

# The Influence Of Personal, Family And Social Variables On Technology-Oriented Venture Creation: Theoretical Case Of Internet Cafés In Bloemfontein, South Africa

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## ABSTRACT

*In an increasingly competitive, technology-driven world, the pressure for small, technology-oriented firms in developing countries to be productive and efficient has never been more intense. For technology-oriented firms such as internet cafés, which are now in constant competition with inexpensive, low threshold, ubiquitous technologies such as mobile phones and social media for availing internet resources and providing personalised learning environments respectively, the need to understand the critical determinants of the establishment and sustenance of small technology-oriented ventures demands rigorous investigation. Despite the central place of internet cafés as the dominant points-of-access of internet resources for low socio-economic groups in South Africa, there is paucity of in-depth knowledge on the critical variables influencing the establishment of such technology-oriented ventures. This research gap is attributed to the independent and fragmented examination of micro-level (personal demographic variables such as gender, age, income and language of manager/owners), institutional (such as family role models, family entrepreneurial values and support) and macro-level variables (as manager/owner's prior scientific literacy such as their participation in STEM subjects, social prejudice) that shape and influence the creation of technology-oriented ventures. The thesis of this theoretical paper, therefore, is that an integrated perspective that combines these micro-level, institutional and macro level factors would provide a more inclusive, authentic view of the process of establishing small internet cafés in emerging economies. The contribution of this paper is an integrated conceptual framework premised on the combined influences of determinants of technology-oriented ventures and their implications for technology oriented venture creation.*

**Keywords:** New Venture Creation; Internet Cafés; Low Cost; Ubiquitous Technologies; Venture Financing; Family Recognition of Business

## INTRODUCTION

*I*n a technology dependent 21<sup>st</sup> century where the acquisition of digital skills is pivotal to the growth and expansion of emerging economies, emerging, low capital intensive, technology-oriented firms such as internet cafés have been considered by both policy makers and academics as critical to the socio-economic development of these nations (RIA, 2012; Deen-Swarray & Moyo, 2013; Rambe & Makhalemele, 2015). Langmia (2005) reports that technologies such as internet cafés contribute to the creation of new jobs by entrepreneurs that improve the economic life styles of these entrepreneurs and citizens on the African continent. In support of this socio-economic discourse, Sey and Fellows (2009) concur that in developing economies where acute resource constraints persist and therefore, shared access remains the dominant mode of access to information and communication technologies (ICTs), it is unsurprising that governments, non-governmental institutions and business entrepreneurs have invested significant amounts of human and financial resources in internet cafés, telecentres and other forms of public access. As such, the creation and sustenance of internet cafés in emerging, resource

constrained economies like that of South Africa render affordable access to Internet services to a majority of low income citizens (Wijaya & Polina, 2014) who cannot afford personal computers. Internet cafés also present rich informal learning environments where social interaction is at the heart of computer use by rendering access to computers and the Internet on a drop-in basis for hourly fees (Cilesiz, 2009).

In spite of the strategic value of internet cafés in the developmental imperatives of emerging economies, what remains unclear are the critical determinants of the creation and sustenance of such technology-oriented ventures. This ambiguity arises from the fragmented studies on the creation of technology-oriented ventures due to the separate treatment of micro, meso and macro level determinants of new ventures. Micro level determinants such as personal demographic variables, particularly age (Barba-Sánchez, Martínez-Ruiz & Jiménez-Zarco, 2007; Chilya & Roberts-Lombard, 2012), gender (Pines, Lerner & Schwatz, 2010; Kalyani & Kumar, 2011), income (Furuholt, Kristiansen & Wahid, 2005; De Lanerolle & Orkin, 2012; Oyelaran-Oyeyinka & Adeya, 2002; Deen-Swarray & Moyo, 2013), language of the entrepreneur (Warschauer, 2003; Haseloff, 2005; De Lanerolle & Orkin, 2012) are conceived to shape and inform the creation and sustenance of technology-oriented ventures.

In essence, the aforementioned studies adopt a micro perspective by emphasising the individual entrepreneur traits at the expense of social considerations or influences (Kirkwood, 2012; Gathungu & Mwangi, 2014), thus creating a gulf between individualist and society oriented perspectives to venture creation, especially in the technology sector. When individual traits like age and gender are foregrounded, the influence of small group (e.g. family) and larger groups (societal influences) is often ignored or paid lip service (Mazubane, 2009; Herrington & Kew, 2014). Other studies have given preponderance to institutional variables such as a families' entrepreneurial values and the existence of family role models (Verheul, Thurik, Grilo, & van der Zwan, 2012; Songini, Gnan & Malmi, 2013) as key determinants of the establishment of such ventures. The challenge, however, is that a complete picture of the determinants of venture creation especially technology-oriented ventures is never given as the studies that foreground an institutional perspective, which considers family variables, tend to ignore the role of broader social variables and micro variables like personal demographic factors.

While the merging of personal demographic and institutional variables may provide insights into the complexity of creating small technology-oriented ventures at micro and meso levels, their exclusive consideration is inadequate for rendering a complete picture on the new venture creation process. This is because a micro and meso level approach elides broader social considerations at the core of the entrepreneurial process such as social prejudices and the scientific literacy of the entrepreneur, particularly his/her technical knowledge derived from participating in Science, Technology, Engineering and Mathematics (STEM) disciplines (Ong, Wright, Espinosa & Orfield, 2011; Ceylan & Ozdilek, 2015). Since the studies that emphasise macro variables (Ong, et al., 2011; Ceylan & Ozdilek, 2015) tend to ignore micro level variables, the same way micro and meso level studies pay lip service to broader social considerations, a more integrated perspective that considers a collection of variables at the micro, meso and macro levels is hard to come by. The research gap this theoretical study addresses, therefore, is the paucity of research which considers an integrated perspective (i.e. the various levels) of the determinants of the creation of new technology oriented ventures, especially internet cafés. The study proposes a more inclusive and realistic perspective on the creation and growth of such emerging technology-oriented businesses by considering micro, meso level and macro level determinants of new venture creation.

The study, therefore, explores the following questions:

1. What is the combined influence of micro-level (in particular personal demographic variables such as the entrepreneur's age, gender, language and income) and institutional variables (family variables such as family recognition of venture establishment) on the creation of technology-oriented ventures, particularly internet cafés in Bloemfontein, South Africa?
2. Which combinations of personal demographic variables (such as entrepreneurs' age, gender, language and income), institutional variables in particular family variables (such as family role models and family recognition on new venture creation) and structural variables (such as social prejudice and the entrepreneur's prior experience in STEM subjects) seem to have the greatest influence on the creation of new technology-oriented ventures in this region?

## **Problem Statement**

The problem is that the discourse of establishing emerging technology-oriented ventures in emerging economies is often approached from a layered perspective of micro, meso and macro level determinants of the creation of small, new technology ventures, albeit limited serious conversations across these different levels. For instance, *individual perspective* emphasises the personal attributes of the entrepreneur at the expense of their surrounding an environmental influences (Barba-Sánchez, Martínez-Ruiz & Jiménez-Zarco, 2007; Pines, Lerner & Schwatz, 2010; Kalyani & Kumar, 2011). In other words, the establishment of and access to internet cafés has been funnelled through micro level/ or individual factors such as demographic variables like age (Barba-Sánchez et al., 2007; Chilya & Roberts-Lombard, 2012), gender (Pines, Lerner & Schwatz, 2010; Kalyani & Kumar, 2011), individuals' income (Oyelaran-Oyeyinka & Adeya, 2002; De Lanerolle & Orkin, 2012; Deen-Swarray & Moyo, 2013), manager/owners' and users' mastery of English language (Warschauer, 2003; Haseloff, 2005; De Lanerolle, & Orkin, 2012). This micro level approach, which seems to give weight to individual entrepreneurial intent and agency eclipses a sober consideration of institutional (e.g. family entrepreneurial values and support) and social dynamics such as patriarchy and discriminatory financial lending practices that may influence the creation and survival of small technology-oriented ventures such as internet cafés.

The *meso level approach* seems to emphasise the role of institutional variables such as the existence of family role models, family support and recognition of new ventures, in shaping technology-oriented venture creation (Mmbengwa, 2009; Kirkwood, 2012; Ceylan & Ozdilek, 2015). This approach gives preponderance to institutional factors that enable or hinder the creation and sustenance of internet cafés (Verheul, Thurik, Grilo, & van der Zwan, 2012; Songini, Gnan & Malmi, 2013). While it is uncontested that that families' entrepreneurial culture, values, norms and support are pivotal to that creation and sustenance of internet cafés, this meso-level approach tends to downplay broader societal variables such as social prejudice often evident in financial institutions' extension of credit to borrowers, and scientific literacy of the manager/owner such as his/her prior knowledge and experience in STEM subjects. The challenge, therefore, is that these meso level studies do not seem to give preponderance to broader social dynamics that shape new technology venture creation, the same way those studies that emphasise broader social variables tend to neglect the influence of institutional variables on the creation of small, technology-oriented businesses (Rwigema & Venter, 2004; Peake & Marshal, 2006).

Another strand of studies which emphasise the *macro-level perspective* such as manager/owner's participation in STEM subjects and social prejudices (Ong, et al., 2011; Ceylan & Ozdilek, 2015) has ignored the aforementioned micro level variables. The problem therefore, is the paucity of literature that adopts a more inclusive, integrated approach that appreciates the mutual constitution of micro level, meso and macro level variables that shape the creation and sustenance of emerging technology-oriented ventures such as internet cafés.

## **Problem Background**

In South Africa, established ways of communication such as internet cafés have been confronted with intense competition from emerging, low cost, ubiquitous technologies such social networking sites, mobile technologies and applications, which continue to attract the attention of the young adult population. For instance, Facebook is among the most trafficked sites on the Internet in South Africa. By the end of 2014, the site had an estimated 9.4 million active users, of whom 8.8 million accessed it on their mobile phones (South Africa Social Media Landscape, 2014). Therefore, the creation and sustenance of internet cafés demands an understanding of the situated context of technology implementation in particular, the competing technologies providing low cost internet services.

Although the creation and survival of internet cafés in South Africa has been affected by the adoption of mobile phones, internet cafés still offer opportunities of access to the Internet to lower income groups due to the affordability of their services (Wijaya & Polina, 2014). That said, Bere (2013) highlights that mobile phones have become the most preferred communication gadgets for the young adult population in South Africa due to their multiple affordances such as voice calls, internet browsing and social networking. The ubiquity of low cost, networked technologies such as social networking sites and mobile phone applications (e.g. WhatsApp, WeChat and Mxit) and the culture of information sharing (Pimmer & Rambe, 2015) has positioned these applications as ideal competitors of internet cafés. A report compiled by Social Media Landscape in 2015 ranked WhatsApp as the

number two social media network in South Africa with 10 million users, after Facebook which had 11.8 million users (SA Social Media Landscape, 2015). South Africa has the highest adoption rate (78%) of WhatsApp among mobile Internet users (SA Social Media Landscape, 2015). As such, the creation and sustenance of internet cafés is incomplete without considering the explosive growth and popularity of inexpensive mobile phone applications such as WhatsApp, Mxit and WeChat in South Africa.

Although mobile phones are the dominant mode of accessing the Internet on the African continent in general and South Africa in particular due to their portability, networked connectivity and technical capabilities, many users are not solely dependent on these devices for connectivity due to the availability of alternative forms of access (De Lanerolle, 2012). This means that depending on available competing technologies, digital maturity of users and their situated contexts, internet cafés will still render considerable access to internet services, photocopying and printing facilities to some socio-economic groups in developing countries. For instance, after mobile phones, the second dominant point of access to internet is the home (43%), followed by work (36%) and internet cafés (33%) (De Lanerolle, 2012). Despite this differentiated access to networked resources in South Africa, internet cafés remain one of the most preferred forms of access to computers and the Internet for those without networked devices due to their convenient drop-in style for hourly fees and capacity to build social interaction into computer usage (Cilesiz, 2009). Internet access via cubicles in internet cafés renders personalised access and reasonable privacy similar to that of automated tilling machines (ATMs) outside retail banking halls.

The creation and growth of internet cafés in emerging economies particularly that of South Africa, however, has not been devoid of challenges. For instance, internet managers/owners have been confronted with fierce business competition from a constellation of emerging technologies that have pervaded the South African digital landscape such as social media and mobile phones. The Research ICT Africa (RIA) data released in 2012 suggests that though internet access from internet cafés still remains dominant on the African continent, this figure has dropped in South Africa, with access shifting towards the use from home, work, place of education and another person's home (RIA, 2012). While the share of South African women accessing the internet from an internet café dropped by about 21%, the number of South African women accessing the internet from home increased by 24%, and those accessing it from another person's home increased by 17.2% (RIA, 2012; Deen-Swarray & Moyo, 2013).

## **METHODOLOGY**

The research will take a purely theoretical approach, drawing on the authors' personal reflections and their subjective interactions with contemporary literature on new venture creation in general and technology-oriented ventures in particular. According to George State University (2015), theoretical research is based on the observation of other studies and runs no analytical procedures due to absence of empirical data. The lack of robust research on micro, meso and macro level determinants of technology-oriented venture creation denies us a holistic and integrated perspective on new venture creation. The aim of this paper, therefore, is develop a more inclusive model of new venture creation based on an integration of selected micro (such as personal demographic), meso (such as institutional) and macro level (such as broader social variables) determinants of entrepreneurial activity. The study focus, therefore, is to explore the possible combined relationships between these variables and perhaps, find out the relationships which have greater influence on the establishment of technology-oriented ventures.

## **LITERATURE REVIEW**

Since determinants of venture creation are in exhaustive, the focus of this study will be on those variables that been foregrounded in mainstream literature. The micro level variables normally include demographic variables such as the entrepreneur's age, gender, income level and mastery of English language. Family variables include the family's recognition and support of venture creation and the existence of family role models while societal variables underpin broader structural dynamics that shape the entrepreneur's entrepreneurial intentions and decision to create a new internet café such as social prejudices and his/her prior knowledge of and experience in technology-oriented disciplines such as participation in STEM disciplines. The subsequent sections of this theoretical investigation will examine these micro, institutional and macro level factors independently before attempting to integrate them.

## **Micro Level Determinants of Technology-Oriented Venture Creation**

### *Personal Demographic Variables*

While a wide range of personal demographic variables shape the creation and sustenance of new, technology-oriented ventures in the developing world, those most reported in extant literature are age, gender and income level, and the mastery of English language by the entrepreneur. These variables are discussed in detail in subsequent sections of this paper.

#### *Age*

While there is a range of personal demographic variables that influence the creation of emerging technology ventures such as internet cafés, age is among the most debated determinants (Barba-Sánchez, et al., 2007; Neneh, 2011; Chiliya & Roberts-Lombard, 2012; Kaunda, 2012). The fact is that a majority of small, micro and medium enterprises (SMMEs) especially in the emerging technology sector in South Africa are created and predominantly owned by mature people compared to the youth. With reference to internet cafés, the need for business maturity derives from the considerable exposure to and experience in technology or technical fields demanded of the entrepreneur prior to his/her successful launch of an internet business. Commenting on entrepreneurial engagement in South Africa, Kaunda (2012) highlights that while entrepreneurial activity is relatively low in the 18-24 age group, it peaks in the 25-34 year old category, then declines with increase in age, with the sharpest decrease after the age of 54 (Kaunda, 2012). Scholars who explored the relationship between an entrepreneur's age and venture creation concur that age has a critical role to play in the decision to start a new venture (Barba-Sánchez, et al., 2007; Neneh, 2011). Technology-oriented ventures, especially internet cafés are no exception given the excessive technological experience and technical exposure expected in running of such a business such as: knowledge of the latest anti-virus software, knowledge of internet networks and websites, technical knowledge of basic Microsoft packages, downloading and uploading software among other considerations.

It is acknowledged that while the youth may be more exposed and are more likely to experiment with the latest technologies such as social media (Anderson & Rainie, 2012), more productive experience and effective use of technology are better noticeable among the mature generations than younger generations. In a study that examined age and gender differences in employee decisions about new technology, Morris, Venkatesh, & Ackerman (2005) demonstrated that the pattern of differences in individual technology adoption varies with age such that gender differences were more pronounced with increasing age. With regard to entrepreneurial engagement, Islam, Khan, Obaidullah and Alam (2011) found that mature adults aged between 25 to 44 years were the most entrepreneurially active due to their wider access to loans than their younger counterparts. Furthermore, Chiliya and Roberts-Lombard (2012) considered age to have a significant effect on operating a business profitably. We infer from this that the older the entrepreneur, the higher their chances of business success due to their greater exposure to technical aspects of the business such as business plan development, experience in technological acquisition and management, stronger and more durable business connections/network including potential to have higher academic qualifications than their younger counterparts. Overall, there is a direct relationship between age of an entrepreneur and business success. Chiliya, and Roberts-Lombard (2012:464) contend that mature entrepreneurs (aged 25-44) tend to be more successful than their younger counterparts (whose aged between 18-24) due to the accumulation of prior technical and technological experience, business knowledge and business connections. This view corroborates the position that in most efficiency-driven economies, the 25–34 years age group is the one that is most successful in terms of entrepreneurship (Herrington, Kew, Simrie & Turton, 2012).

#### *Gender*

Apart from age, another key demographic factor implicated in venture creation is gender. There is evidence to suggest that males are more predisposed to be early entrepreneurs especially in technology-oriented businesses than females. A study conducted by Dautzenberg (2012) on gender differences of business owners in technology-based firms in Germany confirm the supposed gender gap in the technology industry. The gender differences in the field of high-technology firms were generally attributed to men's possession of knowledge in the field of natural sciences, technology or engineering and their ability to accumulate high (equity/) capital required in these businesses than

their female counterparts (Dautzenberg, 2012). With regard to venture creation, Awa, Emecheta, and Ukoha (2014) argue that new technological innovations are initiated predominantly by male executives than their counterparts. The adoption of technological innovation is faster amongst men than women as more men are more involved in the more complex, technological businesses than women. It can be inferred that males are more pre-disposed to start and sustain technologically oriented ventures than their women counterparts for various reasons. These include their higher income gains from more paying jobs and better employment prospects compared to women in emerging economies. A report compiled by the Global Entrepreneurship Monitor in 2013 highlights that, regardless of the industry, only 15.4% of South Africans had entrepreneurial plans, and men were more likely to have greater entrepreneurial intentions and engage in early-stage entrepreneurial activity than women (Herrington & Kew, 2014).

### **Income for Business Financing**

Lack of start-up and working capital is one of the main barriers to the creation and sustenance of new businesses (Furuholt, et al., 2005; Booyens, 2011) in particular capital intensive technology-oriented ventures. Some authors suggests that financial resources are among the prime predictors of firm performance (Laosirihongthong, Prajogo & Adebajo, 2014), notwithstanding the differentiation in access to income for the start-up of technology-oriented businesses by male and females in South Africa due to varying access to income (Rambe & Mpiti, in press). This buttresses prior research that recognised financial capability as a critical facilitating condition for the [creation and] use of internet cafés in developing economies such as that of Indonesia (Furuholt et al., 2005). These observations complement earlier studies that considered income differentials as a strong determinant of internet access (Oyelaran-Oyeyinka & Adeya, 2002) in general and internet café ownership in particular. In their study on a gender-based perspective on accessing telecommunication infrastructure in Africa, Deen-Swarray and Moyo (2013) emphasise the skewed gender dynamics in access to and use of ICTs. They elaborate that such disparities increase as the technologies and services become more sophisticated and expensive, requiring greater levels of income and education to access and to operate. Although this study emphasises access and use and not necessarily creation of internet cafés per se, some studies have emphasised the clear connections between financial resources and creation of new ventures (Booyens, 2011; Laosirihongthong et al., 2014).

### **English Language**

Although internet use and internet café ownership are not necessarily the same, there are clear complementarities when language use is implicated in accessing and managing internet resources. The operation of computer software and internet websites demands some basic technical knowledge of computers including understanding of the language in which web content is accessed. In the same vein, managing of an internet café demands the manager/owner to be knowledgeable about computers and to have general English language proficiency. English language literacy is possibly considered the most important predictor of internet use – more significant than age, income, gender or where people live (De Lanerolle & Orkin, 2012). Literature suggests that effective use and management of internet café resources demands social access, that is, a mix of professional knowledge, economic resources and technical skills required for the use of Information and Communication Technologies (ICTs) (Kling, 1999; Furuholt et al., 2005). We infer that a critical component of the knowledge required by a manager/owner of an internet café is proficiency in English language, the dominant language in which computer websites and resources are accessed. Although much of the literature that considers English language as a barrier or an enabler to the use of ICTs is user centric (i.e. emphasises the internet café user and not the manager/owner), an understanding of the language in which web content is given is just important to the internet user as it is to the manager/owner of the internet café. Since internet usage is for competence development such as seeking information, conducting of research, sending e-mails, reading news, downloading information and software for professional use, managing an internet café may contain important elements of competence building (Furuholt & Kristiansen, 2007), one of which is possession and effective use of English language for engaging with web content. In a study that examined the use of the internet in South Africa, about a third (33%) of non-users noted that they cannot easily read and write in English, suggesting that their English language literacy may prove to be an insurmountable barrier unless the languages of content online changes (De Lanerolle & Orkin, 2012).

## **Institutional Variables**

### *Family Recognition of Venture Creation*

For entrepreneurs to be successful, they need strong support and advisory structures in every phase of the venture creation process (Mmbengwa, 2009). The same applies to those entrepreneurs in the technology-oriented businesses. Hence, being raised in an entrepreneurial family (a creative, technology-oriented family) creates a favourable climate for fostering entrepreneurial intent and may invariably influence an entrepreneur's decision to start his own internet café business. Furthermore, Kirkwood (2012:142) highlights that a "family embeddedness perspective provides the best way of understanding the influence of family on venture creation". Kirkwood (2012:142) elaborates that "norms, attitudes and values within the family may have an impact on the venture creation decision, influencing founding strategies and processes". Families with an established entrepreneurial culture normally create and nurture entrepreneurial values and norms critical to trigger entrepreneurial behaviour in the prospective manager/owner of an internet café. At the core of family businesses is promoting and preserving the identity and entrepreneurial value of family (Benevides, et al., 2009, in Welshe, et. al., 2013), thus making successful venture creation possible. As such, where sufficient social capital and support flourish, the possibility for creating an individual and family owned internet café business, is more guaranteed than where these resources do not exist.

### *Family Role Models*

Bosma, Hessels, Schutjens, van Praag & Verheul (2012:2) define a role model as "a common reference to individuals who sets examples to be emulated by others and who may stimulate or inspire other individuals to make certain (career) decisions and achieve certain goals". Chlosta, Patzelt, Klein and Dormann's (2012) research into role models and family background of entrepreneurs suggests a strong connection between the presence of role models and the development of entrepreneurs in families. Bosma et al. (2011) state that, for entrepreneurs of family businesses, the decision to become an entrepreneur (that is, to establish a business) is related to having parents who are or were entrepreneurs. Our presumption is that if an individual has parents or close relatives such as siblings, who are or were successful internet café owners, there are greater chances that this individual may be attracted to establish his/her own internet café. This is because the existence of a parental, entrepreneurial role model is considered to relate to improved education and training goals, task self-efficacy, and expectancy of an entrepreneurial career (Rametse & Huq, 2013). Our hunch is that the parental, entrepreneurial role model may be willing to provide the necessary business training strategies, tools and support relevant to the setting up and sustenance of internet café business. In some cases, the family may become the first prime, dependable source of financial resources that the entrepreneur may need to support their technology-oriented businesses as most family loans tend to be interest free and in some cases, come as free gifts.

## **Social Variables**

### *Scientific Literacy - Participation in STEM Subjects*

Scientific literacy such as knowledge of personal computing, financial management and technical skills such as development of sound business plans necessitate academic and professional experience. One of the effective ways of promoting scientific literacy is participation in Science, Technology, Engineering, and Math (STEM) disciplines. The engineering component of STEM education does not just stand as the solution but give emphasis to procedure and design of business solutions (Ceylan & Ozdilek, 2015), which are key requirements of running an internet café successfully. It is most probable that an internet café manager/owner with strong knowledge in personal or ubiquitous computing and technical experience in internet café management (e.g. installation and updating of computer software, internet browsing, emailing, antivirus scanning, maintenance of websites) stands a better chance of establishing and sustaining his business than his/her counterparts with no experience and knowledge of these issues.

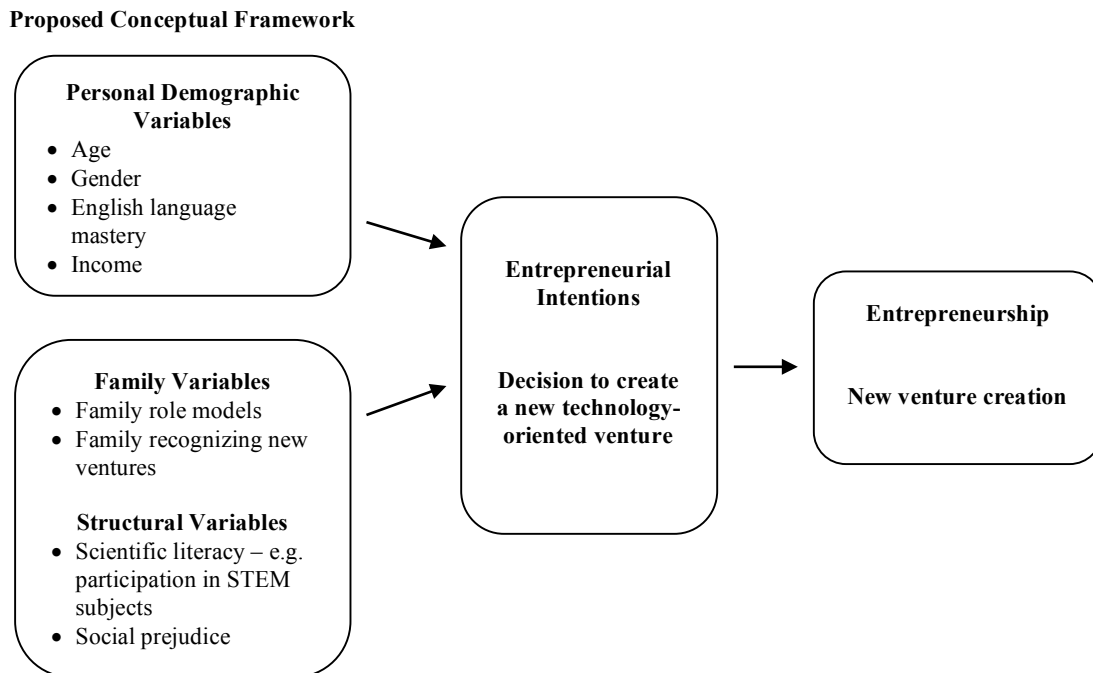
The challenge is that in spite of the various interventions put in place by national African governments to balance the participation of males and females in STEM disciplines, gender-based asymmetries in participation persist in the South African context, just like other African countries. As such, women continue to be underrepresented in STEM

disciplines and related occupations. Griffith (2010) asserts that women are less likely to continue in a STEM field major during college than male students. Yet STEM disciplines are considered quite central to business creation and economic growth (Price, 2010). Our intuition is that the underrepresentation of female in STEM subjects potentially undermines their potential to benefit from scientific literacy through creation of technology-oriented ventures, especially internet cafés. However, Ong, et al. (2011) regard “family and community support as the most significant and prominent factors that women identify as encouraging their completion of a STEM degree”. In view of this, therefore, a combination of family and community support and possession of financial literacy is bound to significantly shape individual intentions to create and the actual creation of new businesses, particularly internet cafés. Closely related to the acquisition of technical skills is the acquisition of entrepreneurial skills. There is consensus in literature that the proper inculcation of entrepreneurial education in students can trigger the development and maturity of entrepreneurial skills and capabilities (Wilson, Kickul & Marlino, 2007; Alalwany & Saad, 2015).

*Social Prejudice*

Traditionally, the reproductive role of women has been highlighted and women were not thought of as breadwinners and incubators of new ventures (Chirwa 2004). Due to these cultural constraints and stereotypes, women traditionally assumed reproductive and community management roles (Chirwa, 2004) and were marginalised from basic technological and sophisticated high technology fields. Social prejudices manifest in stereotypes that women are not innovative enough, are incapable of participating in entrepreneurial activities, and hence cannot run new technological ventures (Botcherby & Buckner, 2012). Women’s general lack of technical experience to establish and run technology-oriented businesses compared to men further reinforce such stereotypes. Apart from the aforementioned societal prejudices, there is no doubt that additional constraints such as arduous gender roles such as looking after family, domestic chores and reproductive roles affect the participation of African women in entrepreneurship more than they affect men. For this reason, women’s productive roles in business, in particular their capacity to create new ventures, like technology-oriented ventures is undermined.

**Figure 1.** The relationships among personal demographic, family and structural variables, entrepreneurial intentions and new venture creation





Based on the literature review, it is clearly discernable that there is a clear hierarchy of micro, meso and macro level determinants that shape and influence the creation of technology-oriented ventures especially internet cafés. The challenge, however, is the lack of robust conversions on the inter-relationships between these determinants operating at different levels. Our entrepreneurial knowledge persuades us to believe that new venture creation is an inexorably complex process whose operation cannot be constrained to and captured in its entirety by merely examining one or a couple of determinants operating at one level. This is because the venture creation process is a consequence of individual demographic (such as the entrepreneur's age, gender, income levels, mastery of computers' language of engagement especially English), meso level (such as the existence of family role models, the family's recognition of new ventures) and structural variables (such as scientific literacy of the internet café manager/owner such as his/her participation in STEM disciplines and social prejudice in financial lending).

Our argument is that a layered perspective on entrepreneurship in which one variable is considered in isolation is less helpful than one in which a combination of variables are considered collectively. The relationship between gender and entrepreneurship, for instance, is implicated in the levels at which that relationship is examined-at individual, family levels and societal levels. For instance, female access to financial (and/or social) resources for the creation of new ventures is somehow obstructed and narrowed by gender disparity at individual levels as much as it can be constrained by male-dominant stereotypes (e.g. the belief that female entrepreneurs are incapable of running a business professionally and with integrity as does men) at the structural levels (Aaltio & Wang, 2015). Although critics may want us to believe that "many of the factors that contribute to business success and survival are the same regardless of gender" (Brush & Hisrich, 1991), social control and power configurations in the African family may mean that family members may be differentially positioned in terms of access to social capital and economic resources within the family depending on their gender. Such differentiation may have some ramifications on the individual's decision to create and the actual creation of an internet café business and thus family level social relations may shape and mediate the gender-entrepreneurship relationship.

Income-entrepreneurship relationship could be tied to social prejudices. In countries with high income disparities between men and women at middle and glass ceilings such as South Africa, it would be unsurprising to have more men participating in creation and sustenance of technology-oriented ventures than women. A report published by the Global Entrepreneurship Monitor in 2010 suggests that women are virtually absent from complex, technical businesses such as manufacturing, construction and high technology businesses while they are overrepresented in the consumer sector and mostly in retail businesses (GEM, 2010; El Assar & Said, 2015). We infer that the women's lower involvement in capital intensive industries such as technology-based businesses compared to men is a consequence of their lower access to higher income job opportunities due structural constraints such as patriarchal values and stereotypes that tend to prize the value of female expertise and labour lower than that of men in developing countries. Growth and higher performance in entrepreneurship especially that of women has been closely associated with structural factors such as "financing", "networks" and social capital" challenges (Bruin, Brush, & Welter, 2007) as much as it is a consequence of individual considerations: "motivating factors", "management style", "work-family balance" (Carrier, Julien, & Menvielle 2008; Aaltio & Wang, 2015).

The family support-entrepreneurship relationship could have institutional and structural significance. For instance, the creation and growth of enterprises especially those of female entrepreneurs have been closely tied to institutional considerations such as a "family and individual's (situated) context", the "venture concept", "firm resources", "institutional financial resources" as well as to broader structural aspects such as "country context" (Brush et al., 2010, Aaltio & Wang, 2015). Since the fear of failure-itself a barrier to entrepreneurial intentions is considered the main reason why European citizens for example, are considered to be less entrepreneurial than American citizens (Gallup Organization, 2010), there is scope for interrogating the role of family support in overcoming fear so as to leverage and sustain the new venture creation process. The low fear aversion of family role models is equally considered to contribute to a cultural shift towards higher entrepreneurial intentions (Birkner & Aderemi, 2015). The aforementioned research demonstrates the interplay of institutional and structural variables vis-à-vis new venture creation.

Yet these studies that give preponderance to institutional provisions, enablers and barriers tend to pay lip service to systemic or structural considerations, which are implicated in venture creation. For instance, social prejudice manifest in the funding of male businesses compared to that of females. In a study that compared Italian female and

male entrepreneurs' access to bank credit, Cesaroni and Sentuti (2015) report that although there were no salient discriminatory behaviours in lending between men and men by banks, the percentage (72.7%) of women who accessed the entire funding they applied for was lower than that of men (84.6%). The Women's Report compiled by the Global Entrepreneurship Monitor (GEM, 2013) suggests that across Europe, men are more likely to be entrepreneurially involved than women due to their increased access to finance from financial institutions. This perspective partly support previous research that report that female businesses are less likely than male counterparts to get bank loans (Muravyev et al., 2008). Furthermore, there is evidence to suggest that European entrepreneurship features a strong male domination due to preference for male businesses in funding (Rodriguez, Gonzales-Sanchez & De los Rios Sastre, 2012) while female businesses continued to be plagued by barriers to funding (Birkner & Aderemi, 2015). The above research demonstrates the interweaving of micro and macro level variables with regard to barriers to establishing new ventures.

### **Reflections and Observations**

In the absence of studies that consider a more inclusive, integrated approach combining micro, meso and macro level variables to the creation of new technology-oriented ventures, this study proposed that a combination of demographic, family and structural variables already identified in the literature review would shape and influence successful entrepreneurship, in particular the creation of technology-oriented ventures. To address the first question on the combined influence of micro-level (particularly personal demographic factors such as age and gender) and meso level variables (in particular family variables such as family recognition of venture creation) on the creation of technology-oriented ventures, particularly internet cafés, we argue that micro variables do not work in isolation to influence new venture creation but rather work in conjunction with family-level considerations. Individual decision making about new ventures involve both personal decision making about entrepreneurial intent and actual venture start up as much as it involves consultations with family role models as opinion makers who shape and guide the novice entrepreneur's new venture creation process. For instance, since maturity (in terms of age) of the prospective entrepreneur is just as important to business creation as the provision of family support through creating and funding new business and well as growing existing firms (Kellermans, Eddleston, Barnett & Pearson, 2009), one could expect the rendering of family support (in terms of finance, investment advice, critical decision making) to a mature entrepreneur (i.e. aged between 25 and 50) to be more rewarding than that of a less mature entrepreneur (i.e. between 16 -24) or one advanced in age (e.g. between over 50).

Since young people, all variables being held constant, may be considered to hold unrefined, less sophisticated entrepreneurship ideas (e.g. limited investment culture, limited logical and realistic decision making, low innovation propensity, risk taking behaviour) than their more mature counterparts, there is scope to argue that mature entrepreneurs stand a better chance of benefiting more from family support than their younger counterparts. By the same vein, if we were to go by the adage that "you cannot teach an old dog new tricks," there would be not much substance in supporting the entrepreneurial intentions of people over the age of 50 as these are generally considered to be have transcended their entrepreneurially active age group.

Gender gaps in entrepreneurship can be aligned with family recognition of technology-oriented ventures. Considering the fact that there is a dire need for more women to enter the technology business market as male owned technology businesses continue to outnumber the female owned businesses in South Africa (Naicker, 2006), it is logical to argue that if family members were to choose between recognising and supporting the entrepreneurial intentions of a female or male prospective entrepreneur, chances are high that they would prefer to support the male entrepreneur at the expense of the female entrepreneur due to existing gender biases. South African women's limited exposure and experience in technical and technology-oriented subjects at tertiary levels (that is colleges and university education) would also strengthen family preference for and recognition of men at the expense of women. Perhaps these different levels of exposure and experience in technical-oriented subjects, varying levels of family recognition of emergent entrepreneurial behaviour and family-based patriarchal norms and stereotypes contribute to Sanchez's (2011) claim that men feel more efficient and oriented to create a venture than women.

Responding to the question on the integrated influence of individual demographic variables (age, gender, income and language mastery), institutional variables (family role models and family recognition of new venture creation) and structural variables (i.e. STEM subjects and social prejudice) on creation of new technology-oriented ventures,

demands us to connect and align the different levels (individual, family and structural) of thinking about new venture creation, such as gender issues and structural variables. Connecting the gender (individual variable) and social prejudice (a structural variable), Clark and Drinkwater (2010) argue fact that women are expected to be less inclined towards entrepreneurship than men because of the segregation they usually undergo with broader society. Although cultural values and norms may be considered to be in flux and authentic African culture no longer exist due to the complex hybridity of cultures, in traditional societies where patriarchal values are still dominant, social stereotypes militate against democratic decision making, the recognition and valuing of women's independent work, their maintenance of personal accounts thus undermining their possibility to become seasoned entrepreneurs. Birkner and Aderemi (2015) contend that the anthropological theory of entrepreneurship has identified culture (especially patriarchy) as a key determinant of venture creation behaviour, practices and outcomes. Hofstede (1994) argues that culture, especially patriarchal values and norms, brings about an unequal distribution of power, strong hierarchies, control mechanisms and an emphasis on complying with the ruling authority (Hofstede, 1994; Birkner & Aderemi, 2015). These cultural conditions may work against the capacity of females to create new ventures especially those in technology-oriented firms such as internet cafés.

There could be a possible connection between gender, participation in STEM disciplines and social prejudices. Although internal elements such as individual characteristics and ways of generating financial and/or social capital may be contributing to women becoming a force in entrepreneurship in the developed world (Brush et al., 2010; Hughes & Jennings, 2012; Aaltio & Wang, 2015), in the developing world contexts, patriarchal values and norms including university admission bottlenecks may entrench social control and prejudice that may constrain females' participation in STEM disciplines. This limited participation compromises females' exposure and experience in technical and technological matters, which in turn undermines their interest in and intention to create technology-oriented businesses. As such, literature suggests that women's reluctance to engage in entrepreneurship is a consequence of their lack of entrepreneurial intention and competences (Birkner & Aderemi, 2015) in technology-oriented businesses.

### **Evaluation of Contribution and Implications**

The development of an integrated perspective to the creation of new technology-oriented ventures calls into question a serious consideration of personal, family and structural enablers and constraints of venture creation. At personal level such as gender, there is consensus that there are less women who start and become successful in business especially in the technology-oriented sector than men (Langowitz & Minniti, 2007; Mohammed & Obeleagu-Nzelibe, 2014). Bosma, Praag, Thurik and de Wit (2004) found that male business founders performed better across the board in their ventures compared to women. Women entrepreneurs tended to have less business experience prior to starting their businesses, and that their aspirations for growth were typically far more modest than their male counterparts, and that their businesses tend to be smaller as a result (Matricano & Sorretino, 2014).

A couple of factors explain the low success rate of female entrepreneurs and these range from personal decisions to structural decisions-their high risk aversion behaviours compared to men in terms of financial borrowing (GEM, 2013; Cesaroni & Sentuti, 2015), their generally low entrepreneurial experience in high technology business compared to men and their functioning in low-capital intensive businesses such as retail businesses (GEM, 2013) compared to men. The risk averse behaviour of women in developing countries needs to be considered in view of their limited capital base and their differentially lower income levels in comparison to men. The imposition of quotas at middle and glass ceiling in the job market could accelerate the upward mobility of women in the workplace, consolidate their savings, and leverage their capital accumulation to create their own new ventures.

The gender-based structural imbalances and differentiation in lending across gender lines is often a consequence of limited experience of women in technical business, their concentration in small, low capital intensive businesses and their relatively nascent banking history compared to men. As literature suggests, female entrepreneurship is a much more recent phenomenon than male entrepreneurship (Cesaroni & Sentuti, 2015), and as a consequence, female firms are typically younger and smaller than male firms (GEM, 2013; Unioncamere, 2014). Since privilege is often invisible to those who possess it, in particular men, the elimination of gender-based imbalances demands the involvement of men in lobbying public and private financial institutions that perpetuate disparities in financial lending for business creation and sustenance. Men's forums that lobby financial institutions' consideration of more

gender parity or even female preferential treatment in funding are critical to the recognition and preference of females in funding formulae.

A step closer to the full appreciation of a holistic, integrated perspective on new venture creation determinants is to consider the small group dynamics such as family that shape and influence venture creation. Kirkwood (2012) states that the chances of increased interest in entrepreneurship are greater if prospective entrepreneurs have a family background in business ownership. Gathungu and Mwangi (2014) contend that an individual's entrepreneurial intention is stronger when they perceive positive social support and approval from networks of family and friends. While the nurturing of entrepreneurship intent requires a consideration of family business history, values and norms, the full scale support of all family members (especially females and young entrepreneurs) demands the democratisation of the family as a private space for decision making and reservoir of funding possibilities. Since banks tends to apply stricter conditions to customers who are considered less attractive, like female owned firms, due to their nascence, small size and shorter banking history (Cesaroni & Sentuti, 2015), the family could fill this void by providing financial support and drilling entrepreneurship principles and values. The family could prioritize funding females and younger entrepreneurs and increase their access to business coaching and mentorship early in their business careers.

At the structural level, a consideration of demand side and supply side structural constraints and enablers is critical. The demand side relates to the underrepresentation and systematic marginalisation of women in STEM disciplines at university and their prejudice in financial lending. The contribution of this study, therefore, rests on the democratisation of social and epistemological access (Morrow, 1994) to science disciplines to open up opportunities for female access to technical and technological knowledge, without which the critical mass for engagement in technology-oriented venture creation is undermined. The eradication of social prejudice commences with the debunking of stereotypes about female and younger people's incapacity to function in the business world. Challenging these myths necessitates the showcasing and promoting of best examples of successful businesses owned by women and younger people.

## CONCLUSION

The study examined the influence of personal, institutional and social variables on the creation of technology-oriented ventures. In particular, it explored the combined influence of micro-level (in particular demographic variables such as the entrepreneur's age, gender, income and language), institutional variables (in particular family variables such as family role models and family recognition of venture creation) on the creation of internet cafés in the Free State region in South Africa. Based on extant literature, a combination of gender and family recognition of entrepreneurship seems to have the greatest impact on the creation and sustenance technology-oriented ventures such as internet cafés. The effectiveness of this combination, however, is underpinned by an array of other enabling and constraining variables of a personal nature: income generation capacity of individual or his family, the level of risk aversion, the entrepreneur's level of experience and history of entrepreneurship.

The income level of the individual is not as important for entrepreneurship success as it can be mediated by the family support. That means, even without individual income, the financial, entrepreneurial and managerial support from the family can diminish the strength of personal income. The existence of entrepreneurial values, norms and behaviour in the family is sufficient to support new entrepreneurs through the perpetuation of these values and behaviours, the provision of start-up and working capital, sharing and entrenchment of professional advice.

To address the question on the integrated influence of personal demographic variables, institutional and structural variables on creation of new technology-oriented ventures demands an understanding of the structural values that shape new venture creation as well. At the structural levels, social prejudice does seem to exert more influence on new venture creation than participation in STEM disciplines due to its pervasive nature: from funding opportunities, funding combinations to its impact on the choice of subjects that parents influence their children to study. The combination of demographic, family and structural variables that strongly shape new venture creation are gender, family support and social prejudices and these are normally mediated by one's personal decisions such as entrepreneurial norms, capacity to save and invest and ability to pursue investment decisions. This view is supported by extant literature that emphasise the potential of gender to significantly predicts entrepreneurial entry decision

more than age, in view of males' stronger inclination toward entrepreneurship compared to females. According to mainstream literature, family-to-business enrichment and support may be beneficial to entrepreneurs' businesses through increased access to human, social and financial resources.

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