)	• Motivation, need for autonomy and independence, creativity and originality, taking initiative, risk taking, looking for possibilities, posing challenging objectives, self-confidence, internal locus of control and endurance. • Operational management, personnel and organisation, financial administration, marketing, financial management and making a business plan. • Recognising business opportunities, interpretation of market information and the development of customer orientation to the development and effective operation of relation networks and the building of an innovative organisation.

Table 4. Summary of the content of an EET programs (Azim and Al-Kahtani, 2014)

This section lists "other" training programs and models and highlights what various authors include in their entrepreneurship education and training. What is interesting is the limited focus that most of these programs has on any ICT training. Some of them briefly mention technology environments but they are not included in these models and thus the need to include ICT is all the more evident.

3.5 Training techniques

As training should inspire an entrepreneur to want to become successful, the actual delivery of the training is extremely important. However, this thesis does not look into the pedagogy of teaching as this lies outside the scope of this thesis, but looks at ways recommended by various authors of how to deliver training specifically to entrepreneurs. Gibb (1993) notes that small business owners or entrepreneurs typically "learn by doing", i.e. by practically experiencing a specific situation that they

encounter along the way. He adds that whoever provides the training must understand that there are different ways in which people learn and process information and the facilitator must be able to move away from the traditional way of teaching. Table 5 shows the difference in teaching techniques required when training entrepreneurs to ensure they are inspired. In this table the enterprising method is the one that relates to entrepreneur training. The didactic model favours the traditional teaching approach and this approach does not work when teaching entrepreneurs.

Didactic method	Enterprise method
Learning from teacher alone	Learning from one another
Passive role as listener	Learning by doing
Learning from written text	Learning from personal exchange and debate
Learning from "expert" frameworks of teacher	Learning by discovering (under guidance)
Learning from feedback from one key person (the teacher)	Learning from the reactions of many people
Learning in a well-organised, timetabled environment	Learning in flexible, informal environment
Learning without pressure of immediate goals	Learning under pressure to achieve goals
Copying from others discouraged	Learning by borrowing from others
Mistakes feared	Mistakes learned from
Learning by notes	Learning by problem solving

Table 5: Didactic and enterprise learning modes (Gibb, 1993:24)

As stated earlier, this thesis does not explore the actual training and teaching methods in depth, but it is important to realise and understand that the training required by these entrepreneurs should be facilitated in a different approach from the typical traditional classroom style teaching method as entrepreneurs have to think laterally to be creative and innovative in their business approaches. If a facilitator cannot think laterally when teaching, how can he/she inspire entrepreneurs to do so?

3.6 Chapter Conclusion

Entrepreneurial training ensures that an entrepreneur at least knows the fundamental basics of what is required in the business world. However, most of the training initiatives do not focus on how ICT can be used to assist entrepreneurs. This chapter investigates various entrepreneur training and education models, with the primary focus on the content model for entrepreneurship education (E/P) developed by Van Vuuren and Nieman (1999). Together with UTAUT, it forms the basis for this thesis. It is recommended that ICT training form part of the business skills training as this is the area where most of the entrepreneurs are able to use technology. Pretorius et al. (2005) note that in entrepreneur training the context within which it is delivered determines the actual content but they also emphasise that no

construct should be overlooked and that *" the educational programme is, therefore, only as good as its weakest construct"* (Pretorius et al., 2005:424).

This chapter set out to answer the following sub-question as introduced in Chapter 1:

How can the gap in the content model for entrepreneurship education be addressed?

Although the "how" of this research question has not been answered in this chapter yet, it investigates what the gap in the content model is and where ICT training can be incorporated. It has become apparent that ICT training has to be incorporated as part of business skills training.

The next chapter introduces the research methodology used in this thesis. It also explains the data collection process to ensure the credibility of the data analysis.

Chapter 4   - Research methodology
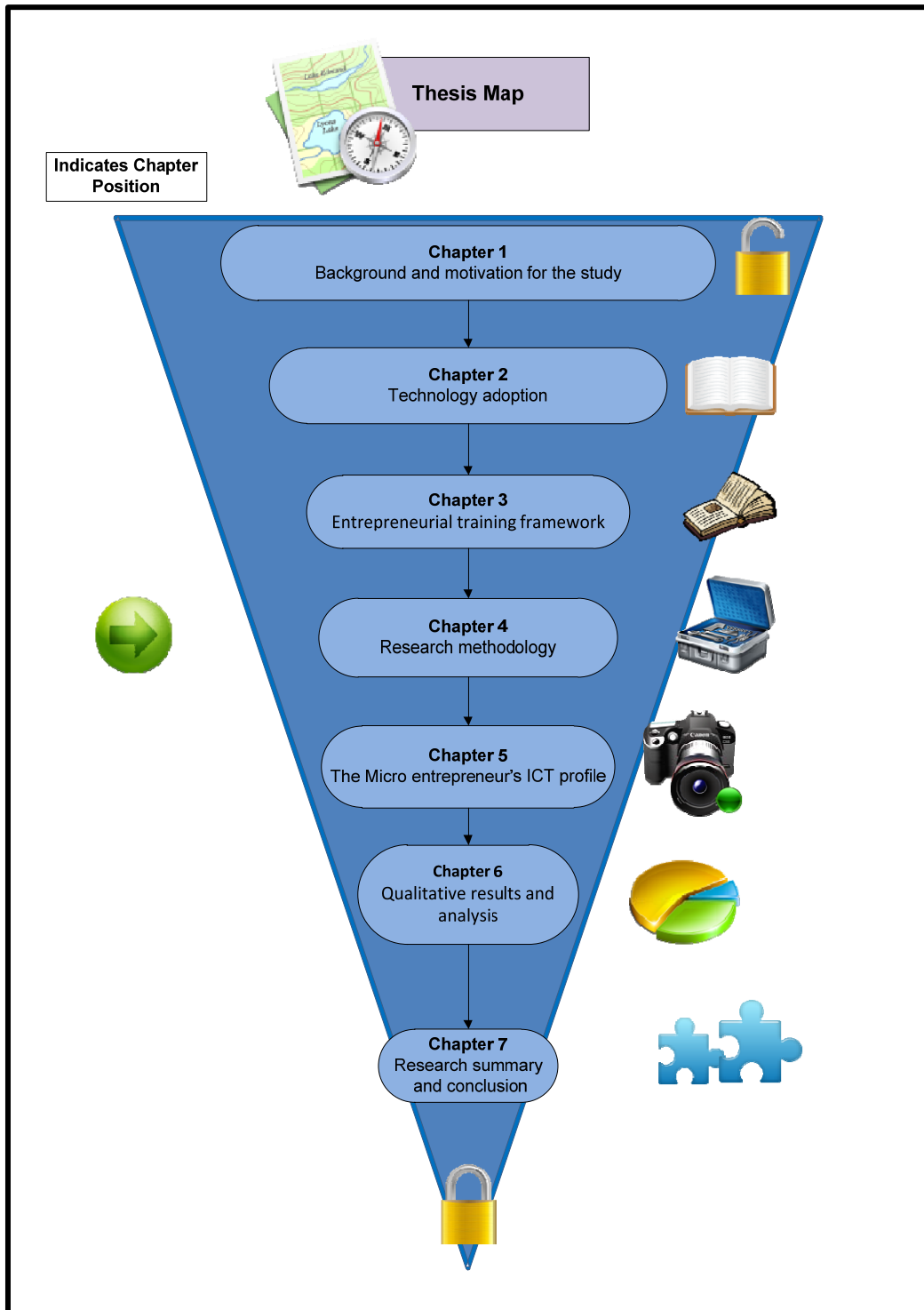
4.1   Introduction

If I ask you how you brush your teeth each day, chances are good that you will be able to respond rather quickly, but chances are also very good that you might leave out one or two steps because you perform certain actions intuitively. However, each step you follow is imperative to achieve the ultimate result, which is clean white teeth. In the same way that we have to follow certain steps to achieve our goal, we have to realise that there are certain steps or approaches we need to follow when conducting research. It is for this reason that the researcher used a specific approach in this thesis. This chapter introduces the research process followed, the research philosophy, approach, strategy, data collection methods as well as the time horizons. This chapter also introduces the research population and participants.

4.2   Research process

In a book titled "*Research methods for business students"* Saunders *et al.* (2003) introduce the research process onion, that can be viewed in Figure 8. This process forms the basis of this chapter to explain in detail the approach followed in this thesis. This approach aknowledges that one has to start conducting research in the same way as one would peel an onion. The outer layer has to be decided on first and then each layer represents the next step to follow. This study is a quantitative as well as a qualitative study that includes interviews and questionnaires as part of a survey strategy. The data in the qualitative study was analysed by using a hermeneutics approach as described by Myers (2009) and the quantative data were analysed following various techniques, such as frequency analysis and multiple response to name but a few; these are discussed in more detail in this chapter. The reason for following these two approaches becomes clear in this chapter.
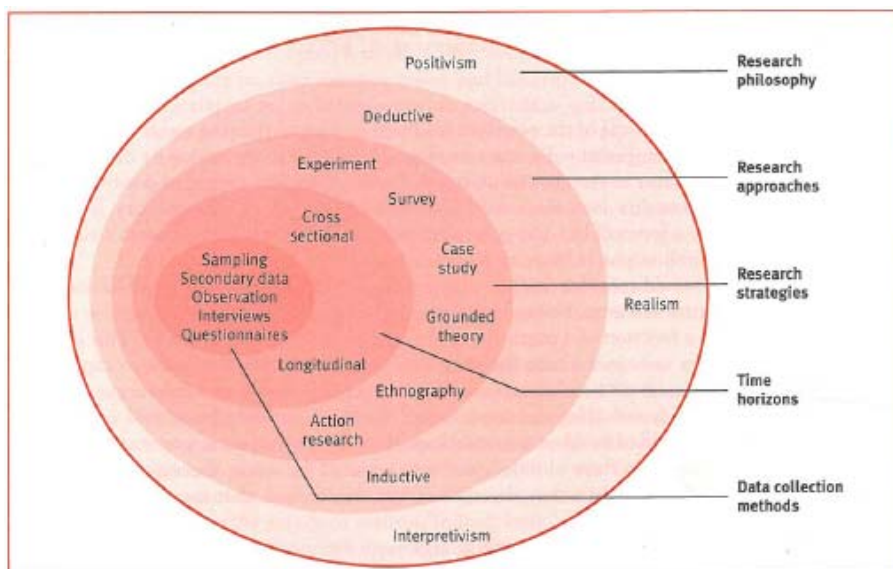
Figure 8: The research process onion (Saunders et al., 2003:83)

4.2.1   Research Philosophy

As previously mentioned, entrepreneurs are the focus of this study and most of the entrepreneurs are also the decision-makers in their business. This is due to the fact that their businesses are mostly "*one-man-shows*" or have a limited number of employees, with the owner also being the manager and thus the decision-maker. Saunders *et al.* (2003) realise that business situations are unique and complex and that there is a huge focus on the social context within which these businesses operate. They add that the motivation behind one's actions comes into play, linking it to the E/P model. Because we work with people, and the way in which they interpret certain situations and take actions according to these situations clearly identify interpretivism as the best philosophy for this study. "*It is therefore the role of the interpretivist to seek to understand the subjective reality of those that they study in order to be able to make sense of and understand their motives, actions and intentions in a way that is meaningful for these research participants*" (Saunders et al., 2003:84). What is interesting to note at this point is that Bloomberg and Volpe (2008) postulate that interpretivism can also be called social constructivism or naturalistic inquiry. For this thesis the stance used is the Interpretivsm philosophy. Myers (2009) as well as Klein and Myers (1999) point out that human sense-making is complex and that one cannot have pre-defined variables when conducting the research. They continue to say that sense-making from an interpretivist point of view is done by "*social constructions such as language, consciousness, shared meanings and instruments*" (Myers, 2009:38; Klein and Myers, 1999:69). The realities and perceptions a person creates from personal experience, which give way to meaning for them, are what the research should try to understand (Bloomberg and Volpe, 2008). Lin (1998) states that one's actions or beliefs, whether conscious or unconscious, can be uncovered by interpretivism and can become understandable; even the place, time or particular culture can be understood by using interpretivism. However, she acknowledges that the context of the study is important, which is also confirmed by Wagner *et al.*(2012) who point out that reality is limited to its context, space and time, as well as the group or individual being studied. Wagner *et al.*(2012) continue to say that interpretivism is to understand and ultimately being able to describe human nature. They add that the ontological assumption is that "*multiple socially constructed realities*" exist (Wagner et al., 2012:54) and that "*value is an integral part of social life; no group's values are wrong, only different*"; similarly Bloomberg and Volpe (2008): *state* that it is value-bound and thus the meaning gathered is influenced by the context within which it is studied as well as the researcher him- or herself.

Myers (2009) continues to say that for a researcher to understand the context of the research, he or she cannot stand outside of the subject matter and look inside but rather one has to look from the inside out. The researcher is a subject in the study and has to understand the context of the phenomenon being researched. Wagner *et al.* (2012) continue to say that the researcher has to build trust among the participants and that the researcher will have to describe herself, her values, biases and relationships to the study and to the participants. It is for this reason that

the researcher herself attended the entrepreneur course in 2011 to understand what is being taught and how entrepreneurs think. This provided a better understanding of the E/P model that forms the basis of the entrepreneur's course. It is also for this reason that the next chapter first determines an ICT profile of the entrepreneur, as this provided the researcher with a better understanding of the subject being researched and the context of how the entrepreneur thinks and relates to ICT. Myers (2009) continues to say that a good theory will help the researcher understand the people being studied, specifically their intentions; thus the reason for selecting the UTAUT model of ICT adoption (Chapter 2) and the E/P model (Chapter 3).

What is also important is the plausibility of the data (Myers, 2009). This can be obtained by having various sources as well as having a clear description of how the data were gathered. It is also the way in which the text connects to the personal and professional experience of the reader (Walsham, 2006). The rest of this chapter shows how plausibility of the data are applied in this thesis. The philosophical perspective of hermeneutics, a major branch of interpretivism, was used to assist in proving the plausibility of the data (Klein and Myers, 1999), as Meyers (2009:182) acknowledges that it is an approach to analysing qualitative data. He continues to say that the "*main purpose of hermeneutics is human understanding*"; thus it is used to gain a deeper understanding of "*what people say and do and why*". It is also used to gain a richer understanding of the context within which the research is being conducted (Bloomberg and Volpe, 2008). Even though the original use of hermeneutics was purely to interpret text, it has been used by social researchers to interpret speech and certain actions. Myers (2009) continues to state that hermeneutics has been used in the social and organisational contexts to investigate the impact of ICT, which is highly relevant in this thesis. It also helps a researcher to "*produce a story that is believable*" (Myers, 2009:184). Due to its relevance to this thesis, hermeneutics is now briefly discussed.

4.2.1.1 Hermeneutics

The relevance of hermeneutics in this study is captured by the quotation from Klein and Myers (1999) that states that "*hermeneutics has a relatively settled philosophical base and therefore lends itself to being used as a "bridgehead" for making a contribution to interpretive research methodology*" (Klein and Myers, 1999:70). Thus it can be used to explain the contributions made by the interpretive approach and to ensure the relevance and accurateness of the findings in this thesis. It is used to understand text, which in turn assists in understanding not only the research context but also the originator providing the text (Bloomberg and Volpe, 2008). It is also used to gain meaning from text (Introna, 2011); therefore the meaning is no longer just obvious. It asks the question: *"What is the meaning of a text?"* (Myers, 2004:105).

According to Myers (2009) there are a set of concepts that can assist a researcher in understanding the text being interpreted. These concepts as well as the relevance to this thesis are discussed. Although most of the next section focuses on the work of Myers (2009), other sources are introduced. After explaining the concept hermeneutics the way in which the researcher addressed these in this thesis is explained.

Historicity: This means that one's background or history of events from the past have an influence on the current perception or outcome. Thus one's history informs one's present. For the purpose of this study it is important to acknowledge where the entrepreneurs come from, what their background and knowledge on ICT are and if they have any prior experience that could have assisted them in adopting technology in order to be able define their current profile and perceptions on ICT. This becomes apparent in Chapter 5 and Chapter 6.

The hermeneutic circle: *"The hermeneutic circle is one of the most important conceptual contributions of hermeneutics"* (Introna, 2011:241). He continues to say that *"one must understand the parts from the whole and the whole from the parts".* This means that one has to look at the whole of the subject being researched, and then explore the part of the subject matter being influenced. For example, this thesis first focuses on entrepreneurship in general, after which it looks specifically at the South African entrepreneur. After that it investigates the ICT being used by the specific entrepreneur and then it is related to the bigger picture of the South African entrepreneur. Having a similar viewpoint to Introna (2011) is Myers (2009:186) who says the "*movement of understanding is constantly from the whole to the part and back to the whole*".

Prejudice: Prior knowledge means that we will always try and understand text by linking it to our own prior knowledge or experience. However, we need to try and suspend our own prior knowledge if we want to understand text and its context better. There is always a difference in the text being communicated and the world from which the text emerged (Introna, 2011:248) and therefore *"[u]nderstanding without explanation is blind and explanation without understanding is empty".* He continues to quote Gadamer (1989) in saying "… *only in the process of understanding is the dead trace of meaning transformed back into living meaning* …" (Introna, 2011). The researcher has worked with entrepreneurs and specifically small businesses for the last five years and conducted various studies on how SMEs conduct business, which makes the approach to this study easier. However, the researcher understands that her own knowledge and prior judgements need to be understood and almost moved aside for a moment to truly understand the context of the research subjects (Myers, 2009).

Autonomisation and distanciation: Once an interview is transcribed into text, it is autonomous and independent of the author; thus something that is written down can never be taken away. This means that during an interview, although the interviews are recorded on a digital recorder, they are transcribed into text, making the opinions of the research respondents autonomous (Myers, 2009). Distanciation means that there is a difference between time and space from when the authors have said something until it is read by the intended audience. However, since the text takes on its own life during autonomisation, it becomes distant from the author and even the original audience and meaning can become disconnected from the original author. Although this is a difficult concept to grasp, what is important is that the reader can take what was written and make it his/her own to be able to understand the meaning behind the text. What does make this concept valuable during qualitative interviews is that, if one does not

understand the meaning, it is possible to go back to the research participants and either conduct a new interview to get clarity on their thoughts of the original statement or just clarify certain parts of the interviews. But, as Myers (2009:189) rightfully states, "*a text, even if the author is still alive, takes on a life of its own*". Thus, during the analysis one can still see who the respondents were, but the understanding of what they said lies in the text being provided in Chapter 6.

Appropriation and engagement: Text needs to be "*made our own*" before we can fully understand it. This means that only the reader, when fully engaged in the text, will understand its true meaning (Myers, 2009). It is said that the interpreter's understanding of the text has to be as true to the original meaning of the text as possible from an objectivist point of view (Introna, 2011). However from a relativist's viewpoint the meaning of the text evolves as changes in the cultural, historical or even moral contexts occur. This means that after the researcher has conducted all the research and finished recording it, she should have a clear understanding of the exact needs of South African entrepreneurs and specifically their ICT needs and that anybody reading this thesis should make it their own and understand the South African entrepreneur from an ICT perspective better.

The reason for following the above mentioned criteria is because Walsham (2006:326) acknowledges that the above criteria by Klein and Myers (1999) are valuable to information systems researchers as they provide a *"methodological justification of interpretive field studies",* they do, however, caution the researcher not to confuse process with outcome. Instead of saying the principles are applied, one should say the results are interesting.

4.2.2   Research Approach

Wagner *et al.* (2012:229) explain an inductive or deductive research approach simply as follows: inductive research is when one goes from the specific to the general, and *"you want to describe or explore some phenomenon".* Thus a theory can be developed after the data has been collected and analysed (Saunders, Lewis and Thornhill, 2009). Bloomberg and Volpe (2008) note that an inductive approach is when the researcher poses a specific research question and the meaning is developed, based on data collected from the field.

A deductive research approach is then described as going from the general to the specific and therefore one starts with a general standpoint by using *"codes already identified by others' studies or may apply codes based on his/her own specific knowledge"* (Wagner et al., 2012:229). Thus one starts with a theory before the data is collected (Saunders *et al.*, 2009).

This thesis followed both approaches. In Chapter 5 it determines the ICT profile of the entrepreneur. This was done by investigating which ICT the entrepreneurs are currently using and what the general profile of these entrepreneurs is. This was done to understand the context of the interpretive study. After gaining a better understanding of the context of the entrepreneurs,

a deductive approach was followed. The theory of UTAUT and entrepreneur training model, as discussed in Chapter 2 and Chapter 3 respectively, was then used in Chapter 6 to see if the training provided to the entrepreneurs could indeed be matched and tested against these discussions. After finalising the data from Chapter 6, valuable contributions were made both to the adoption of technology by entrepreneurs by looking at UTAUT as well as incorporating ICT training into the content model of entrepreneur training.

4.2.3   Research Strategies

In selecting a research strategy, one start to develop a plan on how to go about to answer the research questions introduced in Chapter 1 as it will provide a clear path that one will follow in conducting research (Saunders *et al.*, 2003). They continue by saying that a strategy *"will contain clear objectives, derived from your research question(s), specify the sources from which you intend to collect data, and consider the constraints that you will inevitable have"* (Saunders et al., 2003:91); thus the strategy relates to the overall approach that one follows in one's research.

The strategy selected for this study is a survey. According to Saunders *et al.* (2003) surveys allow one to gather data from a large population group in a cost-effective manner. Survey data is easily understood by the target audience as the results should be straightforward. Although questionnaires are the most common method used in surveys, structured observation and structured interviews also fall into this strategy. For the purpose of this study two methods of data gathering techniques were used, namely questionnaires and interviews. They are discussed in more detail in Section 4.2.5 below.

On the one hand this thesis developed an ICT profile on the entrepreneur; this was done firstly by sending questionnaires to 567 participants. These participants all attended the entrepreneur course that was presented from 2009 until 2012. It is important to note that these entrepreneurs were never trained on e-skills and were not part of the e-skill specific program mentioned earlier; however, the entrepreneurial training that they did receive was based on the E/P model as discussed in Chapter 3. Interviews were also conducted with 87 entrepreneurs to understand what their perceptions of ICT in their businesses were. This formed part of a student group assignment that assisted the researcher in gathering the data.

A focus group discussion was conducted incorporating entrepreneurs who received entrepreneur training based on the E/P model, as well as e-skills training. The first group consisted of 15 participants who were trained in 2011, and the second group, also 15 participants were trained in 2012 and only received their e-skills training in 2013. However, in total only 16 participants attended the focus group discussion as part of a follow-up e-skills workshop. After the focus group discussion some of the entrepreneurs were selected to have individual semi-structured interviews with. These interviews formed part of the reflection on the training to see if there had been an effect on their businesses and if they had indeed incorporated ICT and if so, which ICT.

By using both questionnaires and interviews a mixed methods approach was followed. Mixed methods approaches have become more prominent over the last few decades, especially in studying the social sciences (Wagner *et al.*, 2012). By using a mixed methods approach one can collect both quantitative and qualitative data. A mixed methods approach was used because of the two different groups of participants and the researcher had to understand the broader context of entrepreneurs before the qualitative analysis could be understood.

4.2.4   Time Horizons

Saunders *et al.* (2003) note that one can decide if one wants to do a snap shot of a specific period in time, called a cross-sectional study or one might want to represent certain events over a period of time, also coined the "diary" perspective or a longitudinal study. They continue to say that one of the advantages of doing a longitudinal study is that it can study development or change over a period of time. The main question to ask according to Bouma and Atkinson (1995) in Saunders *et al.* (2003:96) is, "*Has there been any change over a period of time?"*

As this study is based on the entrepreneurial model introduced in Chapter 3, the authors (van Vuuren and Nieman, 1999) agree that this model can form a basis for future longitudinal studies. The ideal situation would be to measure the entrepreneur trained after an 18 month and a three year period to determine the long-term effect of the training (van Vuuren and Botha, 2010; Botha et al., 2007). As the initial development of UTAUT was a longitudinal study (Yu, 2012), the credibility of the model led to applying it in a longitudinal study in order to ensure data validity and credibility. It is recommended to perform longitudinal studies on entrepreneurs to identify contributions to be made in the entrepreneurial process (Fayolle and Liñán, 2014). As mentioned earlier, the entrepreneurial profile was developed from the feedback obtained from the questionnaires, which the entrepreneurs, who had already completed their training over a period of four years and finished in 2012, had to complete. This indicated not only the entrepreneurs' tendency to incorporating ICT but also provided a good indication of the long-term effect of the entrepreneurial training. Similarly, the entrepreneurs who did receive both the entrepreneurial training as well as the e-skill training were also measured more than one year after the training, which provided a clear indication of the effect, if any, which the training had had.

Interviews were conducted with 87entrepreneurs to clarify if they understood the importance or need for ICT within their businesses. This was a short interview that consisted of five questions only in an attempt to get a general understanding of the entrepreneurs' actual perception of ICT.

The second part of the study, which is the focus group discussion and interviews with the entrepreneurs who received e-skills training in 2011 and in 2013, measured the degree of ICT adoption and its effect on their businesses over a long period of time.

4.2.5   Data collection methods

The data collected for this study was obtained from questionnaires as well as interviews; thus this study followed a mixed methods approach whereby more than one data gathering technique was used, which is beneficial when conducting research (Saunders *et al.*, 2003). They continue to say that the first advantage of using this approach is if one wants to gather data for different purposes. Fayolle and Liñán (2014) suggest using a multi-method approach in entrepreneurial studies. This thesis gathered data to determine an ICT profile of the entrepreneur and to see if there was any incorporation of ICT by the entrepreneurs. The second advantage is that of triangulation that is used to ensure that the data gathered through the various techniques, all "*tell the same story*" (Saunders *et al.*, 2003) or "*if you want to look at the data from different angles*" (Myers, 2009:10)*.* This thesis applied mixed methods data gathering. The methods used in this thesis are discussed in detail.

4.2.5.1   Questionnaires

A questionnaire is a set of questions, which is set up according to a specific structure and manner to gain optimal results from asking mostly multiple-question questions or much more structured types of question (Oates, 2006). He continues to say that questionnaires are mostly used in situations where the researcher:

- *"wants to obtain data from a large number of people;*
- *wants to obtain relatively brief and uncontroversial information from people;*
- *needs to obtain standardised data, by posing identical questions to each respondent and pre-defining the range of answers which can be given;*
- *can expect the respondents to be able to read and understand the questions and possible answers;*
- *has the money to pay for printing, distributing and collecting questionnaires and the time to wait between posing the questions and getting the responses back*" (Oates, 2006:220).

According to the above mentioned situations, the questionnaires that were completed for this study fit these "situations" perfectly with the exception of *"the money to print the questionnaire*". The questionnaires for this thesis were completed online for the respondents who had email addresses, as an online tool is seen as a "*cost-effective and time-saving option*" to gather data (Symonds, 2011:436; Sivo, Saunders, Chang and Jiang, 2006). The entrepreneurs without email addresses were phoned and they then either provided their email addresses or they completed the questionnaire on the telephone, and the research assistant completed the online questionnaire for them during these telephone interviews. The reason why the researcher decided to utilise an online questionnaire is that the 567 respondents that had completed the entrepreneurial training were spread across South Africa; some of them did provide their email addresses or the

cellular phone numbers to which the link for the survey could be sent. The software used for the online questionnaire is a free online service called "freeonlinesurveys.com". This online survey tool allows unlimited questions to be sent out, unlimited respondents, and the data can be exported in Excel or in text format for further analysis, although the system can also provide certain data analysis already and in a graphical format (FreeOnlineSurvey, 2013). The data was exported to Microsoft Excel and statistically analysed using IBM SPSS Statistics version 22 with the help of a statistician. The methods used during the analysis of the data are the following:

- Frequency analysis per question
- Multiple response frequency analysis
- Descriptive statistics such as median, and standard deviation
- Cross-sectional analysis
- Graphical analysis such as pie charts and bar charts
- Principal components analysis
- Anova analysis
- Kruskal-Wallis test
- Post hoc pairwise comparisons

All the respondents with email addresses were informed via an email of the URL for completing the questionnaire. Completing the questionnaire via this URL ensured complete anonymity and thus the generalisation and validity of the results can be confirmed. The selection of participants and the cleaning process of their contact details are discussed in detail in Section 4.3. The online questionnaire was a self-administered questionnaire; all the respondents saw the exact same questions and the researcher was not present when the responses were recorded. The respondents, who completed the questionnaire via telephone due to a lack of Internet access, were asked the same questions as those in the online questionnaire. Saunders *et al.* (2003:285) list certain attributes of questionnaires, of which the online attributes can be seen in Table 6 below.

Attributes	Online questionnaire
Population's characteristics for which suitable.	Computer-literate individuals who can be contacted by email or Internet.
Confidence that right person has responded.	High if using email
Likelihood of contamination or distortion of respondents' answers.	Low
Size of sample	Large, can be geographically dispersed.
Likely response rate	Variable, 30% reasonable within organisations, Internet 10% or lower.
Feasible length of questionnaire	Conflicting advice; however, fewer 'screens' probably better.
Suitable types of questions	Closed questions but not too complex, complicated sequencing fine if using ICT, must be of interest to respondent.
Time taken to complete collection	2 - 6 weeks from distribution (dependent on number of follow-ups).
Main financial resource implications	World Wide Web page design
Role of the interviewer / field worker	None
Data input	May be automated

Table 6. Main attributes of questionnaires(Saunders et al., 2003:285)

The initial questionnaire was setup by using general computer literacy questions as well as specific questions, based on findings in the literature. After the initial questionnaire had been designed, it was tested on the 2011 group of entrepreneurs who enrolled for the first entrepreneurial and e-skills training course; they had to complete the questionnaire before their training started. The responses to the questionnaire were analysed. The findings of this study were presented at a research colloquium during 2011 (Steyn, 2011) where the researcher obtained valuable feedback that assisted in making some minor changes to the questionnaire. These changes were made and the second pilot testing took place during the 2013 entrepreneur training session. The data was analysed and after more literature had been incorporated, the final questionnaire was completed. The researcher then enlisted the help of the Department of Statistics at her university to do a final check of the questions in the questionnaire to make sure that the questions would elicit the desired data. After the feedback from the statistician had been incorporated, the questionnaire was created online. An important consideration for the researcher at this stage was that the research focused on the incorporation of ICT for entrepreneurs and the respondents might not necessarily be computer literate. However, an assumption that the researcher made was that if an individual had an email address, he or she should have at least low levels of computer literacy skills and thus should be able to click on the link that immediately opened the survey; completing the questionnaire via telephone was

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still a viable option (The questionnaire can be viewed in Annexure C). However, those without email addresses were telephonically contacted to ensure that they were not excluded from the data analysis and thus reducing biasedness of the results.

4.2.5.2   Focus group interviews

During a group interview a facilitator needs to be present to manage the discussion and to guide it to ensure that the participants do not get side-tracked (Saunders, Lewis and Thornhill, 2000). They continue to add some of the advantages of conducting group interviews as having one setting where various viewpoints can be brought together; this allows the group to respond to and discuss these viewpoints. A dynamic group can also help the researcher to explain and explore certain concepts that might not emerge during one-to-one interviews. Another advantage of using this type of approach, which is similar to a workshop, is the two-way interaction from the participants and the researcher (Walsham, 2006) and thus both parties can also learn in the process. However, one has to be able to manage the group effectively as these group interviews are mostly free-flowing and unstructured. Oates (2006) notes that group interviews are beneficial as they allow members to interact with one another openly, which might bring about different insights that the individual members may have missed. There are, however, disadvantages as discussed by both these authors; some of these disadvantages are that some of the participants might dominate the conversation, some might be reluctant to talk in front of others and some of the opinions expressed might only be the opinions that the group "want to hear" and not the real truth (Oates, 2006; Saunders et al., 2000). To overcome some of these disadvantages, Oates (2006:195) makes some suggestions that the researcher can use during the group interviews. These suggestions are the following:

- Invite participants with a similar status: as the participants all obtained the same training, although some of them had successful business and some not, they were all treated as if they had the same status and the researcher made sure that she got feedback from all the participants by asking each one to express an opinion.
- The participants should be seated in such a way that they see one another. To ensure this, this interview was conducted in a venue where the tables were placed in the shape of a horse-shoe, in a single row.
- An audio recording device as well as a second researcher to take extra notes is required. The researcher recorded the group interview as well as all the individual interviews. One of the supervisors was present during the group interview and thus he could provide some information if the researcher was not be able to obtain all he information from the digital recordings.

By following the above guidelines, the researcher was confident that the feedback that the group interviews produced was not only relevant and reliant but also of good quality.

4.2.5.3   Interviews

Simply stated, an interviews is *"a conversation with a purpose"* (Berg and Lune, 2012:105). Thus interviews are discussions between various people, either just two or hundreds but there must be a purpose to the discussion, a specific focus (Saunders *et al.*, 2003). They continue to say that there are various types of interviews and that one has to consider the type of interview that will suit one's research the best carefully. Walsham (2006) points out that interviews are used as a key way to access information; this is confirmed by Myers (2009) who states that semi-structured interviews are the interview type that is most commonly used in business and management research. This thesis used semi-structured interviews. A semi-structured interview has a list of predefined questions but allows additional discussions and responses to the questions that will guide the researcher in deciding whether to ask the next question or not. The flow of the conversation determines the flow of the questions at the discrepancy of the researcher. By allowing this open discussion, the researcher has the opportunity to ask a question or two not included in the initial interview questions list (Saunders et al., 2003; Myers, 2009). When conducting an interview, no matter the type of interview, one has to treat the interview as a drama, (Myers and Newman, 2007; Myers, 2009; Berg and Lune, 2012), also called the dramaturgical model or dramaturgy.

The model below was taken from Myers and Newman (2007:16) and illustrates the guidelines for conducting qualitative research. The guidelines have to be used when performing the drama to ensure that one obtains the maximum amount of data. It is important to realise that these are merely guidelines and should not be used as a checklist when conducting an interview. The only way to apply guidelines correctly is if they are practically implemented and used in real-life contexts. Myers and Newman (2007:16) rightfully say that one "*conduct[s] research with real people in real organizations".* It is important to note that these guidelines were followed in the interviews conducted by the researcher herself.
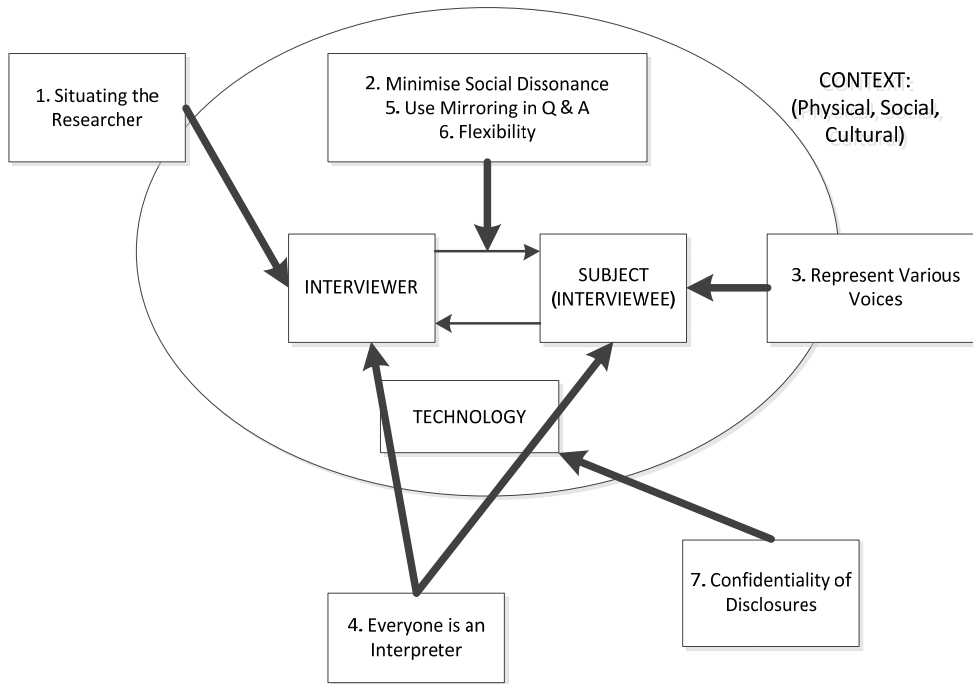
Figure 9: Guidelines for the qualitative research interview (Myers and Newman, 2007:16)

1. Situating the researcher

It is important that the interviewee knows the researcher, this is also seen as the relationship between the interviewer and the interviewee. Even though there should be a positive feeling between the interviewee and interviewer, it does not mean that these two parties are "equal partners" (Berg and Lune, 2012). They add that the interviewer should share common characteristics or relate similar experiences to the participants' to make them feel comfortable. They do caution researchers not to pretend to be an expert on the topic as this could lead to a loss in respect for the researcher. To ensure that the researcher shared common ground and similar experiences with the interviewees, she not only had to introduce herself and explain her background and context of the study in detail, but was part of the entrepreneur group that were trained in 2011. However, the researcher managed to control the interview as if "running the show", which is important in using a dramaturgical model (Berg and Lune, 2012).

2. Minimising social dissonance

It is important to make all parties involved in the interview feel comfortable. As the focus of this thesis is entrepreneurs who perhaps came from a limited social background as will become clearer in section 4.3, they might feel intimidated by strangers. This is also why Guideline no. 1 is important in conjunction with this guideline as people who are nervous or uncomfortable may be reluctant to engage in any form of communication (Myers and Newman, 2007). One also has to respect opinions and avoid conflict as this will not provide any usable information. The researcher tried to ensure that the interview setting was comfortable and relaxed and also continuously re-assured the participants that their responses were treated as anonymous and

no-one would ever judge them. She also reminded them of the fact that if they were not comfortable in sharing some of their ideas or viewpoints or answering some of the questions, they were well within their rights to withdraw and the researcher would accept that.

3.   Representing various voices

Respondents from the various levels within an organisation should be interviewed to avoid biased opinions. As the focus of this thesis is on entrepreneurs who are mostly run by the owner, the researcher was comfortable with the overall feedback that she gained from the interviewees. The researcher selected only successful entrepreneurs, as this was the target group most likely to use ICT effectively.

4.   Everyone is an interpreter

The interviewer should understand the interviewee's world. One expresses one's understanding of a concept in one's own words. Understanding the interviewees' context, their attitudes and their backgrounds becomes important to determine the meaning behind their statements. Although this is not easy, the interviewer should make a concerted effort to understand various cultures and backgrounds and should be careful not to interrupt the interviewee (Berg and Lune, 2012) or to finish a sentence for him or her; this might lead to missing valuable information and does not allow the research participant to answer in his or her own words.

5.   Use mirroring in Q&A

The interviewer has to take the feedback provided by the interviewee and structure it into meaningful feedback that mirrors what was said. To stay within the boundaries of the study, the researcher had to interpret the responses from the interviewees and use these responses as a guide for the next questions. As this thesis used semi-structured interviews all the interview questions were formulated while studying the literature; the questions were designed with literature as their foundation. This allowed the researcher to ensure that there was a continuous link between the literature and the findings during the data gathering. The interview questions consisted of two sets of questions: the first set consisted of five questions that were used to assist in the profiling of the entrepreneurs and their current view on the importance of ICT on their business. The researcher had assistance during this stage in the form of students, as approximately 87 companies were interviewed. (The interview questions asked can be found in Annexure D; they are called Interview questions set A). The second set of interview questions focused specifically on the group of entrepreneurs trained during 2011 and 2013 and the researcher conducted all the interviews herself. The aim was to determine what their thoughts were on the training that they had received and whether they felt this training had an effect on their business's success. (These interview questions can be found in Annexure E and are called Interview questions set B.)

All interviews which were part of the second set of interviews were recorded by using a digital recording device to ensure that all the data gathered could be used afterwards. All of the

interviewees were familiarised with the purpose of the research and were informed of the confidentiality of their responses; they had to sign an agreement stating they agreed to be part of the research. Walsham (2006) notes that there are advantages as well as disadvantages when using a recorder during interviews and it is important to take cognizance, especially of the disadvantages as these might influence data interpretation at a later stage. Advantages include the fact that notes can be compared against what was said; one can turn to the recordings or transcripts if any uncertainty emerges. It is good to obtain quotes from the participants which was used during the analyses. By having the digital recorder, it allows the researcher to focus on the interview instead of writing down everything. The disadvantages are that it is time-consuming and expensive to transcribe these recordings, and then one has to extract themes – time that could have been spent on conducting more interviews. The researcher breached this gap of having to identify themes during transcribing by ensuring that all interview questions were based on literature and thus the findings already leant towards predetermined themes. A recorder might also make an interviewee feel uncomfortable; this disadvantage was overcome by following the dramaturgical model discussed in the preceding section. The last disadvantage of using a recorder is that one might miss the non-verbal elements; this is why all interviews were transcribed very soon after the interviews were concluded to ensure the interviewer still remembered these non-verbal signs.

All recordings were transferred to the researcher's laptop where the recordings were then transcribed and analysed. They were stored on an external storage device that is kept in a safe storage facility with restricted access to ensure confidentiality at all times.

4.3 Research participants

As this thesis relates to the collaboration project between government and tertiary institutions, most of the research participants were related to the project. The first group of entrepreneurs who completed the survey was identified by the municipality of a large metropolis in South Africa. Most of the participants who completed the entrepreneurial training from 2009 to 2012 had been identified through their municipality. It is, however, important to note at this stage that no training was provided to entrepreneurs if they were not interviewed by the head of the training program who had to decide if their personality traits met those of an entrepreneur. The researcher had no decision in the selection of these entrepreneurs.

4.3.1   Quantitative participant selection

The data gathered in this section formed part of an entrepreneurial training intervention that was already running at the university. A list of entrepreneurs who had already been trained from 2009 to 2012 was obtained from the university training body. However, upon working through the list of names obtained, which was in Microsoft Excel and pdf-format, the researcher identified that there were discrepancies between the two lists. The initial list consisted of 1495 delegates being trained. The researcher noticed that the name lists indicated three different training programmes,

namely business start-up, basic entrepreneurship and an advanced entrepreneurship program. For the purpose of this thesis only the entrepreneurs who completed the basic start-up entrepreneurship training were selected as this training was based on the foundation of the content model for entrepreneurship education (E/P) discussed in Chapter 3. There was some degree of duplication, which the researcher had to remove. After the duplication had been removed, 1158 delegates were left. Then the names of only the delegates who completed the start-up business were selected. After this process there were 567 delegates; 455 attended the entrepreneurship and small-business management course and 136 the advanced entrepreneur course. After the final list of 567 delegates had been confirmed, the delegates were contacted. Seeing that the questionnaire was an online questionnaire, the delegates had to be contacted via email. Only 298 of these delegates had email addresses; the rest had to be contacted via phone, to either obtain email addresses or if no address were available, to complete the questionnaire telephonically. Two hundred and ninety eight had email addresses and an email requesting them to complete the questionnaire online by the 30th of April 2014 was sent to the other delegates.

Eighty of these emails came back as undelivered, mostly saying the email address was invalid. These delegates were then phoned to confirm their email addresses.

After the delegates who did not have email addresses as well as the ones whose emails came back as failed to deliver, had been contacted telephonically, some of their email addresses could be corrected and some of those without email addresses on the list provided their email addresses. 153 of the delegates from the initial 567 phoned either did not answer, had the wrong number, or were not available when initially called. These numbers were then dialled again at different times to confirm that these people could not be contacted. Fifty of the delegates contacted did not have an email address and therefore they had to complete the questionnaire on the telephone; 13 of the delegates could not speak English or could not be understood and therefore their responses were discarded; one of the delegates had passed away.

A follow-up email was distributed to all delegates on April 16, 2014 to remind them to complete the survey if they had not yet completed it. This email was sent to 365 addresses; 69 of these emails came back undelivered. On April 16, 2014 the list of completed questionnaires totalled 95. On 17 April this number stood on 111 responses and on 24 April 2014, 131 responses. When the questionnaire closed, there were 147 responses.

The data obtained from the online questionnaire was then exported into a CSV file, and sent to the statistician, who assisted in analysing the responses using IBM SPSS Statistics version 22. The statistician and researcher were in continuous discussions during this process to ensure that the results are interpreted correctly. It did, however, emerge that not all the respondents had answered all the questions. The richness of the data obtained from the questionnaires was considered too significant to let any of it not be used. Thus, the "n" value of the questionnaires

was 147. After each question's data has been analysed in Chapter 5, a footnote is used to indicate what the missing value for that specific question in the questionnaire was.

4.3.2   Qualitative participant selection

The first set of interviews formed part of an undergraduate course for students who had to understand the importance of information systems in today's economy. The students were given a set of interview questions set up to allow semi-structured interviews to be conducted. Each student approached any business of his or her choice and had to conduct an interview with the company selected. Before these students could conduct the interviews, they were guided and informed of the process to follow to allow for maximum information retrieval. In total 481 final interviews were conducted and transcribed over a two-year period spanning from 2012 to 2013. For the purpose of this study only 87 of these interviews were conducted with entrepreneurs. The students could select participants anywhere in South Africa and they then had to interview them based on the questions that can be viewed in Annexure D. The researcher had no decision on who was interviewed; this ensured that a random sample of entrepreneurs was interviewed and not only specifically identified ones. This ensured that a wide variety of industries were covered to guarantee that the profile that this thesis generated can be applied to the various entrepreneurs, and is not restricted to one city or part of the country.

The research participants selected in the focus group and final interviews formed part of a rural community that had a close relationship with the urban university that partnered with government on this project. The community formed part of the SEIDET (Siyabuswa Education Improvement and Development Trust) initiative that was formed in 1990 to provide education to schools in the areas, specifically in the subjects Science and Mathematics. However, this project soon grew to a much larger initiative whereby continuous education is provided not only to the schools but to teenagers and adults to be able to participate in the modern economy (Phahlamohlaka, 2008). SEIDET was asked to identify entrepreneurs who they felt would benefit from the training. These were individuals who either had had a business running for a while but never received training or who had a business plan but did not know how to start the business. Again the researcher did not select the participants to ensure that a wide spectrum of businesses and individuals was represented by the research participants.

Because the researcher did not select her own group of participants, it enabled her to stay unbiased and not to use her knowledge of their businesses and contexts to interpret the data.

4.4   Analysis and interpretation of data

4.4.1   Quantitative analysis and interpretation

As mentioned earlier a free online tool was used for the data gathering of the questionnaires and the data obtained was immediately available in an electronic format. The online tool does assist

with data analysis and can assist in making graphical representations of the data. However, as previously mentioned, the data was exported to a .csv file and analysed using IBM SPSS Statistics version 22 with the help of the Department of Statistics. The analysis of the data was used to profile the entrepreneur in order to answer the following research questions:

- What is the current profile of the entrepreneurs?
- How innovative are entrepreneurs regarding ICT usage?
- Why do entrepreneurs adopt ICT?

In order to be able to answer the questions above, the data was categorised into the following themes:

- Current ICT and e-skills levels
- Reasons for specific ICT adoption
- Importance of mobility and mobile devices for the success of these businesses
- Importance of ICT for established entrepreneurs and SMEs
- ICT-related decisions and support

The strategies used to analyse the data according to the above mentioned themes were frequency analysis and descriptive analysis where necessary.

A further analysis was then performed on the data specifically related to the moderating factors of UTAUT, namely gender, age, experience and voluntariness to determine if these factors do play such a significant role in seeing how entrepreneurs adopt technology. As the entrepreneurs were the owners, voluntariness is not regarded as a moderating factor in this thesis.

To gain a better understanding of the data, principal component analysis was performed on questions that were measured on a Likert scale to reduce the data dimensions; this is regarded as an exploratory technique used due to the low number of respondents. Field and Miles (2010:689) say a principal component analysis (PCA) is "a *multivariate technique for identifying the linear components of a set of variables*."

Eigen values are a measure of the explanation power of factor (Kunene, 2008). Eigen values show the dimensions within data (Field and Miles, 2010). Thus Eigen values were used to identify the dimensions or factors to be used within these analyses. If the Eigen value for the specific dimensions were > 1, certain data was grouped together as factors and given an appropriate name. In Chapter 5 each of the questions used for the factors is discussed and the factors explained. After the factors were identified, the questions related to the moderating factors – gender, age and experience – were used to see if there were indeed differences in the mean factor scores. Nine hypotheses were created and tested. According to Field and Miles (2010) a hypothesis makes it possible to determine whether an effect is present or not; having either an alternate hypothesis, in this thesis shown as an HA, or a null-hypothesis, shown as a H0.

ANOVA (analysis of variance) tests were performed mostly on the gender questions. *"An ANOVA test tells us whether three or more means are the same, so it tests the null hypothesis that all group means are equal"* (Field and Miles, 2010:295). If the p-value is >0.05, then one cannot reject the null hypothesis. This could only be performed on the gender questions as the sub-groups of the other questions did not provide enough responses.

Sometimes data is unfriendly and cannot be placed into nicely packaged results and this is when non-parametric tests are used (Field and Miles, 2010). The test used throughout this section of the thesis is called the Kruskal-Wallis test. It is utilised for data that does not adhere to all the rules of the ANOVA test. Due to the fact that the sub-groups were so small, the best option was to follow a non-parametric test such as the Kruskal-Wallis test.

Post hoc pairwise comparisons were performed for those results that showed overall significant differences. Post hoc tests are performed to compare different group means that one did not think of before the data was collected (Field and Miles, 2010).

All the results from these steps are shown in Chapter 5.

4.4.2   Qualitative analysis and interpretation

The first group of interviews that formed part of the ICT profile were analysed based on the questions provided in Annexure D. Although the researcher used the number of employees as a benchmark to determine whether it was in fact an entrepreneur that was interviewed, some of the franchises were also interviewed. Because franchises get their technology and systems from the "mother" company, these entrepreneurs were excluded from the analysis. Thus none of the entrepreneurs interviewed was a franchisee.

Before the interview data from the second set of interviews was analysed, each research participant was introduced to provide background information on the participants and their business. Fink and Disterer (2006:611) acknowledge that ICT adoption within SMEs is influenced by its social aspect; these constructs were applied to the social aspects of the entrepreneurs. Social networks can be described by using Figure 10 where four constructs have been determined to investigate ICT within the SME's environment. These constructs were used as guidelines when analysing the entrepreneurs' data obtained from the interviews as this helped construct the background of the entrepreneurs.

Fink and Disterer (2006:611) introduce these constructs:

Interaction: Users use ICT to interact with others within their work environment. Thus the information and resources are being *"mobilised as people engage with affiliated organisations."* This is the reason for asking the interview as well as the questionnaire questions, "*How do you communicate with customers, employee and/or suppliers?*"

Environment: Location that limits organisational actions and the organisational needs are identified to recognise the environment by using ICT. This became relevant when looking at the entrepreneurs as they might have limited access to ICT and other basic needs and it might limit their interaction with potential customers, thus limiting their chance of growth.

Affiliations: Social networks are created within the organisation by people with their computers. Although this thesis focuses on entrepreneurs and thus a very small organisation, this construct was used and applied to see how entrepreneurs form networks within their communities that may assist them in their daily operations, or in the growth of their business.

Identities: These look at the type of staff employed but were not focused on as most entrepreneurs are the only employee or perhaps may have one more employee.
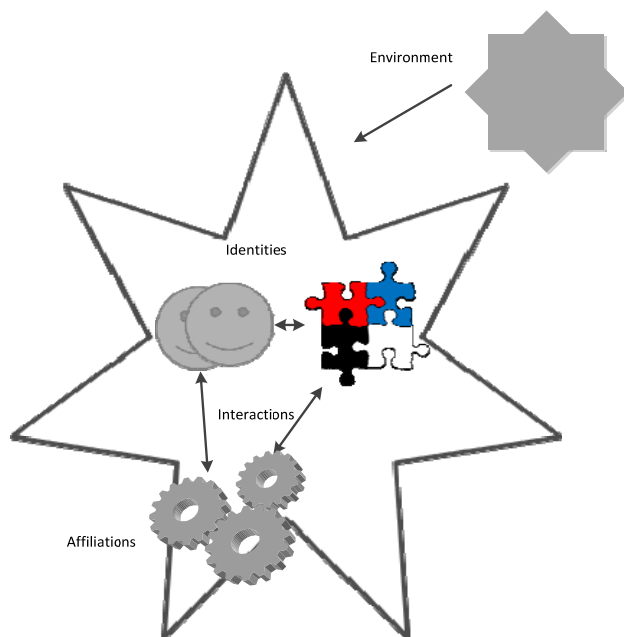
Figure 10: Adapted: Research construct: context of SME (Fink and Disterer, 2006:611)

Although these four constructs are generally used to classify SMEs, they were helpful during the data analysis to provide an understanding of the kind of entrepreneurs interviewed to create a clear background picture of these entrepreneurs, ICT and their businesses.

The interview data was categorised into themes; these themes were linked to the research questions and the literature to ensure that the data answered the research questions. All the interviews were recorded in electronic format after which the researcher transcribed them to answer the research questions.

4.5 Validity and reliability

Klein and Myers (1999) introduced a set of principles that can be used to evaluate interpretive research. These principles, although specifically designed for field research, can be applied to various interpretive research studies. Once all the data had been analysed, it was evaluated against these principles in Chapter 7.

Saunders *et al.* (2003) note that the reliability of findings is directly related to the research design and that a proper research design will ensure the reliability of the findings. They continue to say that to ensure that the researcher does not get his or her answers wrong, he or she has to focus on two aspects, namely reliability and validity.

4.5.1 Reliability

To ensure the reliability of one's data, one has to assess one's findings by asking the following three questions:

- *"Will the measures yield the same results on other occasions?*
- *Will similar observations be reached by other observers?*
- *Is there transparency in how sense was made from the raw data?"* (Saunders et al., 2003:101).

Oates (2006) however, acknowledges the difficulty to assess reliability of data as the respondents could change their views or if they are asked the same questions again after a period of time, they might remember their previous answer and thus provide that answer instead of their new views. As this thesis used various techniques to gather the data, the researcher is confident that the various viewpoints provided throughout the data ensured the reliability of the data.

4.5.2 Validity

One has to ensure that the findings of the data are "*what they appear to be about*" (Saunders et al., 2000:101). They continue to say that a proper research design assists in ensuring the validity of the data. It also means that one is measuring what one thinks one is measuring (Oates, 2006). Thus one has to make sure how the questions are designed and also how the data is being interpreted to ensure that is does answer the research questions. In other words, *"it means that an appropriate process has been used, the findings do indeed come from the data and they do answer the research question(s)"* (Oates, 2006:10). As both the questionnaire questions and the interview questions were based on literature with the focus on answering the research questions, the researcher is confident that the data is valid.

4.6 Chapter conclusion

One always completes a task in a specific way, following certain guidelines and reaching or achieving a goal, whether the steps are followed step-by-step or intuitively, the aim is always to reach or achieve a goal. This chapter has discussed the steps that were followed in this thesis. The research approach, strategies, data collection method, research participants as well as how the data was analysed are described. The goal of following the steps is to gather data that can answer the research questions introduced in Chapter 1.

The following chapter is the first of two data analysis chapters, and it starts with the ICT profiling of the entrepreneur.

Chapter 5   - The micro entrepreneur's ICT profile
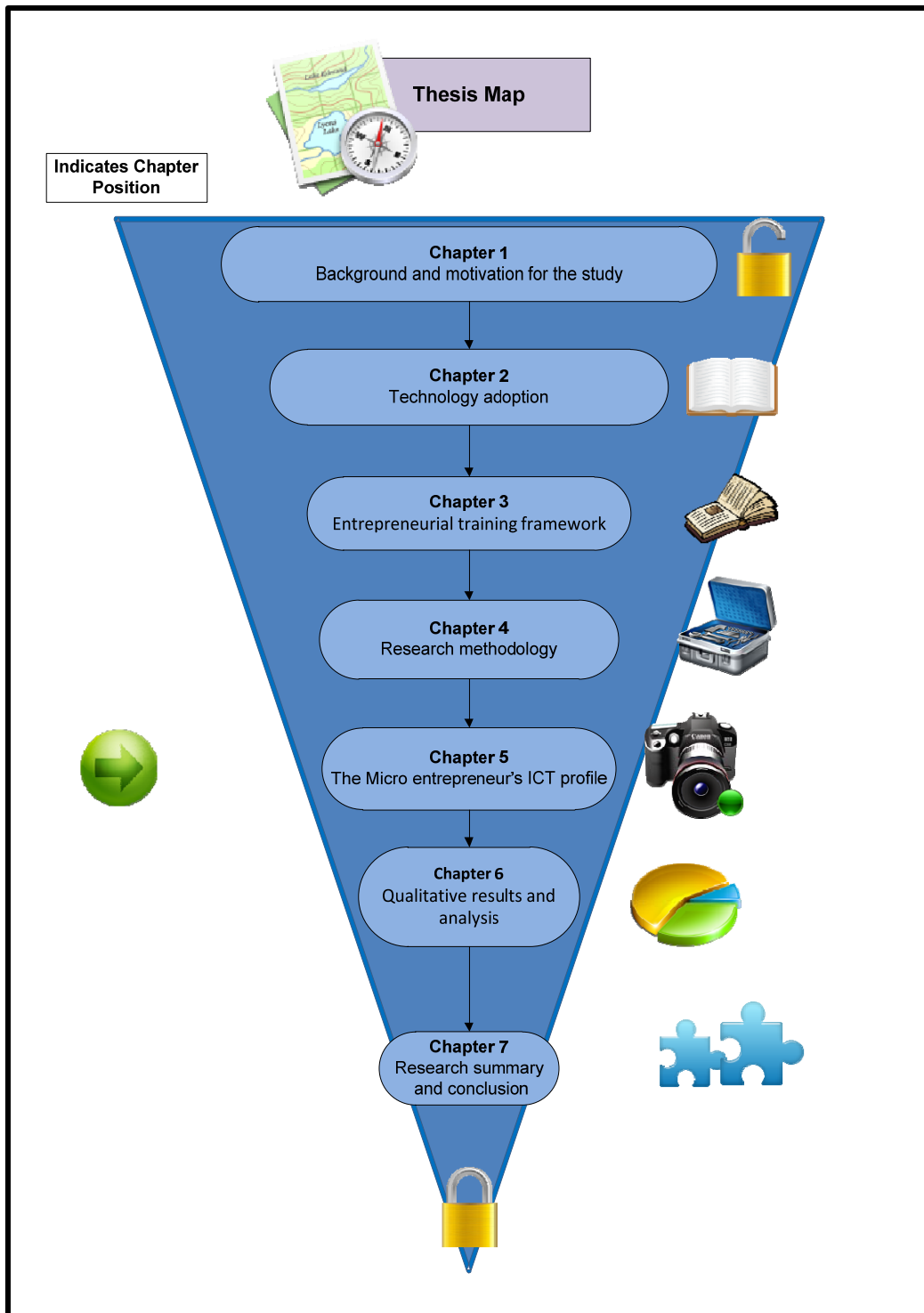
5.1 Introduction

As mentioned in Chapter 1, to better understand the impact that small businesses have on economic growth, one has to understand what a SME and specifically an entrepreneur is and how it is classified as being a small business within the South African context as each country classifies small medium enterprises (SMEs) differently. For example, the US classifies small businesses as those companies having between 20 and 500 employees (Reimenschneider *et al.*, 2003). Ndubisi and Kahraman (2005) noted that Harper's entrepreneurial role is as someone who takes initiatives in the hope of becoming profitable, someone who sets policy in the hope to direct the business enterprise, an innovator and a risk-taker.

According to Section 4 of the National Small Business Act (D.O.T.I., 1996) a small business is defined as a small organisation, corporate and a non-governmental structure that is managed mostly by the owner. Small businesses are categorised according to their sector and size as well as their income and asset value. This categorisation of small businesses within the South African context can be viewed in Annexure A. Small businesses are categorised as micro, very small, small and medium. This thesis focuses on the micro enterprises (ME) that are limited to having no more than five employees, a total annual turnover of ZAR150 000 per annum and a total asset value of ZAR 100 000.

This chapter takes this classification into consideration and outlines how one can draw up an ICT profile for entrepreneurs. It is important to understand the phenomenon with which one is working before one can evaluate any proposed intervention. This chapter looks at the profiling of entrepreneurs and how ICT can and is being used to determine how they engage in ICT, and if there are specific ICT that entrepreneurs prefer to others. By investigating the current profile of these entrepreneurs, one can easily determine the historicity of hermeneutics to see what their background and current situations are. This chapter is used as the baseline for the questionnaire and interviews conducted to see if there are any similarities between entrepreneurial literature and the actual South African entrepreneur. Throughout this chapter the literature as well as the data gathered from the questionnaire and interview question set A interviews is discussed and analysed after each main literature theme in order to determine the ICT profile of the entrepreneur.

This chapter attempts to answer the following sub-research questions as set out in Chapter 1:

- What is the current ICT profile of the entrepreneur?
- How innovative are entrepreneurs when it comes to technology usage?
- Why do entrepreneurs adopt ICT?
- What would the guidelines be for designers of entrepreneur courses to incorporate e-skill training into their curriculum?

5.2 Entrepreneur

5.2.1 Definition of an entrepreneur

There seems to be no common definition for an entrepreneur (Pretorius *et al.*, 2005). This creates a problem as one has to agree on some standard definition for what an entrepreneur is before one can truly conduct any entrepreneurial studies. Even though it is not a clear definition, Dhliwayo and Van Vuuren (2007:124) make the following statement about the entrepreneurial mind set: "It *denotes a way of thinking and action about business and its opportunities that captures the benefits of uncertainty*". Entrepreneurship is sometimes seen as a form of creativity as "*new businesses are original and useful*" (Sarri, Bakouros and Petridou, 2009:270). Antionites and Van Vuuren (2005:256) set out to determine a general definition for an entrepreneur and after reviewing various authors, suggest the following definition: "*An individual with the potential of creating a vision from virtually nothing.*" They continue to acknowledge that *"the entrepreneur is able to identify an opportunity where the regular man on the street would see chaos, contradictions, ambivalence and confusion*". Similarly Sarri *et al.* (2009:271) define an entrepreneur as "*an individual with the ability to realize a specific vision from virtually anything, a definite human creative action, and create an organization to pursue it*". However, it seems as if every author has a unique definition for an entrepreneur; this problem was already identified in 1982 by Mark Casson on the first page of his book titled "*The entrepreneur: an economic theory*" when he wrote "*the most difficult part of studying entrepreneurship is to define who or what an entrepreneur is*" (Casson, 1982:1). He states that even though there is no real theory for entrepreneurs from an economic point of view, in 1982 all the social sciences had a theory for entrepreneurs except for economics. One would have thought that the economic arena would have been the first to determine what impact entrepreneurs could have on the economy. However, looking back at the world economy then, and what we are facing today, perhaps the need for entrepreneurs increases during difficult economic times as people are trying to find ways to survive.

Entrepreneurs are mostly driven by a single individual who are also mostly the owner (Miller and Garnsey, 2000) and thus an agent of change. One has to be careful to think the entrepreneur is also the inventor. As Schumpeter is summarised in Miller and Garnsey (2000:447) *"the inventor produces ideas, the entrepreneur gets things done".* Thus this thesis was written on the basis of the definition, as previously mentioned, by Antionites and Van Vuuren (2005:256) who say "*an entrepreneur is regarded as an individual with the potential of creating a vision from virtually nothing"* as well as incorporating taking action on one's creative ideas, and starting to implement a business plan.

In their study on women entrepreneurs in Malaysia, Ndubisi and Kahraman (2005:725) acknowledge the psychological traits of an entrepreneur and list various traits that an entrepreneur should have, which they gathered from various literature sources. The following traits are listed by Ndubisi and Kahraman (2005:725) from previous empirical research:

- *"A high need for achievement (DeCarlo and Lyons, 1979; Hornaday and Aboud, 1971) among many others.*
- *An internal locus of control (Hornaday and Aboud, 1971; Miller, 1983).*
- *A high need for independence and effective leadership (DeCarlo and Lyons, 1979; Hornaday and Aboud, 1971).*
- *A high need for autonomy (DeCarlo and Lyons, 1979; Sexton and Bowman, 1983; Sexton and Bowman, 1984).*
- *The capability to process information (McGaffey and Christy, 1975).*
- *A preference for a moderate level of risk (McBer and Co., 1986).*
- *Low conformity (DeCarlo and Lyons, 1979; Sexton and Bowman, 1983; Sexton and Bowman, 1984).*
- *Aggression, support, and benevolence (DeCarlo and Lyons, 1979).*
- *Energy level, risk-taking, and change (Sexton and Bowman, 1983; Sexton and Bowman, 1984).*
- *Dominance, endurance, innovation, self-esteem, low anxiety level, and cognitive structure (Sexton and Bowman, 1983)*
- *Low interpersonal effect, social adroitness, low harm avoidance, and low succorance (Sexton and Bowman, 1984)."*

Dhliwayo and Van Vuuren (2007) compared entrepreneurial thinking to strategic thinking and introduced the strategic entrepreneurial mind-set model that also includes the characteristics of an entrepreneur. Their model was developed by looking at various authors' perspectives of what the mind-set of an entrepreneur should be, as well as what a strategic mind-set in an organisation should be to see if there is a difference. They list similar traits for both an entrepreneurial and strategic mind-set by citing various authors (Fink, Marr, Siebe and Kuhle, 2005; Graetz, 2002; Abraham, 2005; Antonic and Hisrich, 2003) (to name a few) who focus on the entrepreneurial and strategic mind-set respectively. The strategic entrepreneurial mind-set model is shown in Figure 11. One can clearly see the overlapping characteristics that exist between an entrepreneurial and a strategic mind set; it implies that an entrepreneur has to have a strategic plan and mind-set in place. An entrepreneur needs to know what he or she wants to achieve and how. It is, however, important to note that this model is based purely on literature.
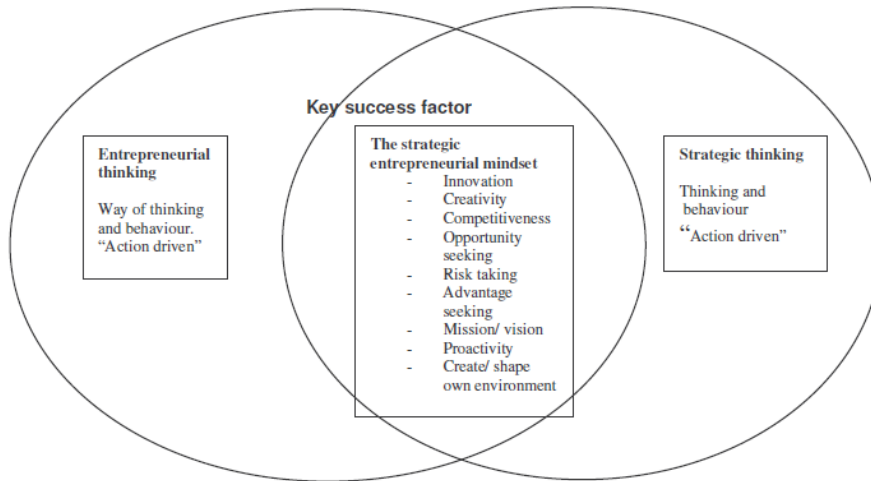
Figure 11: The strategic entrepreneurial mind-set model (Dhliwayo and van Vuuren, 2007:128)

Taking Figure 11 into consideration, and keeping in mind the definition of an entrepreneur, it is no surprise that concepts such as *innovation, creativity, risk taking, create/shape own environment* are also mentioned as part of the strategic mind-set model for the entrepreneur; this confirms that the correct definition for an entrepreneur has been selected for this thesis.

5.2.2   Classification of entrepreneurs

According to Fink and Disterer (2006) SMEs should be divided into micro, small and medium, with micro having one to five employees, small having six to 20 employees and medium between 20 and 500 employees. However, for the purpose of this thesis, small companies have from six to ten employees. It is important for the reader to understand this classification and terms and the impact of certain focus areas. The focus of the thesis is on the entrepreneur, micro and small businesses, thus anything from a one man business or entrepreneur up to a maximum of 10 employees. The classification for the research was done according to Table 7; however, this study focuses on the entrepreneurs and some of the micro organisations, thus having no more than five employees. The reason why micro businesses are included is because some of the entrepreneurs who did the training might already have grown to have more than two employees and the researcher did not want to exclude them.

	Entrepreneur	Micro	Small
Number of employees	1 - 2	3 - 5	6 - 10

Table 7: SME classification

It is at this point important to note that the entrepreneurs were selected based on the training that they received as this is the primary focus of this thesis. However, the entrepreneurs who

completed the training might not have successful businesses running when the data was gathered; some of them may have failed, some were successful and some were still in the planning and setting up phase of their business, primarily in a developing context. As mentioned earlier in Section 3.3.4, this thesis focuses on the incubators and infant phases of the entrepreneur for the questionnaires; thus they might not have had their businesses yet, but they did have business plans for their businesses as well as budgets and might just be waiting for financial resources or support and they had received the training to become an entrepreneur. If they do have a business, it is in the starting phase where they need to start managing their daily operations, start record keeping of financial transactions and source finance.

5.2.3   Types of entrepreneur

When looking at entrepreneurs, there are various classifications of entrepreneurs according to Esselaar *et al.* (2006). They conducted a study in 13 countries to determine ICT usage and whether it has an impact of the profitability of SMEs. They distinguish between survivalists or informal operators and actual small businesses. The survivalists or informal operators are the ones that try to live day-by-day. Thus they do not distinguish between their personal finances and their business finances. They normally consume all income generated by sales immediately and thus do not necessarily keep record of their actual revenue. Their daily operations need to cover their daily living expenses as well. Informal micro or small businesses normally have fewer than 10 employees but there is a slight possibility that these informal businesses start to distinguish between their personal finances and their business finances. They also tend to have a more formal business address and clear contact details for possible customers.

Ramani *et al.* (2012) refer to different types of entrepreneur. According to their classification there is a social entrepreneur, who focuses more on addressing certain social issues in the country, for example entrepreneurs who provide basic services, such as clean water and sanitation, and they are non-profit driven. A commercial entrepreneur focuses on financial gains and making a living (Ramani *et al.*, 2012). Even though the e-skill development project in South Africa was initiated to address certain social issues such as unemployment and crime as mentioned in Chapter 1, this will only be addressed by empowering people to generate their own income. For this reason this thesis focuses on the commercial entrepreneur and what impact the adoption of ICT has on his or her success. This thesis focuses on the survivalist or informal operators as well as the informal micro or small businesses run by commercial entrepreneurs, as they are the ones on which the current government initiative is focusing.

Esselaar *et al.* (2006) used specific questions to classify entrepreneurs in the above sections. They asked the following questions:

1. "*Form of ownership;*
2. *Is your business registered with the receiver of revenue?*
3. *Is your business registered for VAT?*

4. *How many employees have a written employment contract?*

5. *Does your business strictly separate business and personal finances?*

6. *Does your business keep financial records?"* (Esselaar et al., 2006:41).

These questions were incorporated into the data gathering questions to be able to determine the type of entrepreneur who formed part of this thesis. For a company to register with the receiver of income it should have an annual turnover exceeding ZAR 150 000 (SARS, 2013b). The amount to be paid for Tax is then calculated as follows:

Turnover	Marginal Rate for 2013
R 0 – R150,000	0 %
R150,001 – R300,000	1 % of each R1 above R150,000
R300,001 – R500,000	R1,500 + 2 % of the amount above R300,000
R500,001 – R750,000	R5,500 + 4 % of the amount above R500,000
R750,001 and above	R15,500 + 6 % of the amount above R750,000

Table 8: Turnover tax (SARS, 2013b)

However, according to the South African revenue of income a business is required to register for VAT if its earned income exceeds ZAR 1 000 000 in a consecutive 12 month period (SARS, 2013a). This could be confusing as it was earlier stated that entrepreneurs considered for this study had an annual turnover of ZAR 150 000; therefore one could consider the questions unnecessary, but a business can also decide to register for VAT voluntarily if the income within a consecutive 12 month period exceeds ZAR 50 000; thus the relevance of the question.

Ndubisi and Kahraman (2005) used the following questions to obtain the demographic information of their entrepreneurs:

- Industry type
- Year established
- Number of employees
- Job function or ownership
- Educational qualification
- Prior computer experience
- Age of respondent
- Race of respondent

These questions, except for the one on the race of the respondent, were used during the data gathering phase of this thesis. The reason for excluding race is the ethical and the political influence that the results may have if based on race, which is not the focus of this thesis.

Entrepreneurs can adapt to change more rapidly than larger organisations (Oke *et al.*, 2007) as decision-making tends to happen much faster in small firms as the owner or manager can make a decision on the spot, whereas in larger firms there tends to be more red-tape in the decision-making process. Entrepreneurs should use this chameleon approach to their advantage but should also be careful of the risks that they are willing to take. But when is an entrepreneur considered to be successful? What determines success? Miller and Gransey (2000:457) define successful entrepreneurs as "*those that have the capacity to identify opportunities and mobilise resources in such a way that promotion of the technological innovation leads to a growth in sales, and generates a healthy margin for further expansion of the firm's operations*". However, this thesis does not focus on success stories only. It might just be due to poor ICT adoption that the businesses failed and the researcher did not want to exclude them.

5.2.4   Demographic analysis of the South African entrepreneur

Based on the literature that was introduced in the above section, the relevant data analysis of the questionnaire questions is now discussed. As mentioned earlier, there were 147 responses to the questionnaire that was distributed. This is a 26% response rate from the initial list of entrepreneurs contacted.

During the data gathering the following general information emerged that needs to be introduced so that the context of the data analysis that follows in this chapter becomes clear. The first part of each criterion introduces the entrepreneurs who completed the questionnaires. After the data from the questionnaires was analysed per criterion, some of the responses from the interviews conducted with the additional 87 entrepreneurs, who might relate to the criterion is analysed. The statistical analysis based on the moderating factors of UTAUT follows.

The following characteristics were used to introduce the entrepreneurs who formed part of this section of the thesis:

- Year when entrepreneurial training was completed
- Male or female
- Education level
- Age of the entrepreneur
- Number of years in operation
- Number of employees
- Number of employees with employment contracts
- Province within South Africa
- Rural or urban
- Type of business
- Income or tax registration
- General financial analysis

5.2.4.1 Year when entrepreneurial training was completed

In the 147 responses 138 of the entrepreneurs completed this question, of which 94,68 % indicated that they had completed their entrepreneurial training between 2009 and 2012. The rest completed their training before 2009 and one attended the training in 2013. As these entrepreneurs were trained at least more than 12 months before, the data was based on the longitudinal study as recommended by various authors (van Vuuren and Botha, 2010; Botha et al., 2007). UTAUT was also tested in a longitudinal study (Lu *et al.*, 2003). Thus these responses should provide a good indication of the current entrepreneurial profile as well as their ICT profile.[10]

5.2.4.2 Male or Female

62,6 % of the respondents were female which was unexpected but this may prove that more women have to start their own businesses for the survival of their families although this was not asked in the questionnaire. During the principal component analysis in Section.5.5 gender and the effect or not that it has on adoption are discussed in more depth. Chapter 6 sheds more light on this.[11]

5.2.4.3 Education level
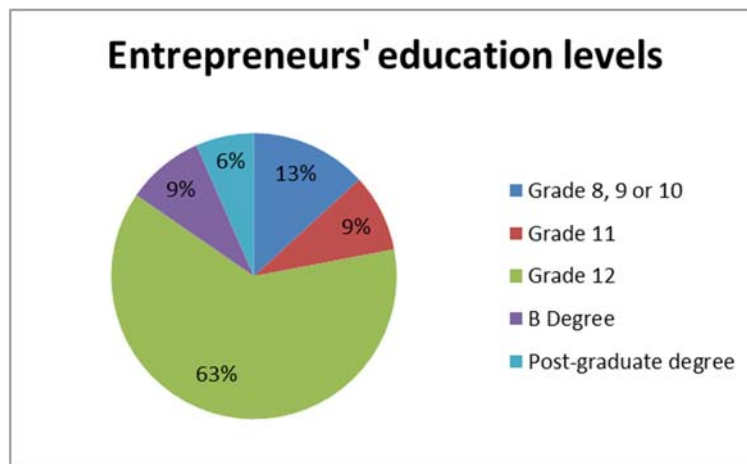
Figure 12: Entrepreneurs' education levels

The results in Figure 12 were unexpected; the majority of the entrepreneurs had completed formal high schooling education. However, just over 20% of the entrepreneurs had never completed their high school certificate; 13% of these entrepreneurs never progressed passed Grade 10. In the South African schooling system the average age of a Grade 10 learner is 16 years. Thus the researcher inferred that there are still a large number of learners who do not complete their schooling. The reason for this is unknown and should perhaps be investigated in

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[10] Missing value = 9; thus 6% did not complete this question.
[11] Missing value = 56; thus 38% of respondents did not complete this question.

further studies.[12] What did emerge at this stage is that the entrance requirements as stated in Chapter 4 says for one to do this course, one should have at least a grade 12 school certificate, and these findings proof different however the reason for this is unclear to the researcher at this point in time.

Seeing that most of the respondents in this questionnaire were women, the researcher wanted to see if there is any correlation between gender and education levels. A cross-sectional analysis revealed a p-value greater than 0.05, which means no significant association between gender and qualification level exists.[13]

5.2.4.4   Age of the entrepreneur

The results obtained are significant. When looking at Performance Expectancy from UTAUT, it was noted that gender and age determine the way in which a system is perceived to enhance the performance of the individual (Oye *et al.*, 2012).

Statistics		
N	Valid	92
	Missing	55
Mean		42.99
Median		43.00
Mode		52
Std. Deviation		12.334
Range		45
Minimum		22
Maximum		67

Table 9: Statistical analysis

From Table 9 it is evident that the average age of the entrepreneurs is 43 years (mean), with the majority of responses from participants who are 52 years of age (mode). [14] This means that it is not the young people who realise the need to become an entrepreneur, but in fact the older people.

From Figure 13 below the researcher inferred that at least 61% of the respondents were older than 40 years.

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[12] Missing value = 56; thus 38% of respondents did not answer this question.
[13] 40% of the respondents either did not answer this question regarding gender or the one on the education levels.
[14] Missing value = 55; thus 37% of the respondents did not answer this question.
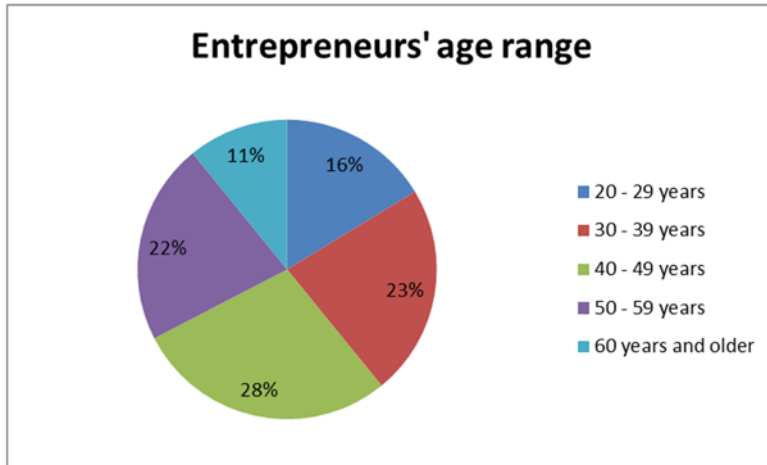
Figure 13: Entrepreneurs' age range

It will be interesting to determine what the actual technology uptake is and see if one can determine any correlation between age and technology uptake, as UTAUT recognised age as a determining factor in technology uptake; this is discussed in more depth in section 5.5.

5.2.4.5 Number of years in operation

Number of years in operation	Number of entrepreneurs (Questionnaire) [15]	Number of entrepreneurs (Interviews)
0 - 1	9	14
2 - 5	22	28
6 - 10	14	19
10 - older	10	26
Total	**55**	**87**

Table 9: Number of years in operation

As seen in Table 9 only 55 entrepreneurs responded to this question. The assumption that this thesis makes is that of the 147 entrepreneurs who responded, only 55 had a successful business and it was thus assumed that almost 37% of the respondents were running their own business. This indicates that even after the training had been received, 63% were regarded as part of the incubators. Although it was not clear why, it was assumed that they were still in the planning stage. Thus they had a business plan and a budget, or they had tried and failed. It does seem as if there might be external reasons, unknown, as to why they were not in business. They could not be excluded from this study as they form part of the entrepreneurial community who were trained and of the phases that an entrepreneur goes through as discussed in Section 3.3.4. Chapter 6 is used to gain a better understanding of the actual business success of the trained entrepreneur

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[15] Missing value = 92; thus only 55 entrepreneurs did complete this question.

after they received their entrepreneurial and ICT training, which should shed more light on the success of entrepreneurs after training. The interviews conducted with the entrepreneurs showed an average of 7.8 years in operation, thus these entrepreneurs had been in business for an extended period of time and thus their usage of technology and systems should shed some light on the overall picture of ICT usage.

5.2.4.6 Number of employees

The response to this questions showed that just over 10% of the respondents had zero employees. Taking the classification of Section 5.2.2 into consideration, this is the number of responses per classification group.

	Number of employees	Number of responses (Questionnaire) [16]	Number of responses (Interviews)
Entrepreneur	0 - 2	29	27
Micro	3 - 5	13	61
Small	6 - 10	7	-
Medium	15	1	-

Table 10: Number of employees

Although the number of employees is larger than the original classification for an entrepreneur for a large portion of the respondents, it is assumed that these entrepreneurs, who completed their training, did indeed grow their business from an entrepreneur to a micro and small business. This growth of the business should be the aim and outcome of the entrepreneur and e-skills training by using technology. From the interviews conducted it is clear that none of the participants had more than five employees, which proves the relevance of their responses to the study.

5.2.4.7 Number of employees with employment contracts

Eighty-two percent of the respondents indicated that none of their employees had formal written contracts. Ten of the rest of the respondents indicated that they had a few employees with written contracts. However, even for the micro, small and medium businesses only three employees had a written employment contract. Esselaar *et al.* (2006) asked this question in his classification of an entrepreneur, and from the responses it is evident that these entrepreneurs did not have employment contracts in place. They had no formal agreement with employees. This is alarming as these entrepreneurs did not seem to have any formal agreement in place and thus they had nothing that could ensure that their employees did not disappear or start their own businesses in direct opposition to them. Chapter 6 investigates this phenomenon in more detail to see whether

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[16] Missing value = 97; thus 67% of the entrepreneurs did not complete this question.

the employees do in fact start their own businesses in direct opposition as they cannot be retained by these entrepreneurs.[17]. Some of the entrepreneurs stated that they did not have employment contracts and they "*always let students volunteer*" or they had only temporary staff, and thus did not need formal contracts.

5.2.4.8 Principal province of business within South Africa

Province	Number of entrepreneurs (Questionnaires) [18]	Number of entrepreneurs (Interviews)
Eastern Cape	1	-
Gauteng	54	64
Limpopo	1	-
Mpumalanga	2	1
North West	2	-
Northern Cape	1	-
KwaZulu Natal	-	4
Western Cape	-	1

Table 11 Origin of respondents

As the entrepreneurs were all trained in the Gauteng province, it is not surprising that most of the respondents were from this province; however, only three of the nine provinces did not have representation in this questionnaire. One has to be careful to think that all entrepreneurs function in the urban areas and cities, seeing that they are from the Gauteng province. (The reason or the concern is the fact that Gauteng contributes *"more than 33% to the national economy and a phenomenal 10% to the GDP of the entire African continent."* (SouthAfrica.info, 2014:n. pg.)). Almost 45%[19] of the respondents were from the rural areas and townships around Gauteng and not necessarily in the cities and urban areas. Malebana (2014) points out that rural areas have low entrepreneurial activities when compared to urban areas.

From the interviews 70 of the respondents' locations were recorded, of which the majority were located in Gauteng. However, these interviews also included some of the provinces not included in the questionnaire, for example KwaZulu Natal and the Western Cape Province.

Table 11 clearly shows that a large part of the country was included in this study. It is recommended that even more entrepreneurs be included in future studies.

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[17] Missing Values = 92; thus 63% of the entrepreneurs did not complete this question.
[18] Missing values = 81; thus 59% of the respondents did not complete this question.
[19] Missing Values = 91; thus 62% of the entrepreneurs did not complete this question.

5.2.4.9   Type of Business

In terms of the types of business the entrepreneurs had, 16 of the respondents indicated that they were sole owners of their businesses and 36 of the respondents were registered as a closed corporation.[20]

Although the specific type of business was never asked during the interviews the type of industry for each entrepreneur was indicated, and the results can be viewed in Figure 14. It is evident that the majority of respondents were from the services sector, providing services such as legal counselling, financial advice, doctors' practices and certain medical services, such as optometry.
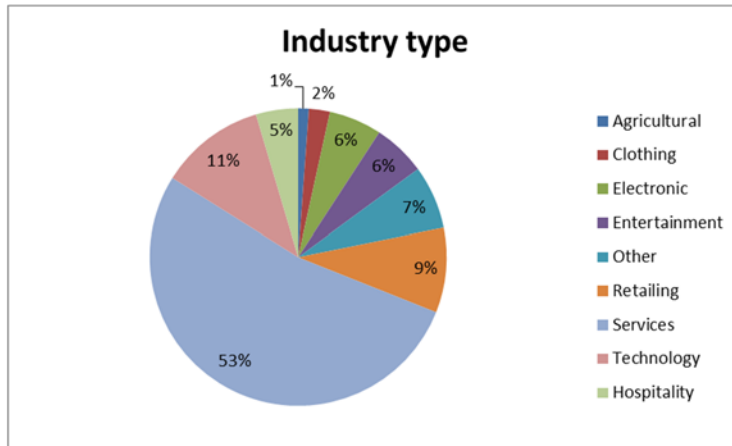
Figure 14. Type of industry

5.2.4.10 Income or tax registration

This question determined the size of the business but more importantly the financial status of the entrepreneur. The annual income and turnover are used to determine whether a business must pay taxes and VAT, as stated in section 5.2.3.

Question asked	Number of responses
My business is registered with the receiver of revenue.	37
My annual revenue is less than ZAR 150 000 and thus I do not have to be registered at the receiver of revenue.	20
My business is registered for VAT.	18
My annual turnover is less that ZAR 1 000 000 and thus I do not have to be registered for VAT.	25

Table 12: Income and tax registration[21]

From Table 12 it is clear that only 18, thus 32% of the respondents are registered for VAT, which could either mean their annual turnover is more than one million ZAR or they registered voluntarily as mentioned earlier. This percentage is rather high and they are also not classified

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[20] Missing value = 95; thus only 35% of the respondents did indicate their type of business.
[21] Missing values = 91; thus 62% of the respondents did not answer this question.

as entrepreneurs, micro or small businesses which relates to the section above indicating the size of the business related to the number of employees they have. Even though technically they are above the entrepreneur's classification, when they did the training their businesses were not successful and they formed part of the participants. It is good to see that some of these entrepreneurs did have some success stories after the training had been completed, although not as meaningful as one would have hoped, but at least there was some progress.

Van Vuuren and Botha (2010:5) note that E/P can be presented as follows and thus could be a good determining factor to see if the entrepreneurs did expand their business:

1. Increase in productivity
2. Increase in the number of employees employed
3. Net value of the business
4. Increase in profitability
5. Completion of the first market-related transaction

Twenty, thus 36% of the respondents indicated that their business' annual revenue was not more than ZAR 150 000, which means they were not registered with the receiver of revenue and paid no taxes whatsoever.

Although not all of Van Vuuren and Botha's (2010) factors were addressed, it is evident that one can determine the type of entrepreneur who formed part of this thesis.

5.2.4.11 General financial analysis

One of the entrepreneurs contacted said that he had gone through an extremely tough time but requested to know if debt counselling courses were provided. This indicates that from a financial point of view there still seems to be gaps and needs for these entrepreneurs which they still need. To investigate the financial issues further, this section was divided into sub-sections to determine what the basic financial profile of the entrepreneur is. The sub-sections are as follows:

- Business vs. personal finances
- Banking preferences
- Access to their own money or account

5.2.4.11.1 Business vs. personal finances

The respondents were asked if they differentiated between their personal finances and their business finances; 64%[22] of the respondents who completed this question answered in the affirmative; this is an indication that these entrepreneurs were more formal and used the

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[22] Missing values = 92; thus 63% of the entrepreneurs did not answer this question.

knowledge they had gained from the entrepreneurship training to ensure that their businesses improved. The reason why this questions was asked is the high degree of dependence entrepreneurs had on their income versus the survival of their family. Chapter 6 sheds more light on this issue where it is indeed a relationship between splitting business and personal finances and the survival of their families. Al Mursalin (2012:21) found that 40.5% of SMEs finance their ICT investments through personal finances, 44.1% through profit, and 9.5% through family and friends. It is interesting to note that no loans from financial institutes were indicated in this response. Esselaar *et al.* (2006) distinguish between survivalists or informal operators and informal micro or small businesses, and they note that the survivalists or informal operators are the ones who use their daily income for the survival of their business and their families and thus do not split their business and personal income. At this point even though 64% did indicate that they split their business and personal finances, there are still a large percentage of entrepreneurs who do not and who are still in "survival-mode".

5.2.4.11.2   Banking preferences

The respondents were asked if they banked their money at any financial institutions, and if so, whether they banked only their business finances or personal finances or both.

Banking money at a financial institution	%
Business only	10.6
Individual only	38.8
Both business and individual	43.5
None of the above	7.1

Table 13: Financial banking[23]

It seems as if the majority of the entrepreneurs recognised the need for safe keeping of their money at a financial institution. Only 7% of the respondents did not bank their money at all; thus they walk around with their money in their pockets which places them at a higher risk of being robbed. It could also be due to the fact that they used their income immediately to survive or provide for their families and thus they never had money to bank.

5.2.4.11.3   Access to their own money or account

The respondents who indicated that they did indeed bank their money were then asked how often they accessed and how they accessed their money.

As this chapter is building an ICT profile for the trained entrepreneur, the first signs of ICT usage are starting to emerge, and these signs are not good. From the responses indicated in Figure

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[23] Missing values = 62; thus only 43% of the respondents did not answer this question.

15[24], the majority of entrepreneurs did not use a computer or cellular phone to do banking. In fact an average of 79% of the respondents said they either never used the Internet via a mobile device or computer for banking purposes or cellular phone banking. 13% of the respondents said they did use an ATM at least three times a week, and 9% said that they went into the branch at least three times a week.
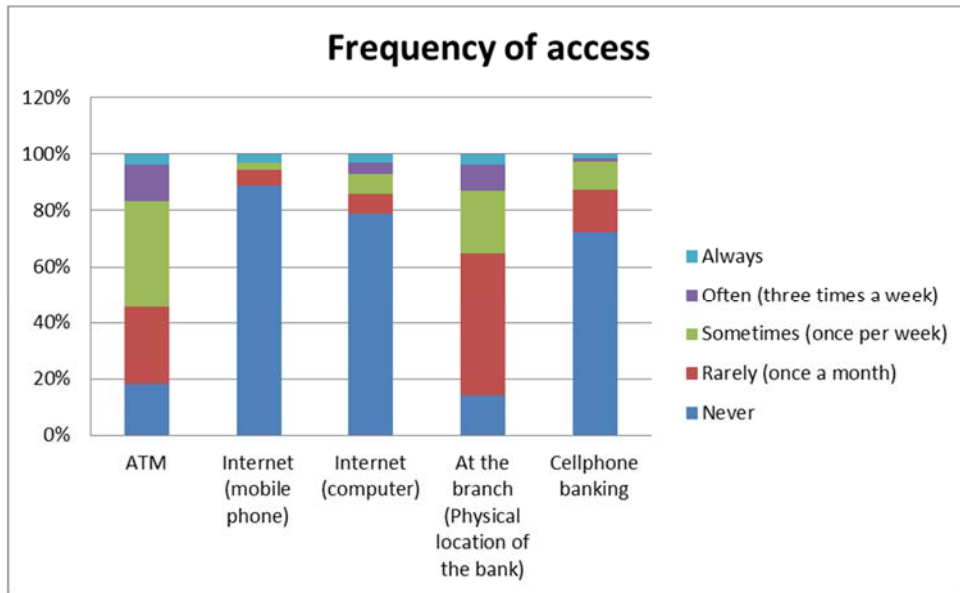
Figure 15: Frequency of financial access

The overall descriptive analysis revealed that the access to their money via an ATM was still the most preferred method, with going to the branch (physical location of the bank) as the second most preferred method of access. This mean the there is a gap emerging as technology is often not used to gain access to their finances. The reason for this is unclear, and hopefully section 5.4, section 5.5 as well as Chapter 6 will provide better insight into this gap.

The above section sheds light on the demographic background of the South African entrepreneurs based on data gathered from both the questionnaires distributed to the trained entrepreneurs and the interviews with the general entrepreneurs in South Africa. The next section investigates how the South African entrepreneur actual uses technology.

5.3   Adopting ICT and barriers towards adoption

In Chapter 2 ICT adoption models are discussed to determine what makes people accept certain technologies. There are various reasons why, even if one has followed a technology adoption model's approach when introducing new technologies and ensured that according to the theory it is 100%

[24] Average missing values = 73; thus an average of 50% of the respondents did not answer some or all of these questions.

correct, people will still not accept it. Thompson, Williams, Thomas and Packham (2010) acknowledge that even though ICT can be seen as a huge benefit to SMEs, it also brings about a threat for these SMEs and entrepreneurs as they have mostly limited resources available to use and benefit from these technologies. This threat can be regarded as a barrier that SMEs and entrepreneurs will have to overcome to introduce ICT or even ensure a sustainable business that incorporates ICT.

Various studies focus on the reason why certain technologies are accepted or not. These barriers include internal barriers such as a lack of skills, security concerns and e-Commerce. External barriers include cultural barriers, a lack of infrastructure, political and social barriers such as a lack of a one-shop facility and access to reliable experts, and legal aspects. Gatautis and Vitkauskaite (2009:35) identified similar barriers such as "*lack of awareness… mistrust regarding ICT and ICT service providers, costs, lack of internal ICT and management knowledge, network infrastructure issues: access and interoperability and legal uncertainties*". The list of barriers is almost endless, as Table 14 points out.

Reason to adopt or not	Source
Lack of resources.	Mutula and Van Brakel (2007); Kahn *et al.* (2012); Miller and Garnsey (2000); Thomas *et al.* (2004); Reimenschneider *et al.* (2003); Nguyen (2009); Chatzoglou and Vraimaki (2010); Kabanda (2001).
Difficult to retain current workforce; lack of skills and human capital development.	Mutula and Van Brakel (2007); Kapurubandara and Lawson (2007); Kahn *et al.* (2012); Miller and Garnsey (2000); Nguyen (2009); Esselaar, Stork, Ndiwalana and Deen-Swarray (2006); Ladzani and van Vuuren (2002).
Effective Leadership, ownership and management.	Spencer *et al.* (2012); Uddin (2005); Kahn *et al.* (2012); Miller and Garnsey (2000).
Access to information, strategy.	Kahn *et al.* (2012).
Political and social barriers.	Kapurubandara and Lawson (2007).
Security concerns; mistrust regarding ICT and ICT service providers; lack of trust.	Gatautis and Vitkauskaite (2009); Kapurubandara and Lawson (2007); AlAwadhi and Morris (2008); Wamuyu and Maharaj (2011); Cohen *et al.* (2013).
Lack of infrastructure, technical challenges (risk of the product malfunctioning).	Kahn *et al.* (2012); Kapurubandara and Lawson (2007); Ramani *et al.* (2012); Suri (2011); Nguyen (2009); Esselaar *et al.* (2006); Wamuyu and Maharaj (2011).
Legal framework; legal aspect.	Kahn *et al.* (2012); Kapurubandara and Lawson (2007); AlAwadhi and Morris (2008).
Cultural barriers or constraints.	Kapurubandara and Lawson (2007); Kahn *et al.* (2012).
Lack of a one-shop facility and access to reliable experts; difficulty of keeping systems serviced and upgraded.	Kapurubandara and Lawson (2007); Thomas *et al.* (2004); Ndubisi and Kahraman (2005); Ladzani and van Vuuren (2002).

Financial constraints, high costs.	Kahn *et al.* (2012); Ramani *et al.* (2012), Thomas *et al.* (2004); Nguyen (2009), Esselaar *et al.* (2006), Donner and Escobari (2010), Ndubisi and Kahraman (2005); Ladzani and van Vuuren (2002); Wamuyu and Maharaj (2011).
Lack of knowledge, unfamiliar, thus leading to perception that ICT is to complicated; lack in confidence.	Ramani *et al.* (2012); Esselaar *et al.*(2006)*;* Ndubisi and Kahraman (2005); AlAwadhi and Morris (2008); Kabanda (2001).
Access to mobilisation of organisational resources (such as reputation and brand equity).	Miller and Garnsey (2000).
No need for ICT.	Esselaar *et al.* (2006).
Limited availability.	Donner and Escobari (2010); Oye *et al.* (2012).
Performance risk (Increase in productivity due to ICT, increase in job performance, useful for my work).	Wamuyu and Maharaj (2011).

Table 14: Barriers to ICT adoption

Even though Wamuyu and Maharaj (2011) list affordability as a barrier that could affect the adoption of wireless technology, their findings are contradictory. They found that the benefits received by the SMEs outweighed the actual costs of implementation, thus they are doubtful of cost being a barrier. They do, however, add that this does not mean that cost is not a barrier. At this moment in Kenya there is a price war on between service providers that have pushed the prices even lower and the users prefer the cheapest options. Even though they did not find cost to be a barrier for adoption, they did note that the user always goes for the cheaper option, thus making cost a determining factor in choosing technology.

After receiving 220 workable responses from their questionnaire, Al Mursalin (2012:21) found eight main reasons for IS adoption by SMEs. They are ranked from lowest to highest reason:

- Customer demand.
- Increase in staff satisfaction.
- Enhances joint work in collaboration ventures.
- Keeps-up with competitors.
- Improves customer services.
- Improves communication with stakeholder.
- Increases operation efficiency.
- Increases record keeping efficiency.

As their focus was on SMEs, which include larger businesses, not all of their reasons are relevant to entrepreneurs but they could be adjusted to fit the entrepreneurial profile.

I would use IT for my business if:	%			
	Strongly disagree	Disagree	Agree	Strongly agree
it was mobile [25]	3.6%	8.9%	26.8%	60.7%
it ensured that my payments' turnaround time was quicker [26]	1.9%	7.4%	24.1%	66.7%
I could sell to more people [27]	0	5.7%	17%	77.4%
I could sell in more than one location, e.g. different towns[28]	0	7.0%	15.8%	77.2%

Table 15: Reason to use technology in the future

In performing a descriptive analysis on the findings in Table 15, it emerged that the entrepreneurs would use ICT for their business if it meant that they could sell to more people and if they could sell in more than one location. The entrepreneurs were then asked why they would select a certain technology for their business, based on reasons provided in Chapter 2 as well as some of the barriers above. All the options provided were regarded as definite reasons to adopt technology; however, it is clear that advice from support vendors, gaining a competitive advantage and to satisfy one's customers and employees are the most important reasons for adopting technology. Looking at the social influence construct from UTAUT, it is interesting to note that even though it is still a high percentage, 81,5%, social influences such as family or friends are the least considered factor when selecting ICT.

Deciding factor to choose ICT	Definitely consider	Missing Values
Access to technology or connectivity	100%	64
Advice from support vendor	100%	65
Attitude of users	92.5%	67
Cost	95.2%	64
Ease to implement	98.8%	63
Easy to work with	98.8%	62
Improve your service to your customers and/or suppliers	100%	63
Return on investment	97.6%	64
Satisfy your employees	100%	65
Social influences such as family or friends	81.5%	66
Support	97.6%	63
To gain a competitive advantage	100%	63

Table 16: Deciding factor to choose ICT

As social influence at this stage did not seem to be a major deciding factor, the respondents were asked who supported them in their ICT decision. Relying on themselves, family, friends, employees or others were the options they could choose from. From Figure 16 it can be seen that although social influences did not seem important when deciding on which technology to choose, in the end these entrepreneurs relied heavily on their family members and friends (65% in total) to support and assist them when

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[25]Missing values = 91; thus 62% of the entrepreneurs did not answer this question or did not select this option.

[26] Missing values = 93; thus 63% of the entrepreneurs did not answer this question or did not select this option.

[27] Missing values = 94; thus 64% of the entrepreneurs did not answer this question or did not select this option.

[28] Missing values = 90; thus 61% of the entrepreneurs did not answer this question or did not select this option.

actually using ICT. Focusing on entrepreneur training, Gibb (1993) states that there is a strong focus on strong relationships between business, family and friends and that there is a close relationship between the state of the business, social status and personal achievement, which is confirmed by these findings.
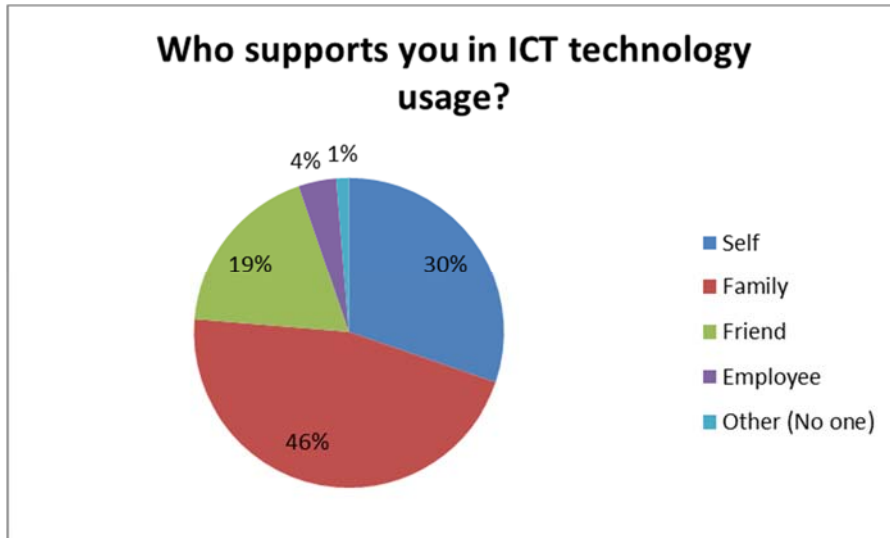
Figure 16: Who supports you in ICT technology usage? [29]

These results motivated the researcher to determine for how long, on average, entrepreneurs had used technology, as one would think that the longer one uses it, the less one's support would be. Therefore a question was asked to determine for how long these entrepreneurs had used technology.

From Figure 17 below it seems as if the majority of entrepreneurs had used technology for more than two years, and thus it does not seem as if the support from family or friends declined during the actual usage of technology. Although UTAUT states that social influence is only relevant in the initial phases of adoption, and this does seem true from Table 16 above, it does seem as if the entrepreneurs still relied heavily on their family and friends for support throughout the actual usage of ICT.

[29] Missing values = 71; thus 48% of the respondents did not answer this question.
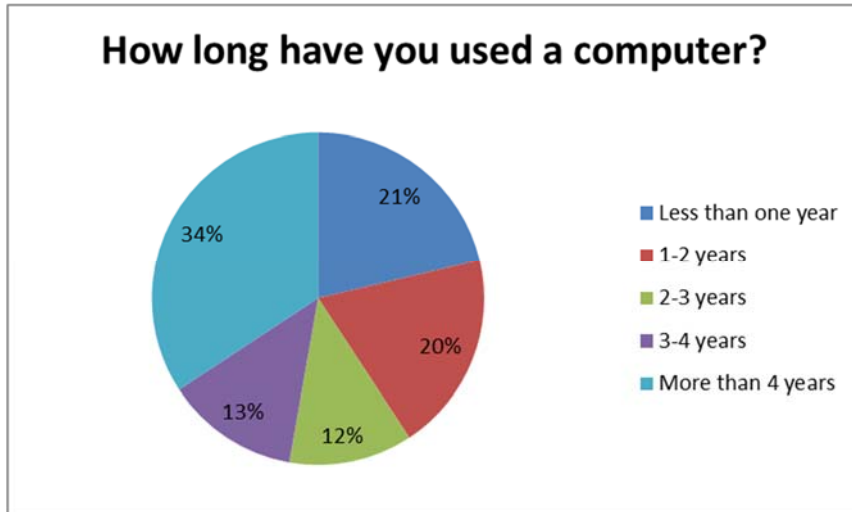
Figure 17. How long have you used a computer?[30]

From the interviews it emerged that some of the entrepreneurs used mainly three main sources to assist in making ICT decisions as Figure 18 shows. The majority of assistance during the decision-making of ICT is based on IT consultants, service providers and self.
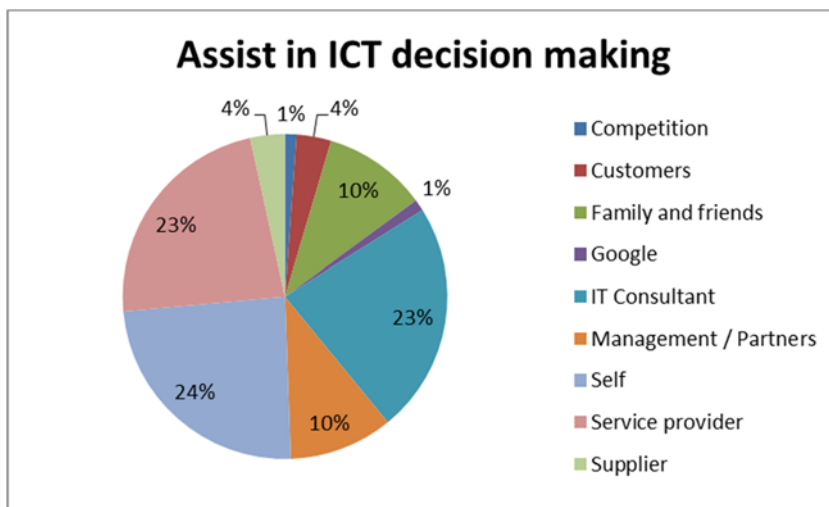
Figure 18: Assist in ICT decision making

As is evident in the next section, a company only sees the need for employing an IT in-house resource once they develop into a medium-sized business (Steyn and Leonard, 2012); however, the above results show that although they might not directly appoint an IT consultant, as most of them are on a retainer or part-time contract, entrepreneurs are starting to see the need to consult someone with IT knowledge to assist them. This is slightly different from the results of the questionnaire as it shows a lesser reliance on friend and family but it also indicates the fact that decisions are not just made

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[30] Missing values = 39; thus only 27% of the respondents did not answer this question.

haphazardly by the majority of entrepreneurs; they do recognise the need to consult an IT expert to assist them in making ICT decisions or they consult family and friends. This highlights the need identified to train these entrepreneurs themselves to know what to look for and it also clearly shows that the social influence from UTAUT still has an impact on the entrepreneurs, not just during initial adoption but also in the long-run actual usage.

At this stage it is evident that entrepreneurs do use technology to some extent but one would need to determine the exact types of technology and or software. The next section investigates the actual ICT being adopted by entrepreneurs that may have to be included in entrepreneur training.

5.4 ICT for entrepreneurs

As the list and access to ICT is literally endless, and each type of ICT can have a different effect when adopted (Im *et al.*, 2011), this section introduces only some types of technology that could assist the South African entrepreneur and identifies certain specific technologies that entrepreneurs are currently using.

Two models can assist in determining what technology should be included in entrepreneurial ICT training. The first model is that of Spencer *et al.* (2012:1206)[31] as shown in Figure 19. The model depicts that leadership typologies have a direct influence on the adoption of technology and that these typologies could be barriers to the adoption of technology.
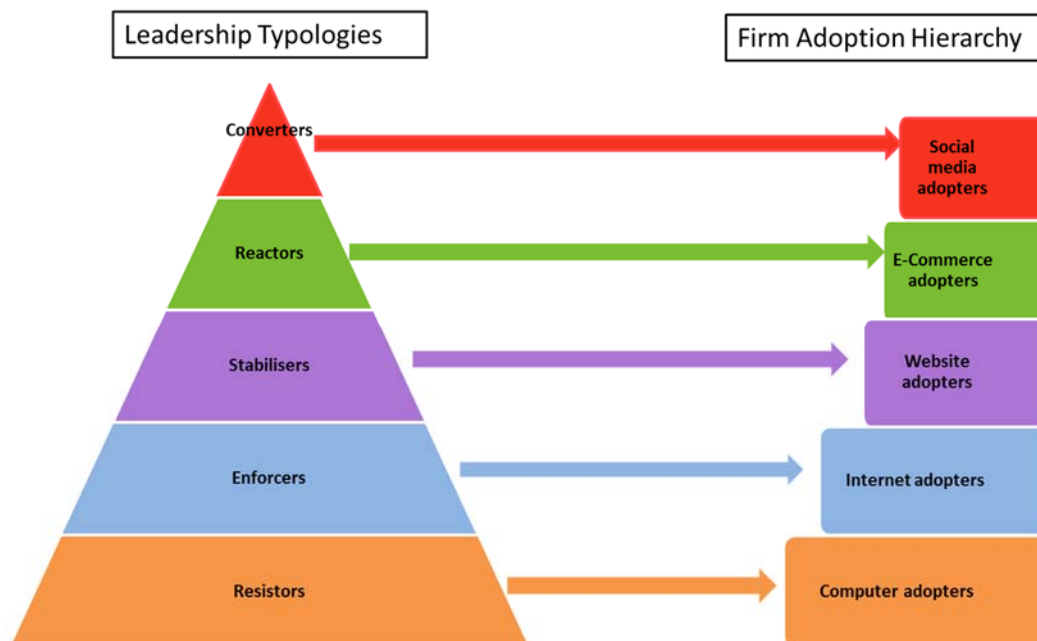
Figure 19: Leadership typologies for staged technology adoption (Spencer et al., 2012:1206)

[31] It is important to note that this research focuses on the technology adoption of small owner-managed travel firms.

The typologies are explained briefly to understand their relevance to this research. First of all Spencer *et al.* (2012) note that there are various levels of adoption and that these levels are classified as typologies. The first typology, the resistors, want to keep to traditional approaches of doing things; they are low risk-takers and have a low level of technology experience. Spencer *et al.* (2012) argue that these resistors have low levels of education but they are also not creative thinkers or innovative individuals. One would hope that entrepreneurs do not fall within this group as it is assumed that entrepreneurs should be creative and innovative individuals, as previously noted by Van Vuuren (2010) in Chapter 3. The next typology identified by Spencer *et al.* (2012) is the enforcers. The enforcers are quite similar to the resistors, but they will adapt to change should their industry require it and also only after new procedures have been implemented. They typically have a higher level of education although their technology experience is low.

The third typology is the stabilisers. This group of people will react when something happens to the business, whether it is a problem or an opportunity. They are medium risk-takers, which could lead to decision-making that are not in the organisation's procedures but will address certain challenges or address immediate opportunities. However, these risks are only temporary and once the issues have been addressed, they will return to the normal traditional way of conducting business. They also have low technology experience but much higher education levels.

The reactors are the fourth typology that Spencer *et al.* (2012) introduced. They are medium risk-takers and they are usually the ones trying something new. However, although they always try to improve business practices, their ideas are not always executed. They have medium technology experience and a high level of education, with at least a bachelor's degree.

The last typology is the converters. These individuals have a long-term vision which is a high-risk taker with a high experience in technology. They are also typically high adopters of technology as they try it out for themselves.

On the right hand side of Figure 19, one can see the adoption hierarchy linked to each one of these typologies; however, even though these typologies can be used to classify certain entrepreneurs, one has to be careful to think an entrepreneur can be classified into only one of these categories. According to what has been stated in previous chapters, for this thesis an entrepreneur should be a combination of these typologies. For example, an entrepreneur should be innovative, and creative, and a medium to high risk-taker. An education level, such as bachelor's degree should not be a determining factor as to whether one will adopt technology or not. As seen in Section 5.2.4, although a large portion of the entrepreneurs have at least a Grade 12 certificate, one cannot say that all entrepreneurs are well-educated and therefore they will adopt technology. Education does not seem to play a role at this stage.

It was noted earlier that even though the entrepreneur must be willing to take risks, the risks have a direct influence not only on the survival of the firm but also of the family and thus must be carefully considered. The reason why these typologies of Spencer *et al.* (2012) was used, is to understand that even within adoption of technology and leadership there are different levels and approaches and that

certain contexts have a different influence on adoption or not. The results of this thesis speak for themselves but the entrepreneurs who were interviewed and completed the questionnaires are not very likely to develop past the Internet adopter level. However, an internet adopter relates to the enforcer typology, which typically has a higher level of education although their technology experience is low. The education level has already been proven as non-relevant in the previous section but according to the results from Section 5.3 the majority of entrepreneurs have been using technology for more than two years, which also means their technology experience is not so low. Although it seems as if the typology at this stage might not be the correct typology to use, the rest of this document should provide a better background on the adoption hierarchy and why it is said that entrepreneurs are not likely to develop past the Internet adopter level. Another important aspect of introducing the above mentioned typology, is the types of technology which they recommend per level. This will also be used during the analysis phase to see when entrepreneurs uses which technologies, or if they are even using any technology.

The second diagram that can be used to assist one in understanding what the specific technology required to train entrepreneurs is, is that of Steyn and Leonard (2012:28) that can be seen in Figure 20.
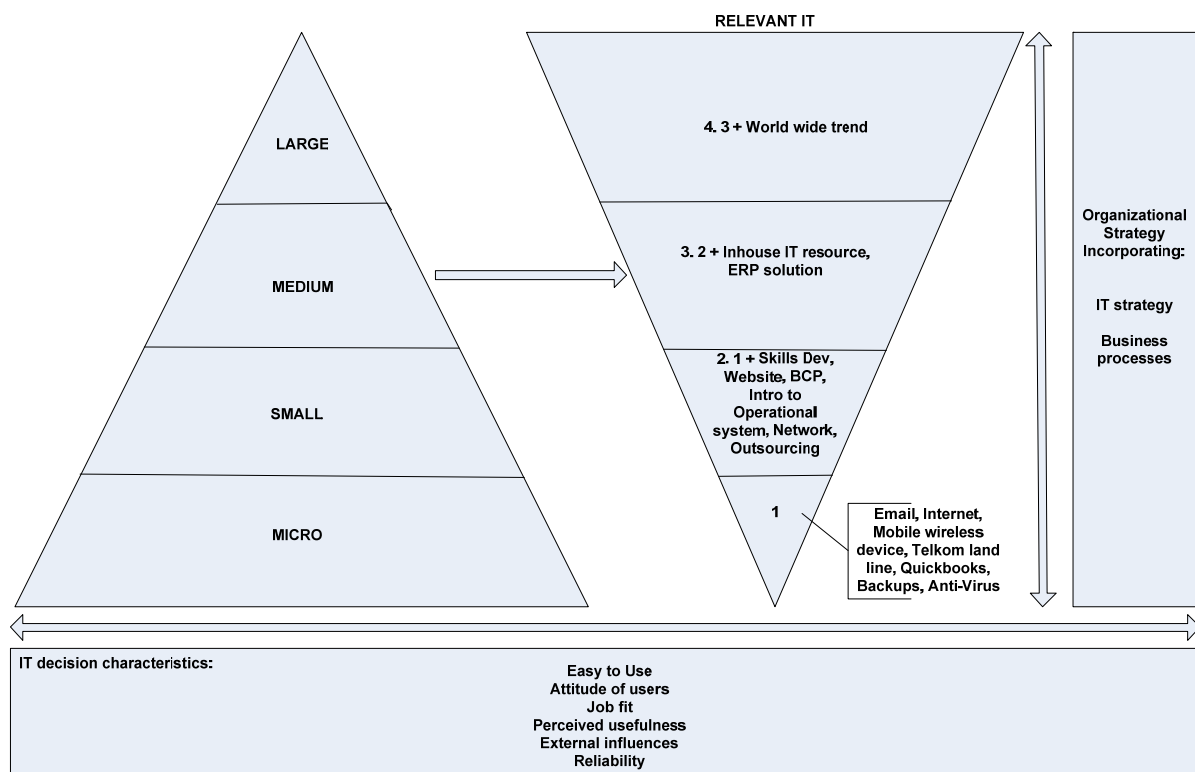
Figure 20: Conceptual framework for guiding SMEs in adoption of ICT (Steyn and Leonard, 2012)

The framework was designed to assist SMEs to identify the exact types of technology that are necessary for their business, relative to its size. According to this framework, micro organisations

require email, Internet, mobile wireless devices and a Telkom landline, Quickbooks (which is a basic financial software package); they have to make sure they do back-ups as well as run anti-virus software on their devices. The rest of the framework shows the IT decision characteristics, which were derived from some of the similar models explained in Chapter 2, but also from the findings of Steyn and Leonard's (2012) research. It is evident that the size of the organisation determines the intensity and relevance of business processes as well as the necessity for an IT strategy. The relevance of this framework for this thesis falls in the section related to micro enterprises which identified the specific IT requirements for these organisations. Steyn and Leonard (2012) classify micro organisations as any business with one to five employees, which relates to the classification for this thesis as discussed earlier in Section 5.2.2. Some of these technologies are discussed and they have been incorporated into the e-skills training provided to the entrepreneurs. Although Spencer *et al.* (2012) do not mention specific technologies they acknowledge two crucial things, the first one being that there are different types of decision-makers and therefore some people will adopt or not; the second is that they also identified various levels of technology-specific adoption in their firm adoption hierarchy and this correlates with some of the technologies as identified by Steyn and Leonard (2012).

Laws (2001) in Spencer *et al.* (2012) argue the importance of the Internet for firms, and the following are seen as reasons why organisations will adopt the Internet or the web:

- Lowered distribution costs
- Larger market share
- Higher revenues

However, this "adoption" has to be carefully considered as the adoption of the web will not automatically ensure the above mentioned results. The Internet may be the only way for some firms to compete in certain industry sectors, such as the travelling and tourism industry (Spencer *et al.*, 2012).

Before the actual technologies identified are introduced, it is important to determine the access that these entrepreneurs have and if they can access the Internet or not. When asked if and how the entrepreneurs had access to a computer, 96% indicated that they had easy or limited access (at home, Internet Café, and neighbour, family members)[32] with only 4%[33] saying they had no access to a computer at all. Asked whether they had their own computers, 41% indicated that they did have their own computer, with a further 31% saying a family member owned a computer that they had access to. Thus, from the data it emerged that the majority of entrepreneurs did have access to a computer in some way and thus the possibility of using a computer for their business increased. The entrepreneurs were then asked if they could access the Internet through their computers, to which 72%[34] indicated they could and some indicated that they used the following technologies to access the Internet[35]:

- 48 % through 3G

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[32] Missing values = 37; thus 25% did not respond to this question.
[33] Missing values = 36; thus 24% did not respond to this question.
[34] Missing values = 40; thus 27% did not respond to this question.
[35] Missing values = 98; thus 66,7% did not indicate how they access the Internet on their computers.

- 13% through ADSL

- 17% through Dial-up

- 22% through wireless access (I-Burst, Neotel, Screamer etc.).

They were then asked if they used their computers for business or private work, to which 52,9 %[36] replied for private and 47,1 % said for business.

The entrepreneurs had to indicate how well they rated their general computer literacy levels. In Table 17 below, it is indicated that 58,4%they either used a computer quite well or know at least some basic features. It has to be noted, however, at this stage that these levels were never tested and it was purely the entrepreneurs' own opinion of their computer literacy levels. It is evident that there is still a need for training these entrepreneurs on ICT to try and increase the 58,4%.

General computer literacy levels	%
I use a computer quite well	20.8%
I use basic features of a computer	37.6%
I know very little about a computer	32.7%
I know nothing about a computer	8.9%

Table 17. General computer literacy levels[37]

Asking them to rate their general computer hardware knowledge at present resulted in a completely different picture. Most of the entrepreneurs had no knowledge of any computer hardware. Although this could be a gap for a training need to be identified, this thesis is not about training technicians, it is about seeing how entrepreneurs can use technology to expand their businesses.
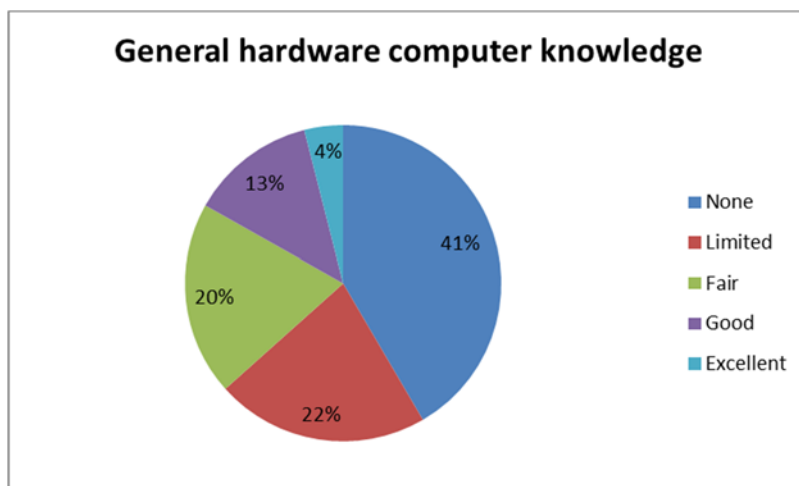
Figure 21: General hardware computer knowledge[38]

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[36] Missing values = 49; thus 33,3% did not respond to this question.
[37] Missing values = 46; thus 31% did not respond to this question.
[38] Missing values = 46; thus 31% did not respond to this question.

The entrepreneurs were also asked if they had studied any computer-related subjects during their schooling; of the 99 entrepreneurs who responded to this question, 88 indicated that they had no computer-related subjects during their school career.

5.4.1 Software applications / packages

Certain specific software applications were identified in the literature as crucial for entrepreneurs. Some of these applications are now discussed and they were used to determine which technologies must be included in the entrepreneur training.

Internet sites must be easily accessible to all, especially the target audience of your business. There is also a need for SMEs to gain access to innovation and support on which ICT they can use and this support can be provided through the Internet (Thomas *et al.*, 2004), making information accessible to all.

Word processing and electronic mail has emerged as the two mostly used systems in a study conducted on women entrepreneurs in Malaysia (Ndubisi and Kahraman, 2005); however, the researcher is confident that this will be similar to the South African context. Word processing and electronic mail form part of the systems introduced and their relevance are monitored in this thesis. They were also introduced in the e-skills training that the entrepreneurs received. Email and a webpage are seen as an effective means to promote the business and thus attract new clients (Cáceres *et al.*, 2012); these are strategies that entrepreneurs can use to attract new clients. The variety of systems investigated in their research are *"basic systems e.g. electronic mail, word processing, spread sheets, graphics and databases and advanced e.g. statistical analysis, application packages and programming languages"* (Ndubisi and Kahraman, 2005:730). Except for word processing and electronic mail, graphics and application packages are frequently used systems. However, both Steyn and Leonard (2012) and Spencer *et al.* (2012) note that a webpage only becomes relevant during the later phases of a growing business, moving into the small and medium arena. It is interesting to see why systems are used, as Ndubisi and Kahraman (2005) note that systems are used by an entrepreneur for administrative, planning or control tasks. However, they did find that 92% of their respondents use computers only for administrative tasks, and not for more advanced and complex processes although the size of the firm has a direct influence on the actual adoption of systems. This is relevant in investigating the entrepreneurs in South Africa as the businesses never feature more than five employees. What is important at this stage is due to the high reliance on electronic mail, the entrepreneurs investigated did have some form of connectivity or Internet connection; this will have to be determined for the South African entrepreneur, as can be seen in the previous section. 72% of the entrepreneurs did indicate that they had access to the Internet. A mobile device might be the most relevant device to send emails.

Mobile devices are becoming a crucial tool for entrepreneurs as *"mobiles generally connect people to people, regardless of time, location and situation. This mobility leads to increased*

individual addressability, and can change how people structure social and economic activity"
(Donner and Escobari, 2010:649). They found that mobile phones are used specifically during
the sales and marketing activities of a business and to keep in contact with customers.

Dyerson *et al.* (2009) identified the following technologies, in no particular order, as the most
used ones by SMEs:

- Company website
- Email
- Extranet or electronic data interchange
- Groupware (E.g. Lotus Notes)
- Internet
- Intranet
- Computer network
- Video/Audio conferencing
- Wireless access

Steyn and Leonard (2012) identified almost similar technologies, although they identified these
technologies to be only relevant for micro businesses as the above mentioned ones are more for
larger companies, thus the technologies relevant for micro businesses are:

- Email
- Internet
- Mobile devices
- Telkom landline
- Quick books accounting software
- Backup
- Anti-virus software

Even though one can purchase certain application software packages, Ramdani and Kawalek
(2009) warn that one should be careful of taking existing software packages, designed primarily
for larger organisations, and think that a miniaturised version will solve the entrepreneurs'
problems.

Although his study focuses on the Bangladeshi SME's value chain's systems specifically, Al
Mursalin (2012) indicates the following systems as the most commonly used:

- Inventory management
- Production/operation management
- Sales/e-commerce
- Customer account management (CRM)
- Accounting and finance
- Research and design

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- Human resource management (HR)
- Enterprise resource planning (ERP)

These systems are suitable mostly for larger organisations and they should not be relevant for the South African entrepreneur. However, one has to keep these applications in mind as they could be relevant when the businesses start to grow.

Esselaar *et al.* (2006) use the following structure of questions to determine which ICT is being used and possibly how. Below are the questions used by them; they were also incorporated into the questionnaire as well as the interviews as they assisted in not only creating an ICT profile of the trained entrepreneurs but also provided an indication of the ICT currently being used by entrepreneurs. It is important to note that these were not the only questions asked about ICT. These questions provided a clear baseline regarding the willingness of an entrepreneur to accept ICT. Even though one could assume that once ICT is used that adoption has been successful; however, one should consider assistance during the entire adoption phase in guiding the adopter to understand the specific advantages to be gained for the business fully (Ramani *et al.*, 2012).

Esselaar *et al.* (2006:32) use the following questions that were incorporated in this thesis:

- *"Yes, the business uses the telephone to communicate with clients and customers*
- *Yes, the business uses the telephone to order supplies*
- *Yes, the business uses the mobile to communicate with clients and customers*
- *Yes, the business uses the mobile to order supplies*
- *Yes, the business uses the fax to communicate with clients and customers*
- *Yes, the business uses the fax to order supplies*
- *Yes, the business uses the post box to communicate with clients and customers*
- *Yes, the business uses the post box to order supplies*
- *Yes, the business uses the computer to communicate with clients and customers*
- *Yes, the business uses the computer to order supplies*
- *Yes, the business uses the Internet to communicate with clients and customers*
- *Yes, the business uses the Internet to order supplies*
- *Yes, the business sends SMS or Text Messages for business purposes*
- *Yes, the business receives SMS or Text Messages for business purposes*
- *Yes, the business uses the Internet for business purposes*"

It seems as if the most commonly acceptable packages and technology one has to incorporate into the training at this stage according to the literature are the following:

- Email
- Internet and effective Internet searching capabilities

- Mobile devices
- A Telkom landline
- Accounting software such as Quickbooks
- Backup software
- Anti-virus software
- Website
- MS Word
- MS Excel

Some of the other technologies highlighted by the literature are:

- Graphics packages
- Databases
- Advanced statistical analysis
- Application packages
- Extranet
- Computer network
- Video Conferencing

Even though some of the literature highlights these additional packages, some were excluded from the entrepreneur training due to their complexity and irrelevance to entrepreneurs, such as computer networks, extranet and advanced statistical analysis.

The above mentioned technologies were referenced in the questionnaires to determine if they were used by entrepreneurs and they were incorporated into the entrepreneur training, which forms part of the next chapter. As part of this question, the entrepreneurs had to indicate their level of expertise per application or technology.
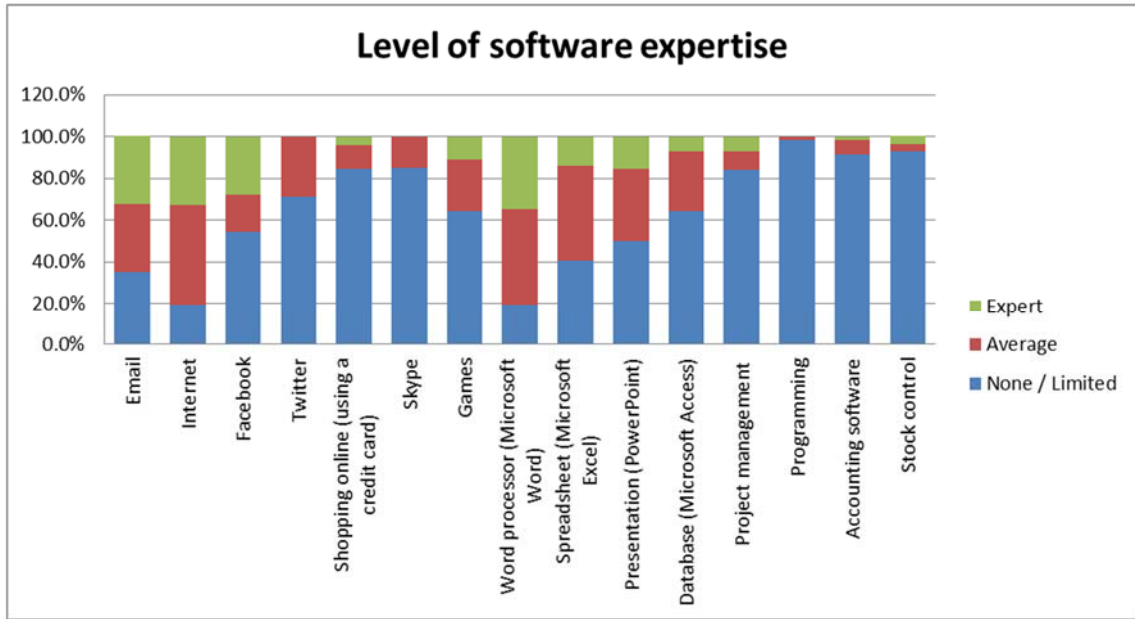
Figure 22: Level of software expertise

Email, Internet, a word processor and a spread sheet facility such as Excel seem to be the most used applications by entrepreneurs, which corroborates what the literature states. Some of the alarming responses were the lack of Facebook and Twitter as a marketing tool, which could replace the actual web page presence, never using any form of online shopping or payments, and the lack of accounting software and stock control. The low incidence of presentation software, database software, project management and programming is not alarming as these are not everyday technologies that a business uses.

It should be interesting to see how these entrepreneurs marketed themselves and their products.
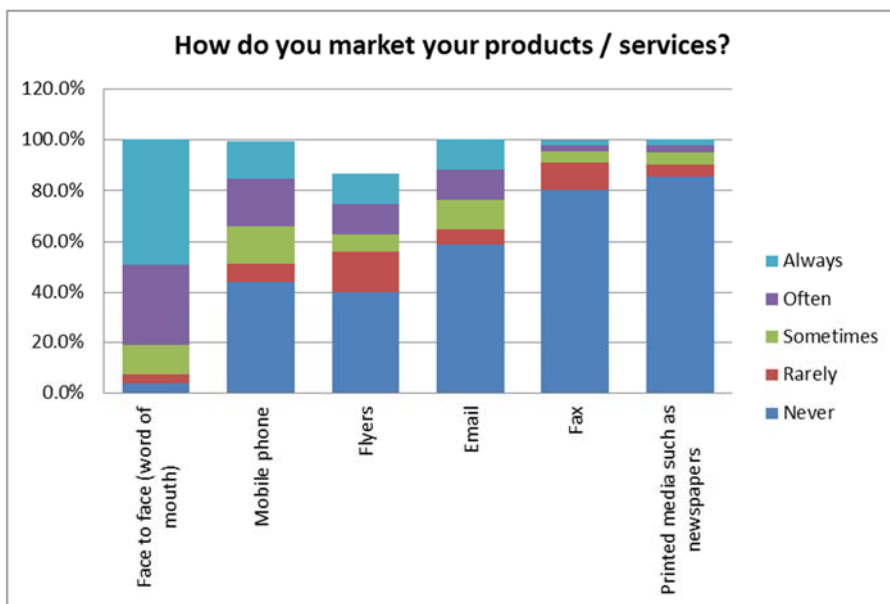
Figure 23: Marketing

In Figure 23 it is clear that face to face communication is the most used marketing tool, with mobile phones and flyers being the next option. It is interesting to see that more than 80% of the entrepreneurs said they never use printed media such as newspapers to advertise. Eight of the respondents did mention using business cards under the "other" section, and one said they used the radio, one said they used SMS and one said they used vehicle branding to market their products. Using mobile devices is now also emerging and should also be incorporated into entrepreneurship training.

To determine how entrepreneurs used technology in their businesses, they were asked how they communicated with the employees and suppliers.
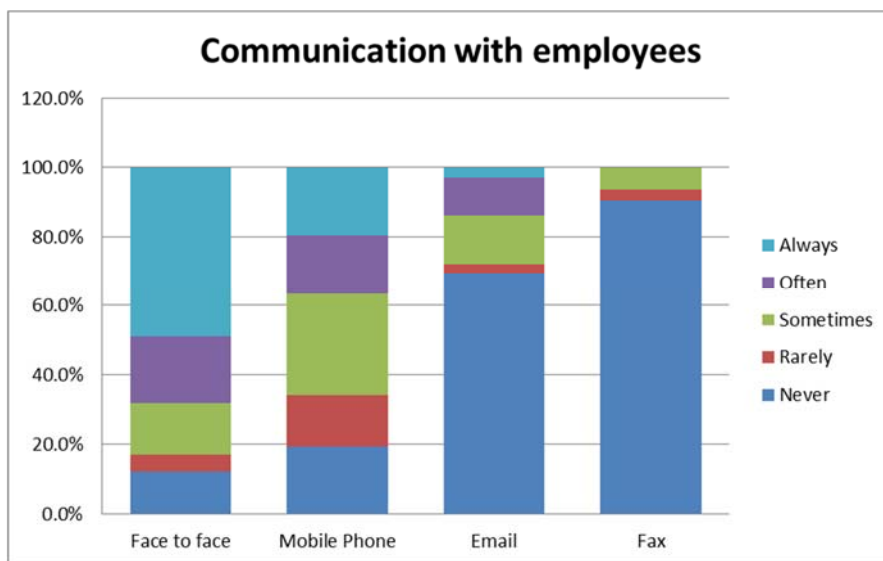
Figure 24: Communication with employees

The majority of entrepreneurs indicated that they preferred communicating face to face with their employees, and through mobile phones as can be viewed in Figure 24. This was expected as these entrepreneurs did not have many employees and most often, they sat in the same office or house when working. They were then asked how they communicated with their suppliers.
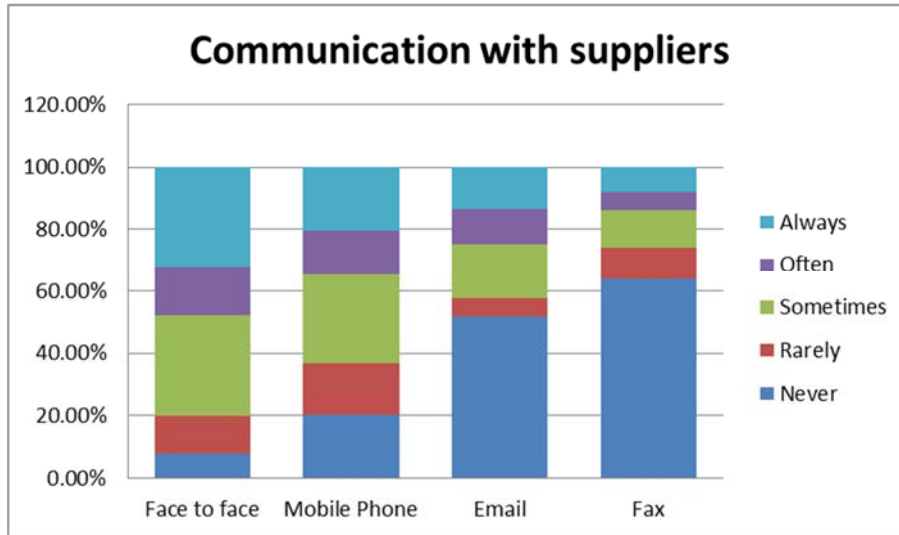
Figure 25: Communication with suppliers

In communicating with their suppliers, the majority of entrepreneurs said face to face commination and mobile phones were used most. The necessity for mobile phones in training is emerging. At this point 51.9% participants said they had never used email to communicate with their suppliers. The reason is unknown but if the entrepreneurs see the benefits of using email to place orders, thus keeping record of all communication, it could assist them even further. It is alarming that previously they indicated that they used email rather extensively, but they clearly did not see the benefits of using email to communicate with their suppliers. Communication with suppliers is further analysed in Section 5.5 to determine if age, gender or experience influences it at all.

During the interviews the participants were asked how they communicated with their clients, and some additional options were provided. It is evident from Figure 26 that mobile communication and email are the most preferred communication method with clients. This confirms the findings in the literature and emphasises the need for mobile devices and perhaps training in using mobile devices.
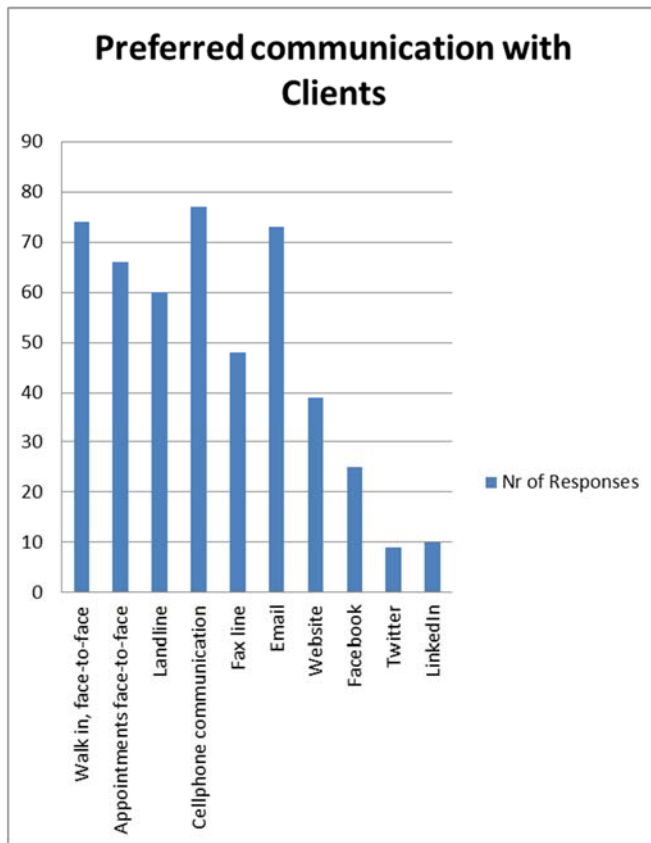
Figure 26: Preferred communication with clients

As this training relies on various other aspects such as mobile coverage and electricity in South Africa, some of these aspects are briefly discussed.

5.4.2   Mobile devices

As facilitating conditions (FC) are one of the characteristics of UTAUT, the availability of connectivity plays a crucial part in the South African entrepreneur's ICT requirements; as small businesses rely strongly on their mobile devices for performing their day to day operations. In a study conducted across 13 African countries, it was determined that 76% of small businesses use mobile phones to communicate with their customers, which is much higher than fixed telephone lines or fax machines (Esselaar *et al.*, 2006). 95% of SMEs in this study rated mobile phone as the most desired ICT to be used in their business. These findings are similar to the findings of this thesis in Figure 24, Figure 25 and Figure 26 above. Kabanda (2001:11) found that SMEs prefer using their mobile devices as this ensures and connects them to the "*wider, changing social world*". As she rightfully states, *"By acquiring this resource (the mobile device) SMEs had the power to change their current practices" (Kabanda, 2001:11).* Mobile phones should be seen as "*a primary candidate to facilitate participation as part of an e-collaboration effort"* (Twinomurinzi et al., 2012:210). The relationships that benefit most from mobile device usage are long-term relationships that ensure trust between the entrepreneur and his clients and

thus reduces the cost of having to search continuously for new clients and it also reduces the turn-around time of providing quotations for the clients. Even though the quotations are sent via email, the entrepreneurs use a mobile phone to call various suppliers to find the best prices (Cáceres *et al.*, 2012)[39]. They continue to say that a mobile phone can be beneficial to entrepreneurs as it can be used to resolve uncertainties or miscommunications immediately and thus reduce not only operating costs but also time: "*Not having a mobile phone could seriously affect relations with customers who are immersed in a culture of ubiquitous communication, ultimately useful to both parties*" (Cáceres et al., 2012:88). *"… rural areas should leapfrog to mobile technologies which offer relatively faster and less expensive ways of building telecommunication infrastructure"* (Wamuyu and Maharaj, 2011:68).

5.4.2.1   Entrepreneurs' mobile usage

As the mobile devices are regarded as such a crucial part of entrepreneurs' business, it is important to determine how and if these entrepreneurs use their mobile devices; therefore the questionnaire set out to determine the mobile preference of the entrepreneurs. The entrepreneurs were asked if they had a mobile device or tablet and if so, if this device was on a contract or a prepaid basis. Only 4%[40] of the entrepreneurs said they did not have a mobile device. Of the 96% who indicated that they did have a mobile device, 82% use their devices on a prepaid basis (pay-as-you-go). Thus the majority of the entrepreneurs did not have a standard contract in place with one service provider, which could lead to a problem regarding loyalty towards one service provider. 72%[41] of all the respondents indicated that they could either access the Internet via their cellular phones, or send emails or do both, which is a clear indication that most of the respondents did have and were in fact using phones with the capability of being a smart phone. 62%[42] of the respondents indicated that they use one cellular phone, whereas the rest of the respondents indicated that they use more than one phone. The reason for using more than one cellular phone is unknown; it might also relate to the service providers that they choose. Thus they were asked who their service provider in South Africa was and why they preferred that specific service provider. Figure 27 indicates that the two main service providers in South Africa are Vodacom and MTN.

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[39] This paper focused primarily on the carpenter industry in Villa El Salvador, which means these entrepreneurs were producers of their products, thus sourcing material relevant to a specific order requires a quick turn-around time. The study also investigated the entire value chain for these carpenters and found mobile, email and web pages the most relevant technology to use; however, not all will be relevant at all levels of the value chain.
[40] Missing values = 42; thus 29% of the respondents did not answer this question,
[41] Missing values = 47; thus 32% of the respondents did not answer this question,
[42] Missing values = 48, thus 33% of the respondents did not answer this question.
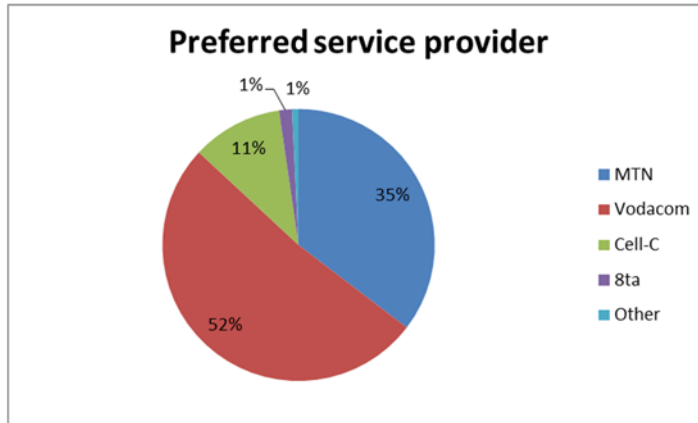
Figure 27: Preferred service provider[43]

When asked what the reason for selecting their specific service provider was, 35% of the respondents said that they chose a service provider based on cheaper rates, with 32,8% indicating reliable service as a determining factor when choosing a service provider. Although cost is not part of the UTAUT constructs, it does seem as if cost determines the adoption of a mobile device in terms of rates. Reliable service is regarded as the second highest reason for selecting a service provider, which relates to the performance expectancy of UTAUT. Wamuyu and Maharaj (2011) list affordability as a barrier that could affect the adoption of wireless technology and it seems as if they have a valid point; thus cost should be seen as a determining factor in technology adoption.

Reliable service relates to performance expectancy in terms of gaining a competitive advantage and secondly into the facilitating conditions of UTAUT. As reliable service is a determining factor in selecting a service provider for mobile usage, it is important to determine what the coverage of these service providers in South Africa is. Although good coverage was indicated by only 15,3% of the respondents, good service is directly related to good coverage. Therefore the coverage of both Vodacom and MTN is investigated in the next section to determine what the actual cellular network coverage in South Africa is.

During the interviews the entrepreneurs were asked if they regarded mobile devices as playing a part in the future of their business. Some of their responses were the following:

- "*Definitely it will play a part because I won't be able to change my quotes, email my clients, and have better advertisement techniques in future.*"
- "*Cell phone are used as the main communication tool and laptops used to access information whilst not in the office and to access the client's systems.*"

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[43] Missing values = 46; thus 31.3% did not indicate their preferred service provider.

- "*Without cell phones and laptops it is very difficult to keep in contact with our many clients and employees. Cell phones make the world a great deal smaller and most certainly speed up the many processes involved in our daily work.*"
- "*The interaction between clients and the company will become more efficient and effective. The use of mobile services will improve the company's services and managing accounts.*"
- "*Things will be easier, less wiring thus less costs for wireless connections.*"

Only two of the entrepreneurs disagreed; one was in a medical practice and one a small restaurant owner. Thus almost all the entrepreneurs interviewed realised the important role that mobile devices can play in their business and their future success within their business.

5.4.2.2   Mobile coverage in South Africa

Mobile coverage across the nation seems to start playing a crucial role in ICT usage. It did, however, emerge that even though mobile devices have become an integral part of the daily society with various applications and functions, voice calls are still the most valued function of the mobile phone (Donner and Escobari, 2010). This is also evident from the results in the section above. This brings about the question and importance of mobile network coverage. Annexure B shows the comparison of the coverage of service providers MTN and Vodacom, from 2009 until 2012, and for Vodacom 2014 as well. Interestingly, these maps only indicated a small change in coverage for both Vodacom and MTN and that there is still coverage on the same sectors which were covered in 2009 and still no coverage in the same areas, three years later and no real progress on getting all the people of South Africa connected. "*Mobiles phones have overtaken computers as a tool in supporting the running of SMEs, given their prevalence and accessibility*" (Esselaar et al., 2006:46). What does become apparent, is which service provider to choose. "*It may also imply that the price competition among the service providers and retailers of wireless products give the users of wireless technologies and related services a wide price range to choose from, hence lowering the costs of using wireless technologies*" (Wamuyu and Maharaj, 2011:66).

As mentioned earlier, Vodacom and MTN were the two preferred service providers for the entrepreneurs. And looking at the coverage maps, perhaps there is a gap emerging for these two and other similar service providers to make sure that there is connectivity across the entire South Africa.

In 2012 MTN released their subscription figures at that point in Africa and the Middle East as 182.7 million subscribers (MTN, 2012b). But these figures mean nothing if there is no real progress to ensure that the entire South Africa has cellular coverage.

5.5   Statistical analysis of UTAUT moderating variable

UTAUT identified certain moderating factors, namely "age, gender, expectancy and voluntariness" (Im et al., 2011; Venkatesh et al., 2003). Interestingly experience, age and gender play the most significant part in ICT adoption when examining the UTAUT model (Im *et al.*, 2011). However, as entrepreneurs also seem to be the decision-maker, voluntariness does not seem to play such a great part in the adoption as they adopt technology to assist them in the performance and growth of their business. These moderating factors become the focus of this analysis to see if they are determining factors when looking at technology adoption using UTAUT.

By using the extraction method called Principal Component Analysis for Question A3, *"If you use the computer for business (See question 2), what do you especially use it for?"* three factors emerged. This was done by evaluating the Eigen values >= 1. The three factors were then named as follows:

> Factor 1 = Operational systems
>
> Factor 2 = Social systems
>
> Factor 3 = Business Systems

Additional literature that states that gender and age also play a significant part in the adoption of technology was discussed earlier but some of it will be revisited for the sake of this section. Lu *et al.* (2003) state that males dominate the mobile phone market in Germany, the United Kingdom and Italy. Age was identified by Venkatesh *et al.* (2003) as a driving force towards technology adoption. Are women more sensitive towards adoption? An article on the adoption of MP3 players and Internet banking, moderating variables examined for the UTAUT model states that experience, gender, and age as most significant: "*Young people tend to be more innovative and faster to accept technologies*" (Im *et al.*, 2011). Thus the mean factor scores for each of the three factors were then compared across gender. To determine this, certain hypothesis emerged.

The first hypothesis is:

> *H01 = there is no difference in the types of system adopted by males and females.*
>
> *HA1 = There is a difference in the types of system adopted by males and females.*

One of the assumptions for a one-way ANOVA is the homogeneity of variances. This assumption was tested and a p-value > 0.05 indicates that the variances is indeed homogenous.

The p-values for the ANOVA testing for equal mean factor scores across gender were as follows:

> Factor 1 = *Operational systems* has a p-value of 0.904.
>
> Factor 2 = *Social systems* has a p-value of 0.802.
>
> Factor 3 = *Business systems* has a p-value of 0.528.

There is no significant difference (p-value for all three factors > 0.05) in the adoption of systems across gender types; thus the null hypothesis is retained. Gender does not seem to have an effect on the adoption of technology, specifically the types of system.

The mean factor scores for each of the three factors were then compared across age group, which is the second moderating factor of UTAUT.

Thus the following hypothesis is relevant:

H02 = there is no difference in the types of system being adopted by age groups.

HA2 = There is a difference in the types of system being adopted across age groups.

Due to the fact that the sub-groups were so small, the best option was to perform a non-parametric test. The non-parametric Kruskal-Wallis test, which is seen as the non-parametric equivalent to the parametric ANOVA, was used.

But before one gets to the Kruskal-Wallis test results, what is interesting to see is of a total score of three, the mean scores for factor 1 lean more towards having an average level of expertise, except for the group 60 years and older who lean more towards the no or limited expertise. This is similar for the social systems, but what is interesting is that for business systems, the mean factor scores indicate that the respondents have no or limited expertise in using these systems, except for the age group 40 – 49 year old where the respondents lean more towards expertise.

Factors	Age groups	Mean
A3: Factor 1 - Operational systems	20 - 29 years	1.7688
	30 - 39 years	1.8143
	40 - 49 years	1.8857
	50 - 59 years	1.8500
	60 years and older	1.3333
	Total	1.7779
A3: Factor 2 - Social systems	20 - 29 years	1.8625
	30 - 39 years	1.7526
	40 - 49 years	1.7095
	50 - 59 years	1.3400
	60 years and older	1.1750
	Total	1.6092
A3: Factor 3 - Business systems	20 - 29 years	1.0000
	30 - 39 years	1.0897
	40 - 49 years	1.5972
	50 - 59 years	1.1083
	60 years and older	1.0000
	Total	1.2004

Table 18: Comparing factors to age group (Mean)

The p-values for the Kruskal-Wallis test are as follows:

Factor 1 = Operational systems have a p-value of 0.515.

Factor 2 = Social systems have a p-value of 0.052.

Factor 3 = Business systems have a p-value of 0.027.

There is thus no significant difference in the mean factor scores for factor 1 (p-value > 0.05); this is similar for factor 2 (p-value > 0.05), and thus the null hypothesis (H02) is retained in both instances. However, in factor three the null hypothesis is rejected (p-value < 0.05) and there seems to be a significant difference in the mean factor scores measuring adoption of business systems across age group. This means that for operational and social systems, age does not seem to play a role in the adoption thereof; however, for business systems, looking at the mean, it is clear that the age group between 40 - 49 years is more "*open*" to technology adoption than all the other age groups. This confirms what was reported earlier in this section; it also seems that age plays a role only in certain contexts or types of system.

The mean factors scores for each of the three factors were then compared across duration of using a computer. This relates to moderating factor called experience from UTAUT and how experience influences technology adoption.

Thus the following hypothesis is relevant:

H03 = there is no difference in the types of system being adopted and the duration of using a computer.

HA3 = There is a difference in the types of system being adopted and the duration of using a computer.

The results from the non-parametric Kruskal-Wallis tests resulted in the following p-values:

Factor 1 = Operational systems have a p-value of 0.001.

Factor 2 = Social systems have a p-value of 0.001.

Factor 3 = Business systems have a p-value of 0.095.

H03 is rejected for both factor 1 and 2 as the p-value is <0.05; however, with factor 3 the null hypothesis cannot be rejected. This means that for business system, there is no significant difference between the mean factor scores measuring adoption of the system across the duration of using a computer; this is confirmed when going back to the means for all the durations (less than one year, 1 - 2 years, 2 - 3 years, 3 - 4 years and more than 4 years) according to the entrepreneur's expertise levels being none or limited. Thus it does not seem that if one has used a computer for an extended period of time, one will adopt business systems. However, it did emerge that the longer one uses a system, the more likely one is to adopt one and have grown in expertise levels for the operational and social systems. Looking

at the post hoc pairwise comparison of the mean for factor 1, there is a significant difference between using a computer for less than one year and using it more than four years (p-value = 0.002) and the same is true by comparing two to three years with four years and more (p-value = 0.025). The pairwise analysis for factor 2 is similar, as the comparison between one year and four years has a p-value of 0.009 and the comparison between two to three years and more than four years has a p-value of 0.013.

Thus there is a difference in the types of system being adopted and the duration of using a computer for operational and social system, which means that based on context, the longer one uses a system, specifically the operational and social systems, the more comfortable one feels with using it and thus one may tend to engage in more features.

In concluding, looking at the types of system being used, gender does not seem to be a moderating variable for the entrepreneurs; age plays a role only in business systems, putting a question mark on age being a moderating variable and the duration of using operational and social systems does seem to play a part in the adoption of technology; thus experience is relevant.

By using the extraction method called Principal Component Analysis for Question D12, *"If you bank your money, how do you access it and how often? (Tick all applicable options)"* two factors emerged. This was done by evaluating the Eigen values >= 1.

The two factors were then named as follows:

      Factor 1 = Technology banking

      Factor 2 = Physical banking

According to literature Internet applications have become well established in the lives of young people (Baker and White, 2010). Esselaar *et al.* (2006) note that the survivalists or informal operators are the ones that use their daily income for the survival of their business and thus do not split their business and personal income. Al Mursalin (2012:21) found that 40.5% of SMEs finance their ICT investments through personal finances. This could have an effect on using technology for one's business or not.

Thus there are two ways in which entrepreneurs perform their banking, by using either technology or physical banking.

The mean factors scores for each of the two factors were then compared across gender. This relates to the moderating factor gender from UTAUT in an attempt to determine if there is a difference at all between the ways in which entrepreneurs do their banking and their gender.

Thus the following hypothesis is relevant:

      H04 = there is no difference in the types of banking being used by males and females.

HA4 = there is a difference in the types of banking being used by males and females.

A one-way ANOVA across gender was then performed on the data; homogeneity of variances with p > 0.5, indicating the difference in variances:

Factor 1 = Technology banking has a p-value of 0.914

Factor 2 = Physical banking has a p-value of 0.857

Thus there is no significant difference between the type of banking being used and gender and the null hypothesis is retained. This means that gender does not play a role in the way in which entrepreneurs do their banking.

The mean factor scores for each of the two factors were then compared across type of business, either sole owner or closed corporation. This was done to determine if the type of business may play a role in the type of banking being used.

Thus the following hypothesis is relevant:

H05 = there is no difference in the types of banking across the different company types.

HA5 = there is a difference in the types of banking across the different company types.

The results from the non-parametric Kruskal-Wallis tests resulted in the following p-values:

Factors 1 = Technology banking has a p-value of 0.007.

Factor 2 = Physical banking has a p-value of 0.159.

Thus for Factor 1 the null hypothesis is rejected; there is a significant difference in the type of business and using technology for banking. However, for Factor 2 the null hypothesis is retained. This means for physical banking there is no significant difference between the type of business and the fact that the entrepreneur does physical banking. For the mean of Factor 1, it seems as if the sole owners almost never use technology whereas the closed corporations (that are most of the time registered companies) do use technology at least once a month for their business. Although no significant difference could be found between the type of business and using physical banking, most of these entrepreneurs stated that they make us of physical banking at least once a week.

The mean factors scores for each of the two factors were then compared across age, which is the second moderating factor of UTAUT.

Thus the following hypothesis is relevant:

H06 = There is no difference in the way in which entrepreneurs do their banking across age groups.

HA6 = There is a difference in the way in which entrepreneurs do their banking across age groups.

The results from the nonparametric Kruskal-Wallis tests resulted in the following p-values:

Factor 1 = Technology banking has a p-value of 0.070

Factor 2 = Physical banking has a p-value of 0.410

Thus age does not seem to play a part.

Concluding, it does seem that gender does not play a part in the adoption of technology banking; neither does age. The type of business, though, did play a part and one might need to look into this aspect in the future.

By using the extraction method called Principal Component Analysis for Question D14, "*How do you communicate with suppliers?*" two factors emerged. This was done by evaluating the Eigen values >= 1.

The two factors were then named as follows:

Factor 1 = Technology communication

Factor 2 = Physical communication

Thus there were two ways in which entrepreneurs communicated with their suppliers, by using either technology or physical communication. As the main focus of this thesis is ICT, the researcher first wanted to look at all the results for technology communication and thus only Factor 1 was analysed first. After Factor 1 was analysed, in a post hoc test a cross tab analysis was done on Factor 2 to see if there is a difference in face to face communication and gender.

The mean factor score for Factor 1 was then compared across gender. This relates to the moderating factor gender from UTAUT in an attempt to determine if there is a difference at all between gender and contacting suppliers via technology.

Thus the following hypothesis is relevant:

H07 = there is no difference between males and females in using technology to communicate with suppliers.

HA7 = there is a difference between males and females in using technology to communicate with suppliers.

The non-parametric Kruskal-Wallis test resulted in the following p-values:

Factor 1 = Technology communication is 0.852

Thus the null hypothesis is retained, which means that there is no difference in how males or females communicate with their suppliers when using technology.

Below is the cross tabular analysis of the physical communication (face to face) and gender.

			D1: Are you male or female?		
			Male	**Female**	**Total**
D14_1: How do you communicate with suppliers? Face to face	Never	Count	1	3	4
		Expected Count	2.0	2.0	4.0
		Column %	4.2%	12.0%	8.2%
		Std. Residual	-.7	.7	
	Rarely	Count	5	0	5
		Expected Count	2.4	2.6	5.0
		Column %	20.8%	0.0%	10.2%
		Std. Residual	1.6	-1.6	
	Sometimes	Count	9	7	16
		Expected Count	7.8	8.2	16.0
		Column %	37.5%	28.0%	32.7%
		Std. Residual	.4	-.4	
	Often	Count	5	3	8
		Expected Count	3.9	4.1	8.0
		Column %	20.8%	12.0%	16.3%
		Std. Residual	.5	-.5	
	Always	Count	4	12	16
		Expected Count	7.8	8.2	16.0
		Column %	16.7%	48.0%	32.7%
		Std. Residual	-1.4	1.3	
Total		Count	24	25	49
		Expected Count	24.0	25.0	49.0
		Column %	100.0%	100.0%	100.0%

Table 19: Cross tabulation: Physical communication and gender

In Table 19 the cross tabulation analysis on face to face communication (the only item in Factor 2 = physical communication) and gender, the p-value according to the Fisher's Exact test is 0.024; there is a significant association between face to face communication and gender. The standardised residual, which says that if it is 2 and higher, or -2 and lower, is an indication of which cell in the table contributes most to the chi square value.

Five men in this group indicated that they rarely talk face to face with suppliers. However, under the null hypothesis of no association it is expected that 2.4 men would indicate that they use face to face rarely. Hence more than was expected indicated that they rarely use face to face communication.

Women, on the other hand, tend to use more face to face communication with their suppliers. Under the null hypothesis of no association it was expected that 8.2 would indicate that they always preferred face to face communication but in the end 12 women indicated that they always preferred this way of communication. There may be a number of reasons for this but one may argue that women are more emotional and prefer contact more. In a paper presented at a conference in 2014, which the researcher co-authored, it emerged that women "*rely heavily on what their husbands think and decide concerning ICT. One interviewee relied on her husband for training and another has turned down the chance to use additional mobile ICT because her husband thinks she does not need it*" (Steyn, Steyn and de Villiers, 2014:6); this may be why women tend to prefer face to face communication when communicating with their suppliers.

Thus, for physical communication with suppliers, gender plays a definite part but not for technology communication.

The mean factor scores for Factor 1 were then compared across age groups, relating it to the moderating factor age from UTAUT in an attempt to determine if there is a difference at all among the various age groups and using technology to contact their suppliers.

Thus the following hypothesis is relevant:

> *H08 = there is no difference in using technology to communicate with suppliers across age groups.*

> *HA8 = there is a difference in using technology to communicate with suppliers across age groups.*

The non-parametric Kruskal-Wallis tests resulted in the following p-values:
> Factor 1 = Technology communication is 0.231

Thus the null hypothesis is retained, which means that there is no difference in the communication with suppliers using technology across age groups.

Below Table 20 shows the cross tabulation analysis of the physical communication (face to face) and age.

On performing a cross tabulation analysis on face to face communication, Factor 2 = Physical communication and age groups, only the age group 50 - 59 years had a standardised residual of 1.5, with an expected count of 1.9 and an actual count of 4; this means that the age group 50 - 59 years old often communicate with suppliers face to face.

			DD2: Age groups					
			20 - 29 years	30 - 39 years	40 - 49 years	50 - 59 years	60 years and older	Total
D14_1: How do you communicate with suppliers? Face to face	Never	Count	1	1	1	1	0	4
		Expected Count	.5	1.1	1.0	1.0	.4	4.0
		Column %	16.7%	7.1%	7.7%	8.3%	0.0%	8.0%
		Std. Residual	.8	-.1	.0	.0	-.6	
	Rarely	Count	1	3	0	1	1	6
		Expected Count	.7	1.7	1.6	1.4	.6	6.0
		Column %	16.7%	21.4%	0.0%	8.3%	20.0%	12.0%
		Std. Residual	.3	1.0	-1.2	-.4	.5	
	Sometimes	Count	4	4	5	1	2	16
		Expected Count	1.9	4.5	4.2	3.8	1.6	16.0
		Column %	66.7%	28.6%	38.5%	8.3%	40.0%	32.0%
		Std. Residual	1.5	-.2	.4	-1.4	.3	
	Often	Count	0	2	2	4	0	8
		Expected Count	1.0	2.2	2.1	1.9	.8	8.0
		Column %	0.0%	14.3%	15.4%	33.3%	0.0%	16.0%
		Std. Residual	-1.0	-.2	-.1	1.5	-.9	
	Always	Count	0	4	5	5	2	16
		Expected Count	1.9	4.5	4.2	3.8	1.6	16.0
		Column %	0.0%	28.6%	38.5%	41.7%	40.0%	32.0%
		Std. Residual	-1.4	-.2	.4	.6	.3	
Total		Count	6	14	13	12	5	50
		Expected Count	6.0	14.0	13.0	12.0	5.0	50.0
		Column %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20: Cross tabulation: Physical communication and age

Thus age again does not seem to play a part in the adoption of technology for communication but may play a part in the physical communication with suppliers.

The mean factor scores for Factor 1 were then compared to level of access.

Thus the following hypothesis is relevant:

> H09 = there is no difference in using technology to communicate and the level of access to ICT.
> HA9 = there is a difference in using technology to communicate and the level of access to ICT.

The non-parametric Kruskal-Wallis test resulted in the following p-values:
> Factor 1 = Technology communication is 0.313

Thus the null hypothesis is retained, which means that there is no different in the communication with suppliers using technology and the level of access to ICT that entrepreneurs have. Thus in this case, experience does not seem to play a significant part in technology adoption.

When performing a cross tabulation analysis on face to face communication, Factor 2 = Physical communication and level of access, the results were expected. Entrepreneurs with no access to a computer often used face to face communication with suppliers (standard residual being 2.9, expected count = 0.3, actual count = 2). Thus if you do not have a computer, you are forced to have face to face discussions with your suppliers.

In conclusion, it does not seem as if the moderating factor of UTAUT namely age, gender and experience played a significant role in the adoption of ICT by entrepreneurs.

5.6   Introduction of the ICT profile of the entrepreneurs

Up to this point the focus of this thesis has been to see what the profile of the entrepreneur is to determine how ICT can be incorporated into entrepreneurial training to ensure that the e-skills levels as set out by government can be met. The following technology applications have emerged from both the literature and the data analysis:

- Internet and effective Internet searching capabilities
- Email
- Word processing (MS Word)
- Spread sheets (MS Excel)
- Mobile devices and mobile applications
- Marketing tool such as Facebook

Chapter 6 outlines these applications as the entrepreneurs were trained in applying these skills as well as in some additional skills.

The ICT profile of the entrepreneur can be viewed in Figure 28.
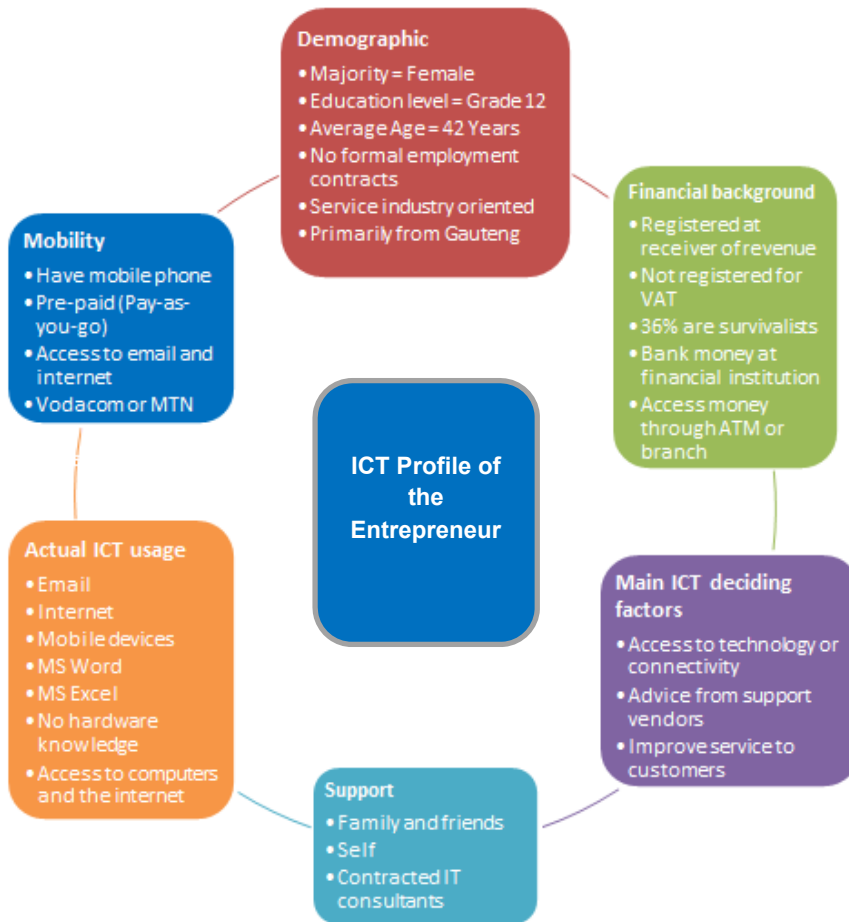
Figure 28. ICT profile of the entrepreneur

5.7 Chapter conclusion

This chapter highlights the entrepreneur's ICT profile, based on entrepreneurs who received entrepreneurship training as well as those that were interviewed.

This chapter should provide anybody involved in entrepreneur training with ideas of the profile of entrepreneurs and could be used as a guideline when incorporating ICT training.

Most of the entrepreneurs did see the value of the training and the effect it could have on their businesses; consult Figure 29. For the entrepreneurs who did receive the training, this was their take on the outcome of the training which they received.
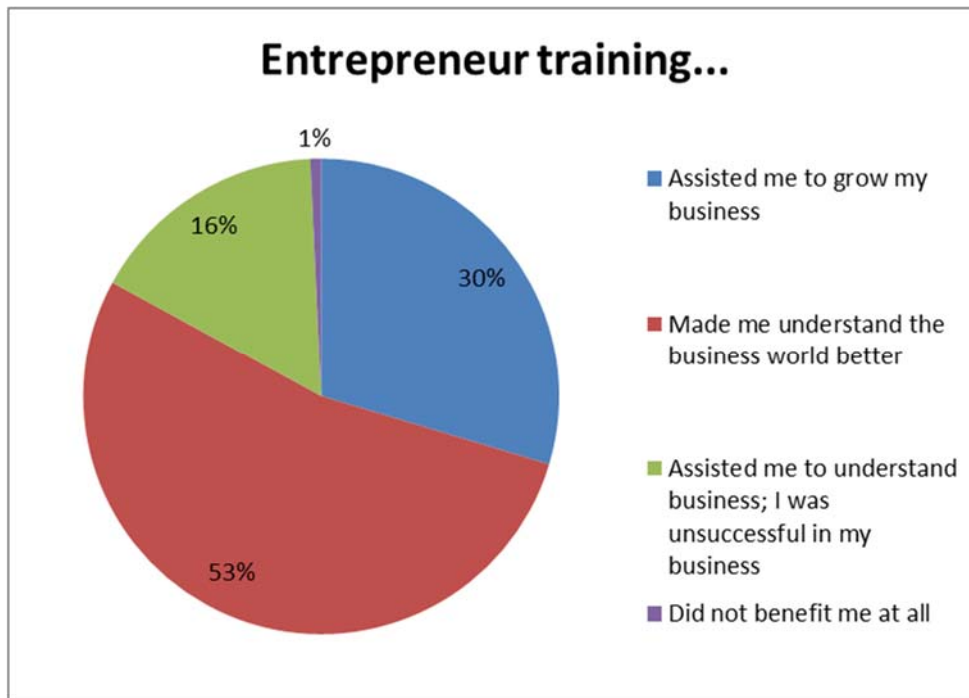
Figure 29. Entrepreneur training feedback[44]

This chapter sets out to answer the following sub-questions as introduced in Chapter 1:

- **How can the gap in the content model for entrepreneurship education be addressed?**
  In this chapter it is evident what the entrepreneur's training needs are. As previously stated, the ICT training should be incorporated into the business skills training of the entrepreneurial content model. Thus one can teach how to do a business budget by showing the entrepreneurs "how-to" on MS Excel, for example, or assist them in setting up a professional business plan by using MS Word.

  o Internet and effective Internet searching capabilities
  o Email
  o Word processing (MS Word)
  o Spread sheets (MS Excel)
  o Mobile devices and mobile applications
  o Marketing tool such as Facebook

- **What is the current ICT profile of the entrepreneur?**
  This chapter manages to provide the ICT profile of the entrepreneur in a graphical format in Section 5.6. It provides a clear overview of the entrepreneur under the following themes:
  o Demographics

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[44] Missing values = 12. Only 8% of the respondents did not answer this question.

- o Financial background
- o Main ICT deciding factors
- o Support
- o Actual ICT usage

This profile can be used to determine how one should approach entrepreneurs and if one is to develop any training programs, this profile should provide guidelines to focus the training on.

- **How innovative are the entrepreneurs regarding technology usage?**

  It does not seem as if the entrepreneurs are highly innovative regarding technology adoption. They seem to adopt the following:

  - o Email
  - o Internet
  - o Mobile devices
  - o MS Word
  - o MS Excel
  - o No hardware knowledge

  They do have access to computers and the Internet.

- **Why do entrepreneurs adopt ICT?**

  One of the themes from the profile is "Main ICT deciding factor" and the following are reasons why entrepreneurs adopt technology:

  - o Access to technology or connectivity
  - o Advice from support vendors
  - o Improving service to customers

The next chapter looks at the entrepreneurs who received both the entrepreneur training as well as the e-skills training to determine what should be incorporated, and what effect UTAUT had on the technology uptake for these entrepreneurs.

Chapter 6   - Qualitative results and analysis
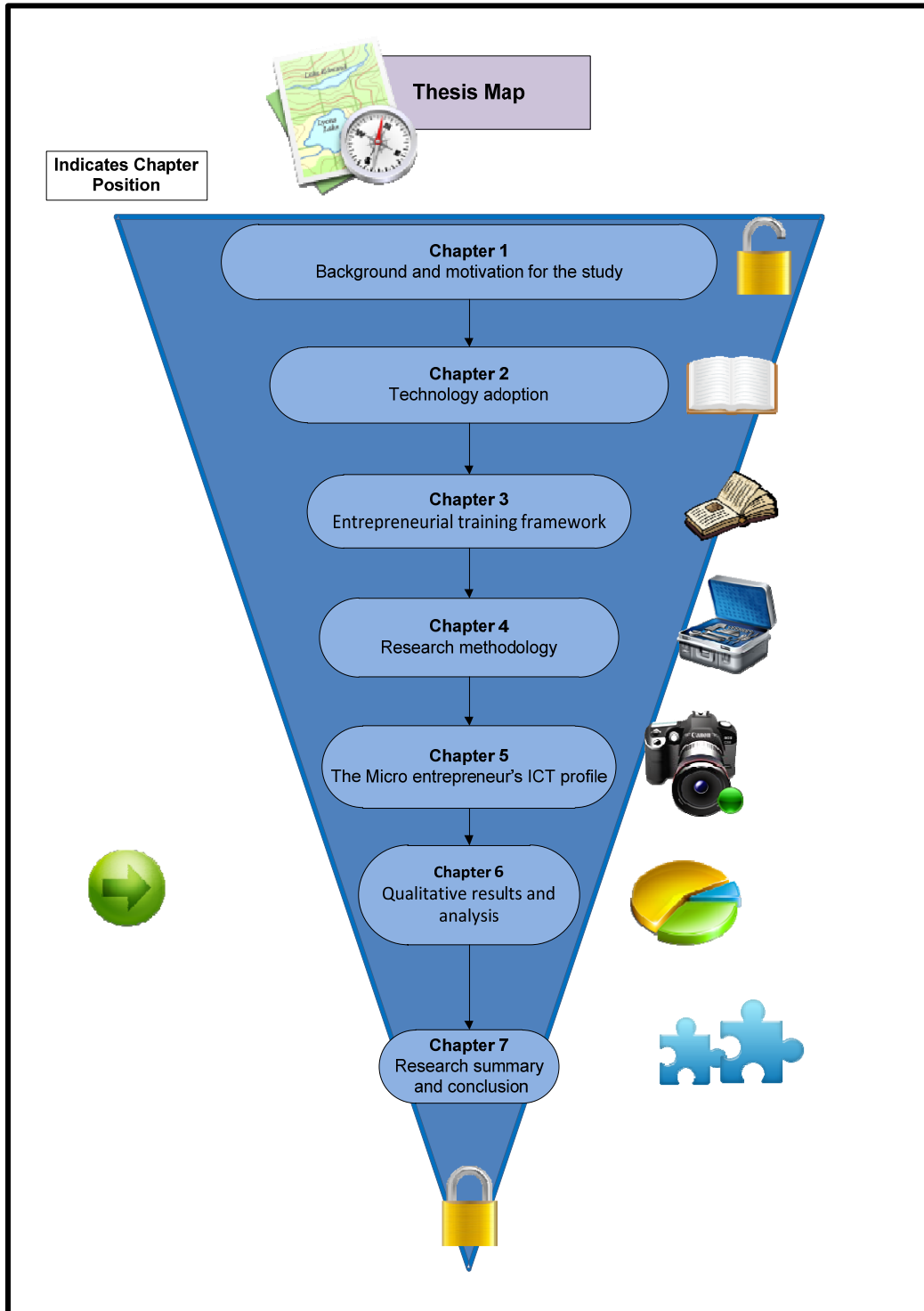
6.1 Introduction

This chapter shows the outcome of the entrepreneurs interviewed who were trained either in 2011 or 2013 in both entrepreneurial and e-skills. It firstly discusses the participants and their background and indicates whether they are survivalists or not, after which the results of the focus group interview are discussed and then four individual interviews conducted with some of these entrepreneurs are analysed. All the findings are related to the literature.

This chapter addresses some of the sub-research questions set-out in Chapter 1. These questions are:

- How innovative are the current South African entrepreneurs regarding technology usage?
- Why do entrepreneurs adopt ICT?
- What would the guidelines for designers of entrepreneur courses incorporating e-skill training into the curriculum be?
- Is there a relationship between e-skills training and ICT adoption by entrepreneurs?

6.2 Focus group

6.2.1 Participants

All the entrepreneurs trained were invited to attend an e-entrepreneur follow-up workshop. A total number of 16 attended the workshop, which was a good sample as 30 were trained. The reason why everybody could not attend is unknown to the researcher but the ones who did attend provided valuable feedback regarding the training. The workshop was conducted in Pretoria and therefore each participant's transport expenses had to be subsidised. The questions asked in the workshop were based on the literature review done in Chapters 2, 3, 4 and 5.

6.2.2 Program

The program for the workshop was as follows:

- At the beginning of the workshop participants were given a document that they had to sign to say they agreed to be part of the research and that if at any point they did not feel comfortable to share and be part anymore, they could inform the researcher and they would then be excluded from the research. All the participants signed and participated in the workshop.
- Then a small success story was shared with all the participants of how thinking laterally is necessary to become successful and to have fun.
- The researcher started with the focus group, asking questions related to their businesses and ideas, as well as their successes and failures.
- After the focus group discussions the participants received some innovative technology training during which the individual interviews were conducted.
- After lunch the entrepreneurs were transported to a venue on the University's sport campus which started entirely as an entrepreneurial venture; this venue was the Tuks Golf Training Centre.

- At the centre the entrepreneurs were told how this venture started and how funding was obtained as the venture firstly had to prove itself, after which all the entrepreneurs attended a golf clinic, which was the fun part of the day.
- The entrepreneurs were transported to main campus.
- The workshop was concluded.

The participants attended the initial entrepreneur training either in 2011 or 2013. Of the group attending the workshop, 7 attended the 2011 training and the remaining 9 attended the 2013 training; this was almost an equal number of participants form both groups trained. However, after the interviews it emerged that one of the entrepreneurs did the training twice, both in 2011 and 2013; he also formed part of the four entrepreneurs interviewed. It is also important to note that there were seven females and nine males who attended the workshop, two of the females and five of the males completed their course in 2011.

6.3   Focus group analysis

At the beginning of the workshop the researcher shared a story of entrepreneurship and how one needs to love what one does. After this she asked the entrepreneurs to tell her what happened or is happening in their lives and business after the training. At first they were reluctant and did not want to share their stories, but the researcher managed to get them all to share their stories. This allowed the researcher to see what every one's story was and which of these entrepreneurs succeeded in their businesses and who did not, thus relating it to the historicity of hermeneutics which says that one's background or history of events from the past influences the current perception or outcome.

The intended time allocated for the focus group interview was about 50 minutes; however, the discussion lasted 90 minutes in the end. Each entrepreneur received a number to explain his or her current status and situation; this ensured that the responses were treated anonymously. All the entrepreneurs were introduced, after which it was indicated whether he/she was a survivalist or not.

Entrepreneur 1: Digital village

"*I have made so much money you won't believe, but the money is not liquid yet*". The entrepreneur had an idea of starting a SEIDET (Siyabuswa Educational Improvement and Development Trust) digital village in Siyabuswa and this idea had been approved by a large number of people and institutions locally and abroad. "*If I convert the number of people interested in it into money, it is over a billion rand*". At the time they did not have it yet but it had been bought by a large number of people who were just waiting for it to happen. Within the next two to three years the SEIDET village would be in operation with a number of international partners. The idea was presented internationally, in Finland etc. Partners were ready to go and invest. This business venture was changing the entire structure of SEIDET and they appointed a CEO who would drive

the venture. Money was not yet on the table but it had been approved by so many players that he did not see how it would be able to fail.

The researcher asked the entrepreneur why he thought it would be so successful (biggest reason):
He said the people believed in the venture and they could see it was worth investing in; the SEIDET story on its own is an interesting story.
So not yet a successful entrepreneur but he was one in the making and inspired people.
Asked whether he was enjoying the journey, he said: "*Oh yes, I am enjoying the journey*"

Survivalist: No.

Entrepreneur 2: Chicken farm

Asked whether the training made a difference, entrepreneur no.2 replied "*Yes, it made a big difference*! Before the training this entrepreneur worked as an employee; he was a teacher by profession. However, after the training, he started a chicken farm and he also went on to buy cattle and goats which he was selling as well. He confirmed that he was expanding his business and he got some money, and he hoped he was "*getting there*" in terms of success. His partner in this business was his brother. He was still a teacher and would not leave teaching at that point.

Survivalist: No.

Entrepreneur 3: Catering, decorating and cooking – small functions such as weddings

"*It is not easy, it is tough.*" This entrepreneur tried something although it was not yet successful. She had managed to register the company. However, she had not had any functions yet, but she had started and she knew where she wanted to go to.

Survivalist: Yes.

Entrepreneur 4: Selling goats

After the training she got an idea but she could not start her business yet. She was still busy trying to invest to be able to start her business. She wanted to buy small goats, and raise them and sell them when they were bigger. The researcher wanted to know if she was also thinking of selling the milk and she replied in the negative as she never thought of it. The researcher suggested that there was a market for goat milk and she should explore this further. She said she would definitely look into it. The first link was made between two entrepreneurs, entrepreneur 2 and 4 who might be able to work together to assist each other.

Survivalist: No.

Entrepreneur 5: Internet Cafe

"*The training helped me build my business.*" However, the problem was that his shop was inside a small complex, similar to a mall and they had recently built a new complex in the village and he was also in competition with people running little kiosks outside the complex that took all his business. He was paying for services inside the complex but he was competing with businesses running outside in small little kiosks that did not have to pay any services.

Survivalist: Yes.

Entrepreneur 6: Tax consultant

In his area people do not understand the work of a tax consultant and this was strenuous on his business. The training boosted his business to go get new clients, although there were clients who could not afford to pay fees as they were not working. It also helped him boost his business profile. He was helping other people to create their business plans and to start their businesses through the help of the study material he received from the training. The only problem was that people in their community did not have money and thus they either could not afford the services or did not pay after the services had been rendered. The researcher suggested that he create an online profile so that he could attract clients from neighbouring towns or even from all over South Africa as they only needed to email him their documents and he could submit their returns for them. Entrepreneur 5 suggested that entrepreneur 6 conduct small workshops in his community to tell the people about tax and how he could assist them, as the people might not know what it was and how it could benefit them. People would go to entrepreneur 5 to try and find information in his Internet café and then he sent people to entrepreneur 6, thus building another small network. However, entrepreneur 5 said that he did not get commission from entrepreneur 6 for his referrals.

At this stage of the focus group interview a need was emerging for networking among entrepreneurs already trained that could assist one another.

Entrepreneur 6 continued to say that after he had attended the training, he expanded his business from two employees to four employees. The employees helped him with data capturing and he oversaw all the work they did; he trained them himself.

Survivalist: No.

Entrepreneur 7: Car wash facility

This entrepreneur had an interesting story: he started a car wash but where he came from, there was no water and this was a huge problem. Thus he could not keep his business going. Previously he used to carry water buckets each morning to run his car wash. Sometimes there were three to four days without water. The researcher suggested that the entrepreneur research waterless soap to see if that could help solve his problem.

He said the training, both the entrepreneurial and technology training helped a great deal.

However, this raised a huge concern: should we focus on all sorts of training if the basic needs of the people in the country were not yet met? How can we train people or send them on expensive courses, if they do not have running water, or perhaps even electricity?

Survivalist: Yes.

Entrepreneur 8: Selling "zimbas" (snacks)

The lady sold chips on the road underneath an umbrella on a little table, next to the entrance of a school in her area. Each morning she carried the table and umbrella to her spot to set up "shop" for the day.

She was busy researching as she wanted to start a day-care centre for which she already had the premises. She was thinking of taking in toddlers from three years up to school starting age. Entrepreneur 5 suggested that she also look into opening an after-care centre, as there were many day-care centres but no after-care ones. Parents could take their children there after school and someone would help them with their homework until the parents came home from work. He continued to say that if they did not pick up their kids directly after school, for every 30 minutes that the kids were picked up late, they paid 50 South African rand (ZAR). If you worked, you had to pay the money.

However, currently her business was selling chips at the side of the road with a turnover of around ZAR 2000 per month.

Survivalist: Yes.

Entrepreneur 9: Internet café

The entrepreneur said he had a very complex business. He was also running an Internet café but due to a lack of funds and capital, the business did not exist anymore.

He was still busy with a business plan, which he took to NYDA (National Youth Development Agency)[45]. They told him that the idea he had would take too long to implement. His idea was to help small businesses, starting from scratch, by providing them with financial resources to assist in registering their business, almost like a money-lending business. The money would be provided strictly for registering their businesses. But NYDA advised him that his idea was directly linked to the financial sector and he would have to register as a financial institute and that, on its own, involved a large number of other issues and legal aspects.

Survivalist: Yes.

Entrepreneur 10: Tombstones

His idea was to buy machinery to make tombstones. His business follows a buy-and-sell strategy whereby he bought tombstones; he had a small bakkie as a delivery vehicle and four men working for him, who then erected the tombstones after he had sold them to the customers. He wanted to be able to manufacture his own tombstones.

He said his business was very good and successful. What made his business successful was the fact that customers had to pay before the tombstones were erected, thus if the payment was not made, no tombstone was erected, in turn ensuring he could cover all his expenses, which also meant he had no-one who owed him money, no debtors.

Survivalist: No.

Entrepreneur 11: Gymnasium

He wanted to open a gymnasium but he did not have the finances to be able to buy the equipment for the gymnasium; yet he already had the premises for the gym. He would like to have all the heavy-weight equipment, spinning equipment, etc.

Survivalist: No, however he did not have the business yet and he was not employed elsewhere.

Entrepreneur 12: Property investment

This lady had not started yet but she had a plan to invest in property and then let it. She had already started to save money but had not been able to buy any property yet. As soon as she got more money, she would start her business. She planned to own the property. The researcher

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[45] "The NYDA plays a lead role in ensuring that all major stakeholders, i.e. government, the private sector and civil society , prioritise youth development and contribute towards identifying and implementing lasting solutions that address youth development challenges" (NYDA, 2014:n.d.).

suggested that she look into an option whereby she started to rent houses and then let each room in the house, thus starting to make money, still doing what she would like to do but just finding a new avenue of making the money. Eventually she wanted to build her own property; the researcher suggested that she follow a different route to achieve her long-term goals. She never thought of a different approach and was very thankful for this advice.

Survivalist: Yes.

Entrepreneur 13: Selling of toilet-tissue

She sold toilet paper and said that the business was doing very well, everybody all over the world used the product. She had a problem with the supplier, who was her brother and also co-owner of the business and she wanted to know what she could do to cut him out of her business as he was basically the middle-man between the manufacturer and her. Her brother had a CC with the owners of the manufacturing firm and then she sold the toilet paper. She said she and her brother were sharing their profit although he was also making his own profit from being the middle-man. The researcher suggested that the entrepreneur find an alternate manufacturer, but she wanted to stay with the manufacturer. There was no formal agreement between her and her brother and also not between them and the suppliers, thus even though the business was successful, they had no formal written contracts or agreements.

The researcher suggested that she find a different supplier because the relationships always comes first, and if she sidestepped her brother, she would lose the relationship with her brother and burning her bridges could cause bigger problems in the long run.

She also wanted to know how she could register her own business, and if she was allowed to do so without her brother.

Survivalist: Yes.

Entrepreneur 14: Goats and land / storage

This entrepreneur was interesting; he owned goats although he had not sold any yet as they were still small. What he planned was dividing the piece of land that he owned, where the goats were being kept down the middle as the land was too big for all the goats. His brother worked for the police department and they were always looking for a place to "store" the retrieved stolen cattle, goats and sheep that featured as evidence in their cases. Thus once the stolen animals were retrieved by the police, these animals had to be kept safe and looked after. So if entrepreneur 14 divided his land, he could provide this service to the police department. He would have to feed

the animals and take care of them and then invoice the police department and they would then pay him "storage" fees as well as the cost of the animal-feed.

He would have to follow the formal process of registering with the unit and have a formal contract in place before he would be allowed to store the animals. This was not in place yet but quite an interesting business plan.

Survivalist: No.

Entrepreneur 15: Guest house

This entrepreneur said she had learned and gained a lot from the training but her business was still a challenge; it was a guest house. She wanted to build a guest house; she was looking at the plans and foundation for the house. The property was part of the digital village and she was planning to see what was going to work the best. She was planning on having four rooms; however, she would like to host all the delegates that would be coming to the digital village. The researcher as well as entrepreneur 1 suggested that four rooms were not enough and perhaps she should try to expand to be able to have at least 10 bedrooms. According to entrepreneur 1's vision, the international visitors coming to the digital village would be a large number and thus 4 rooms might not be sufficient. Entrepreneur 1 mentioned that there were already a large number of people wanting to build big guest houses in the village and thus she might struggle to compete with them in the long-run.

Entrepreneur 14 then said she could collaborate with him as he had enough land where she could build a big guest house.

Survivalist: No.

Entrepreneurs 16: Catering

Entrepreneur 16 did catering and she was already working with entrepreneur 15. However, she was employed permanently in human resources at SEIDET and thus the catering was an extra income. She did not want to elaborate any more.

Survivalist: Yes.

In total eight entrepreneurs in the focus group were survivalists; one had a plan but was currently employed elsewhere and thus could not be seen as a survivalist; 7 were not survivalists, and it seems as if for most of them, this was the case due to the training they received.

Additional discussion

After each entrepreneur had given feedback, a general discussion started during which entrepreneur 5 said that he also did some catering. In actual fact he was a chef. He suggested that the catering ladies look at incorporating men into their catering business as he believed men were good cooks. He said that he was registered on the government's website as a service provider for catering, and that the previous Wednesday they called him at 22:00 in the evening to ask him to cater for 70 people for breakfast the next morning at 10:00. Entrepreneur 6 then said that entrepreneur 5 was not focused; he needed to focus on one business and make it successful.

When asked why he would like to make 70 people's breakfast at the last minute, he said he needed the money. He did not like the last minute arrangements but he needed money to become successful. He liked cooking for people; it was his passion and as his Internet café business was low he had to find other ways of making money.

The researcher suggested that these entrepreneurs start talking to one another and see how they could try to work together to expand their businesses.

The researcher then asked if the technology in which they were trained helped any of them.
Entrepreneur 14 said he was an educator and he presented many short courses that he was paid for additionally. Before attending the training, he was afraid of touching a PC or keyboard; however, with his part-time job, after the training, he was using the computer and it helped him a lot to do his private business. He used primarily emails, all the communication with regard to the courses he had to present was done through email, and sometimes via a phone call, although emails were the most used technology. He also used MS Word to draw up his CV which he then sent electronically to the department of education as they were the ones asking him to present these short courses. He said he no longer used any landlines. He got email on his phone; "*I receive everything on my phone*" wherever he went, in his pocket. He said he did not struggle with connectivity at all.

Asked if any other entrepreneurs wanted to share the value they got from the technology training, entrepreneur 6 said the training helped him; before he completed the training he had had no formal training on computers and he always had to ask some of his employees to help him or do certain tasks for him. It helped him to understand the basics of technology, "*some of them, I knew them, but I did not know where they come from*" (referring to the technology software and certain processes), but he then understood better after the training and could then do the tasks himself, simple tasks such as typing as well as some more advanced tasks. He also understood email better and the security risks behind certain emails, "*I do not open every email*". As part of the 2013 e-skills training, they also received cyber-security training in 2013. His business was therefore not exposed to viruses and threats. He also received his email on his phone. He used Word and MS Excel and the Internet (These findings are similar to what was found in the previous chapter).

The researcher asked if any of the other entrepreneurs wanted to share their views on the technology training. Entrepreneur 2 said that he sent SMSs to his customers whenever the chickens were ready. He used Excel to calculate costs. Sometimes he delivered the chickens, he bought a van after the training and at other times the customers picked up the chickens. When asked if he used a GPS in the van, he replied in the negative because he knew the area and where they needed to deliver. The SMS was on his phone; he had a contract as it was cheaper. He had a Samsung Galaxy phone and he also received email on his phone.

The researcher then asked entrepreneur 8 where she got her stock, the snacks, whether she ordered it via the phone. She said she went to Pretoria to buy the stock at the big retailers.

Entrepreneur 5 said that the training helped him a lot because the morning of the workshop he was lost and he could use his phone to contact one of the other entrepreneurs to ask where they had to go, or if he needed information, he knew how to go to the computer to search for the information. He also knew how to use a GPS and if he needed to stay over in another town, he used the Internet to search for guest houses in the area.

The researcher then asked who helped them if they had questions, either entrepreneur questions or technology questions. They said they consulted Google. Entrepreneur 8 said she went to people who already had a day-care to ask them what was required for a day-care centre. They said they went to their friends and they sometimes went to entrepreneur 6 but he was too expensive. Entrepreneur 6 then said if they brought him 20 clients a month, he would register them as clients free of charge. Entrepreneur 5 then added these entrepreneurs all attended the same training, they were all facing the same issues, and they should help one another. The ladies indicated that their husbands helped them using technology. One lady said her daughter helped her when she struggles. Thus looking at who supports them, this is similar to the entrepreneurs' profile in chapter 5:

- Family (Spouses and kids)
- Friends
- Competitors
- And most important, Google.

One of the entrepreneurs said that entrepreneur 6 helped them to register their business, and that he was also his tax consultant, and then entrepreneur 6 joked and said, "*also tell them you don't pay*".

The researcher then asked what they thought about family working together. They responded that sometimes working with family is dangerous as the business does not grow; this is due to the fact that the family lives from the business. Thus all the money that comes in is used immediately as business and personal finances are not split. Sometimes they also come to visit and never bring anything with, and then you go through your breakeven point when you cater for them. This seemed to be more a personal matter than a business issue.

The researcher then wanted to know how reliant the entrepreneurs were on their mobile phones, whether they could go without their phones for one day. None of the entrepreneurs agreed. "*If you wake up in the early in the morning, instead of brushing your teeth, you pick up your phone to see what happened throughout the night*" (Entrepreneur 5). This statement underscores the reality of the importance and disconcerting dependence on one's mobile phone. However, similar to the findings in Chapter 5, a significant focus on mobile training will have to be incorporated as cellular phones are the devices that the entrepreneurs rely on most.

Entrepreneur 1 said his iPad went everywhere; it was more important than his cellular phone. Entrepreneur 5 said that his three-year old wanted to play with the iPad all the time.

All the entrepreneurs felt that they benefited from the training. They suggested to include security, but this entrepreneur was trained in 2011 and it was included into the 2013 training. Perhaps the entrepreneurial training should also assist in training on how to obtain the funds from NYDA, and to have partners presenting to see who can assist during the training to help obtain the funding, a financial partner was another suggestion from the entrepreneurs. Looking back at Botha *et al.* (2007), they also saw this need and included a financial partner into their WEP training as mentioned in Chapter 3.

Entrepreneur 14 said it is a good idea that the entrepreneurs, who were trained, meet once a month and share their progress, ideas, failures and perhaps follow-up to make sure the training that they received was indeed making a difference in their lives, and to see whether they were struggling, what they were struggling with and how they could assist one another. Although the time frames proposed by the entrepreneurs are shorter, the notion of following up ties in with what both Botha *et al.* (2007) and Van Vuuren and Botha (2010) said: one has to follow-up on these entrepreneurs both 18 months and three years after they completed the training.

The researcher then wanted to know if these entrepreneurs felt that government assisted them or was helping them or not. To make sure no political arguments started, the researcher said that they had to put up their hands if they felt that government did assist them. Two agreed but they also said that if you are politically connected, you will get more support and get "*stuff done*". If you do not know someone, you will get nowhere. "*The NYDA thing does not help at all.*" One lady said that this project (referring to the e-skills project) by Government helped to develop skills but government was not helping them with their actual business or to start the business. However, one of the entrepreneurs then said that if you are trained and you have a certificate, you should do something; it is the entrepreneur's responsibility to try something. The entrepreneurs stated that they registered as a supplier for government, to supply certain services and sometimes they were called to do the business but normally at the last minute as the regular suppliers failed to perform; therefore they felt that they were always the second option, but at least they were an option.

6.4 Focus group conclusion

From the focus group discussion the following conclusions can be drawn:

Successful businesses already running: Entrepreneurs 2; 4; 5; 6; 8; 10; 13; 16; thus 8 entrepreneurs had successful business after the training, indicating that 50% of the entrepreneurs trained were already running their businesses although they still had issues and challenges, they have businesses running, although some of them were survivalists. When is an entrepreneur considered to be successful? According to Miller and Gransey (2000:457) successful entrepreneurs are "*those that have the capacity to identify opportunities and mobilise resources in such a way that promotion of the technological innovation leads to a growth in sales, and generates a healthy margin for further expansion of the firm's operations*", thus an improvement in the sales as well as growth of the firm. This definition was used in determining whether an entrepreneur from the focus group is seen as successful or not, although the actual sales figures were not clear, whether they were running a business or not was used to determine whether they were successful or not.

Failures or challenges: Entrepreneur 7 and 9; although entrepreneur 9 was thinking of trying something totally different entrepreneur 7 was faced with a challenge that for some people is a given basic need, they did not have water and being a car wash, that is an external factor out of his control. Thus the social influence for him as well as the facilitating conditions was a direct reason why his business failed. The researcher did suggest that he investigate something such as waterless soap, to see if there was something else he could do and still run his business. The biggest concern at this stage was that the basic need, that of having running water, was not met. Later on it also became evident that some of the entrepreneurs did not have electricity. Once again, the basic needs were not met, let alone the need to charge an electronic device, which is the core outcome of the e-skill training.

Plans to start a business but still awaiting either funding or contracts: Entrepreneur 1; 3; 11; 12; 14; 15. Even though their businesses were not successful yet, it seemed as if the ideas would work and they needed to get support or they were still waiting the signing of contracts, etc.

It also emerged that the following software and or technology is the main technology being used by entrepreneurs, which, except for two (security and accounting software) correlates with the findings in Chapter 5:

- Email
- Mobile devices – primarily effective cell phone usage
- MS Word
- MS Excel
- Google – how to do Internet searches to retrieve the optimal results
- Security
- Accounting software, such as Pastel

It seems as if additional training at this stage is required on how to collaborate, create effective social business networks as well as how to obtain funding or support for one's business. The fact that there

are great opportunities for collaboration among these entrepreneurs is significant; this in itself is a great contribution which this thesis is making as this collaboration could assist in ensuring that more successful entrepreneurs emerge.

Due to time constraints, the researcher did not manage to conduct individual interviews with all the attendees but the discussions in the focus group added valuable insight into the success or failures of these entrepreneurs. The next section focuses on the individual interviews conducted.

6.5 Individual interview analysis

6.5.1 Company background

Due to time constraints and the great participation of the focus group, the allocated time to conduct the actual interviews was limited and thus only four entrepreneurs could be interviewed individually. However, because of the quality of the data that was gathered from the focus group discussion was very rich, the researcher is confident that this should not limit the results of this thesis. The interviews conducted with these four entrepreneurs are discussed next. The four entrepreneurs for the interviews were selected from the success group, as the researcher wanted to see how technology helped them, if at all, in their endeavours. The entrepreneurs selected were 2; 6; 8; 13; two ladies and two men were interviewed.

Although each entrepreneur was briefly introduced in the previous section, each one of the entrepreneurs is individually introduced according to Fink and Disterer's (2006:611) constructs:

- Interaction
- Environment
- Affiliations
- Identities

These four constructs are used to understand social network and ICT within small companies (Fink and Disterer, 2006). A short explanation of each construct follows after which the entrepreneurs are introduced.

Interaction: users use ICT to interact with others within their work environment. Thus the information and resources are being *"mobilised as people engage with affiliated organisations."* This is the reason for the interview as well as the questionnaire questions, "*how do you communicate with customers, employee and/or suppliers*".

Environment: Location that limits organisational actions, the organisational needs are also identified to recognise the environment by using ICT. This becomes relevant when looking at the entrepreneurs as they might have limited access to ICT and other basic needs and it limits their interaction with potential customers, thus limiting the chance of growth. This is evident form

entrepreneur 7's business, the absence of the basic need for water which stops him from running his business. Although the basic need for water is not related to ICT, it does affect his success and growth.

Affiliations: Social networks are created by people with their computers, within the organisation. Although this thesis focuses on entrepreneurs and thus a very small organisation, this section is applied to see how entrepreneurs form networks within their community that might assist them in their daily operations, or in the growth of their business. However, from the discussion that emerged in the previous sections, the majority of entrepreneurs feel that there is a lack of a "network" among them and they have to utilise one another's ideas, help and businesses better. A suggestion is to create a small intranet for these entrepreneurs, where they can post their success or ask for advice, and perhaps have links on this site to people who might help and assist them to start their businesses.

Identities: Type of staff employed but this thesis does not focus too much on these as most entrepreneurs have only one or two employees.

The reason why each entrepreneur is introduced in this specific manner is the necessity to understand the context of the business, according to Myers (2009:39), as this defines the relevance of data. Saunders *et al.* (2003:84) continue to say that one has to understand the reality of one's research participants "to *understand their motives, actions and intentions in a way that is meaningful for these research participants".* Lin (1998) acknowledges that one has to understand the context of the participants in order to interpret what they mean to say. This is also done to ensure what Meyers (2009:182) believes, namely that one has to find an approach towards *"human understandin*g" and this introduction to each company is a way in which "*hermeneutics is* used *to gather a deeper understanding of what people say and do and why*". Cáceres et al. (2012) emphasise the importance of understanding the specific context for each entrepreneur, and also to understand the type of business as well as the industry within which he or she operates. Each one of the entrepreneurs who participated in the individual interviews is introduced. Although the sequence of the interviews was random, the discussions is based on their numeric numbers as allocated in Section 6.3.

6.5.1.1   Entrepreneur 2

Entrepreneur 2 was in the business of supplying chickens to clients; he got the chickens when they were small and took care of them until they were ready to be sold. He recently started to buy and sell cattle and goats to his clients. These clients bought the cattle and goats mostly for specific cultural occasions, such as initiations, weddings, funerals.

Once the chickens were ready to be collected, the entrepreneur would send an SMS to the clients, after which he would either deliver the chickens himself, in a van he had bought, or the clients would pick up the chickens from their premises.

Before the training this entrepreneur worked as a teacher, which he still is. He says his business is growing and he is hoping to "*get there*" in terms of success. He is in partnership with his brother.

Entrepreneur 2's business is owned by two partners, the entrepreneur and his brother.

> Number of employees: 3 Employees, himself and his brother and one extra employee
> Years in operation: Since October 2011 (Just after the training)
> Age of owner: 49
> Primary province of operation: Mpumalanga
> Industry type: Agricultural

Interaction: This entrepreneur only really sees sending SMSs to his clients as a way of interacting with his work environment. Although he does have email, his primary means of communication in his business is through sending an SMS.

Environment: As this entrepreneur knows his environment and area well, he does not see the need to use a GPS, for example, to do his deliveries. He is also firstly a school teacher and this allows him to use technology to some extent.

Affiliations: It does not seem as if this entrepreneur has any social networks based on technology apart from communicating with his clients via SMS. This is a concern as a need was identified earlier of creating a network / collaboration effort among all the entrepreneurs.

Identities: This entrepreneur is in partnership with his brother and they have one other employee, thus the identities of the staff are also limited in terms of ICT usage. He did mention that they use Excel to do their costing.

6.5.1.2 Entrepreneur 6

Entrepreneur 6 is a tax consultant; his business is named after him. If translated into English the name means "Increase wealth".

He grew up in the family business and when he was younger, he worked for his father in his business (informal). His father then started to experience tax problems but he did not understand what they were, and when he was in school they repossessed his father's bakkie. This bothered him tremendously and he wanted to understand what was going on. He then wanted to learn more about tax. His first client was his father and later on his father's friends also became his clients, and that is how he started. He did not have an office at that time and his room was full of papers lying everywhere. Everything was done manually, paper-based and eventually his father gave him an office space from which he is still running his business today.

He provides tax advice as well as some financial advice to his clients. He also assists them when they want to start their own businesses and he uses some of the material he received during the entrepreneurship training to guide his customers who want to start their own businesses. However, the challenge that he faces is that people in his area do not understand the work of a tax consultant and this is strenuous on his business. The entrepreneurship training did assist him

to get new clients, although these are clients who cannot afford to pay fees as they are not working. The people in his community do not have money and thus they either cannot afford the services or do not pay after the services have been rendered.

He currently conducts his tax consultation business from an office in his parents' house but he does not need to pay any rent as he manages the property for them. He is a recognised tax practitioner and registered as a consultant with the South African Institute of Professional Accountants (SAIPA), which is a requirement for a tax consultant from SARS (South African Revenue Services). Although he does not have an accountant qualification, he has a diploma as a tax practitioner.

Except for the tax consultation business, it also emerged during the interviews that this entrepreneur owns a small hardware shop, with one employee. He also rents out some residential rooms in the property that he owns. Thus it seems that he truly became an entrepreneur after the training. He also owns another stand, on which he wants to build 10 more en-suite rooms as he realises that people want a secure place to live and park their cars and he can provide that. His analyses will be conducted on the tax consultancy business.

Number of employees: 4 employees and he is the manager

Years in operation: Since 2003, thus 11 years

Age of owner: 35

Primary province of operation: Mpumalanga

Industry type: Services

Interaction: The entrepreneur has integrated technology into his business and technology is used on a daily basis. He uses technology to assist him in running the financial statements for himself as well as his clients and to assist them in starting their own businesses. He has limited, out-dated technology and he knows that it needs to be replaced soon. He communicates with his clients through email and cellular phone.

Environment: The entrepreneur's offices are currently located in one of his father's properties and they have been there since he started his business in 2003. He is connected to the Internet using an ADSL fixed line, thus it does not seem as if the environment limits his technology access and usage.

Affiliations: He uses his emails extensively but he would like to receive more training on how to use social media for his business.

Identities: He currently has four staff members employed in his tax consultancy business and it has emerged that his hardware shop has one employee. It seems as if all four employees working at his tax consultancy are ICT literate to some extent and can use technology in their day to day operations.

6.5.1.3 Entrepreneur 8

A familiar site in any of the major cities currently is people selling chips and snacks next to the road underneath an umbrella on a little table. This is exactly what this entrepreneur is doing, selling chips and snacks next to the entrance of a school in her community. Each morning she carries the table and umbrella to her spot to set up her shop and there she sits for the day doing business.

This is exactly the type of entrepreneurial effort that assist in poverty reduction and stimulating the economy in the country. Due to the number of entrepreneurs standing on the corners for the streets trying to sell their products, it is worth talking to such an entrepreneur to understand if technology is currently playing a role in the business.

This entrepreneur started the business after she had received the training; she borrowed the money from her parents to start her business; however, she does not have to repay them. This business is her only source of income as she does not have any other form of employment. She does not use technology for her business, which is alarming, as she could use it to phone suppliers to deliver her products etc.

She is still very young and not married.

> Number of employees: 1 (just herself)
> Years in operation: Since 2013, after the training
> Age of owner: 23
> Primary province of operation: Mpumalanga
> Industry type: Retail

Interaction: She does use technology but not for her current business. She is currently using technology to do research on how to open a day-care centre as she wants to open one in the near future.

Environment: As her business is sitting on the street selling her stock, she does not have access to Wi-Fi or any other forms of technology except her cellular phone or electricity. She is on a pre-paid cellular phone and her parents support her financially when she has no money to reload her phone. Having a laptop with her makes her a target and thus the safety issue outweighs the need for ICT.

Affiliations: These are not existent for her; she does use people she knows who already have a day-care centre to tell her what she needs to do to open the centre.

Identities: Only employee, thus not Applicable

6.5.1.4 Entrepreneur 13

Entrepreneur 13 sells toilet paper and says that her business is doing very well, as everybody all over the world uses toilet paper. However, everything in her business is done manually as she writes down who paid cash, and who made arrangements to pay at a later stage and then she has to follow up once their payments are due; her stock control is also done manually. The payments are mostly in cash and after she has received it, she has to go to the bank to deposit the money into her bank account.

She says the reason why she does not use technology as she should is because her business does not have one person who can sit and type on the computer to manage deliveries the whole day. Her customers send her an SMS or please-call-me and she will then make sure she can deliver the stock to them by using her vehicle. She writes down everything on paper.

She does have a computer and a laptop, but to use the computer is a problem as there is no electricity where she stays; however, the laptop she can take to the closest spot to charge or her husband will take it to work and charge there.

Talking to this entrepreneur, one sees a fighting women realising that she had to stand up and do something for her family and the survival thereof, a survivalist. Although she did not understand some questions, she did provide valuable insight into the entrepreneurial mind.

> Number of employees: 1 (younger sister) and herself, her brother is also her partner. The rest of the family helps out when needed
>
> Years in operation: 2011 (3 years)
>
> Age of owner: 41
>
> Primary province of operation: Mpumalanga
>
> Industry type: Retail

Interaction: The only technology she uses is her cellular phone and it provides the only means of communication with her clients and suppliers.

Environment: As there is currently an electricity problem or rather the lack of electricity, this entrepreneur relies heavily on mobility as she has to move around to be able to charge her laptop or cellular phone as this is her only means of communicating with her clients.

Affiliations: The only social network that exists is WhatsApp messaging; she did mention that her suppliers will help her out when needed and she contacts them a lot.

Identities: There is only one employee and all communication is done through the cellular phone or face-to-face.

As these were semi-structured questions, the researcher had to manage the responses but also allow the participant to share their views. The interviews were conducted following the guidelines for

qualitative research interviews introduced in Section 4.2.5.3 by Myers and Newman (2007:16). All the questions were based on literature and therefore, after each question, a short explanation follows to explain the literature behind the question, and at the end of the responses, the responses are related to the literature again. Some of the responses emerged during the focus group; therefore for some of the questions not only the entrepreneurs' responses during the interviews are discussed but also the responses from the focus group. This is limited to one or two questions as the focus group findings have already been discussed in detail in Section 6.3.

6.5.2   Data interpretation

All the interview questions as well as the feedback obtained from the research participants are discussed next. These findings are analysed and related to the literature to see how the literature relates to what is actually happening in practice.The first questions, relating to the demographic information and size of each company, have been discussed during the company introductions and will not be discussed again.

After each question, a brief explanation as to why the specific question was asked is provided; some of the questions relate to literature and others were asked to understand certain contexts. After each question specific labels relate the question to UTAUT to ensure that the literature and adoption theory are borne in mind. The following four constructs of UTAUT as well as the additional variables of UTAUT are relevant:

- Performance expectance [PE]
- Effort expectancy [EE]
- Social influence [SI]
- Facilitating conditions [FC]
- AGE
- Gender [G]
- Experience [EX]

6.5.2.1   Financial data:
Asset value and income

According to section 4 of the National Small Business Act (D.O.T.I., 1996) a micro enterprise (ME) or entrepreneur is categorised as having no more than five employees, a total annual turnover of ZAR 150 000 per annum and a total asset value of ZAR 100 000; to make sure the participants were in fact entrepreneurs the researcher had to ask about the financial status of each entrepreneur.

The interviews conducted with the four employees highlighted the following, and according to the classification, three of them can truly be classified under the Small Business Act as entrepreneurs; the fourth one almost qualifies as a small business.

Entrepreneur	Turnover per annum (ZAR)	Assets	Number of employees (including the entrepreneur)
2	R 120 000.00	Vehicle	3
6	R 500 000.00	Property, office equipment	5
8	R 24 000.00	None	1
13	R 200 000.00	Vehicle	2

Table 21: Background of entrepreneurs interviewed

According to Table 21 only entrepreneur 6 can actually be classified as a small business due to his annual turnover being higher than the small business act classification; however, his interview data is analysed as that of an entrepreneur as it became evident that he became successful only after he received the training. Although entrepreneur 13 also had a high turnover, the assets and total number of employees were still within the classification and thus she is regarded as a successful entrepreneur.

Who supports you financially? [SI, FC]

According to Colombo and Delmastro (2002) support from the public sector has an influence on the success of a business; therefore it is important to determine whether there is support from the public sector in terms of resources, and also to determine who else assists these entrepreneurs financially

Two of the entrepreneurs indicated that even though they did have an additional need for equipment they could support themselves with their own money. Entrepreneur 13 said that if she had financial problems, she could always talk to her suppliers who would then assist her and allow her to pay her account at a later stage. Entrepreneur 8's parents assisted her, which was a concern as her father was unemployed and her mother a domestic worker and earned a small income. Entrepreneur 2 said that he knew of a bank that could assist them financially as they focused specifically on the agricultural industry but up to that point they had no need to borrow any money and have no liabilities in their business.

The focus group discussion was highlighted as a concern by the other entrepreneurs. They did not have funding and resources to support them, should they require them. Entrepreneur 8 mentioned that she was trying to find out how NYDA could assist her.

According to the entrepreneurs there was a lack of financial support from the public sector which is a concern as literature states that support from the public sector has an influence on the success of the entrepreneurial businesses (Colombo and Delmastro, 2002). However, there were certain initiatives running that tried to assist these entrepreneurs, such as NYDA, but it seemed as if they were not informed in such a way that they could access these resources and in turn benefit from them. In Section 3.3.5., WEP (Botha *et al.*, 2007) was introduced and a part of WEP

realised that they had to partner with a financial institution to assist these entrepreneurs to obtain funding after they had completed their business plan. It seems as if this is something that one has to consider when designing the training, not necessarily providing the funding but providing the entrepreneurs with contact details and information on the various funding opportunities available to them.

It does not seem at this stage that external pressures, in terms of external support, play a part as only one entrepreneur indicated that her parents had to help her and another one said that if she did need help, her supplier would help her. From the FC perspective, one entrepreneur acknowledged that there is a financial institution available that can assist if necessary but at that stage, no help was required from them. Entrepreneur 8 and 13 did indicate that there was some means of support from either family or suppliers.

Do you have a manager? If yes, is he/she family? [SI]

Some of the barriers identified by Spencer et al. (2012) are effective leadership, ownership and management that could influence technology adoption and also the survival of the business. It is noted that one has to determine whether the manager is not only family but whether the success of the business directly influences their survival.

All of the entrepreneurs interviewed managed their own business, which was expected. Three of the entrepreneurs interviewed had partners or support from family. Entrepreneur 2 managed the business with his brother and all decisions made within the business were made by both of them. For all of them the survival of their families depended on the business although not all of them are survivalists; therefore the decisions made were taken from a business point of view and not an emotional, survival point of view. Entrepreneur 8 was supported by her family and they assisted her in making decisions but in the end she managed the business herself.

As was expected, the management was done by the entrepreneurs themselves; effective leadership and management, although relevant, is not regarded as an "outside factor" influencing the adoption of technology. However, there is degree of relationship with SI whereby the external pressures are tied to the family members who were either partners or supporting them financially.

Do you have any plans to retain your current work force? (Example training, etc.) [PE]

Mutula and Van Brakel (2007) found that one of the reasons why some companies do not adapt to ICT as they should is the limited resources to hire and retain these skilled workers who can work with ICT. One should determine whether the entrepreneurs manage to keep their employees but also if they educate or train them.

Entrepreneur 2 said that he was the employee who was trained in entrepreneurship; he, his brother and their employee regularly attended governmental workshops or workshops that were held by the suppliers of the chicken feed and medicine companies, such as ALZU or Rossgro. These workshops were one-day workshops and it was easy for them to attend. The workshops assisted them in understanding the industry.

Entrepreneur 13 pointed out that they had just lost an employee as he managed to find employment as an ambulance driver. She was trying to find someone who could replace the employee but did not have a plan in place to retain the employees.

Entrepreneur 6 said he himself trained his employees to be able to work on the software package that he used, and on the financial tax consultancy work. The employees whom he employed were always young people whom he helped when they completed their schooling. However, the challenge that he was faced with was that they did not stay very long after he had trained them; this confirms Mutula and Van Brakel's (2007) findings. Although it was frustrating for him, he liked the fact that the experience they gained from him allowed them to be employable; some of these employees worked in some governmental and municipal departments or banks. He added that it was a blow to him when they left but he realised that they had to spread their wings. He lost at least one employee per year.

Entrepreneur 8 did not have any employees.

Only entrepreneur 6 confirmed what the literature contains regarding the issue; the points of view of the rest partly confirmed the findings in literature and that were stated earlier in Chapter 2 that the owner is also the manager and part of the day to day operations of the business and sometimes the only employee and thus to retain workforce is not relevant to them.

The training was crucial for the survival of the entrepreneurs and for retaining their employees. However, the training that the employees got from the entrepreneurs, as well as the experience, motivated them to become more successful. This can be regarded as extrinsic motivation for the employees.

Have any of your previous employees ever started their own business and become direct opposition for you? [PE, SI]

This question relates to the previous question and determines whether the workforce that these employees employ has ever tried to compete with them and thus take away their business.

Entrepreneur 13 said that one person working for her had previously tried to start her own business, but she failed as she did not have the connections and knowledge required to be able to communicate with the clients and suppliers. The entrepreneur said she had to learn to be patient with the customers, to be able to understand people and build their relationships. It also

seemed as if the entrepreneur used her relationships with her suppliers as a way to stay competitive.

Entrepreneur 6 said some of his previous employees did try to start their own business in direct competition, but they failed because they did not get all the relevant information they needed; they wanted to start something without any knowledge. According to the law, a novice entrepreneur who wants to become a tax consultant has to be recognised by SAIPA (South African Institute of Professional Accountants) and they were not.

It seems as if there is a slight tendency of employees to break away and start their own business, which means they are motivated to do so. It is evident that knowledge of the specific context as well as certain regulatory issues is crucial before one can start a business. Perhaps the entrepreneurial training also assisted in this matter to ensure that the entrepreneurs remained competitive at all times. Entrepreneur 13 used her social network with her suppliers to make sure she stayed competitive. The external pressures that emerged from the competitor forced her to fall back on her relationships with her suppliers.

Average age of employees [AGE]

Most Kenyan SMEs are run by people in their late twenties, early thirties (Wamuyu and Maharaj, 2011); 94% of the SMEs in Talukder et al. (2013) study were between 20 and 40 years of age, with 59.4 % being between 20 - 29 years. In a study by Cohen et al. (2013) 25% of the respondents were between 30 – 45 years of age and 50% were between 45 and 60 years of age. They found that the lowest acceptance rate of technology was with physicians over 65.

The various ages of the entrepreneurs interviewed were 49, 35, 23, and 41. There was a good range of ages among the entrepreneurs. The two youngest entrepreneurs were the two who used the technology the least.

Entrepreneur 6 employed employees between 20 and 30 years of age only. Employee 2 and 13 had one extra employee but did not disclose his or her age.

If one considers these statistics as mentioned in the literature, there is no clear correlation between the age of the entrepreneurs and the implementation of technology. It is evident in Chapter 5 that the average age of the entrepreneurs was 43 years and that 61% of the entrepreneurs were older than 40. There does not seem to be any evidence that younger entrepreneurs are more open to technology adoption.

What do you do to stay competitive and to ensure your product or service sells and survives? [PE]

ICT has to be leveraged to enhance one's competitiveness although the necessary skills are not always available (Uddin, 2005). The answer to the above question will indicate whether or not an entrepreneur recognises the fact that technology can be used to help him or her grow and to stay ahead of competitors.

Entrepreneur 2 acknowledged that there were competitors in the market and to stay competitive, he had to retain his relationships with his clients; "*we need to hold onto our clients*". He knew his clients very well and he delivered directly to them.

Entrepreneur 6 pointed out that one of his vision statements in his business plan was to have lasting relationships with his clients; he had clients dating back to 2003. He did not do once-off business, he was not after money, and he wanted to help his clients with their businesses and also to stay in business. The more they stayed in business, the more he stayed in business; he also provided advice on certain legal issues and how to comply with SARS and labour law.

Entrepreneur 8 did not quite understand the question so the researcher rephrased and asked her what she would do if someone put up a new table next to hers. How would she make sure her products sold? The entrepreneur said she would make sure the customers got what they needed so that they would come back. She added she would not bear the competitor any grudges.

It seems as if entrepreneur 13 did not fully understand the question, even after explanation. She said she makes sure that she has counted her stock every morning; throughout the day she delivered and wrote down all her deliveries and sales and at the end of the day she took stock again. She did mention earlier that one of the reasons why she stayed in business was because of her relationships with the clients.

None of the entrepreneurs mentioned that they used technology to stay competitive, or to sell more products or provide better services, although at the end of each interview, all of them did mention that they contacted their clients or customers using their cellular phones, or email. Entrepreneur 8 used no technology at all. Entrepreneurs still do not realise that utilising technology can in fact help them to become more competitive and provide a better service to their clients.

Who makes the final decisions in the company? And is the decision-maker male or female? [PE, SI]

31% of SMEs in Talukder et al. (2013)'s study were the owners of the businesses. Their respondents represented also almost a 50/50 division regarding gender, with 52% of respondents being male, and 48% being female. 75% of the physicians who responded in Cohen et al. (2013) survey were male. In the study conducted by Lu *et al.* (2003) men were the biggest adopters of mobile technology, and the researcher wanted to see if there is a relationship with decision-making as well.

All of the entrepreneurs stated that they made the final decisions in their business. Although some had partners, they were still involved in the decision-making. Two were male and two were female. What did emerge, though, is that the entrepreneurs who were more open to technology usage were the male entrepreneurs.

There is at this stage no correlation between decision-making and gender. However, during the focus group discussion it did emerge that the lady entrepreneurs rely heavily on their husbands or partners who are males to assist them in their decision-making.

Does security of technology play a significant role in the decision to use technology?
[PE, EE]

Wamuyu and Maharaj (2011) found that there is trust in the use of mobile technology and they suggest that there are no more security and privacy fears. Cohen *et al.* (2013) say that trust has a direct influence on effort expectancy when adopting technology. By combining UTAUT and perceived risk factors from Featherman and Pavlou, Martins *et al.* (2014) managed to show that this combinantion exlains 81% of the change in one's behaviour that could have an effect on adoption. Risk was included in their studies because of the context of the study being on Internet banking. This involves people's money and people become more sensitive when their finances are involved. Thus, even though risk played a significant role on adoption in this instance, for this thesis risk is not seen to have any relevance, although one would have to ask the research participants what their perceptionsin this case were.

The responses obtained to this question in the end became almost irrelevant, as only one entrepreneur realised that this question related to technology security, anti-spyware and anti-virus software. All the entrepreneurs immediately referred to security in terms of fences, alarms, and so forth. The reason why this question was included in this thesis is to highlight the fact that these entrepreneurs realised that they had to secure their businesses against threats such as theft. Living in South Africa one almost tends to forget that crime is even higher in the rural areas than in the cities. This is a concern when doing technology training when the entrepreneurs are provided with notebooks, tablets or setting up digital stations with computers that are connected to the Internet. This could also be the reason why an entrepreneur such as entrepreneur 8, who sits on the street corner does not use technology extensively as it makes her a target. This could be a factor that could jeopardise the entire e-skills project.

6.5.2.2 *Background of the entrepreneur*
What qualifications do you have?

56% of the SMEs (Talukder et al. (2013) have a bachelor's degree. It was interesting to see what the correlation between education and the successful entrepreneurs is. Colombo and Delmastro (2002) indicate

that education/qualifications could play a role in the success of an entrepreneur. Ndubisi and Kahraman (2005) add that education is a relevant aspect to consider when determining the type of entrepreneur one is working with. Spencer *et al.* (2012) noted that Internet adopter entrepreneurs relate to the enforcer typology and typically have a higher level of education although their technology experience is low. In Chapter 5 it is evident that most of the entrepreneurs at least had a Grade 12 qualification and therefore Spencer *et al.* (2012) could be true in terms of education levels.

All the entrepreneurs had obtained at least a Grade 12 certificate and all of them had progressed to obtain further qualifications, some formal and some not. Entrepreneur 2 had a B.Ed.-degree, while the other three entrepreneurs had obtained various diplomas and certificates, ranging from business administration to a diploma in tax consultancy. Thus is seems as if the entrepreneurs realised that further education was necessary and therefore they had successful businesses running, which corroborates the stance of Colombo and Delmastro (2002) on education and entrepreneurial success. However, during the analysis in the previous chapter it became evident that 20% of the entrepreneurs had not completed a Grade 12 qualification, and in fact only 15% of the entrepreneurs who did complete grade 12 had a further qualification. From the data in Chapter 5 it seems as if most of the entrepreneurs did finish their schooling career. During the interviews it did emerge that further training, not necessarily a formal further qualification, could in fact lead to a successful business and ICT adoption.

What or who motivated you to become an entrepreneur? [PE, SI]

Colombo and Delmastro (2002) wanted to see what motivates entrepreneurs. Although their study focuses on technology incubators in Italy, it is still important to see what motivates the South African entrepreneur to start his/her business.

Entrepreneur 2 said that the course that he attended on entrepreneurship motivated him to become an entrepreneur. Before the course he concentrated on his teaching position and he realised that he needed something else to fall back on. He did not want to rely on his occupation as the sole income provider for his family; he had to find something else.

Entrepreneur 8 said she became highly motivated to start her own business after she had received the training.

Entrepreneur 6 grew up in a home where his father owned his own business and thus "*business is in my blood*".

Entrepreneur 13 had a different story. She was unemployed, she applied at various companies for employment with no success, and she quickly realised that she could not sit around and wait any longer for them to contact her. After the training she managed to obtain funding and that is how she started her own business. Even though this is only one entrepreneur out of three's story,

the researcher is convinced that if one interviews more entrepreneurs, their stories will sound much similar to hers, the survivalist.

It seems as if the training was the biggest drive not only to start their businesses but also to be successful. This indicates that the entrepreneurship training did have a positive effect on these entrepreneurs, but one has to keep in mind that during the focus group discussions, it emerged that only 50% of the entrepreneurs trained were indeed currently successful business owners; the rest were either still struggling or still planning.

It does seem as if the motivation to become successful was fuelled by the training that the entrepreneurs received and that they recognised the link between the training they received and the tasks that they had to perform on a day today basis, tying in with job-fit of PE. It could also tie in with facilitating conditions as the access they had to training was a direct result of their starting their own businesses.

Do you have any previous work experience that helps you become a better entrepreneur? [SI, EX]

Experience refers to human capital within an organisation (Marcati *et al.*, 2008) and directly affects the personality traits of employees in SMEs. Although this thesis does not explore the detail of personality traits, it is important to see if previous work experience did indeed help to become a better entrepreneur and enable them to use technology more efficiently.

Being a teacher, entrepreneur 2 is exposed to certain technologies. It is not clear if this helps him directly to be a better entrepreneur and use technology better but it does seem as if it allowed him to think laterally and motivated him to become an entrepreneur.

Before entrepreneur 6 started his own business in 2003, he worked at another accounting firm in Marble Hall, about 40 km from Siyabuswa, to gain experience. This allowed him to become a better tax consultant and also broadened his vision to realise what the needs and challenges that his clients face were.

Entrepreneur 13 did some part-time work for Stats SA; she had to conduct interviews and was responsible for the data capturing. The data capturing was done on a computer and as a result the researcher became more comfortable with working on a computer. However, this entrepreneur was one of the two reluctant to use technology for her business, which is strange. Perhaps she was still struggling to see the real benefits that technology could bring to her business and thus she might require more hands-on training specifically customised for her business. She also had to realise that using technology might in actual fact reduce the amount of time spent on doing stock control.

Entrepreneur 8 had only been volunteering for free at a school, and she sometimes still did, and at the school she did have access to a computer. However, this is the only experience she had

and therefore no correlation between work experience and reason for being a successful entrepreneur could be found.

It does seem as if all the entrepreneurs had some work experience although not all of them were as focused as some of the others. It has become evident that EX assisted these entrepreneurs in getting to know more about business although it cannot be proved that EX related directly to their success. Previous experience assisted some of the entrepreneurs in understanding business better and thus it was easier for them to perform certain tasks. As this question relates to SI it can be related to external pressures. As mentioned in Section 2.2.2, SI only plays a role during the initial phase of adoption and thus even though the success of the entrepreneurs cannot be related to EX directly, it could be due to SI only being relevant during the early adoption stages and the entrepreneurs might not even realise that EX played a role in their success. In Chapter 5 it emerged that although it is said that IS was only relevant during the early adoption phase, the entrepreneurs continuously relied heavily on their friends, families or support vendors during the actual usage of technology.

Does the business and its survival influence your family's survival? [SI]

Nguyen (2009) noted that one of the key reasons for ICT adoption is survival; therefore it was interesting to see how many of these entrepreneurs relied only on the success of their business and thus if it should fail, their access to funds to cover their basic needs was gone. Esselaar *et al.* (2006) state that you get two types of entrepreneur, the survivalists or informal operators and actual small businesses. The survivalists or informal operators normally consume all income generated by sales immediately and do not necessarily keep record of their actual revenue. Thus their daily operations need to cover their daily living expenses as well. Therefore it is important to see whether this is in fact the case with these entrepreneurs.

As entrepreneur 2 was permanently employed as a teacher, the business was his second income and therefore the survival of his family was not dependent on the income he received from the business. Thus the business money was an extra income and that is also why he expanded to keeping goats and cattle.

Entrepreneur 6 said that the success of the business was not for the survival of his family but that he did it because he loved it, "*the business is in my vein*s". The entrepreneur worked with figures and loved it. He said he would do it until the day he died. He was a highly passionate entrepreneur and this could be the reason for his successes.

Entrepreneur 8 said she started the business so that she could have her own money and not rely on her parents for support; she wants to be able to support her family. She did not split her business and personal finances and it was clear that the business was crucial for her survival. This classified her, according to Esselaar *et al.* (2006) as a survivalist type of entrepreneur. It was stated that entrepreneur 8's parents assist her, which is a concern as her father was

unemployed and her mother a domestic worker who earned a small income. The success of the business is indeed crucial for the survival of her family.

Entrepreneur 13 acknowledged that her business was crucial for the survival of her family. Her husband earned an income as a teacher but she pointed out that his employment was unstable and they had to find an alternative means of obtaining an income.

In the case of two of the entrepreneurs the survival of their business directly influenced their family's survival. Its survival became the external pressure (SI) why they had to be successful. The two entrepreneurs who did acknowledge the survival as crucial were both the ladies. The men felt that they were satisfied in terms of supporting their families.

Relating to Esselaar *et al.'s* (2006) entrepreneur types from Section 5.2.3, it seems as if entrepreneur 8 and 13 can be regarded as survivalists and entrepreneurs 2 and 6 as informal micro or small businesses.

When did you first see or use a computer?

This question was asked out of curiosity to determine at which age the entrepreneurs first saw a computer. Younger individuals are being exposed to technology much earlier and thus they should be more willing to adopt technology (Baker and White, 2010)

Most of the entrepreneurs saw a computer only after they had finished their secondary education; some saw a computer when studying at university, some during their further studies for diplomas. This generation of entrepreneurs seems to have seen a computer only after school. As these entrepreneurs were not such ardent technology adopters, and they had all seen a computer after they had completed Grade 12 on secondary level, this might be in correlation with Baker and White's (2010) findings. These findings are similar to those in Chapter 5 in stating that almost all of the respondents had never seen a computer during their schooling career.

Does your culture or society play a role in the business decisions you have to make? [SI]

This question was asked to determine if there were any external influences and especially social influences [SI] that played a role in the decisions and success of these entrepreneurs. As discussed in Section 2.2.2.1, social influence, and the perception individuals had of what others thought of them after using the system (Venkatesh *et al.*, 2003) directly influenced the adoption thereof. Talukder, Quazi and Djatikusumo (2013:1687) point out that there is a direct correlation between acceptance of technology and what they call "social networks", which is the "*extent to which individuals are influenced by other individuals or organisations*". It is also noted that SI only plays a role during the initial adoption of technology.

The responses to this question were very informative in the end. First of all, although culture does not directly affect entrepreneur 2's decision or ICT adoption, culture does influence the business. According to their culture, there is a period of initiation for the boys at the end of each year, and during this period the community buys more chickens, goats and cattle; in the middle of the initiation they buy goats. For girls they do it any time. When someone dies, they have to get a goat's skin and they have to buy goats and also cattle to feed everybody at the funeral. When someone is born he or she gets a goat, and they believe whenever a child is born, they use the skin for clothing. They also supply goats for weddings, as a goat must be slaughtered before the wedding, and cattle are also used to paying lobola ("*a bride price traditionally given by a Nguni man to the parents of his prospective wife*" (Alswang and van Rensburg, 1995:486)). Although not directly related, culture plays an enormous role in the success of entrepreneurs' business. Entrepreneur 8 said that her parents had a direct influence on her business as they provided the money for her to start her business; she did not have to pay them back.

The business of entrepreneur 6 was influenced by society; as times changed, so did his business and technology and he tried to keep up with the changes as far as he could. From a legal perspective he needed to stay ahead of the changes and legislation as he had to inform his clients about all the new tax laws that were announced in the beginning of each year. Thus society played a role in the decision he needed to make in his business. Entrepreneur 13 said she was *"in between"*; society influenced her to some extent but she never elaborated on why she said "in between".

All the entrepreneurs acknowledged that their cultures and society did affect their businesses as well as their business decisions. Entrepreneur 6 said that he tried to stay up-to-date with the changes, and thus all his decisions were influenced by what was happening around him. Although SI was seen as applicable in the adoption phase, it does seem that SI, relating to their cultures and direct society, played a role in their daily decision-making, even after technology adoption took place. Perhaps the "*what other thinks of me"* part of SI is what is reduced over time after adoption, but it seems as if society still played a major role in the long-run for these entrepreneurs, which also correlates with the findings in Chapter 5.

6.5.2.3   *Technology*
What technology are you currently using? [PE]

Both Dyerson *et al.* (2009) and Steyn and Leonard (2012) identified certain technologies that were used by SMEs and particularly entrepreneurs. However, due to the rapid evolution of technology, some of these technologies are almost obsolete. It is for this reason that the following options were selected to see if they were indeed the technologies being used. The frequency of usage was also determined to see whether it was a daily necessity or just a once-in-a-while type of technology. All the technology mentioned was used on a daily basis. Initially the make and model were also documented but the researcher quickly realised that due to the almost unlimited number of devices and models available per device, it was an almost impossible

task. Some of these technologies were mentioned in detail by the other entrepreneurs as part of the focus group discussions.

- Cellular phone
- Land line
- Fax machine
- PC
- Laptop
- Tablet such as iPad
- IPod
- e-Reader

Technology	Entrepreneurs			
	2	6	8	13
Cellular phone	X	X	X	X
Landline		X		
Fax machine	X	X		
PC	X	X		X
Laptop	X	X		X

Table 22: Technology devices used by entrepreneurs

None of the entrepreneurs use tablets or IPods, e-readers or any other technology devices.

Entrepreneur 8 did not have access to a computer, not even through family and friends. She had access at the school where she volunteered but there was no Internet access. She could access the Internet at the Internet café where she had to pay. At school they used a 3G-card but she did not use it.

Viewing the devices above and the feedback obtained from the focus group discussions earlier it became clear that cellular phones are regarded as the lifeline of these entrepreneurs. Without cellular phones, they cannot run their business. Only two of the entrepreneurs in the focus group had an iPad. It was not clear how many laptops or computers he had but the main device to focus on is the cellular phone, which is similar to the findings in Chapter 5. All of the entrepreneurs realised that the cellular phone allows them to conduct their business, except entrepreneur 8.

If you use a computer, what do you use it for? [PE, EE]

This question is based on the same principle as the previous one and was asked to determine, apart from the actual technology devices being used, what software packages were important to the entrepreneurs. As the expertise level was based on the entrepreneurs' perceptions of their skills, it quickly became evident that the entrepreneurs thought if they could type a word document, for example, they were expert users of MS Word, and thus the expertise level was removed from this question.

	Entrepreneurs			
Program	**2**	**6**	**8**	**13**
Email	X	X	X	X
Internet	X	X	X	X
Chatting		X	X	X
Facebook		X	X	X
Skype		X	X	
Games			X	X
Word processor (for example Microsoft Word)	X	X	X	X
Spreadsheet (for example Microsoft Excel)	X	X	X	X
Presentation (for example Microsoft PowerPoint		X		X
Database (for example Microsoft Access)				X
Accounting software		X		
Stock control	X	X		X
Online banking	X (FNB)	X (Standard bank	X (Nedbank)	
Other (please explain)				

Table 23: Computer software usage

Additional comments

All the entrepreneurs used Gmail as their primary email account provider although entrepreneur 13 said that she could not use email as some of her clients did not have or use email.

Entrepreneur 13 had never used online banking before; she received cash from the clients and then deposited the money directly into her bank account. She used no cellular phone or online banking and this could be an area that she could explore in the near future.

Entrepreneur 6 said he started using Skype after the training that he received and he loved using it whereas entrepreneur 8 said she wanted to use Skype on her cellular phone but she did not know anybody who also had Skype and therefore she could not use it.

Entrepreneur 2 said Facebook, Twitter and WhatsApp (chatting) wasted too much time and he was not interested in using it at all.

Surprisingly entrepreneur 13 used MS Access to add her clients' details onto the system, but she did not do anything with it. This is strange and the researcher is not 100% sure that this is in fact what is happening. The entrepreneur did mention that she had used it before, possibly when she did the data capturing for Stats SA. She said she used WhatsApp much but did not like it as it wasted time. She also used the diary on the computer, probably Microsoft Outlooks' calendar to do some of her planning; this was a way of assisting other entrepreneurs with their planning and how to setup and manage a digital diary should be included into e-skills training.

Entrepreneur 6 was the only one using an accounting software package, he used Pastel. Although entrepreneur 2 used Excel for planning and some of his financial entries, it was not a formal bookkeeping program.

None of the entrepreneurs used any of the following: Twitter; online shopping; MS projects or some kind of programming language, which was no surprise as they were not advanced computer users.

The main software training needs that emerged at this stage were the following:

- Gmail training
- MS Word
- MS Excel
- Training on chatting – effective use of WhatsApp and perhaps setting up and managing chat groups
- Setting up and managing a digital diary.

Is your business connected to the Internet?
If yes, how?
These two questions were based on the previous two question's principles

Only entrepreneur 6's business was connected to the Internet and had an ADSL line installed. Entrepreneur 8 said she could access the Internet on her cellular phone using 3G. None of the other entrepreneurs' businesses were connected to the Internet. This is alarming; even though they used their cellular phones for their emails, and sometimes Google a connection to the Internet is not seen as part of their business.

What are the main reasons for using technology? [PE]

This question was asked to determine if there were specific tasks that the entrepreneurs recognised as being more suitable for technology usage than others. Ndubisi and Kahraman (2005) note that 92% of their respondents use technology only for administrative tasks and not for more advanced and complex processes.

	Entrepreneurs			
Tasks	**2**	**6**	**8**	**13**
Administrative tasks	X	X		X
Financial tasks	X	X		
Planning tasks	X	X		X
Communication	X	X		
Other (Specify please)				

Table 24: Tasks for which technology is used

Entrepreneur 6 continued to say that he used technology to "*make things simpler and faster*". Entrepreneur 2 said he used it for scheduling, forecasting and planning for chicken feed orders, etc.
Related to Ndubisi and Kahraman's (2005)'s findings, most of the entrepreneurs used technology for administrative tasks and not for more complex ones.

Which type of resources do you have available that can assist in ICT implementation?
[FC]

The following authors found a lack of resources the be one of the most important barriers to entrepreneurs' reluctance to adopt technology: Mutula and Van Brakel (2007); Kahn *et al.* (2012); Miller and Garnsey (2000); Thomas *et al.* (2004); Reimenschneider *et al.* (2003); Nguyen (2009); Chatzoglou and Vraimaki (2010); Kabanda (2001). Therefore it was imperative to determine whether this was relevant to these entrepreneurs

The entrepreneurs did not provide clear guidelines regarding who helped them or the access they had to resources, which relates to what the authors said about the lack of resources available to the entrepreneurs. Entrepreneur 2 said he did have some family members to ask, and sometimes he could go to an Internet café to ask for help; entrepreneur 13 would ask her suppliers who should be able to help. Entrepreneur 8 said she made decisions herself and thus there was no one to help, although her parents would help her if she did not have prepaid money on her cellular phone, and entrepreneur 6 said he did not currently have access although there was a need for him to replace his equipment.

Has any prior knowledge or work experience helped you to adopt technology? [EX, SI]

Langley *et al.* (1995) state that adoption is not only driven by deep thought rationality, but also through experience. Social influence decreases as one gains experience in using certain technologies. One of the underlying constructs of UTAUT is experience (Venkatesh *et al.*, 2003) and thus it is an important factor to determine for this study.

Having been a teacher assisted entrepreneur 2 to become a better technology user; the rest of the entrepreneurs replied in the negative to this question. Seeing that experience did not determine technology adoption, it does not confirm what Langley *et al. (1995)* state, namely that experience increases technology adoption. This also emerged in the previous question, "*Do you have any previous work experience that helps you become a better entrepreneur?"*

Has someone ever guided you in the use of technology? [SI]

Cohen *et al.* (2013) found that 48% of their respondents noted that they had done their own research and 28% heard about technology from others in the same industry.

Only entrepreneur 13 said that her brother would help her in choosing the technology. Entrepreneur 6 said that the experts from who he bought gives him advice. The other entrepreneurs said that they did their own research when choosing technology.

What are your intentions or plans to use technology in the next year? [PE]

This question was asked to determine if the entrepreneurs had any intentions of engaging in any additional technology for their business.

Entrepreneur 2 wanted to start using email to notify his clients; the challenge was that most of the clients did not have email and thus it was impossible to change over to an email only system. Even though he planned to use technology, his environment did not allow this to happen. Entrepreneur 8 had no intention to start using technology in the near future. Entrepreneur 13 said that she would like to use technology more effectively when her business expanded and entrepreneur 6 said he would like to expand his business and to get a website where he could market his business.

Three of the entrepreneurs did acknowledge that ICT could help them in the future and thus they planned using it in the future. They would need proper guidance to ensure that they selected and started using ICT effectively to enhance their business. It was also clear that one should show them how to set up a small website by using a template available on the Internet to ensure they had a website, but that they could maintain themselves and thus save money by not having to pay for a company for the design and maintenance.

Do you ever have a specific plan when investigating possible new technology for your business? [PE, FC]

This question was asked to determine the strategy that the entrepreneurs followed, as Steyn and Leonard (2012) determined that IT strategy and its incorporation is directly linked to the size of an organisation and thus it could not be relevant for entrepreneurs. However, one of the reasons for the failure of technology adoption is no proper planning (Nguyen, 2009).

In this highly connected era that we live in, there is a saying "*if you want to know something, just ask professor Google*". To prove this saying is easy, just ask anyone how they find information if they do not know. The entrepreneurs interviewed planned to use Google (2), Google (8) and Google (13). Entrepreneur 6 would select the cheapest technology available.

It seems as if Google should be written into any business strategy as this is clearly a tool used all over the world, confirming Steyn and Leonard (2012) theory that the size of the organisation will determine the necessity of an IT strategy. However, one has to be careful, as Nguyen (2009) notes that it is exactly poor planning that results in technology adoption failures. One should incorporate into the e-skills training a way of training entrepreneurs to make IT decisions, how to decide which technology is the best and how to ensure effective "Google-searching".

Do you force your employee(s) to use technology or is it purely their choice when and what technology to use? [SI]

Diefenbach (2007) notes that an approach to force the adoption of ICT could be done by following the TINA principle, "*There is no alternative".* This was not a problem in this thesis as most of the entrepreneurs were the owners, the only employees and the decision-makers.

Entrepreneur 2 said his employee never used technology; entrepreneur 8 did not have employees; entrepreneur 13's employee could use technology (referring to using a cellular phone) although it was not used for the business. Only entrepreneur 6 had employees that used technology for their business and he said that none of his employees were forced to use it. They wanted to use it as it formed part of the daily operations of the business. This raises an interesting point: if technology is part of the business's day to day operations, and the employees worked on it daily as part of their daily routine, is this regarded as forced adoption? This is highly unlikely and for entrepreneurs it does not seem as if this question is relevant at this point.

How important is the ease of using technology before you purchase it? Does it play a role at all? [EE]

This question was asked to determine if any of the TAM constructs played a role although ease of use also played a role in the effort expectancy construct of UTAUT (Venkatesh *et al.*, 2003)

Entrepreneurs 2, 6 and 8 said that technology should be easy to use and that it assisted in advertising one's business. For entrepreneur 6 it was important and after the training he was much more familiar with technology and thus he could better specify which technology was required for his business. Entrepreneur 13 did not understand as she did not really use technology for her business and thus she did not respond to this question.

From the responses it became clear that technology should be easy to use, especially as these entrepreneurs, even though they received the training, were still not too familiar with the technical side of technology and thus technology should almost be "self-explanatory" so that anyone can buy it, open the box and immediately start using it. Thus EE is extremely important for entrepreneurs and will determine whether they adopt technology or not.

What motivates you to investigate new technology? [PE, SI]

Although Colombo and Delmastro (2002) wanted to see what motivates entrepreneurs, this question is based on their study to determine what motivates entrepreneurs to adapt technology.

As this question relates to the question of what motivated these entreprenreuers to become entrepreneurs, most of the entrepreneurs had the same response to that question. Entrepreneur 6 said he investigated new technology "*to expand the business and to go with time*". One has to understand technology for the business and when he hired young people, he expected them to add value to his business. He was open to new ideas coming from them and he always allowed them to add new things as long as they added value to his business. Entrepreneur 2 said he would want to use technology in the future when his business expanded; the same response came from entrepreneur 13.

It is evident that adding new things must add value and thus if new technology is investigated, it should not be added just because it is the latest gadget or trend, but because it really adds value to the entrepreneur's business and to assist him/her to grow, thereby answering Colombo and Delmastro (2002) question of what motivates entrepreneurs to invest into technology. Adding value to the business also means that once the value is added, there is an added outcome expectancy from using ICT. PE is again an important construct in deciding which ICT to use before the actual adoption thereof.

6.5.2.4 Training

The questions asked in this section were based on the training that the individual received to determine if they thought the training was effective. Although the workshop session already noted that only 50% of the entrepreneurs trained were successful, it is also important to understand the underlying reasons and viewpoints of the entrepreneurs. The questions were based on both literature and conclusions made in Chapter 2 and Chapter 3 and therefore the literature is not referenced in this section.

Have you ever had entrepreneurial training? And when did you undergo your entrepreneurial training?

All four the entrepreneurs interviewed received their entrepreneurial training based on the framework discussed in Chapter 3. Three of the entrepreneurs did their training in 2011 and one in 2013. Entrepreneur 6 attended both the 2011 and 2013 training courses.

Why did you attend entrepreneurial training?

Entrepreneur 2 said that the people from SEIDET told him to attend the training although he did want to do something different than just teaching; he wanted to make sure he was not keeping all his eggs in one basket; that he had a backup plan in place in case something happened to teaching and he still had to support his family.
Entrepreneur 8 said she wanted to do something for herself to be able to support herself.
Entrepreneur 6 said he attended the training because he saw that most of the time business was run informally and he wanted to make sure his business was official and formally run and thus

he decided to attend the training. The training assisted him in helping others run their business more effectively and on a more formal basis.

To survive and to be able to support the family better was the reason entrepreneur 13 attended the training.

Clearly one can see that the entrepreneurs realised that they had to find a way to support their family and to be a successful; therefore they attended the training.

Have you ever had IT training or e-skills training on how to use technology for your business before?

Two of the entrepreneurs, 8 and 13, had had previous computer literacy training before. They never knew how to incorporate it into their businesses, and it seemed as if they were still struggling to manage to get it right.
Entrepreneur 6 said he never had any IT training before. When he bought his first computer in 2003, his friend lent him a book titled "*How to learn the computer*" that he used to train himself on using the computer. When he hired his first employee in 2004, she had a tertiary qualification and she helped him to use the computer. He then in turn trained her and helped her with employment, but he never received any formal IT training before the e-skills training. Entrepreneur 2 had never had formal computer training before.

Most of these entrepreneurs were exposed to computers at some point in their lives but they never attended training sessions and thus there was a general lack of knowledge on how computers could benefit their business.

Was the training sufficient? Can you use the training in your business?

All the entrepreneurs said that the e-skills training assisted them on various levels. Some came to understand the basic concepts of using computers; others understood how technology could assist them in the future. However, what emerged from the interviews is that even though some of the entrepreneurs could see the value of ICT for their business, they still did not know how to incorporate it. Similar to the E/P training, one needs a five or 10 week mentoring session with each entrepreneur individually to assist in setting up a business and ICT for the business. This can only be done if one has the resources to provide some sort of device, either PC, laptop or tablet that can then be setup according to the business specifications, as well as software.
Perhaps, as part of the business plan budget, one should look at adding a section to acquire assets and software licenses as part of the business plan; to be able to do that one has to consult with an expert on the best possible ICT package for a specific business.

Would you have liked training on any of the following: [Specific technology required]

This question asked the entrepreneurs if they preferred to receive training or would recommend e-skills training for future entrepreneurs, what training would they think was necessary and on which level. However, most of the respondents said training was required on an advanced level. The responses indicate which type of training these entrepreneurs deemed necessary for their businesses and for any other entrepreneurs.

	Entrepreneur			
Program	**2**	**6**	**8**	**13**
Software				
Email	X	X		X
Internet	X	X		X
Social media	X	X		X
Word processor (for example Microsoft Word)	X	X	X	X
Spreadsheet (for example Microsoft Excel)	X	X	X	X
Presentation (for example Microsoft PowerPoint	X	X	X	X
Database (for example Microsoft Access)	X	X		X
Project management (for example Microsoft Project Manager)	X	X	X	X
Programming (for example Visual Basic .NET)	X	X	X	X
Accounting software	X	X	X	X
Stock control	X	X	X	X
Online banking	X	X	X	X
Data management	X	X		X
Hardware				
Cellular phone	X			X
Tablet	X	X	X	X
General				
Security	X	X	X	X
ICT decision-making	X	X	X	X
Business analysis	X	X	X	X
Project management	X	X	X	X
Other (please explain)				

Table 25: Training needs

It is evident that the entrepreneurs would like to be trained in not only the basic applications, but also in more advanced ones. These could be considered although in Chapter 5 it is evident that most of these applications were not used.

Additional comments:

All the entrepreneurs were asked if they could think of additional training that they thought it was relevant and not listed in the table above, and these were their responses:

Entrepreneur 6 would have liked to see how he could use the Internet to market his business via a website. He also wanted to know how to buy or sell products online. He said, "*Sometimes we are scared*" as they did not know what to look for and if using these facilities was secure. He would also have liked to see how to use Twitter or social media more effectively: "I *would like to learn these Twitter things, I don't understand them.*"

Entrepreneur 2 said social media training was important as the new generation is much more focused on social media. He also wanted to know how to pay his employees by using online banking.

Entrepreneur 13 had a different view on training; she wanted to receive training to be able to understand people and how they make decisions, "*because you can't run a business without people*". She would also like more follow-up workshops so that she could be assisted with her daily operations.

The training needs identified earlier are in fact the training requirements for the ICT entrepreneurs, although some ICT, such as programming identified might not be relevant to the entrepreneurs.

Reviewing the firm adoption hierarchy of Spencer *et al.* (2012:1206) introduced in section 5.4, the four entrepreneurs interviewed are classified as follows:

Entrepreneur 2 and 13 are computer adopters, but they are starting to touch on the Internet adoption level.

Entrepreneur 8 is part of the computer adopters; however, she does not use any type of technology for her business.

Entrepreneur 6 is an internet adopter who wants to learn more about the website adopter level.

6.6   UTAUT link

UTAUT was used during this thesis to determine if its constructs play a role or not in the adoption of technology. Referring to UTAUT, the following conclusions can be drawn:

6.6.1   Performance expectancy (PE):

It is clear that entrepreneurs only use technology if they can see the competitive advantage that it has or if it enhances their day to day operations. Thus performance expectancy is a relevant construct to use in technology adoption by entrepreneurs. As mentioned in Chapter 2, PE is the strongest indicator to use technology, and it has become evident throughout the analysis. In answer to the question on what motivates an entrepreneur to investigate new technology, one of the entrepreneurs said, "*To expand the business and to go with time*". The other entrepreneurs all said they wanted to expand their businesses. When asked if they had future plans for adopting ICT in their business, three of the entrepreneurs acknowledged that ICT could help them in the future and thus they planned on using it in the future. They wanted to reach more clients, expand the business, and get a website for more effective marketing purposes. They regarded ICT as a tool to assist them in increasing their competitive advantage.

The entrepreneurs stated that they primarily used ICT for administrative tasks, as these fitted into their daily operations; two listed financial tasks and planning tasks as reasons why they used

technology. The entrepreneurs provided a list of technologies and software applications that they used on a day to day basis in their business.

The entrepreneurs realised the importance of maintaining their relationships with their clients as these helped them to stay competitive.

Although most of the entrepreneurs said they started their own business as a result of the training that they had received, all of them were motivated by a desire to make more money and start their own business.

The feedback from the interviews confirms that the performance expectancy construct does play a crucial role in the adoption of technology for these entrepreneurs.

6.6.2 Effort expectancy (EE)

All the entrepreneurs said that technology should be easy to use and that ease of use is a determining factor when selecting ICT. They listed specific technologies and from the technologies they listed, the more complex technologies are the ones that they did not regard as relevant, such as programming. However, they stated that some of the technologies required a third party to communicate with to be able to use, such as email and Skype and that often they did not have someone to Skype with or their clients did not use email. This places a different emphasis on the complexity of technology adoption. It does seem as if EE is a determining factor when deciding which technology to use. In Chapter 2 it emerged that EE is only relevant during the initial adoption phase of technology and this does seem to be the case for entrepreneurs as well. The ease of use is the reason for selecting technology.

6.6.3 Social influence (SI)

It is stated in Chapter 2 that SI, similar to EE, is only relevant during the initial adoption phase of ICT. From the findings it seems as if there is a heavy reliance throughout ICT usage by the entrepreneurs on their support structures, be they friends, family or a support vendor. It might decrease a little after a while but these friends and family are still used to assist in technology adoption.

Cultures, although not having a direct effect on technology adoption, do play a direct role on the actual running of the businesses. For example, entrepreneur 6 provided goats and kettle during specific cultural situations.

However, it does not seem as if the entrepreneurs select ICT because of external pressures.

6.6.4 Facilitating conditions (FC)

Most of the entrepreneurs started using technology for their business after receiving the e-skills training; creating the opportunity to learn was the facilitating condition necessary to adopt technology.

However, infrastructure seems to be an issue. Entrepreneur 13 did not have electricity where she lived; consequently she could not charge her laptop or cellular phone, and she could not use her PC at all as there was no electricity. In Chapter 5 it became apparent that one of the entrepreneurs started a car wash but in the end there was no water and consequently he was unsuccessful in his business venture. Perhaps there is a greater need for infrastructure that can accommodate these entrepreneurs and technologies before they receive the actual training.

6.6.5 Age, experience and gender

At this stage age cannot be regarded as a determining construct of ICT adoption, which substantiates the findings in Section 5.5.

It does seem as if the experience that these entrepreneurs had from their past, although they did not see the link, did in fact assist them in becoming successful entrepreneurs. It also seems as if the exposure that they had from previous experiences made them more willing to try new ICT applications. Experience seemed to be relevant only for certain types of system such as operational and social systems.

Although the analysis in Chapter 5 found that entrepreneurs are female-dominated it seems as if men are more willing to adopt ICT than women. This assumption is based on only four entrepreneurs and it is recommended that future studies be conducted to determine if there is a relation between adoption and gender.

Thus, one can summarise the application of UTAUT for entrepreneurs as follows:
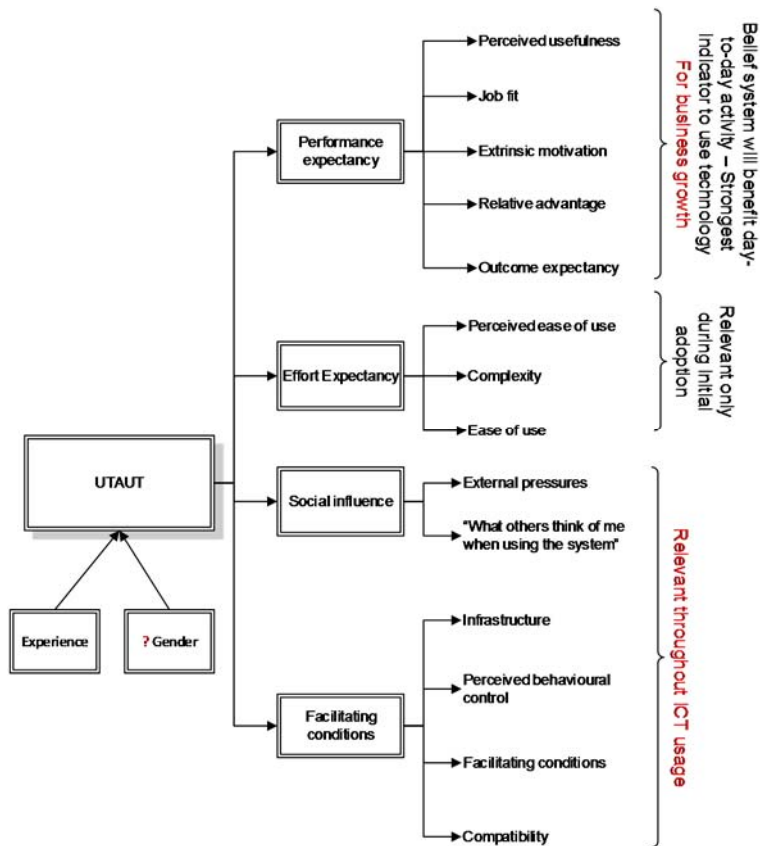
Figure 30. Updated UTAUT Summary

6.7   Chapter conclusion

This chapter presents the analysis of the results from the follow-up workshop held with the two groups of entrepreneurs trained in 2011 and 2013. The first part analyses the focus group discussions held with all 16 entrepreneurs who attended the workshop. The second section analyses the feedback obtained from individual interviews conducted with four of these entrepreneurs. Throughout the analysis the specific training needs that should be incorporated into to entrepreneur e-skills training curricula for future training emerged. The previous chapter highlights the training needs from the entrepreneurs' perspective.

This chapter sets out to answer the following sub-question as introduced in Chapter 1:

Is there a relationship between e-skills training and ICT adoption by entrepreneurs?
It does seem that in incorporating ICT into entrepreneurial training, the entrepreneurs are more open and thus more willing to try ICT for their businesses. The training did in the end assist them in adopting technology effectively in their businesses.

The next chapter summarises all the training needs identified and indicates on which level the specific training requirements should be introduced; it answers the research questions introduced in Chapter 1.

Chapter 7   - Research summary and conclusion
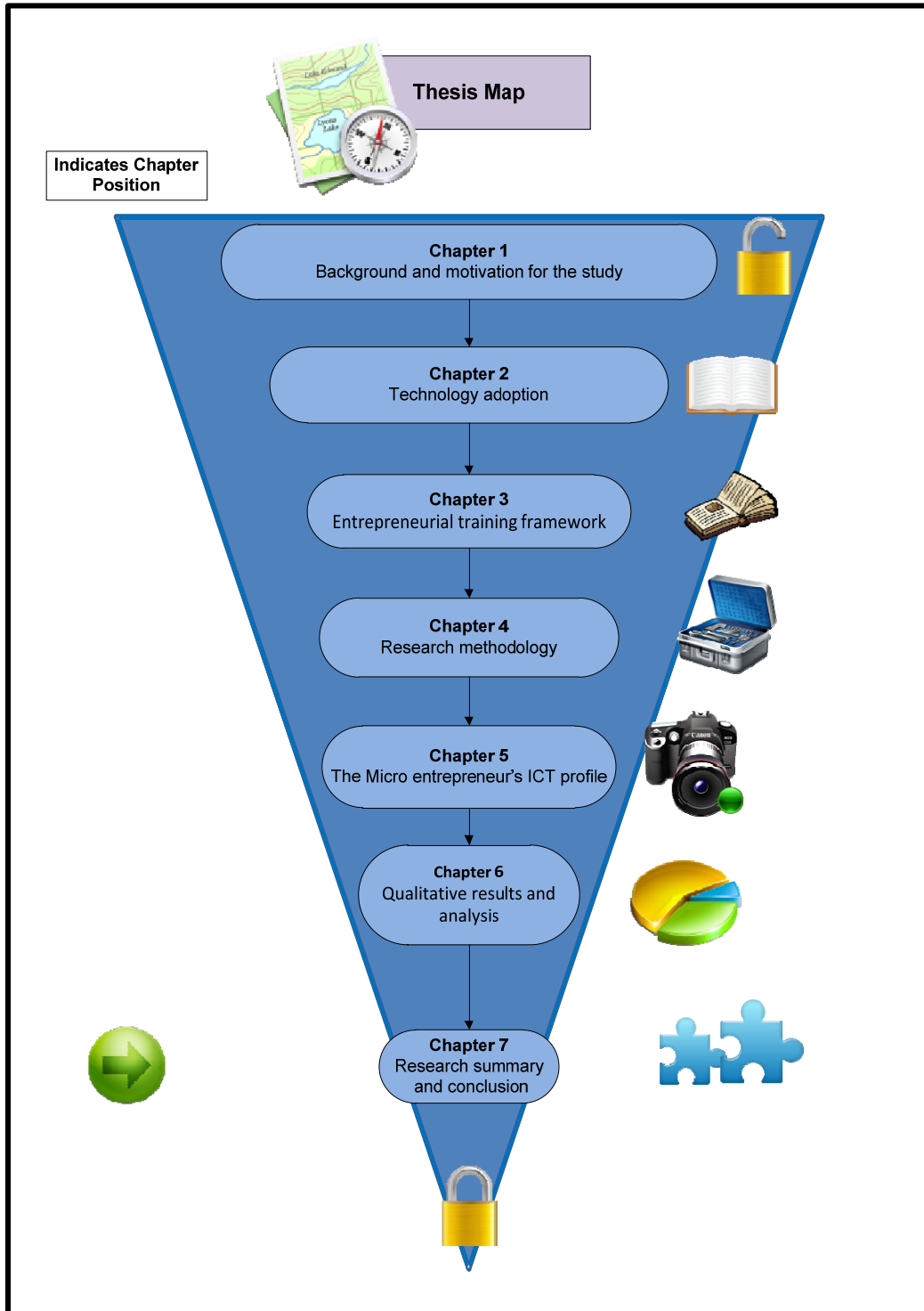
7.1 Introduction

This thesis, incorporating the government initiative called the e-skills project, explores what the basic ICT needs of entrepreneurs are and how these needs should be incorporated into entrepreneurial training. This should assist the entrepreneurs in incorporating ICT effectively into their businesses in an attempt to gain a competitive advantage and to become successful. This chapter consolidates findings when it answers all the research questions as posed in Chapter 1 and provides the contributions that this thesis makes. Possible limitations of this study are identified and recommendations for future research are made.

7.2 Research overview

7.2.1 Research questions and answers

This research project set out to answer specific research questions that are stated in the first chapter. In the following section these research questions are answered based on the findings made in this thesis. Thereafter the research contributions are explained.

1. *How can the gap in the content model for entrepreneurship education be addressed?*

Chapter 2 investigates various ICT adoption models that can be used to determine the actual usage of ICT. It also investigates which model is the best fit for entrepreneur ICT adoption. UTAUT developed by Venkatesh *et al.* (2003) was selected to be used in the thesis as the underlying theoretical basis to determine why entrepreneurs adopt technology or not. UTAUT works on the basis of four main constructs, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC). Age, gender and experience are underlying constructs that affect some or all of the UTAUT main constructs. It became apparent in Chapter 6 that all the constructs of UTAUT are relevant in the adoption of ICT by the entrepreneurs. However, age and gender could not be identified as determining factors at this stage.

In Chapter 3 the content model of entrepreneurship of Van Vuuren and Nieman (1999) and how it is applied in various contexts and by various authors is evaluated to understand not only its functionality but also its implementation. Although ICT was never included in this model, it has become apparent that ICT training will only become relevant during business skills (B/S) training and thus it is recommended to include ICT in the B/S training; the notation in Chapter 3 was introduced as:

"E/P = a + bM[(cE/S x (dB/S + eT))]"

Some of the entrepreneurs who were trained according to the original E/P model by Vuuren and Nieman (1999) provided data for the analysis (See Chapter 5) that determined the ICT profile of the trained entrepreneur. During the analysis the following training requirements for entrepreneurs materialised:

- Internet and effective Internet searching capabilities

- Email

- Word processing (MS Word)

- Spread sheets (MS Excel)

- Mobile devices and mobile applications

- Marketing tools such as Facebook

These technologies as well as one or two additional ICT training topics such as security features and Skype were incorporated into the E/P training and the feedback from that trainees is analysed in Chapter 6.

One of the gaps identified that was never incorporated into training, is online banking, or online payments, and perhaps further studies into this should be undertaken to determine its relevance and how this training can be incorporated.

Thus the gap in the content model can be addressed by incorporating ICT training as part of business skills training to assist entrepreneurs in using ICT not only to start a business but also how to expand a business over time. It is proposed that the following technologies be used specifically during the B/S training:

- Writing a business plan – Microsoft Word

- Financial management – Microsoft Excel

- Marketing – Website design from a template; social media

- Legal principles – Microsoft Word

- Communication – Mobile device, email

2. *What is the current ICT profile of the entrepreneur?*

Chapter 5 outlines the ICT profile of the South African entrepreneur. The profile was generated by merging insight from literature with the findings from the questionnaire that the entrepreneurs who attended the entrepreneurial training had to complete as well as with general entrepreneurial feedback from interviews. The profile is presented as follows:
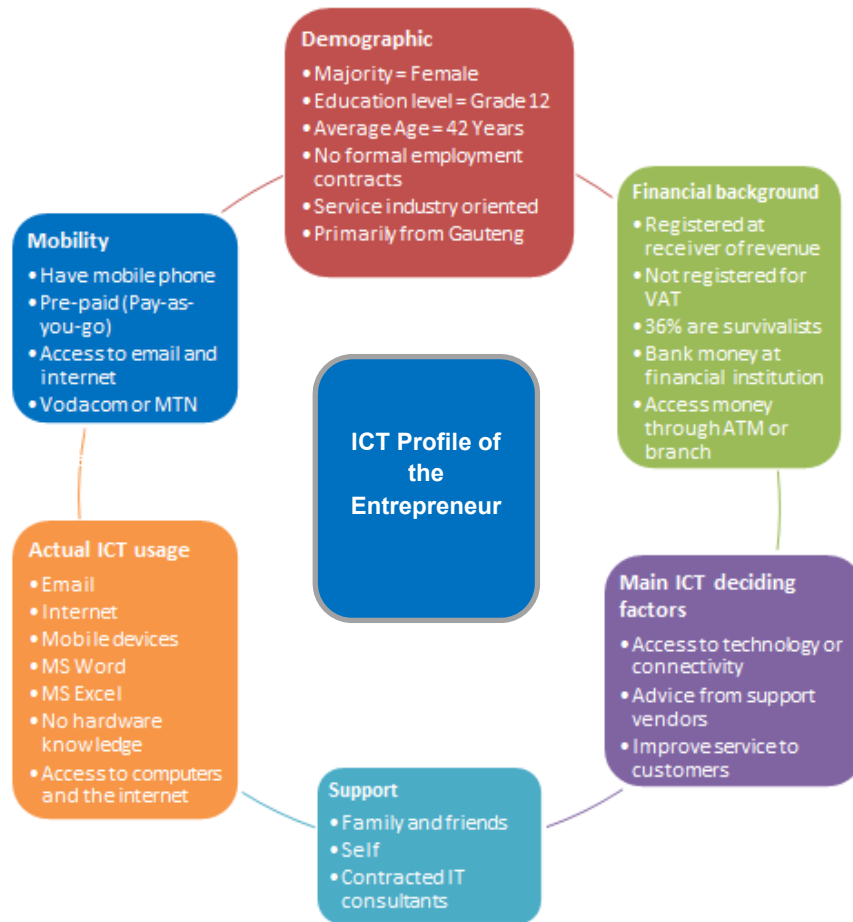
Figure 31: ICT profile of the South African entrepreneur

One has to bear in mind that this profile is based on the entrepreneurs who attended the entrepreneurs training and a small portion is based on the general entrepreneur. It should provide anybody developing any form of training or intervention for these entrepreneurs with clear guidelines on the ICT focus. It should also provide the Ikamva National e-Skills Institute of the South African government with a better understanding of the focus of these entrepreneurs and how ICT can be incorporated.

3.   *How innovative are the entrepreneurs regarding technology usage?*

In Chapter 3 innovation is discussed and defined by various scholars as the process of new idea development and these new developments are then taken to the market (Wonglimpiyarat and Yuberk, 2005). It is also seen as something new to whoever needs to adopt it (Hameed *et al.*, 2012). Rogers in Hameed *et al.* (2012) state that to adopt innovation, one should intend to use it to its full extent. From the findings in both Chapter 5 and Chapter 6 it is clear that although some of the entrepreneurs are trying and are innovative in their actual business ventures, there is no

real innovative technology usage among them. An example of innovative usage of technology is entrepreneur 6 who used a GPS tracker to do deliveries or implemented some kind of chicken feeding device that monitored and fed the chickens. However, these are only examples of innovative usage. The facilitating conditions of UTAUT and access to resources and funds should propagate an entrepreneur from either starting a successful business or acquiring specific ICT. A lack of certain basic facilities, such as access to electricity and water hinders technology implementation and demotivates entrepreneurs to adopt ICT.

4.   *Why do entrepreneurs adopt ICT?*

UTAUT, developed by Venkatesh *et al.* (2003), formed the underlying theoretical basis to determine why entrepreneurs adopt technology or not. As previously discussed in Chapter 2 and from the findings in Chapter 6, UTAUT is summarised as follows:
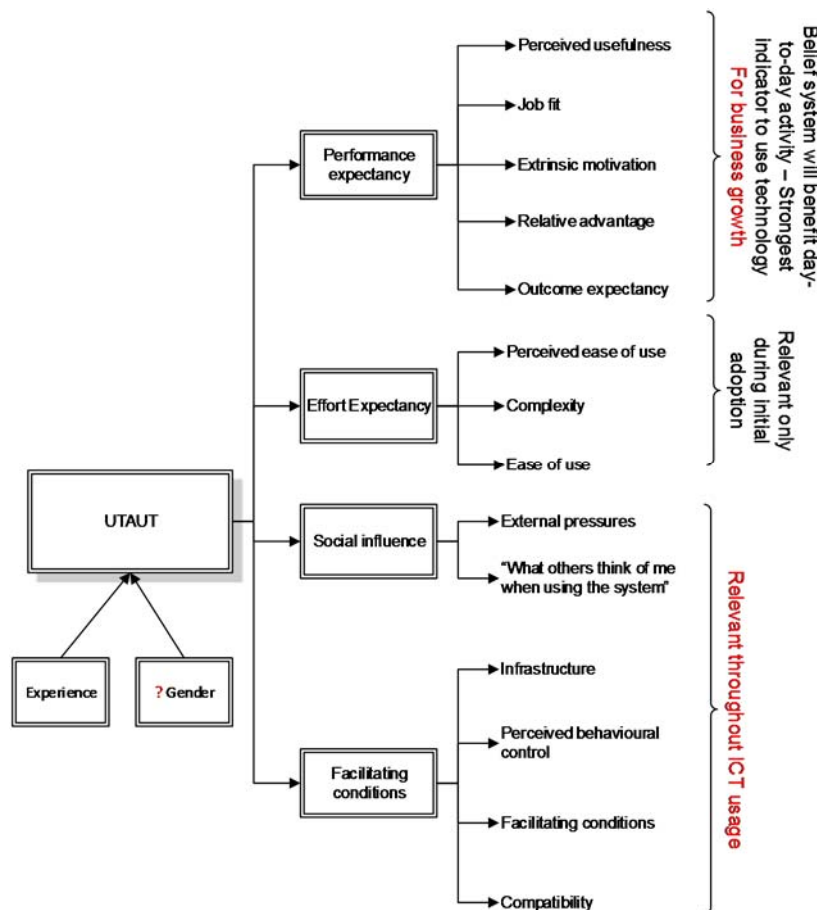
Figure 32: UTAUT summarised

The summary in Figure 32 was used for the analysis in Chapter 6 to determine why entrepreneurs adopt technology. It has emerged that Performance Expectancy is the determining factor not only

during adoption, but also throughout the lifecycle of ICT. This correlates with the findings in Chapter 2.

It has also emerged that EE is a determining factor in the initial ICT decision, which correlates with the discussion in Chapter 2. Ease of use determines the reason for selecting technology or not, and once it has been selected, one will use it; it is relevant only during the initial adoption phase.

It is stated in Chapter 2 that SI, similar to EE, is relevant only during the initial adoption phase of ICT. From the findings it seems as if there is a heavy reliance by entrepreneurs on their support structure, be it friends, family or a support vendor. Their reliance on others may eventually diminish but these friends and family are constantly used to assist in technology adoption and its actual usage.

Most of the entrepreneurs started using technology for their business after they had received the e-skills training, thus creating the opportunity to learn was the facilitating condition necessary to adopt technology. However, what has also emerged is the need for basic services such as electricity and running water, and without electricity there is no technology adoption. This means the FC constructs can almost be regarded as the most important construct during the initial adoption of ICT. Although the initial reason for adoption is FC, FC will be relevant throughout the ICT lifecycle due to the availability of infrastructure, connectivity, and compatibility with one's daily operations. Another FC that plays a role is that of mobile network coverage, as the reliance of entrepreneurs on mobile phones cannot be ignored. In Section 5.4.2.2 the South African cellular mobile coverage is explained. The greater part of the country does have 3G coverage through either Vodacom or MTN.

No correlation between ICT adoption and age or gender could be found; this could be a focus of a possible future study. Although the majority of entrepreneurs do seem to be female, no relation between gender and adoption could be found. Experience, however, is regarded as a reason for adopting certain technologies and for making the entrepreneurs more receptive to these technologies; note that the participants does not engage fully in all of the technologies and their features because of a lack of experience.

5. Is there a relationship between e-skills training and ICT adoption by entrepreneurs?

The entrepreneurs who were trained on ICT usage were trained in conjunction with the business skills from the E/P model discussed in Chapter 3. They were trained in the following e-skills:

- Writing a business plan – Microsoft Word
- Financial management – Microsoft Excel
- Marketing – Website design from a template social media
- Legal principles – Microsoft Word

- Communication – mobile device email
- Security
- Skype

During the focus group interviews as well as the individual interviews analysed in Chapter 6, it emerged that the reason why certain ICT is being used, is the fact that the entrepreneurs received the training and they then realised how ICT could assist them. It also emerged that sometimes they do want to use ICT but certain external factors do not allow them to do. For example, some of the entrepreneurs said they wanted to use Skype but they had no one to Skype with, or their clients did not use email, and thus they could not incorporate it into their businesses.

What also emerged during the interviews and focus group was the fact that the entrepreneurs are no longer wary of ICT; they may not know everything yet but they do know that they can use it without fearing it and thus one can see a correlation between adoption of ICT and the actual training in ICT.

7.2.2   Addressing the main research question
What e-skills (or ICT skills), if any, should be incorporated into entrepreneurial training programs in South Africa?

As it emerged in the previous section, ICT is used by some of the entrepreneurs, and the level of technology being used seems to be only on an introductory level, thus no advanced processes or devices are being used by these entrepreneurs. The most used forms of ICT by these entrepreneurs are also on a very basic level, and are used mainly to perform administrative tasks, which correlates with the stance of Ndubisi and Kahraman (2005) who found that 92% of the SMEs in their study use technology only for administrative tasks and not for more advanced and complex processes. The administrative tasks that emerged at this stage for actual ICT usage include using email, word processing, a small portion of Excel, but no high level difficult tasks.

Mobile devices emerged as the biggest focus, as these entrepreneurs do not necessarily have a laptop or PC, but they do have a cellular phone that is used to communicate with their employees, suppliers and customers. Thus, even though technology is not used on an advanced level, the entrepreneurs recognise the use of certain devices and applications to assist in expanding or enhancing their businesses and retaining their customers. Entrepreneurs should be able to approach and manage challenges that they face when investigating or even investing in new ICT. Entrepreneurs are starting to realise the importance of ICT and how ICT can enhance their day to-day operations. As entrepreneurs become more aware of the importance of ICT in their day-to day operations, they will try and adopt the latest technology that is relevant to their industry, thus making the training and the way in which they can incorporate this technology crucial for their survival. For some the industry determines the type of ICT that is required.

ICT adoption is an area that entrepreneurs may be fearful of venturing into. However, it seems as if the training that they received assisted them in overcoming some of these fears as they are more willing to explore new ICT; incorporating ICT training into the entrepreneurial training in a practical way allowed these entrepreneurs to become comfortable with these technologies and thus helped them expand their business.

7.2.3   Reliability and validity

Reliability:

As mentioned in chapter 4, in section 4.5, to ensure the reliability of one's data, one has to assess one's findings by asking the following three questions:

- *"Will the measures yield the same results on other occasions?*
- *Will similar observations be reached by other observers?*
- *Is there transparency in how sense was made from the raw data?"* (Saunders et al., 2003:101)

Having asked the above questions, the researcher is confident that the results in both Chapter 5 and Chapter 6 show similar patterns and results when conducting the research again in a year's time, and that no data was hidden during the analysis process. The focus of this thesis is the South African entrepreneurs who formed part of the e-skill project of government, and thus this is the specific target audience for the training, and within the same context, the researcher is confident that similar results will emerge, with perhaps slight changes as ICT also evolves over time.

The complete transparency of providing the missing values in Chapter 5 also means that nothing was hidden and thus the data was analysed following a structured process that is discussed in the next section.

Validity:

"it means that an appropriate process has been used, the findings do indeed come from the data and they do answer the research question(s)" (Oates, 2006:10). This thesis follows the research process 'onion' approach introduced by Saunders *et al.* (2003) and discussed in Chapter 4. This process formed the basis of this thesis and ensured that a specific approach was followed during the analysis phases of this thesis. This approach aknowledges that one has to start conducting research in the same way as one would peel an onion, from the outside inwards. This process ensured that the data analysis is transparent and thus the findings emerging from the data address the research questions as introduced in Chapter 1. The validity of this thesis can be confirmed.

Myers (2009) declares that only once data has been evaluated and confirmed, it can be accepted as a valuable contribution towards the specific body of knowledge that is the focus of the study.

Klein and Myers (1999) propose a set of principles that can be used to conduct and evaluate interpretive field research. Even though this study is not a field study, the relevance of the principles to this study are important. These principles are based on interpretive research of a hermeneutic nature. They can be viewed in Table 26, and next to each principle, the application and relevance of the principle to this thesis is discussed.

Summary of Principles for Interpretive Field Research (Klein and Myers, 1999)	Applications of principles
1. The Fundamental Principle of the Hermeneutic Circle This principle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.	By transcribing all the focus group and interview data from Chapter 6, it ensured that the information gained from the research participants did provide an in-depth view on the human aspect of the entrepreneurs as well as the training that the entrepreneurs received and their ICT adoption. Similarly, the analysis of the questionnaires as well as the interviews from Chapter 5 provided rich information from which the ICT profile of the entrepreneur was formed. The hermeneutic circle suggests that one should not only look at the small parts of a study but also at all the parts together and determine whether the combination of these two data analysis methods do indeed provide valuable insight into the South African entrepreneur and entrepreneurial training. This thesis firstly focuses on entrepreneurship in general, after which it looks specifically at the South African entrepreneur. After that it looks at ICT being used by the specific entrepreneurs and then it is related to the bigger picture of the South African entrepreneur, thus completing the circle. The researcher is confident that this principle was indeed applied in this thesis.
2. The Principle of Contextualisation Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.	This thesis resulted as part of the government initiative to raise the skills level of the people of South Africa and specifically focused on the entrepreneurs and how training those in basic entrepreneur skills as well as ICT specific skills will assist them to expand their business. The context of this thesis was introduced in more than one chapter, Chapter 1, Chapter 4, Chapter

	5 and Chapter 6, thus the reader understands the context and setting within which this thesis is placed.
3. The Principle of Interaction between the Researchers and the Subjects Requires critical reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants.	This principle was applied in two ways. Firstly the researcher attended the actual entrepreneurial training herself to better understand the context and the entrepreneurs who attended the 2011 e-skills training. Secondly, the researcher conducted the focus group and individual interviews herself and introduced herself and the purpose of her research clearly to the research participants. By also having an open focus group discussion, the researcher could listen to all the challenges that the entrepreneurs were faced with and provide some advice and guidance that could assist them in their future daily operations and successes. This ensured rich data that is relevant to this study.
4. The Principle of Abstraction and Generalisation Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.	UTAUT was used to understand the reasoning behind the technology adoption of the entrepreneurs; this thesis also used an entrepreneurship training model (E/P) to see what these entrepreneurs were taught. Both UTAUT and E/P were used to understand the basis and reasoning behind the entrepreneurs' training and perception of technology. In the end all the findings are related to the theoretical underpinning of UTAUT which is the basis for this study. Relating the findings to UTAUT ensured that principle one and two, (hermeneutics circle and contextualisation) were indeed considered during the data analysis.
5. The Principle of Dialogical Reasoning Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story that the data tells") with subsequent cycles of revision.	In Chapter 2 the constructs of UTAUT are introduced; however, during the data analysis it emerged that all of the constructs are relevant but perhaps not as discussed in the literature. For example, the fact that social influence is only relevant during the initial adoption phase, whereas the findings proved that it is relevant throughout ICT usage. In Chapter 3 it emerged that there is a gap in the E/P model, namely that of incorporating ICT into entrepreneurial training. This was discussed, and addressed in an attempt to provide ICT training for entrepreneurs.

6. The Principle of Multiple Interpretations Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study – similar to multiple witness accounts even if all tell it as they saw it.	As this thesis follows a mixed methods approach, various angles towards interpreting the data were followed. By having the focus group discussions, various viewpoints were gathered from the trained entrepreneurs within the same settings, thus allowing for multiple interpretations.
7. The Principle of Suspicion Requires sensitivity to possible "biases" and systematic "distortions" in the narratives collected from the participants.	One thing one has to realise is that most of the findings were based on the opinions of the research participants themselves, which is the reason why the levels of expertise were omitted from the data analysis, as it is purely based on opinions and not facts. Although the researcher attended the training herself and also interacted with the entrepreneurs on a one-to-one basis, she tried to stay objective and not analyse data based on own ideas, but rather on the facts presented in the data.

Table 26: Summary: principles for interpretive field research (Klein and Myers, 1999:72)

During the discussion of the principles applied during interpretive research, although designed to work in field research, the researcher managed to relate these principles to the context of this thesis. This ensured that the contributions that follow shortly were analysed and treated based on literature. There are, however, specific guidelines that one can follow when analysing qualitative papers. However, this thesis followed a mixed methods approach and thus quantitative as well as qualitative data gathering took place. The quantitative data gathering is presented based purely on statistical analysis and thus the researcher is confident that the results are interpreted to their true meaning as the facts tell the story of the ICT profile. For the qualitative data analysis though, to ensure that the contributions are valuable and true, Atkins and Sampson (2002:102) introduce nine guidelines for evaluating qualitative papers as derived from the work of Greenhalgh in 1997. These nine guidelines have been used in this thesis to assist in the evaluation of the contributions made; the guidelines as well as the responses to these guidelines in the thesis are discussed next:

1. Did the paper describe an important clinical problem addressed via a clearly formulated question?

   As discussed in Chapter 1, this thesis forms part of a government initiative in which the government wants to uplift the people of South Africa with e-skills. One of the areas identified by government is to uplift the people by assisting and training entrepreneurs. In the problem statement in Chapter 1, Table 1 highlights the various NeSPA e-skills levels according to the

Ikamva National e-Skills Institute (e-Skills_Institute, 2013), with the red highlighted areas being relevant in this thesis. The following areas were then focused on in this thesis and addressed accordingly. First of all, at the foundation layer it states that there needs to be *"support, up-skilling and re-skilling of youth, women, the unemployed and disadvantaged for work, while enabling necessary understanding and capacity to empower citizen engagement".* Secondly this thesis focuses on the entrepreneurs' training and determined which specific ICT these entrepreneurs are using and how they can be trained to use ICT to benefit them and ensure that their businesses expand, thereby focusing on the second area as identified in Table 1, being *"to increase organisational efficiency and productivity in the public and private sectors, as well as focusing on basic digital literacy skills, which will lead to an appreciation of how technology is used in any working environment, … how to leverage ICT to streamline and even automate organisational processes".* Thus this research addresses a clinical problem by answering the following main research question as well as the sub-questions in Section 7.2.1 and 7.2.2, which emerged based on the problem statement in Section 1.3.

The main research question addressed is:

What e-skills (or ICT skills), if any, should be incorporated into entrepreneurial training programs in South Africa?

The sub-questions asked to answer the main question are:

- How can the gap in the content model for entrepreneurship education be addressed?
- What is the current ICT profile of the entrepreneurs?
- How innovative are entrepreneurs when it comes to technology usage?
- Why do entrepreneurs adopt ICT?
- Is there a relationship between e-skills training and ICT adoption by entrepreneurs?

2. Was a qualitative approach appropriate?

As this thesis had to determine whether or not the ICT training did in fact assist the entrepreneurs and allowed them to understand ICT better, it had to be done by sitting with them and discussing their challenges as well as their current business situations. This could only be done by truly understanding them as individuals (as it is normally the owner also running the business) as well as their businesses and thus a qualitative approach had to be followed.

3. How were the setting and the subjects selected?

The subjects were part of a project, as mentioned earlier and thus they were identified as part of the research. The researcher had no say in who was selected, which ensured that no bias towards any participant existed. However, the details of the research participants are discussed in Chapter 4.

4. What was the researcher's perspective, and has this been taken into account?

    The researcher had previously conducted some studies on entrepreneurs and creative teaching solutions. She also attended the entrepreneurial training herself and thus understood the context of the entrepreneurs better. This has been taken into account although the researcher did try not to include her own opinions and viewpoints.

5. What methods did the researcher use for collecting data, and are these described in enough detail?

    The data was collected by means of a focus group discussion as well as interviews; this process is discussed in detail in Chapter 4 as well as in Chapter 6.

6. What methods were used to analyse the data, and what quality control measures were implemented?

    The data for the focus group was analysed, firstly per question and secondly per research participant per question. By doing the analysis in this way, each participant's voice could be heard and their answers to the questions were taken into account. The analysis of the internal findings was then related to the literature as discussed in this thesis to see whether or not the findings could be validated in the South African context.

7. Are the results credible, and if so, are they clinically important?

    As the results are based on the findings in both the literature as well as the responses from the South African entrepreneurs being the research participants, they do ensure that the findings are credible and can be used by entrepreneurs as well as interested parties in the e-skills project in South Africa as guidelines when they are investigating which ICT to use in their daily operations, or which training or interventions to perform to ensure stable and sustainable entrepreneurs.

8. What conclusions were drawn, and are they justified by the results?

    The first conclusion drawn is the fact that although we think we need to train the entrepreneurs on highly complex solutions, they just want to understand the basic features to make their lives easier. They do not prefer complicated lengthy processes.

    Secondly the entrepreneurs identified the need not only to form networks among themselves but also to have follow-up workshops and training sessions that can assist them throughout their business. This proves once again that the social influence construct of UTAUT is not only relevant during the initial adoption phase but in fact a long-term relationship is required where they can obtain assistance, guidance and perhaps just re-assurance that they are in fact on the right path.

Another conclusion drawn was identifying the specific training needs required by these entrepreneurs and that the ICT training should form part of the business skills training of the entrepreneurial training model.

9. Are the findings of the study transferable to other clinical settings?

As this study relates to entrepreneurs and specifically focuses on the e-skills project of government, the researcher believes that its findings can be used in future research, even if just as a reference. They can also be used when designing a curriculum for entrepreneurial training and for ICT training.

7.3 Research contribution

Although most of the findings have been discussed, this thesis made nine contributions in total. These contributions will now be introduced:

1. This thesis used UTAUT, designed by Venkatesh *et al.* (2003), as the underlying theoretical basis and incorporated ICT training into entrepreneurial training. The "content model for entrepreneurship education (E/P)" introduced in Chapter 3 by Van Vuuren and Nieman (1999), although extremely comprehensive, does not include any form of ICT and how ICT can be used to assist the entrepreneurs in their day to day operations. This thesis thus contributes to the body of knowledge of entrepreneurial training in that it has identified that ICT training should be incorporated into the business skills training of the E/P model. And thus the proposal in section 3.3.4 of incorporating technology into business skills training should be considered.

2. This thesis also expands the ICT literature by introducing the E/P model into ICT literature.

3. The thesis also found that UTAUT's construct of social influence, although generally only relevant to the initial phases of ICT adoption, is in fact relevant continuously for the entrepreneur and thus a strong support structure is required that can assist these entrepreneurs on a continuous basis. All of the other main constructs of UTAUT are relevant in this study, see Figure 30.

4. It became clear throughout the preceding two chapters that the moderating variables of UTAUT are not relevant when applying it to entrepreneurial ICT training and thus one can exclude this from UTAUT in entrepreneur ICT adoption studies.

5. This thesis follows a methodology based on the research process 'onion' introduced by Saunders *et al.* (2003) and discussed in Chapter 4. This approach was followed to provide a clear path that this thesis followed. Following this approach added to the body of knowledge, firstly by explicating how this can be applied in a Ph.D. study and it also assists one in understanding how this process works and should be followed or applied in other research areas as it is a valuable tool to conduct research.

6. As part of this process the thesis followed a mixed methods approach where data was gathered by using questionnaires, interviews and focus group interviews, thus qualitative and

quantitative methods. All the data from these approaches is analysed in Chapter 5 and Chapter 6. Although the various methods' data analyses were not compared to one another, they did provide various approaches towards understanding the entrepreneurs and their ICT adoption. Saunders *et al.* (2000) note that using a mixed-methods approach has certain advantages. The first benefit is to use various methods for different purposes. For example, this thesis used the questionnaires primarily to determine the ICT profile of the entrepreneur whereas the focus group interviews and the individual interviews determined whether the ICT training, which the entrepreneurs attended, did in fact assist the entrepreneurs in using technology. They were also used to see whether the constructs of UTAUT are relevant in the study to determine whether the ICT training assisted the entrepreneurs in ICT adoption. The second benefit of using mixed methods, is that it could use multiple data collection methods within one study to ensure that the "*data are telling you what you think they are telling you*". In Chapter 5 some of the data from the questionnaires is compared with data gathered during the interviews from Interview questions Set A (Annexure D), where the students assisted in data collection. This assisted the researcher in gaining a clear understanding of the entrepreneurs and it also confirmed that some of the data from the questionnaires was in fact "*telling you what you think it is telling you.*" The process followed during mixed methods research also adds to the body of knowledge as it clearly shows how to combine various methods and approaches in a single study.

7. The fact that this thesis is a longitudinal study, and that not many, if any longitudinal studies on entrepreneurs currently exist, is a contribution. This thesis addresses a specific concern and provides valuable insight for the developers of E/P on what entrepreneurs are still lacking.

8. This thesis developed an ICT profile for the entrepreneur (Chapter 5) that will form part of the e-skills project. This contribution provides valuable insight into all the interested stakeholders of the Ikamva National e-Skills Institute and government not only to understand the entrepreneurs but also to know which approaches to follow when introducing any interventions to raise their e-skills levels. This ICT profile is also the first of its kind and thus it should guide other researchers in their quest to understand and assist entrepreneurs. Although it is based on a specific group of entrepreneurs, it should provide guidelines or give a better understanding of what the general entrepreneur in the country looks like.

8. The next contribution that this thesis makes is that it was noted that ICT training should be incorporated into the business skills part of the "content model for entrepreneurship education" (E/P), introduced by Van Vuuren and Nieman (1999). Although this thesis did not set-out to design or alter the original model, it is recommended that ICT training be incorporated as follows: "E/P = a + bM[(cE/S x (dB/S + eT))]". The next contribution is the actual ICT training that one should present to these entrepreneurs. Initially a long list of applications was designed and then the entrepreneurs were asked which technologies they were in fact using. The following applications or focus areas for entrepreneurial training requirements emerged:

- Gmail training
- MS Word

- MS Excel
- Training on chatting – effective use of WhatsApp and perhaps setting up and managing chat groups
- Setting up and managing a digital diary
- Internet and effective Internet searching capabilities

The ICT training should be simple, not complex and direct, with no unnecessary training or exposure to technology. One should, however, realise that various ICT literacy levels exist and that perhaps during breakthrough and maturity phases (van Vuuren and Nieman, 1999) more complex systems and training should be incorporated. Perhaps the most commonly used systems by Bangladeshi SME's (Al Mursalin, 2012) could then be part of the entrepreneurial training. This is a recommendation for future research. These systems include:

- Inventory management
- Production/operation management
- Sales/e-commerce
- Customer account management (CRM)
- Accounting and finance
- Research and design
- Human resource management (HR)
- Enterprise resource planning (ERP)

9. The last contribution, which is very valuable for any entrepreneur, relates to the need for entrepreneurs to collaborate with colleagues and friends. It is recommended that group mentor sessions be held for the entrepreneurs.

7.4   Research recommendations

The previous section lists the actual contributions that this thesis makes. There are additional recommendations that should be considered. These recommendations follow.

It is recommend that one should include additional training, such as on marketing tools, Facebook or a small static website, cyber security training and online banking as well as online shopping. Thus the requirements for training should be:

- Email (Gmail training)
- Mobile devices – primarily effective cellular phone usage
- MS Word
- MS Excel
- Google – how to do Internet searches to retrieve the optimal results
- Security

- Training on chatting – effective use of WhatsApp and perhaps setting up and managing chat groups
- Setting up and managing a digital diary
- Setting up and maintaining a website (Google sites)
- Online shopping

It is also recommended that similar to the "content model for entrepreneurship education" (E/P) a 5 – 10 week ICT mentorship sessions be included to assist the entrepreneurs when deciding on which ICT to buy.

7.5 Research limitations and suggestions for future research

Throughout this thesis some interesting and possible future research areas have emerged, as well as certain limitations that the researcher acknowledges. These suggestions are discussed next together with a few possible future research questions:

- One of the limitations of this study is the fact that due to time constraints only four individual interviews were conducted with entrepreneurs trained. However, it is recommended that individual interviews be held with all the entrepreneurs who attend the training in an 18 month and three year interval to be able to measure the success.
- Another possibility for future research is to create an annual entrepreneur follow-up training workshop. Due to the fact that ICT develops at such a rapid pace, it is recommended that certain technology partners be incorporated into these annual workshops to introduce the entrepreneurs to the latest ICT available and guide them in adopting these technologies. As is evident, social influence does play a large role in the adoption and actual usage of technology in the long run.
- Another limitation of this study is the fact that only the E/P model was selected. It is recommended that similar studies be conducted using different entrepreneurial training models to ensure the long-term goal, which is creating a sustainable successful business, is achieved.
- Another limitation to this study is that most of the respondents were in Gauteng; it is therefore recommended that a future more in-depth study be conducted to include more respondents from other provinces in South Africa.
- The profile should be used in similar studies to see what the overall South African entrepreneur looks like.
- Another limitations that emerged is that the facility of online banking, or online payments was not incorporated into the training. Perhaps further studies into this should be conducted to determine its relevance and how this training can be incorporated.

7.6   Research conclusion

This thesis set out to incorporate ICT training into existing entrepreneurial training models. In the end the main aim of this research is to assist the government initiative in an attempt to raise the skills level and uplift the people of South Africa. As a proud South African, standing on the shoulders of giants who walked before me to change this country, and to make this a better place not only for us, but for our children, nothing makes me more proud than to have engaged in this project and to conclude that the ICT training interventions did in fact make a difference in the entrepreneurs' lives. And in the end, that is all I hoped to achieve.

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Annexure A. SME classification

Small business classification

Sector or sub-sectors in accordance with the Standard Industrial Classification	Size or class	Total full-time equivalent of paid employees *Less than:*	Total annual turnover *Less than:*	Total gross asset value (fixed property excluded) *Less than:*
Agriculture	Medium	100	R 4.00 m	R 4.00 m
	Small	50	R 2.00 m	R 2.00 m
	Very small	10	R 0.40 m	R 0.40 m
	Micro	5	R 0.15 m	R 0.10 m
Mining and Quarrying	Medium	200	R30.00 m	R18.00 m
	Small	50	R 7.50 m	R 4.50 m
	Very small	20	R 3.00 m	R 1.80 m
	Micro	5	R 0.15 m	R 0.10 m
Manufacturing	Medium	200	R40.00 m	R15.00 m
	Small	50	R10.00 m	R 3.75 m
	Very small	20	R 4.00 m	R 1.50 m
	Micro	5	R 0.15 m	R 0.10 m
Electricity, Gas and Water	Medium	200	R40.00 m	R15.00 m
	Small	50	R10.00 m	R 3.75 m
	Very small	20	R 4.00 m	R 1.50 m
	Micro	5	R 0.15 m	R 0.10 m
Construction	Medium	200	R20.00 m	R 4.00 m
	Small	50	R 5.00 m	R 1.00 m
	Very small	20	R 2.00 m	R 0.40 m
	Micro	5	R 0.15 m	R 0.10 m
Retail and Motor Trade and Repair Services	Medium	100	R30.00 m	R 5.00 m
	Small	50	R15.00 m	R 2.50 m
	Very small	10	R 3.00 m	R 0.50 m
	Micro	5	R 0.15 m	R 0.10 m
Wholesale Trade,	Medium	100	R50.00 m	R 8.00 m

Commercial Agents and Allied Services	Small	50	R25.00 m	R 4.00 m
	Very small	10	R 5.00 m	R 0.50 m
	Micro	5	R 0.15 m	R 0.10 m
Catering, Accommodation and other Trade	Medium	100	R10.00 m	R 2.00 m
	Small	50	R 5.00 m	R 1.00 m
	Very small	10	R 1.00 m	R 0.20 m
	Micro	5	R 0.15 m	R 0.10 m
Transport, Storage and Communications	Medium	100	R20.00 m	R 5.00 m
	Small	50	R10.00 m	R 2.50 m
	Very small	10	R 2.00 m	R 0.50 m
	Micro	5	R 0.15 m	R 0.10 m
Finance and Business Services	Medium	100	R20.00 m	R 4.00 m
	Small	50	R10.00 m	R 2.00 m
	Very small	10	R 2.00 m	R 0.40 m
	Micro	5	R 0.15 m	R 0.10 m
Community, Social and Personal Services	Medium	100	R10.00 m	R 5.00 m
	Small	50	R 5.00 m	R 2.50 m
	Very small	10	R 1.00 m	R 0.50 m
	Micro	5	R 0.15 m	R 0.10 m

(Department of Trade and Industry: South Africa, 1996)

Annexure A

2015

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Annexure B. Coverage maps of service providers in South Africa

Coverage of service provider Vodacom
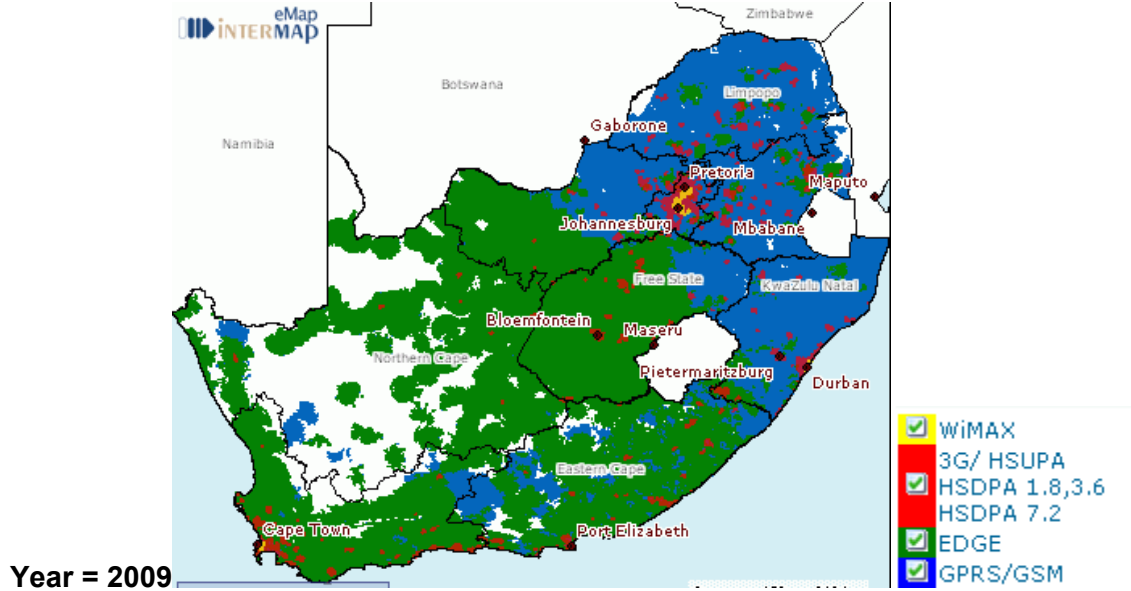
Year = 2009

(Vodacom, 2009)

Year = 2012

(Vodacom, 2012)
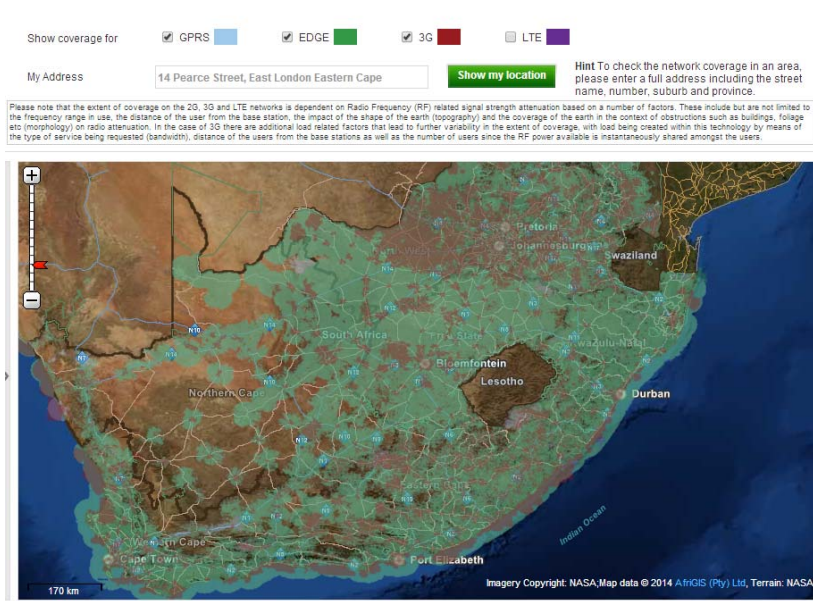
Year = 2014

(Vodacom, 2014)

MTN

Year = 2009

(MTN, 2009)

Year = 2012
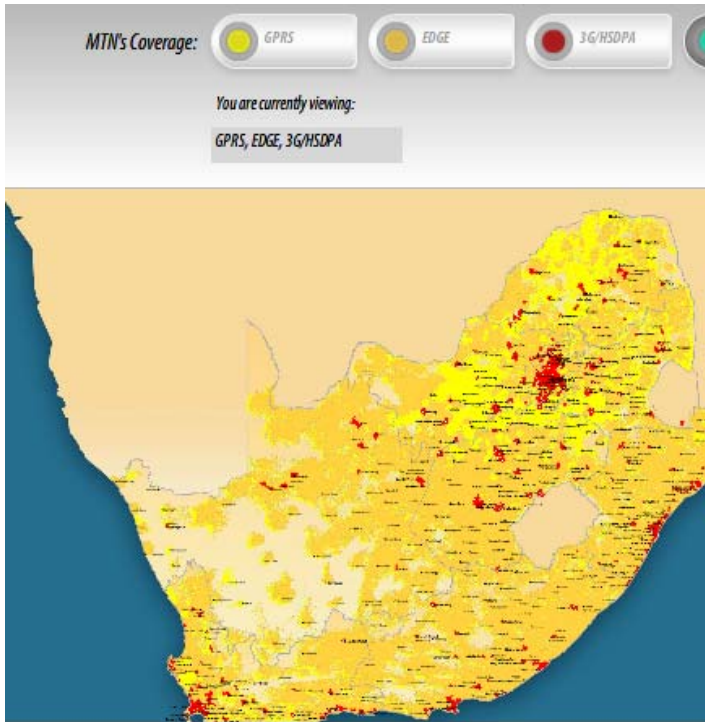
(MTN, 2012a)

Annexure C. Research Questionnaire

Faculty of Engineering, Built Environment and Information Technology

Department of Informatics

Incorporating technology into South African entrepreneurial training

RESEARCH QUESTIONNAIRE

PLEASE NOTE: This questionnaire must be completed by entrepreneurs in the South African context only

All information will be treated as **STRICTLY CONFIDENTIAL** and will be used for academic purposes only. Please feel free to contact the researcher if you need any information concerning the questionnaire.

Entrepreneurs who have a registered business that is trading must complete **all** the questions.

Researcher: Mrs. Riana Steyn
Tel: 012 420 3341
E-mail: riana.steyn@up.ac.za

Instructions for completion:

1.   Please answer the questions as objectively and honestly as possible.

2.   Place a cross (x) in the space provided after each question that reflects your answer the most accurately.

3.   When asked for comments or to express own opinion, keep answers short and to the point.

4.   Please answer all questions applicable to you, as this will provide more information to the researcher so that an accurate analysis and interpretation of data can be made.

I hereby consent to participating in this study that forms part of Adriana Aletta

Steyn's doctoral studies (tick the box)

☐

Year when you completed your entrepreneurial training

☐

PART A: ACCESS | COMPUTERS

1.   What access do you have to computers?
       (*Computers include desktop computers, laptops, note books, tablets and netbooks*)

   a.   Ownership

I have my own computer	1	A1a	
My family owns a computer	2		
None of the above	3		

   b.   Level of access (at home, Internet Café, neighbour)

I have easy access to a computer	1	A1b	
I have limited access to a computer	2		
I have no access to a computer	3		

2.   Do you make use of a computer for private or business use?

Private	1	A2	
Business	2		

3. If you use the computer for business (See question 2), what do you especially use it for? Tick all applicable options and where applicable, give the name of the program and indicate the level of your expertise in using the program.

Program	Tick	Name of program	None/Limited	Average	Expert		
1 Email			1	2	3	A3.1	
2 Internet			1	2	3	A3.2	
3 Facebook			1	2	3	A3.3	
4 Twitter			1	2	3	A3.4	
5 Shopping online (using a credit card)			1	2	3	A3.5	
6 Skype			1	2	3	A3.6	
7 Games			1	2	3	A3.7	
8 Word processor (for example Microsoft Word)			1	2	3	A3.8	
9 Spreadsheet (for example Microsoft Excel)			1	2	3	A3.9	
10 Presentation (for example Microsoft PowerPoint			1	2	3	A3.10	
11 Database (for example Microsoft Access)			1	2	3	A3.11	
12 Project management (for example Microsoft Project Manager)			1	2	3	A3.12	
13 Programming (for example Visual Basic.NET)			1	2	3	A3.13	
14 Accounting software			1	2	3	A3.14	
15 Stock control			1	2	3	A3.15	
16 Other (please explain)			1	2	3	A3.16	

4. How long have you used a computer?

Less than one year	1	A4	
1 - 2 years	2		
2 - 3 years	3		
3 - 4 years	4		
More than 4 years	5		

5. Do you use the computer to access the Internet?

Yes	1	A5	
No	2		

6. If you answered *yes* to question 5, how do you access the Internet?

3G	1	A6.1	
ADSL	2	A6.2	
Dial-up connection	3	A6.3	
DSL	4	A6.4	
Wireless (I-Burst; Neotel, Screamer, etc.)	5	A6.5	
Other (please explain)	6	A6.6	

PART B: ACCESS | MOBILE

7. Do you have a mobile phone or tablet?

Yes – on contract	1	B1	
Yes – prepaid	2		
No – (Skip to part C)	3		

8. If you answered *yes* to question 1 above, how many phones do you have?

	B2	

9. If you answered *yes* to question 1 above, who is your mobile phone service provider?

MTN	1	B3.1	
Vodacom	2	B3.2	
Cell-C	3	B3.3	
8ta	4	B3.4	
Virgin	5	B3.5	
Other	6	B3.6	

10. What is your choice of service provider based on? (Tick all applicable options)

Good coverage	1	B4.1	
Reliable service	2	B4.2	
Biggest mobile service provider	3	B4.3	
Cheaper rates	4	B4.4	
Additional benefits offered such as tablet with cellular phone contract	5	B4.5	
Other	6	B4.6	

11. What is the brand name of your phone as well as the model?
    (*For example, China Dual Sim Card, Nokia, HTC, Samsung, Blackberry, etc.*)

Brand name e.g. Nokia		
1	B5.1	
Model e.g. E71		

2	B5.2	

12. Can your phone access the Internet and send emails?

Yes, only email	1	B6.1	
Yes, only Internet	2	B6.2	
Yes, both email and the Internet	3	B6.3	
No	4	B6.4	

PART C: USAGE | EXPERIENCE AND TRAINING

13. How would you rate your general computer literacy level at present? (Select one applicable option)

I use a computer quite well	1	C1	
I use the basic features of a computer	2		
I know very little about a computer	3		
I know nothing about a computer	4		

14. How would you rate your general computer HARDWARE knowledge at present?

None	1	C2	
Limited	2		
Fair	3		
Good	4		
Excellent	5		

15. What computer-related training courses have you done?

	C3	

16. At secondary school, which of the following courses did you take? (Tick all applicable options)

Information Technology	1	C4	
Computer Application Technology (CAT)	2		
Computer Studies (HG)	3		
Computer Studies (SG)	4		
Computer Typing	5		
Other (please explain)	6		
None	7		

PART D: USAGE | INDIVIDUAL AND BUSINESS

17. Are you male or female?

Male		D1	
Female			

18. How old are you (years)?

	D2	

19. What is the highest qualification you have?

Grade 8, 9 or 10	1	Grade 11	2	Grade 12	3	B Degree	4	Post-graduate degree	5	D3	

20. What type of business do you have?

Sole owner	1	D4	
Closed corporation (CC)	2		
Other (Specify):	3		

21. General business information

Size of business (number of employees):	D5.1	
Number of years in operation?	D5.2	
Rural area	1	Urban area	2		D5.3	

22. In which province(s) is your business based?

Province	Tick relevance			
Eastern Cape	1		D6.1	
Free State	2		D6.2	
Gauteng	3		D6.3	
KwaZulu-Natal	4		D6.4	
Limpopo	5		D6.5	
Mpumalanga	6		D6.6	
North West	7		D6.7	
Northern Cape	8		D6.8	
Western Cape	9		D6.9	

23. How many of your employees have written employment contracts?

	D7	

24. Select the relevant options applicable to your business:

My business is registered with the receiver of revenue	1	D8.1	
My annual revenue is less than ZAR 150 000 and thus I do not have to be registered with the receiver of revenue	2	D8.2	
My business is registered for VAT	3	D8.3	
My annual turnover is less that ZAR 1 000 000 and thus I do not have to be registered for VAT	4	D8.4	

25. Do you separate your business finance and your personal finance?

Yes	1	D9	
No	2		

26. If you use technology for business, who helps or supports you? (Tick all applicable options)

Self	1	D10.1	
Family	2	D10.2	
Friend	3	D10.3	
Employee	4		
Other (please explain)	5		

27. Do you bank your money at a financial institution?

Business only	1	D11.1	
Individual only	2		
Both business and individual	3		
None of the above	4		

28. If you bank your money, how do you access it and how often? (Tick all applicable options)

	Never	Rarely (Once a month)	Sometimes (Once per week)	Often (three times a week)	Always		
ATM	1	2	3	4	5	D12.1	
Internet (mobile phone)	1	2	3	4	5	D12.2	
Internet (computer)	1	2	3	4	5	D12.3	
At a branch	1	2	3	4	5	D12.4	
Cellular phone banking	1	2	3	4	5	D12.5	
Other (please explain)	1	2	3	4	5	D12.6	

29. How do you communicate with employees? (Tick all applicable options)

Communication style	Never	Rarely	Sometimes	Often	Always		
Face to face						D13.1	
Mobile phone						D13.2	
Email						D13.3	
Fax						D13.4	
Other (please explain)						D13.5	

30. How do you communicate with suppliers? (Tick all applicable options)

Communication style	Never	Rarely	Sometimes	Often	Always		
Face to face						D14.1	
Mobile phone						D14.2	
Email						D14.3	
Fax						D14.4	
Other (please explain)						D14.5	

31. Have you or your employees attended any entrepreneurship training?

Answer	Yes	No		
Self	1	2		D15.1
Employees	1	2		D15.2

32. How do you market your products / services? (Tick all applicable options)

	Never	Rarely	Sometimes	Often	Always		
Face to face (word of mouth)						D16.1	
Mobile phone						D16.2	
Email						D16.3	
Fax						D16.4	
Flyers						D16.5	
Printed media such as newspaper or magazines						D16.6	
Other (please explain)						D16.7	

33. If you use technology in your business, how many employees use it?

	D17	

34. I would use IT for my business if …

	Strongly disagree	Disagree	Agree	Strongly agree		
it was mobile					D18.1	
it ensured that my payments' turnaround time was quicker					D18.2	
I could sell to more people					D18.3	
I could sell in more than one location, e.g. different towns					D18.4	

35. Are you comfortable with the security of using technology at home and/or for the business?

	Location			
Device	**At home**	**At business**		
Mobile phone			D19.1	
Computer			D19.2	

36. What would your deciding factors to choose some kind of technology be?

	Would not consider	Definitely consider		
Easy to work with			D20.1	
Cost			D20.2	
Easy to implement			D20.3	

Support			D20.4	
Return on investment			D20.5	
Advice from support vendor			D20.6	
Attitude of users			D20.7	
To gain a competitive advantage			D20.8	
Improve your service to your customers and/or suppliers			D20.9	
Satisfy your employees			D20.10	
Social influences such as family or friends			D20.11	
Access to technology or connectivity			D20.12	
Other (please explain)			D20.13	

37. Is there any other reasons except for the ones listed in question 36 that will influence your decision to use technology?

38. The entrepreneurial training that I received previously …

assisted me in expanding my business	D21.1	
made me understand the business world better		
assisted me in understanding business but I was unsuccessful in my business		
did not benefit me at all		

THANK YOU VERY MUCH FOR YOUR CO-OPERATION IN COMPLETING THIS QUESTIONNAIRE

Annexure D. Interview questions Set A

Name of business / *Naam van besigheid*: _____

Number of employees / *Aantal werknemers*: _____

Years in operation / *Jare in bedryf*: _____

Primary province of operation / *Primêre provinsie waarin geleë:*

Province	Tick applicable
Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	
Mpumalanga	
North West	
Northern Cape	
Western Cape	

Industry type: (choose one) / *Bedryfsektor (kies een):*

Industry sector / *Bedryfsektor*	
Agricultural / Landboukundig	
Clothing / Klerebedryf	
Electronic / Elektronies	
Entertainment / Vermaak	
Mining / Mynbou	
Music / Musiek	
Retailing / Kleinhandel	
Services (for example optometrist, doctors) / Dienste (bv. Optometris, dokter)	
Technology / Tegnologie	
Other / Ander	

1. What role do computers / systems play within your daily operations, if any / *Watter rol speel rekenaars / stelsels in u daaglikse besigheid, indien enige*?

2. In which way do you communicate or interact with your clients (Choose all the relevant options) / *Op watter manier het jy kommunikasie of interaksie met jou kliënte (Kies alle toepaslike opsies)*

Method / *Metode*	
Walk in, face-to-face / Instap, in persoon	
Appointments face-to-face / persoonlike afsprake	
Landline / Landlyn	
Cell phone communication / Selfoonkommunikasie	
Call centre / Inbelsentrum	
Fax line / Fakslyn	
Email / E-pos	
Website / Webwerf	
Facebook / Facebook	
Twitter / Twitter	
LinkedIn / LinkedIn	
MySpace / MySpace	
Blogs / Blogs	
Other / Ander	

3. What do you do to stay on top of the ever changing IT environment / *Wat doen u om te verseker dat u tred hou met die vinnig-veranderde IT omgewing*?

4. Do you provide cellular phones to your employees? In other words, do you pay their phone costs / *Verskaf u selfone aan u werkgewers en betaal u hul foonoproepe?*

5. Which systems do you currently have implemented in your business / *Watter stelsels is tans geïmplementeer in u besigheid?*

6. Who helps you to decide which technology to implement? / *Wie help u om te bepaal watter tegnologie geïmplementeer moet word?*

7. Do you or anybody working for you have any IT skills training (such as basic computer literacy) / *Het u of enigiemand wat vir u werk enige IT vaardigheidsopleiding ondergaan (soos byvoorbeeld basiese rekenaarvaardighede)?*

8. Do you think that mobile devices (cellular phones, iPads s, tablets or laptops) will play a part in the success of your business in the future, and if so, how? / *Dink u mobiele toestelle (selfone, iPads, tablette of skootrekenaars) sal enigsins 'n rol speel in die sukses wat u besigheid in die toekoms kan behaal, en indien wel, hoe?*

Annexure E. Interview questions Set B
Background of the business

Name of business / *Naam van besigheid*: _____

Number of employees / *Aantal werknemers*: _____

Years in operation / *Jare in bedryf*: _____

Primary province of operation / Primere provinsie waarin geleë:

Province	Tick applicable
Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	
Mpumalanga	
North West	
Northern Cape	
Western Cape	

Industry type: (choose one) / *Bedryfsektor (kies een):*

Industry sector */ Bedryfsektor*	
Agricultural / Landbou	
Clothing / Klerebedryf	
Electronics / Elektronika	
Entertainment / Vermaak	
Mining / Mynbou	
Music / Musiek	
Retailing / Kleinhandel	
Services (for example optometrist, doctors) / Dienste (bv. Optometris, dokter)	
Technology / Tegnologie	
Other / Ander	

Financial data:

Average annual income	< ZAR 50 000	Between ZAR 50 000 and ZAR 100 000	Between ZAR 101 000 and ZAR 150 000	> ZAR 150 000
Asset Value	None	< ZAR 50 000	Between ZAR 50 000 and ZAR 100 000	> ZAR 100 000

1. Who supports you financially? [SI, FC]

2. Do you have a manager? If yes, is he/she family? [SI]

3. Do you have any plans to retain your current work force? (For example training etc.)

4. Have any of your previous employees ever started their own business and become direct opposition for you?

5. Average age of employees?

6. What do you do to stay competitive and ensure your product or service sells and thus survives?

7. Who makes the final decisions in the company? And is the decision-maker male or female?

8. Does security of technology play a significant role in the decision to use technology?

Background of the entrepreneur

1. What qualifications do you have?

Grade 8, 9 or 10	Grade 11	Grade 12	Degree	Post-graduate degree

2. What or who motivated you to become an entrepreneur?

3. Do you have any previous work experience that helped you become a better entrepreneur?

4. Does the business and its survival influence your family's survival?

5. When did you first see or use a computer?

Primary school	High school	University / College	After 30 years of age	After 40 years of age

6. Does you culture or society play a part in the business decisions you have to make?

Technology

1. What technology are you currently using:

Technology	Tick	Make or Model	Frequency per week		
			Daily	3 times per week	Less than twice a week
Cellular phone					
Land line					
Fax machine					
PC					
Laptop					
Tablet such as iPad					
IPod					
e-Reader					
Other (Please specify)					

2. If you use a computer, what do you use it for:

Program	Tick	Name of program
Email		
Internet		
Chatting		
Facebook		
Twitter		
Shopping online (using a credit card)		
Skype		
Games		
Word processor (for example Microsoft Word)		
Spreadsheet (for example Microsoft Excel)		
Presentation (for example Microsoft PowerPoint		
Database (for example Microsoft Access)		
Project management (for example Microsoft Project Manager)		
Programming (for example Visual Basic .NET)		
Accounting software		
Stock control		
Online banking		
Other (please explain)		

3. What are the main reasons for using technology?

Administrative tasks	
Financial tasks	
Planning tasks	
Communication	
Other (Specify please)	

4. Which type or resources do you have available that can assist in ICT uptake?

5. Has any prior knowledge or work experience helped you to adapt technology?

6. Has someone ever guided you in the use of technology? If so, which technology and what was the guidance?

7. What are your intentions or plans to use technology in the next year?

8. Do you have a specific plan when investigating possible new technology for your business?

9. Do you force your employees to use technology or is it purely their choice when and what technology to use?

10. How important is the ease of using technology before you purchase it? Does it play a part at all?

11. What motivates you to investigate new technology?

12. Is your business connected to the Internet?

13. If yes, how?

Fixed land line	
3G, Wireless	
Other (Specify please)	

Training

1. Have you ever had entrepreneurial training?

2. When did you obtain your entrepreneurial training?

3. Where did you get your training from?

4. Why did you do entrepreneurial training?

5. Have you ever had IT training or e-skills training on how to use technology for your business?

6. Was the training sufficient? Can you use the training in your business?

7. Would you have valued training on any of the following: [Specific technology required]

Program	Tick
Software	
Email	
Internet	
Social media	
Word processor (for example Microsoft Word)	
Spreadsheet (for example Microsoft Excel)	
Presentation (for example Microsoft PowerPoint	
Database (for example Microsoft Access)	
Project management (for example Microsoft Project Manager)	
Programming (for example Visual Basic .NET)	
Accounting software	
Stock control	
Online banking	
Data management	
Hardware	
Cellular phone	
Tablet	
General	
Security	
ICT decision-making	
Business analysis	
Project management	
Other (please explain)	

Thesis Map

Indicates Chapter Position

Chapter 1
Background and motivation for the study

Chapter 2
Technology adoption

Chapter 3
Entrepreneurial training framework

Chapter 4
Research methodology

Chapter 5
The Micro entrepreneur's ICT profile

Chapter 6
Qualitative results and analysis

Chapter 7
Research summary and conclusion