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Audiology, entrepreneurship and innovation: a perspective on private practice

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ABSTRACT

Objective: This paper investigates the correlation and contact points between entrepreneurship as a discipline and the profession of audiology. The research focuses on specific areas of entrepreneurship (e.g. innovation as an entrepreneurial skill) and the impact it has on audiology private practices as key role players in the biotechnology industry.

Design: This study used a two-stage research design comprising of an exploratory study and a formal study to survey the entrepreneurial and business skills of audiologists as entrepreneurs in private practice.

Findings: The findings describe severe deficiencies - specifically the business and entrepreneurial skill sets of the professional audiologist as an entrepreneur. The mind-set of the audiologist is not that of an entrepreneur, but rather of a small business owner. A lack of self-confidence to be creative, take risks, and identify new opportunities or innovate in terms of products, process and services was found. Audiologists are not necessarily concerned about the creation of employment, or the growth and profitability of their practices. Autonomy and security are the primary objectives of most practice owners.

Keywords

Innovation, Entrepreneurs, Women Entrepreneurs, Entrepreneurship, Audiology, Biotechnology.

BACKGROUND

Given the global failure of the formal and public sector to absorb the growing number of job seekers, increasing attention has focused on entrepreneurship as an unconditional solution to the problem of socio-economic disintegration. Wickham (2006) provided a constructive linkage by acknowledging that economists have long recognised the importance of the entrepreneur. Frequent occurrences of entrepreneurial activity create potential for economic growth and job creation (Herrington, Kew & Kew, 2008). Recent empirical evidence has also conveyed the imperative role of entrepreneurs in productivity growth (Grossmann, 2009). The entrepreneur is seen as a consequential solution to the intricate and vigorous inequality found in the socio-economic environment.

The focus of this study encapsulates the biotechnology sector, which represents an attractive and promising high growth industry currently and in the future (Ahn & Meeks, 2007). Despite the formidable odds, the anticipation surrounding biomedical enterprises remains high. After three decades, the biotechnology industry has emerged to hold great promise for addressing a wide range of critical challenges in developed and developing countries, including healthcare, security, alternative energy, environmental remediation, and increasing agriculture crop yields with reduced pesticide use. This is potentially an area in which a diverse number of opportunities will arise to induce entrepreneurship development, with a specific study reference to women entrepreneurs in the biomedical branch of industry. One of the largest segments of the biotechnology industry is human healthcare. The broad scientific advances and commercial successes in the field have captured the attention and aspirations of policy makers, business people, and investors alike in spurring sector growth. Due to advances in technology and the need to continuously improve the quality of life for people with hearing loss, the specialised field of audiology formed the focus of analysis (Ahn & Meeks, 2007). The purpose of this study was to analyse the entrepreneurial mind set and orientation (for example levels of confidence, perception of entrepreneurship and the desire to take the risk necessary to start and manage a business/practice) as well as the skills set of the woman audiologist as an entrepreneur in private practice in South Africa. This study analysed her performance motivation, entrepreneurial and business skills, as well as the ability to create and grow a profitable business through innovation in the field of audiology.

LITERATURE REVIEW

Biotechnology

The molecular waltzes of life take place largely inside cells; one simple definition of biotechnology, according to Grace (2006), is “the commercialisation of cell biology”. More generally, biotechnology is an umbrella term that covers various elements for using the properties of living things to make products or provide services. Furthermore, what is new about modern biotechnology is not the principle of using various organisms, but the techniques for doing so, stated Grace. Uctu and Essop (2013) described the critical role of this industry as propelling economic growth, contributing to significant market dynamism and inducing levels of innovation in South Africa. Gastrow (2008) indicated the relevance of these roles by mentioning the National Biotechnology Strategy (NBS), which commenced in 2001 as a strategic impetus to drive biotechnological advances. The NBS frames the development of biotechnology knowledge, skills, capacities and tools. Kidman (2009) supported the emphasis on skills development and recommended the inclusion of knowledge perspective from a secondary level. Ultimately, the commercialisation of biotechnology changes lives and the source or vehicle of technology transfer into the market place is the biotech-company. In this context, Uctu and Essop (2013: 27 - 29) defined a biotechnology company as an entity where the “…*company’s major economic activity is within the biotechnology field and uses a minimum of one biotechnology-related technique, whereas an active company either manufactures and sells biotechnology products or performs R & D in the biotechnology field”.*

In South Africa this sector currently employs 73 565 people, including both “active” and “core” biotechnology companies (Uctu & Essop, 2013). One of the growth nodes in this sector is the global biopharmaceutical industry, with more than $70 million in turnover and 700 publicly listed companies, as well as double-digit growth in North America, Europe, and Asia-Pacific in 2006. The latter shows the attractive nature of biotechnology on a global scale (Ukropcová & Šturdík, 2011:122).

The positive correlation between high levels of entrepreneurial activity and employment creation consequently apply to the main focus of this study, embracing just one focus area or sub-branch of industry in the broader field of biotechnology. It suggests that increased levels of entrepreneurial activity in this sector could fundamentally increase growth and much needed employment creation. Several constraints prevent the entry of more bio-entrepreneurial ventures. Naidoo (2009) identified indicative obstacles in actively participating in this branch of industry as access to finance; market disequilibrium; a poor intellectual property rights framework; and an insubstantial institutional enabling environment within a national system of innovation. In an entrepreneurial framework the latter applies even more, reflecting on the audiologist as the key unit analysis. The audiologist as a private practitioner in this research frame is labelled a “bio-entrepreneur”.

Bio-entrepreneurship

Uctu and Jafta (2013) highlighted the vital role entrepreneurship plays in developing and growing the biotechnological field, with reference to the relatively undeveloped and young nature seen in South Africa. In support, Christopher and Kaur (2011) provided evidence from India, where a meaningful level of 25% growth has been experienced in this sector with the encompassing socio-economic benefits. In contemplating the growth and benefits of biotechnological entrepreneurship, Meyers (2012) reflected on the increased need for academic disciplinary inclusion on a formal level (curricula). Current obstacles include an absence of teaching on innovation; insufficient finances; a lack of sustained networks, experience and education; academic domain recognition; and bureaucratic academic systems preventing interdisciplinary alignment needs.

The findings of Kaufmann (2013:853 - 854) showed that macro level constraints exist in inducing biotechnological entrepreneurship in Singapore and Israel. These countries implemented targeted biotech policies over a decade in order to develop a strong bio-entrepreneurial cluster, but both cases were unsuccessful. Singapore followed a “*top-down, strategically planned vertical targeted*” development approach and Israel “*horizontal targeting where prioritisation results from the on-going identification of specific market failures in sectors with high growth potentia*l”. Uctu and Jafta (2012) contributed evidence from Hong Kong which indicated the integrated role of academia and bio-entrepreneurial spinoffs. The majority of these spinoffs are small, undeveloped and managed by academics with critical constraints, including a lack of product demand and technical issues with physical product development.

The core of entrepreneurship and innovation, particularly in the biotechnological environment, can be seen in the development of the “new”, be it products or services, with corresponding adding of value and profit-driven decision-making (Maija, Carsrud & Brannback, 2009). Technology-intensive small and medium-sized enterprises (young biotechnology ventures such as audiology practices) cannot compete with established corporations (such as large pharmaceutical multi-nationals) in volume, production capacity, promotion or price subsidisation. Instead, their competitive advantages rise from being more innovative than their competition and finding a niche where they can make the most out of their knowledge-based capabilities (Maija, Carsrud & Brannback, 2009). The latter should be placed in the context of entrepreneurship, and the specific need for entrepreneurial skills to enhance competitiveness, innovation and quality driven service delivery in this branch of industry, namely audiology.

Innovation and entrepreneurship

Innovation and new product development are crucial sources of competitive advantage in the biotechnology industry (Tushman, Anderson & O'Reilly, 1996). After all the cost-cutting, down-sizing and re-engineering, innovation and product development are levers through which firms can re-invent themselves. Continuous streams of incremental, architectural (a combination or linkage of existing technology in novel ways), modular, radical and discontinuous innovation, generates sustainable competitive advantage (Smith, 2010).

Dobni (2008) stated that these innovative organisations have the following in common: first and foremost, they are competitive innovators in that they continually break through to the next level because they are constantly defining it. Secondly, they understand that it is not the organisation that is innovative; rather it is the sum of the people who, through the way they think and act, allow the organisation to be innovative. Thirdly, they possess a certain culture - one that is proactive and market driving – that is palpable and employees all know why they are at the top of their game. Fourthly, these organisations made decisions in the past to become innovative – decisions which required sacrifices but which they are benefiting from today. Lastly, innovative organisations leverage resources; they are able to better define, engage and pursue emergent opportunities.

Innovation creates long-lasting advantages and produces dramatic shifts in competitive positioning; being good at it will provide a competitive advantage, being great at it can result in major industry-wide disruptions. The message is clear and suggests that organisations need to innovate. There is also a sense amongst managers that to remain competitive, they need to do something new and different. Innovation efforts run the gamut from reinforcing business processes to seeking product and service improvements, and reworking the corporate fabric in an attempt to unleash employee creativity at all levels (Dobni, 2008).

The firms that have been able to shift from today's strength to tomorrow's strength are those that can develop and migrate competencies, such that their old competencies provide a platform for building new, often fundamentally different, competencies (Tushman *et al.*, 1996). Entities of this nature are able to sustain a competitive advantage over time and shape technology cycles through creating streams of innovation. These streams include incremental, competence-enhancing, innovation; architectural or modular innovation; as well as fundamentally new competence-destroying innovation. By building on a technology life cycle, the idea of innovation streams, which are patterns of innovation that are required for sustainable competitive advantage, is introduced. Innovation streams focus attention away from innovations in isolation, towards patterns of fundamentally different innovations as the market unfolds, and are driven by shifts in the underlying technology cycle (Tushman *et al.,* 1996).

Innovation has been and must continue to be a major driver of rising living standards (OECD Innovation Strategy, 2009). Preliminary estimates for several Organisation for Economic Co-operation and Development (OECD) countries show that firms now invest as much in intangible assets related to innovation (research & development, software, relevant skills, organisational know-how and branding) as they do in traditional capital such as machinery, equipment and buildings. Such investment accounted for up to 1 percentage point – or around one-quarter – of labour productivity growth in Austria, Finland, Sweden, the United Kingdom and the United States between 1995 and 2006 (OECD Innovation Strategy, 2009). Moreover, much multi-factor productivity (MFP) growth – that is, the joint productivity of capital and labour – is linked to innovation and improvements in efficiency. Collectively, estimates suggest that investment in intangible assets and MFP growth accounted for between two-thirds and three-quarters of labour productivity growth in OECD countries such as Austria, Finland, Sweden, the United Kingdom and the United States between 1995 and 2006. Innovation was seen as the main driver of this growth. Differences in MFP also account for much of the gap between advanced and emerging countries, which is an indication that innovation is also a key source of future growth for emerging countries (OECD Innovation Strategy, 2009). Where does the audiologist as an entrepreneur fit in this scenario?

There is a significant relationship between opportunity identification and exploitation, innovation and entrepreneurship. According to Antonites and van Vuuren (2005), a generally accepted definition of an entrepreneur is an individual who has the ability to realise a specific vision from virtually anything; a definite human creative action. A differentiating factor defining the true entrepreneur is represented by the entrepreneurial skills creativity and innovation. The fundamental skill to "create" is to be able to generate an idea and transform it into a viable, growth-oriented business.

A person is also considered to be an entrepreneur if he/she owns a business, assumes the risks associated with ownership, deals with the uncertainties of coordinating resources and is in charge of day-to-day management of the business (Hanson, 2009). According to Acs (2007), it is someone who specialises in making judgmental decisions about the coordination of scarce resources. The term 'someone' emphasises that the entrepreneur is an individual, while the term 'judgmental' implies that the decision cannot simply be a routine application of a standard rule. Acs (2007) also suggested that entrepreneurship is what happens at the intersection of history and technology, and that history is the codified record of what has happened in the past while technology is the way to view the future.

Innovation also induces entrepreneurial orientation. Maija, Carsrud and Brannback (2009) described entrepreneurial orientation as one that emphasises aggressive innovation, risky projects, and a proclivity to pioneer innovations that pre-empt competition. The authors developed a scale for the measurement of the three components of entrepreneurial orientation; innovativeness, pro-activeness, and risk taking. Innovativeness reflects a tendency to support new ideas, novelty and creative processes, thereby departing from established practices and technologies. Hence innovativeness as conceptualised in entrepreneurial orientation is akin to explorative learning in organisational learning literature (Maija *et al*., 2009). The authors also found that pro-activeness refers to a posture of anticipating and acting on future wants and needs in the marketplace, and risk taking is associated with a willingness to commit large amounts of resources to projects where the likelihood and cost of failure may be high. Closely related to the previous statements of entrepreneurial orientation, Antonites and Van Vuuren (2005) explained that entrepreneurial skills are embraced by the following concepts: creativity and innovation; risk propensity; opportunity identification; and role models. These skills are learned through knowledge, education or learning.

Maija *et al.* (2009) stated that innovation is the lifeblood of virtually every successful technology-based business, and according to Rwigema and Venter (2004) innovation is present in many facets of a new business, including the creation of a new product or service, inventive ways to cut costs, ways of improving products, and finding new ways to combat competition.

The analysis of science and technology-based health innovation has given scarce attention to the role of health systems in the innovation process (Thorsteinsdóttir, 2007). This is certainly true with regards to the limited analysis of innovation in this sector in developing countries, but applies as well to the copious literature on innovation in this sector that has focused on industrially advanced countries. In other sectors, the users of innovation have played crucial roles in the innovation process, therefore it is important to understand the potential role of health systems in shaping science and technology-based health innovation (Thorsteinsdóttir, 2007).

Women entrepreneurship

Research conducted by Hanson (2009) focused on women entrepreneurship for a number of reasons. Firstly, women's businesses have largely been ignored in the literature on entrepreneurship. Secondly, women's businesses have been dismissed as insignificant because they are viewed as being too small or in sectors of the economy that supposedly matter too little to economic growth. Thirdly, despite this academic neglect, women's business ownership worldwide has been growing rapidly – more so than men's (OECD, 2004) – and entrepreneurship has become a key livelihood strategy for many women.

Motivation for women entrepreneurs is linked to career selection, claimed the Department of Trade and Industry Special Report on South African Women Entrepreneurs (2005). Key indicators included the level of education and training; individual desires; career-entry expectations and career self-sufficiency; academic ability and peer aspirations; socio economic background and the ability to overcome cultural conditioning and learning experiences; differences in orientation and motivations; and race and culture. Women business owners cite a number of reasons for becoming entrepreneurs. An analysis of the main reasons suggests the following trends:

- Challenges/attractions of entrepreneurship;
- Self-determination/autonomy;
- Family concerns – balancing career and family;
- Lack of career advancement/discrimination; and
- Organisational dynamics – power/politics.

Brush and Cooper (2012) showed evidence of the fundamental impact women entrepreneurs have on economic growth, employment creation and innovation. They also indicated that only 10% of literature on entrepreneurship to date has focused on women entrepreneurship.

Contrary to Hanson (2009) and Brush and Cooper (2012), Hughes, Jennings, Brush, Carter, and Welter (2012) stated that a keen interest in the field of women entrepreneurship has evolved over the past decade, and requested a new direction for research. Their study identified three areas of concern within the field of women entrepreneurship research:

Literature concentrates on entrepreneurship as merely an economic activity with wealth creation as the core outcome and not potentially one with social impact ("…*literature were reframed from entrepreneurship as an economic activity with possible social change outcomes to entrepreneurship as a social change activity with a variety of possible outcomes?",* p.431*)*

A prevailing "objectivist ontological" and "epistemological position" position portrayed in the majority of the literature on women entrepreneurship.

Hughes *et al.* (2012:432) tabled the concerns and set research questions for a new direction as follows:

Table 1: Illustrative Women's Entrepreneurship Studies Suggested by Expanding Questions and Explanations as Well as Shifting Approaches

Explanations/Approaches Traditional questions Non-traditional questions	**Explanations/Approaches Traditional questions Non-traditional questions**	**Explanations/Approaches Traditional questions Non-traditional questions**
Individualistic explanation and objectivist approach	Studies comparing the performance of firms headed by men versus women	Studies comparing whether male and female entrepreneurs engage differentially in strategies such as bricolage and effectuation
Contextual explanation and objectivist approach	Studies examining whether the proportion of women engaging in entrepreneurial activity differs across countries	Studies examining whether the work-family experiences of female entrepreneurs change across their life course

Explanations/Approaches Traditional questions Non-traditional questions	**Explanations/Approaches Traditional questions Non-traditional questions**	**Explanations/Approaches Traditional questions Non-traditional questions**
Individualistic explanation and constructionist approach	Studies comparing how men and women construct notions of 'entrepreneurship' and 'growth'	Studies comparing how male and female entrepreneurs construct entrepreneurial opportunities
Contextual explanation and constructionist approach	Studies exploring the processes by which resource acquisition is gendered within different contexts	Studies exploring how gender-role identities are reconstructed in time and space through entrepreneurship as emancipation

Source: Adapted from Hughes, Jennings, Brush, Carter, and Welter (2012:432)

The table created a platform for future research directions in women entrepreneurship with the following principal courses of action (p. 432):

- Reframed old questions in fresh and innovative ways, thereby generating new insights to long-standing theoretical and empirical debates;
- Posited entirely new questions that had not been examined before, particularly with respect to the heterogeneity of women's entrepreneurship;
- Studied new sites of entrepreneurship, especially new regions, national contexts, and industries; and
- Utilised new methodological approaches that would help to build and improve upon the rigour and creativity of empirical research.

This study builds on the third notion of understanding "new sites of entrepreneurship" with reference to audiologists in the biotechnological industry.

Audiology

The primary operational settings for clinical audiologists are in hospitals, physicians' offices, private practices, speech- and hearing clinics, and schools (Katz, 2002). In the late 1990s there was, however, a move towards private practices in the United States. According to the American Speech-Language-Hearing Association (2010), 37% of audiologists were in private practice either full- or part-time. This shift has had a profound effect on professional education and organisations, as well as the way audiology is practiced and perceived. Kirkwood (2007:1) summarised the importance of audiologists as entrepreneurs as follows:

> "…*there are various reasons why private practice should be the rule rather than the exception in audiology - especially now that all those entering the field are doctors. Ownership gives practitioners authority over patient care decisions, financial independence, and greater respect from other professionals and the public. It will also enable audiology to attract better, more committed entrants and achieve higher status*".

Audiology in South Africa fulfils a small niche market need in the health sector (Bakker, 2008). 43% of audiologists are in private practice either full- or part-time. As it is such a small market, not much has been documented or researched to define the audiology market.

In South Africa there are 54 audiologists and 916 speech therapists and audiologists (dual qualification) registered in private practice [Board of Healthcare Funders (BHF) (email correspondence, 30 April 2010)]. The researchers reasoned that a significantly smaller number of audiologists are actively involved in independent audiology practices. There are several reasons for this (Bakker, 2008): many speech therapists and audiologists choose to practice only as speech therapists because of the lower costs of entry into independent

practice together with lower monthly overheads; some audiologists may be employed full-time by other institutions, i.e. government institutions, but will have a small private practice after-hours or over weekends to augment their income. This arrangement is facilitated by the fact that the cost of registering with the BHF is low, enabling them to occasionally see family and friends in a private capacity. The researchers surmise that these practices cannot be seen as real independent private practices, as the audiologists are not dependent on the income and are not deeply invested in the success or entrepreneurial performance of the private practice.

Audiology is a dynamic profession, characterised by continued and rapid growth in innovation, in which traditional practices are constantly reviewed in a quest to improve efficacy and accountability (Swanepoel, 2004). Audiologists have to continuously develop, implement and improve assessment and treatment protocols (fitting of hearing aids, auditory rehabilitation and counselling) that meet the individual needs of children and adults with impaired hearing (Alpiner & McCarthy, 2000). There is also a global challenge to improve the health status of all people, and in order to survive, the profession needs to continuously reinvent itself through innovation in order to become sustainable and remain competitive (Kritzinger, 2000).

In a study investigating South African audiologists in private practices, it was found that audiologists in independent private practices experience difficulties practicing profitably in the present circumstances (Bakker, 2008). A stagnant trend in profitability was noticed in 24% of respondents and a negative trend was noticed in 10% of respondents' practices. This could be because of the increasing regulatory effect the medical aids and government have on the industry, or it could be a lack of planning knowledge. South African audiologists have little or no practice management knowledge, and clear gaps in knowledge were noticed in all fields except communication (Bakker, 2008).

Another reason why audiologists in independent private practices experience difficulty practicing profitably is the absence of a value innovation strategy (Moore, 2010). Firms that focus on value creation try to improve the perceived value of their services or goods, but often do not execute sufficiently to stand out in the marketplace. Those that focus on innovation tend to be technology-driven and may be considered market pioneers ahead of industry standards, but a sole focus on innovation can be lost in a dynamic market. A value innovation strategy places an equal emphasis on value and innovation and is the key to a successful business strategy (Moore, 2010).

Practitioners offer value - primarily through the fitting and service of those products. According to Cottle (2010), innovation in a healthcare practice is defined as:

- Introduction / improvement of referral protocols
- Redesigning / streamlining pathways
- Matching staff skills to patient needs
- Patient and public involvement

Nemes (2007) stated, however, that older audiologists did not take any business courses before starting their own practices; many had to pick up management skills along the way and at a cost. They may have neglected certain areas of their businesses either because they never had the time to address those issues or they did not know how important they could be to the success of their business. Nemes (2007) furthermore reported that most audiologists focus on what they do best – taking care of patients, and neglect what they do not know, which could be a platform for innovation. Audiology is facing new challenges, such as innovation in terms of products, processes and services. Bakker (2008) posited that the audiology practice is regarded as a culture of caring and service, and is not necessarily managed with a focus on innovation and profitability (or entrepreneurship). Audiologists therefore need certain skills sets to achieve entrepreneurial performance and generate revenues in order to ensure sustainable private practices.

The purpose of this study is to analyse the entrepreneurial mind-set, and more specifically innovation orientation, as well as the skills sets of women audiologists as entrepreneurs in private practice in South Africa.

METHODOLOGY

The research design used explorative quantitative research (cross-sectional) to survey the entrepreneurial and business skills base of audiologists in private practice, their contribution to innovation in the biotechnological field, as well as the support and enabling environments for women entrepreneurs in the field of audiology. The primary method used to gather data was the survey method. This method was developed in the form of a self-administered, structured electronic questionnaire to establish the entrepreneurial skills, business skills and needs of audiologists in private practices in South Africa that will eventually produce innovation. Women audiologists owning private practices in South Africa was the unit of analysis. The registered 151 private practices were sampled and questionnaires were distributed to all. A response rate of 38% was achieved (57 responses). The response rate allowed for frequency distribution and Pearson's Product Moment Correlation as the core data analysis formats.

Proposition 1:

P 1.0: There is no relationship between the entrepreneurial skills of a woman audiology entrepreneur and innovation.

Proposition 2:

P 2.0: There is no relationship between the business skills of a woman entrepreneur and innovation.

Proposition 3:

P 3.0: Women audiologists as entrepreneurs do not have training needs.

Proposition 4:

P 4.0: There are no business support structures for women audiologists as entrepreneurs in private practice.

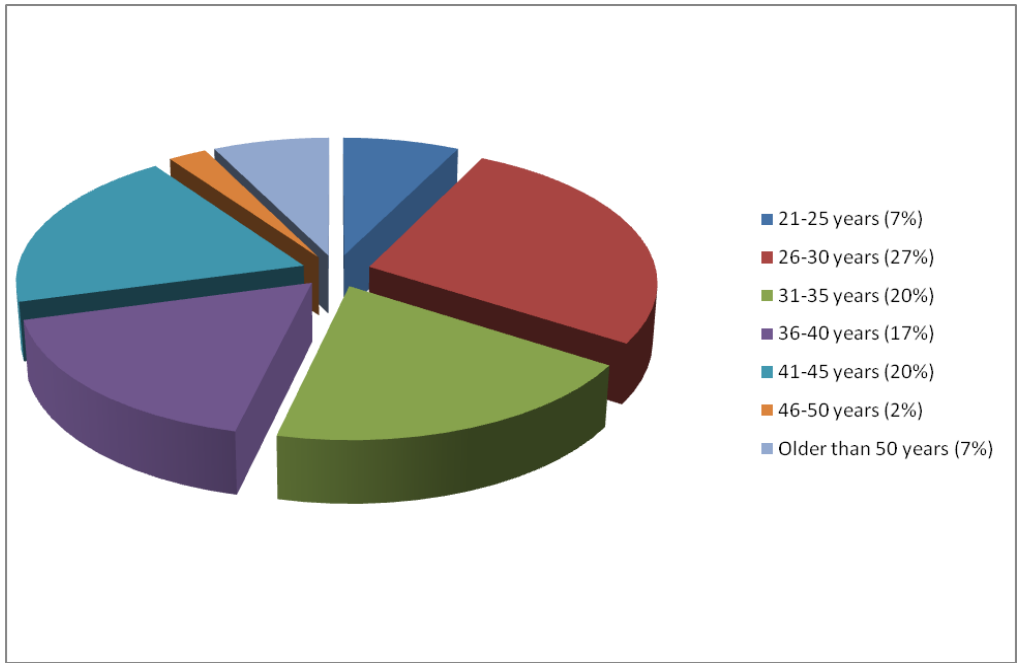
Sample

The sample for this study comprised the 151 audiologists in independent private practices. A response rate of 38% was achieved which resulted in an acceptable response rate to perform specific descriptive analysis.

RESULTS AND FINDINGS

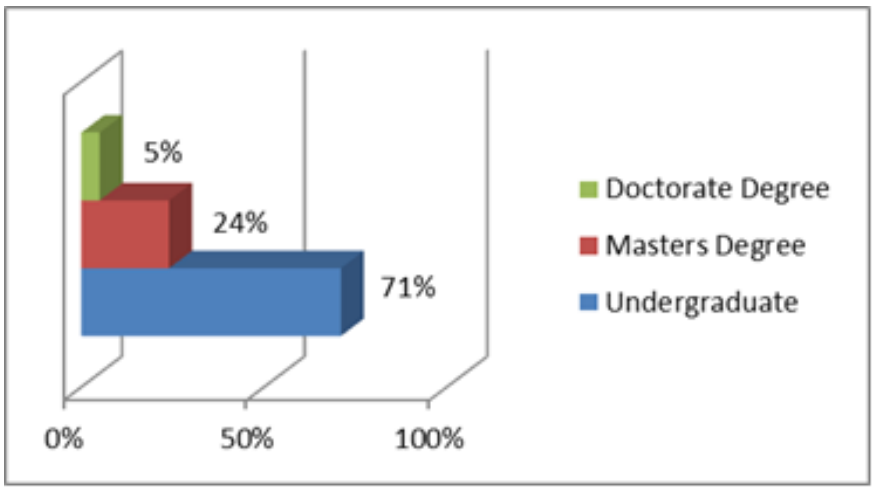
Demographics

The following demographical results apply:



Graph 1: Age

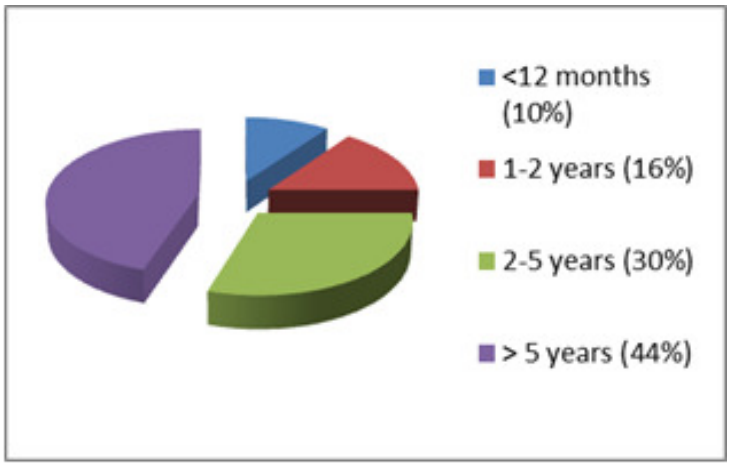
The largest percentage of respondents was 26-30 (27%). The second biggest demographics were 31-35 and 41-45 years of age (20%). From these demographics, it seems that the younger generation audiologists (27%) have private practices earlier on in their careers. The audiologists older than 50 years were less inclined to open / manage private practices, possibly because they were closer to retiring age. Another reason for younger audiologists to open up a private practice might be explained by the fact that independence is an important motivator. It might also be due to the fact that they do not have families yet, therefore they are more inclined to take risks and also have more time to spend in a private practice. The latter correlates with Hughes *et al.'s* findings (2012), and more specifically addresses "the heterogeneity of women's entrepreneurship" required in future research.



Graph 2: Qualifications

71% of the respondents only had an undergraduate degree, while 24% had Masters degrees and only 5% had Doctorate degrees. A high percentage (24%) of audiologists had done their Masters degrees in the field of audiology, which is an indication of their studiousness and their willingness to improve their audiological knowledge. This knowledge, however, only applies to their scope of practice and does not improve their business knowledge. Only 5% of the respondents had Doctorate degrees, which might indicate that there is no real motivation / incentive for obtaining this degree as it would not positively impact on the success or profitability of the practice. A degree in this industry also does not imply an increase in salary, unless this person is in an academic environment where salaries are linked to qualification.

Almost half of the respondents (49%) were situated in Gauteng, where business is perceived to be more lucrative and generally more successful than in smaller towns. Just over half of the practices (51%) were situated in cities, with the remainder (49%) in smaller towns. This is most likely because audiologists identify opportunities further away from other more established practices, or because of marital obligations. Currently there are no private practices in rural areas because the dispensing of hearing aids from a private practice largely relies on medical aids, to which low income populations do not have access. These findings correlate with the view of Bakker (2008) that audiology in South Africa fulfils a small niche market need.



Graph 3: Professional experience

This study showed that 30% of the respondents had worked for 2-5 years before they opened up their own practices, but more respondents (44%) had worked for more than five years before opening their own practices.

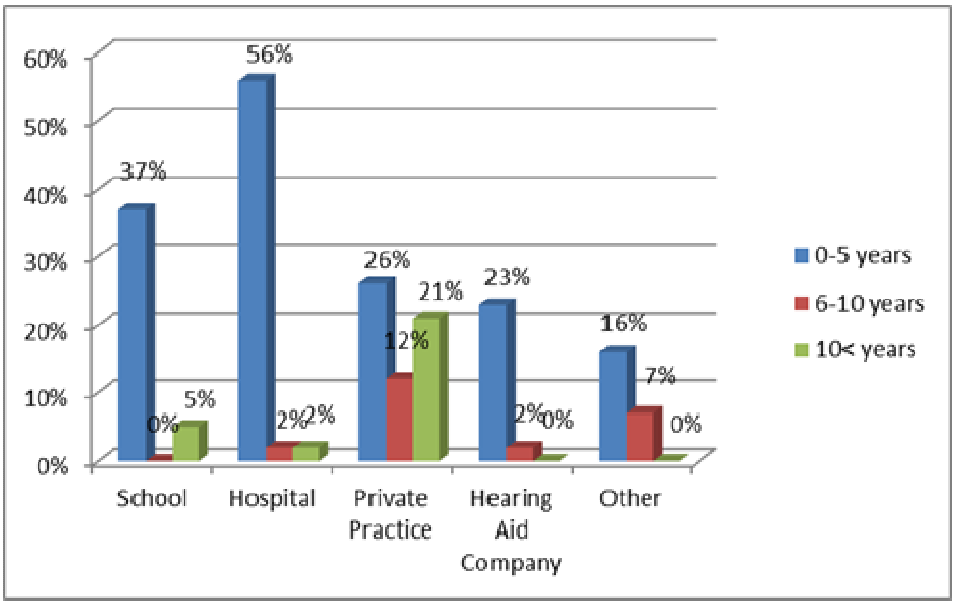
This might be due to the following facts:

- Audiologists have not received sufficient training in the field of entrepreneurial and business skills, and do not feel comfortable working without the support or guidance of experienced audiologists.
- Audiologists feel that they do not have the knowledge and skills to open up and manage their own businesses successfully.
- Audiologists do not have access to start-up funding as the equipment is expensive, and young audiologists do not necessarily have other assets to serve as collateral.

Currently there is a dire need for training in terms of entrepreneurial and business skills at the universities in South Africa; there are only basic business modules that provide for limited understanding, which do not provide for a solid working knowledge in these areas. Audiologists therefore do not have an entrepreneurial mindset, and if they do consider opening a practice, they do not feel equipped and do not have the confidence required to

take this risk (Soer, 2009). Again, these findings correlate with Bakker's (2008), who posited that private practices experience difficulties practicing profitably in the current climate. Stanger (2004) stated that business advice and training organisations should ensure that they cater for those areas of business most often undertaken or needed by women entrepreneurs, i.e. financing/financial management, marketing and promotions, and confidence building.

Work environment



Graph 4: Work environment

The percentage of respondents that had worked in private practice was significantly higher over all three specified time periods. 23% of the respondents had worked at hearing aid companies for up to five years before opening their own practices. 47% of the respondents had owned private practices for more than five years. 75% of the audiologists were owners of one practice, 18% of two practices and one outlier audiologist owned 13 practices. 44% of the practice owners did not employ professional staff (audiologists), 19% did not employ a manager, and 16% did not employ an administrative person. 39% of the practice owners did, however, employ one administrative person, 12% employed one manager and 14% of the practice owners employed one professional person. 11% of practice owners employed two professional people and 9% employed two administrative people. No practice employed more than one manager. The statistics for three or more employees were insignificant.

In terms of managerial expertise, 44% of audiologists started one business, 7% started two businesses, 2% started three businesses, 2% started four businesses, 2% started five businesses and 2% started more than five businesses. 4% of the respondents bought two practices in the survival phase, 4% bought one and two practices in the stabilisation phase, 4% bought two practices in the growth phase and 11% of the respondents had bought practices in the maturity phase. 71% of the audiologists worked full day and 22% worked flexible hours.

71% of the audiologists felt that they did not receive sufficient tertiary training to be able to manage a private practice successfully. This study indicated that the environments the audiologists had worked in before opening their own practices clearly influenced their entrepreneurial mindsets. According to the questionnaire, the highest amount of respondents has worked in hospitals (25) and the second highest in schools (21). On average, 91% of the audiologists that had worked in schools, hospitals and hearing aid manufacturing companies had moved out on their own much quicker (within five years) than the audiologists who had worked in a private practice. Twelve of these only decided to go independent after 10 or more years, and seven after 6-10 years. The fact that audiologists working in institutions opened up their own private practices sooner than audiologists working in private practices

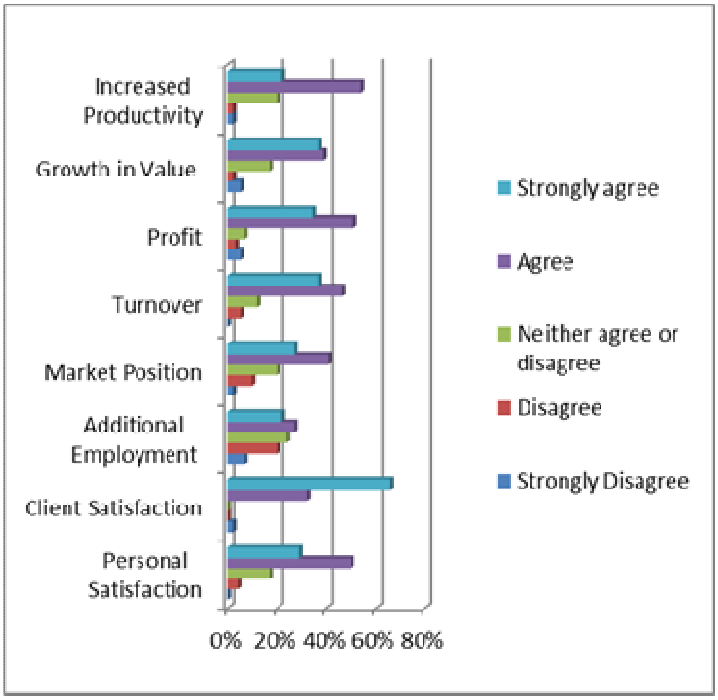
did, is most likely an indication of bureaucratic environments forcing audiologists into more independent, flexible environments. Audiologists working at private practices as employees find themselves in more fulfilling environments, and are therefore less likely to pursue change. It is important to note that even though positions in governmental institutions have more benefits such as medical aids and pensions, most of the audiologists still chose to be more independent.

47% had owned practices for more than five years, which is an indication that a successful private practice is a good business to own. If a practice functions optimally, it is profitable and ensures independency. If an audiologist also works in a hospital or school environment, she cannot necessarily ensure client satisfaction due to time and resource constraints.

In general it seems that private practices are managed to the best of the audiologists' abilities, but they have no intention of expanding or growing organically. Typical private audiology practices are smaller, with 22 of the audiologists employing one administrative person but no managers or professional people (audiologists). Eight practices employed one professional person, and seven practices employed one manager. From the results of this study it seems that audiologists have smaller practices with only one to three employees, but hardly ever more than three employees. From this information one can conclude that the mindset of the audiologists is that of a small business owner rather than an entrepreneur. Referring to Nieman and Nieuwenhuizen (2009), owners of small businesses are not necessarily interested in growth as an objective; autonomy and security are the primary objectives of some owners of smaller businesses, and they are not concerned about creating employment.

This perception has important consequences for women entrepreneurs, as there might be other reasons why women run smaller businesses, such as a lack of external financing, poor credibility as business owners and managers, or a desire to keep their business small and manageable (Arenius *et al.*, 2005).

A significant result was the audiologists who strongly agreed that client satisfaction is the most important measure of success. They further agreed with the fact that increased productivity, profit, turnover, market position and personal satisfaction are important measures of success. It is useful to note that additional employment was not an important measure of success of the business (7% strongly disagreed, and 20% disagreed). These results indicated that not all audiologists are exclusively businesswomen and that women entrepreneurs also have to manage their work-life balance. According to Matiwane and Hendricks (2005), women business owners cited a number of reasons for becoming entrepreneurs, and an analysis of the main reasons suggested important trends such as family concerns – balancing career and family. 22% of the women audiologists worked flexi hours to allow them to accommodate both their career and families. 71% worked full time, and a possible explanation for this might be that they did not employ sufficient people, and therefore carry out a lot of the functions themselves.

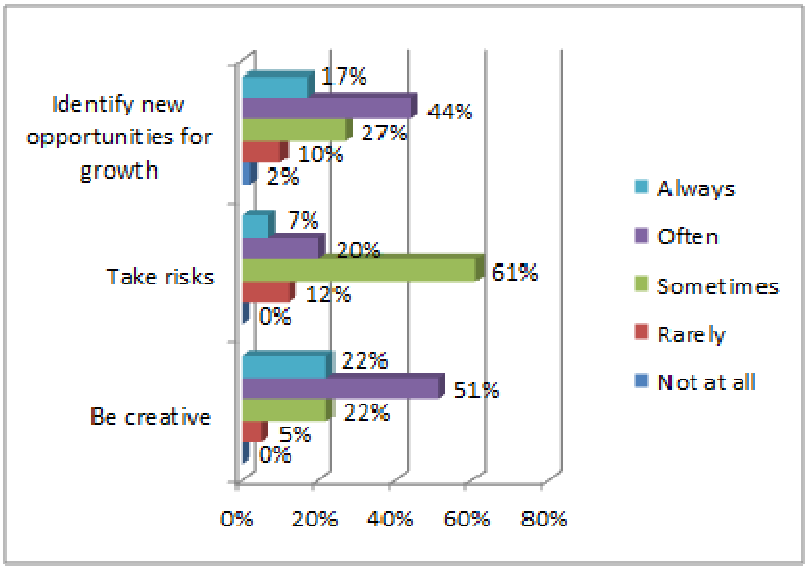


Graph 5: Measurement of success

These findings related directly with Hughes *et al.'s* (2012), by stating that *literature concentrates on entrepreneurship as merely an economic activity with wealth creation as the core outcome and not potentially one with social impact.* Women's entrepreneurial performance in this context should be measured in terms of social impact rather than merely one variable; profitability.

Entrepreneurial experience

61% of the respondents regarded themselves as entrepreneurs, while the remaining 39% did not. 44% of the respondents often identified new opportunities for growth, and 51% described themselves as often being creative. 61% of the respondents take risks, but only sometimes. Only 17% always identify new opportunities for growth, only 7% always take risks, and only 22% are always creative. Hanson (2009) advocated that access to credit alone is rarely sufficient to change the position of women in the place she works and lives. The author stated that what is needed are grassroots actions that build women's skills, confidence and sense of belonging; expand women's knowledge of potential suppliers and markets; and connect women with other business owners. In general it seems that private practices are managed to the best of the audiologists' abilities, but they have no plan to expand or grow organically.

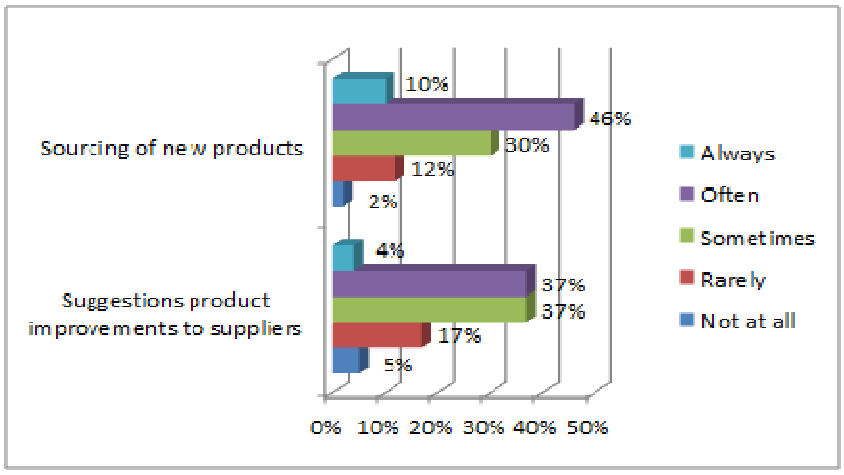


Graph 6: Personal inclination

Hisrich, Peters and Shepherd (2005) discussed major gender differences such as the performance of firms owned by men vs. women. Their studies showed that businesses headed by women tend to be smaller than those headed by men (Arenius, Minniti & Langowitz, 2005). Normally, the smaller size is perceived to be a problem and it is assumed that, if they could, women would want to expand their businesses as much as male entrepreneurs do. In this industry, however, this does not seem to be the case, as audiologists seem to prefer having smaller businesses and employ less people.

The findings of the entrepreneurial experiences (entrepreneurial inclination and innovation) and entrepreneurial skills contradicted each other. The respondents did not score themselves highly on their entrepreneurial experiences (22% are always creative, 7% always take risks, and only 17% always identify new opportunities for growth), yet in terms of entrepreneurial skills, a large percentage scored themselves as having a good working knowledge about the evaluation of new feasible opportunities, risk management, as well as creating and refining new products, services and processes. This discrepancy might be due to the fact that audiologists do not have knowledge about the true meaning of entrepreneurship, or lack knowledge concerning the business aspects of the practice.

Only 10% of the respondents always source new products and 46% often source new products. 4% of the respondents always suggest new product improvements to suppliers, while 37% often suggest new products to suppliers.

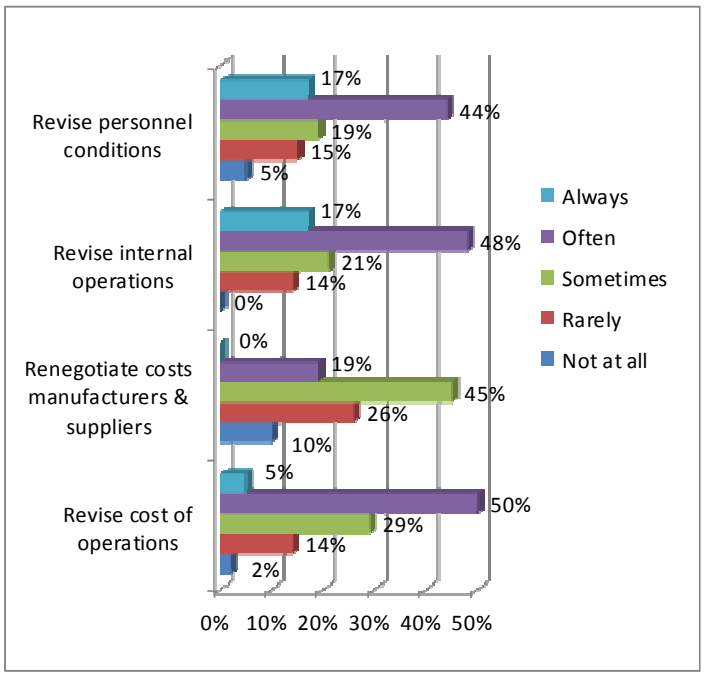


Graph 7: Product innovation

Maija, Carsrud and Brannback (2009) described entrepreneurial orientation as one that emphasises aggressive innovation, risky projects, and a proclivity to pioneer innovations that pre-empt competition. Innovation is the core skill in this context as it drives differentiation and competitive advantage. The entrepreneurial experience of being creative, taking risks, identifying new opportunities for growth, inventing new ways of communicating with end-users and identifying potential new referral sources do impact innovation. According to Maija *et al.* (2009), innovativeness reflects a tendency to support new ideas, novelty and creative processes, thereby departing from established practices and technologies. Hence innovativeness as conceptualised in entrepreneurial orientation is akin to explorative learning in organisational learning literature.

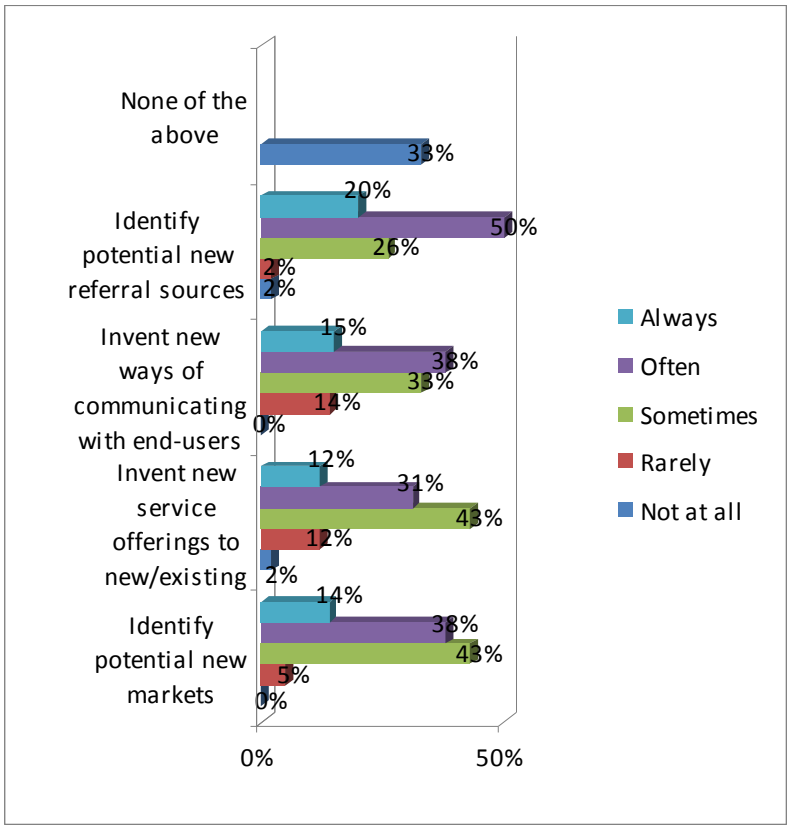
Even though 61% of the audiologists regarded themselves as entrepreneurs, they were not inclined to be creative, take risks or identify new opportunities for growth. These results imply that only 22% think imaginatively and creatively in order to identify new opportunities and solutions to take advantage of opportunities (Kuratko & Hodgetts, 1998).

17% of the respondents always revised personnel conditions, and 44% of the respondents often did. 17% always revised internal operations, whilst 48% often revised internal operations. None of the respondents always renegotiated costs with manufacturers and suppliers, and only 19% often renegotiated costs. Only 5% always revised cost of operations, and 50% often did.



Graph 8: Process innovation

According to this study, audiologists do not aggressively innovate in the areas of products, processes or services. Process innovation reflects directly on management skills as it encompasses an internal operational management process. Maija, Carsrud and Brannback (2009) stated that innovation is the lifeblood of virtually every successful technology-based business, and according to Rwigema and Venter (2004), innovation is present in many facets of a new business, including the creation of a new product or service, inventive ways to cut costs, ways of improving products and finding new ways to combat competition.



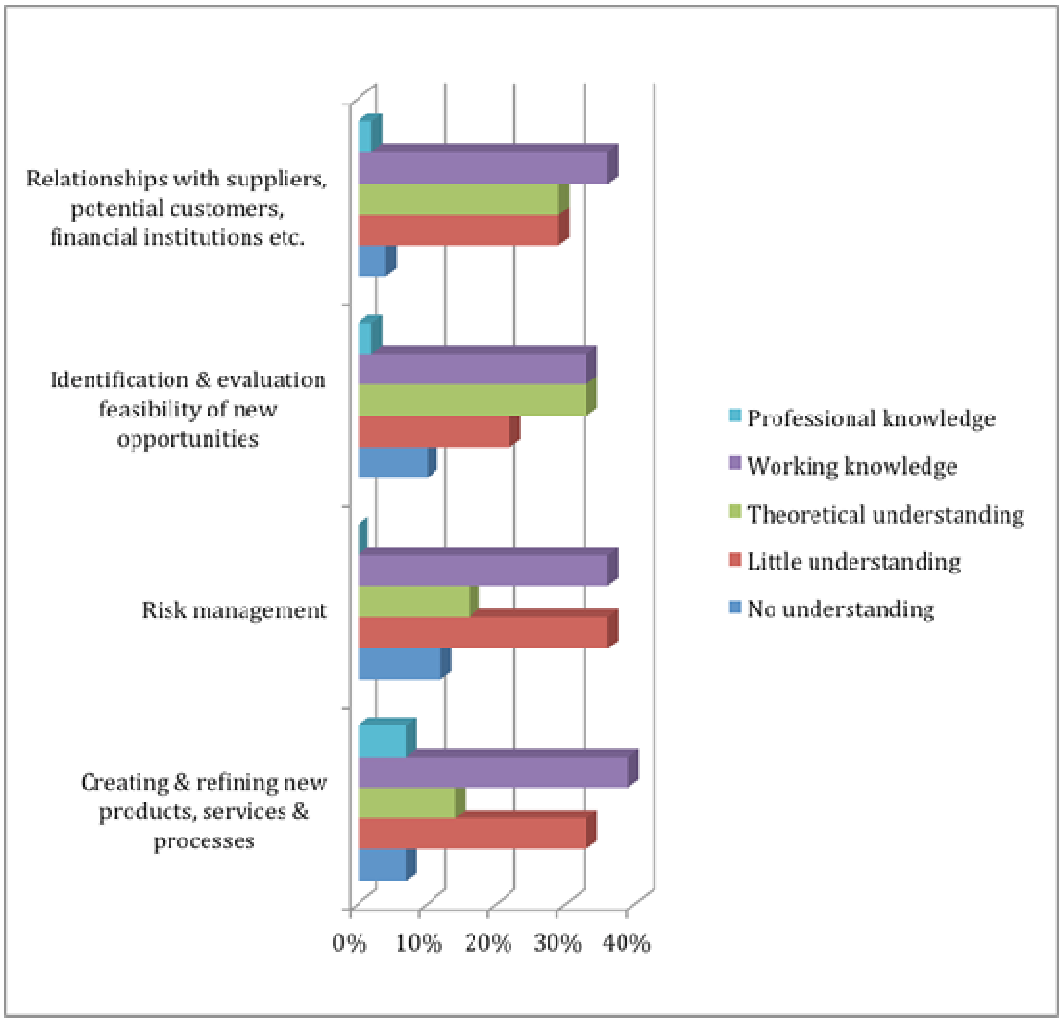
Graph 9: Service innovation

Users and consumers play a growing role, with firms involving them in the innovation process in order to better satisfy their needs. Firms recognise this as a way to explore new growth opportunities at lower risk and to offer greater flexibility without necessarily incurring high costs. Users' experiences with products can help focus future innovations. The virtuous cycle of innovation can be better facilitated through increasing interaction between demand and supply (OECD Innovation Strategy, 2009).

20% of the respondents always identify potential new referral sources, whereas 50% often identify potential new referral sources. 38% often invent new ways of communicating with end-users. 43% of the respondents sometimes invent new service offerings, and 31% often invent new service offerings. 43% sometimes identify potential new markets, and 38% often identify new markets. Even though this study clearly shows that client satisfaction is of utmost importance to the audiologists who operate primarily in the service sector, an inclination towards the user/consumer is critical. The results of this study show that audiologists do not innovate in terms of products, processes or services, even though they regard themselves as entrepreneurs.

Skills sets

In terms of skills sets the following results were obtained: most of the respondents had a

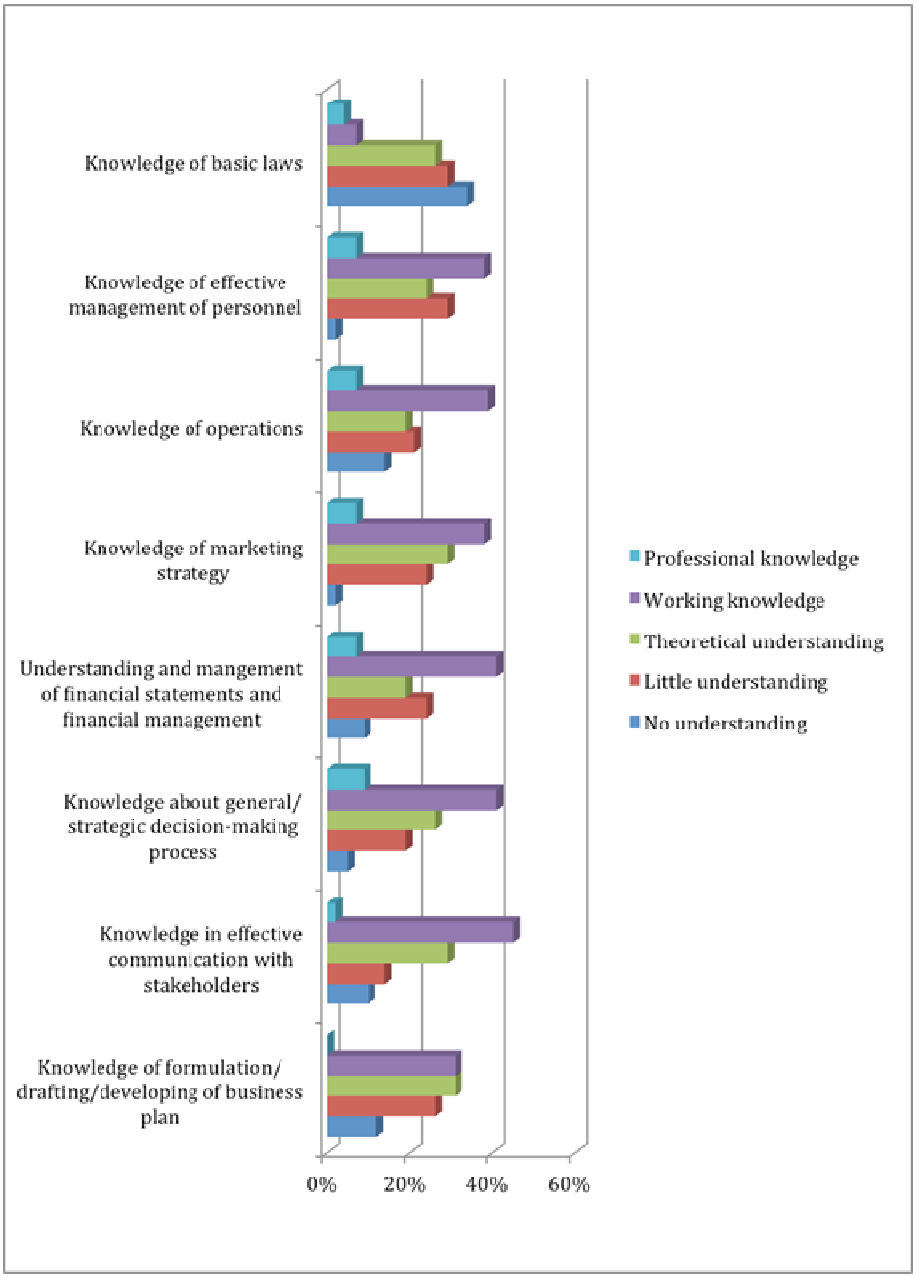


Graph 10: Entrepreneurial skills

working knowledge in the areas of relationships with suppliers, potential customers and financial institutions; the evaluation of new feasible opportunities; risk management; as well as creating and refining new products, services and processes.

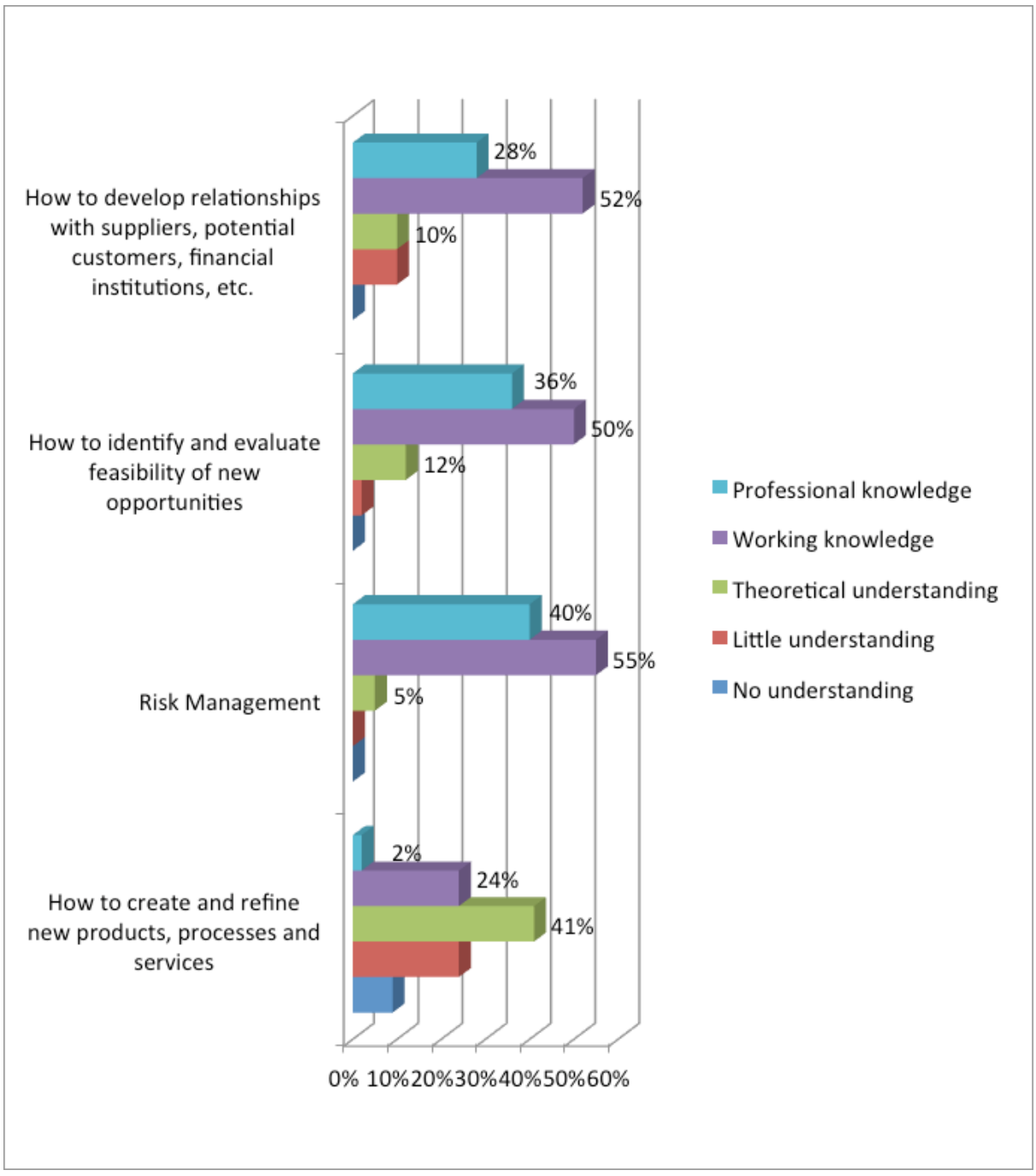
Some of the respondents were, however, more uncertain about risk management and creating and refining new products, services and processes. Most of the respondents had a working knowledge of effective management of personnel, marketing strategies, financial management, decision-making processes and effective communication with stakeholders, but most had no understanding of basic laws and only a theoretical understanding of business plans.

Entrepreneurs identify business opportunities to create and deliver value for the stakeholders (Ardichvilia, Cardozo & Ray, 2003). In the case of this study, the stakeholders were in most cases the audiologists themselves, which should be a significant incentive / motivational factor, yet only a small percentage creatively pursued new business opportunities. While elements of opportunities may be ‘‘recognized,’’ opportunities are made, not found, and is thus an active and involved process (Ardichvilia, *et al*., 2003). Careful investigation of, and sensitivity to, market needs, as well as an ability to spot sub-optimal deployment of resources, may help an entrepreneur begin to develop an opportunity (which may or may not result in the formation of a business). But opportunity development also involves entrepreneurs’ creative work. The need or resource ‘‘recognized’’ or ‘‘perceived’’ cannot become a viable business without this ‘‘development” (Ardichvilia, *et al*., 2003).



Graph 11: Business skills

Most of the respondents had a working knowledge of effective management of personnel, marketing strategies, financial management, decision-making processes and effective communication with stakeholders. Most had, however, no understanding of basic laws and only a theoretical understanding of business plans. Regarding business skills, audiologists need a better working knowledge to be able to run their practices in a professional manner. It does not have to be a solid professional knowledge, however, as being the owner of a practice one needs to be a generalist.



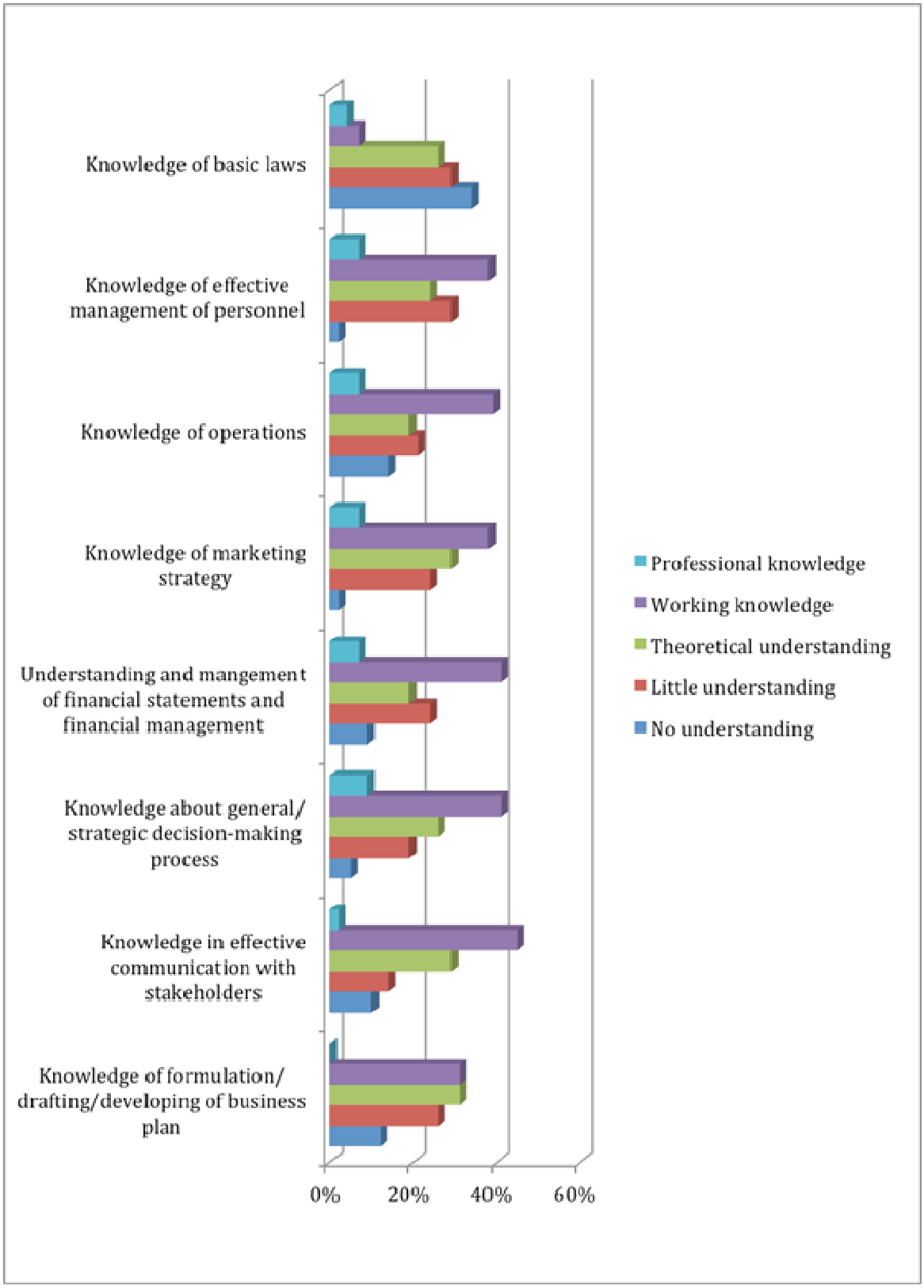
Graph 12: Need for Entrepreneurial skills training

Nemes (2007) stated that audiologists have to pick up management skills along the way. This might impact negatively on the business as they never have the time to address the important issues or they might not know how important those areas could be to the success of their business. Nemes furthermore reported that it is easier for most audiologists to focus

on what they do best – taking care of patients. Business skills are, however, a prerequisite for innovation to enter the market place. In order for an audiologist to offer value primarily through processes and services, she needs a working knowledge of business processes.

Training needs

In terms of business training needs, the following applies:



Graph 13: Need for Business skills training

Most of the respondents had a need for basic applications / working knowledge in the areas of relationships with suppliers, potential customers and financial institutions (52%); evaluation of the feasibility of new opportunities (50%); as well as risk management (55%). Only 24% of the respondents had a need for a working knowledge of the refining of new products, services and processes based on innovative and creative thinking. There was no real need for a theoretical understanding of these concepts. If the perceived skills and training needs are compared, it is clear that there is a need for training in all areas of entrepreneurial skills, except for one, which is the innovation of products, processes and services.

As has been mentioned, the results show that only 39% of audiologists innovate in terms of products, processes or services, even though they regard themselves as entrepreneurs, yet only 24% felt the need for training in these areas. This might be due to the fact that the total focus is on client satisfaction and not innovation and profitability.

There is a need for professional knowledge in the areas of basic laws and financial statements, however there is a significant need for a basic application / working knowledge of the areas of effective management of personnel (40%), operations strategy (43%), marketing strategy (48%), strategic decision making (48%), effective communication with stakeholders (41%), as well as the drafting of business plans (38%).

From these results it also seems that there is less of a need in the areas of business training than in entrepreneurial training. In his study, Antonites (2003) mentioned that some of the training programmes are very pragmatic and that there needs to be active involvement in entrepreneurial activities, an understanding of the dynamic characteristics of the entrepreneurial environment, and the introduction of the existing reality aspects to the practice situation.

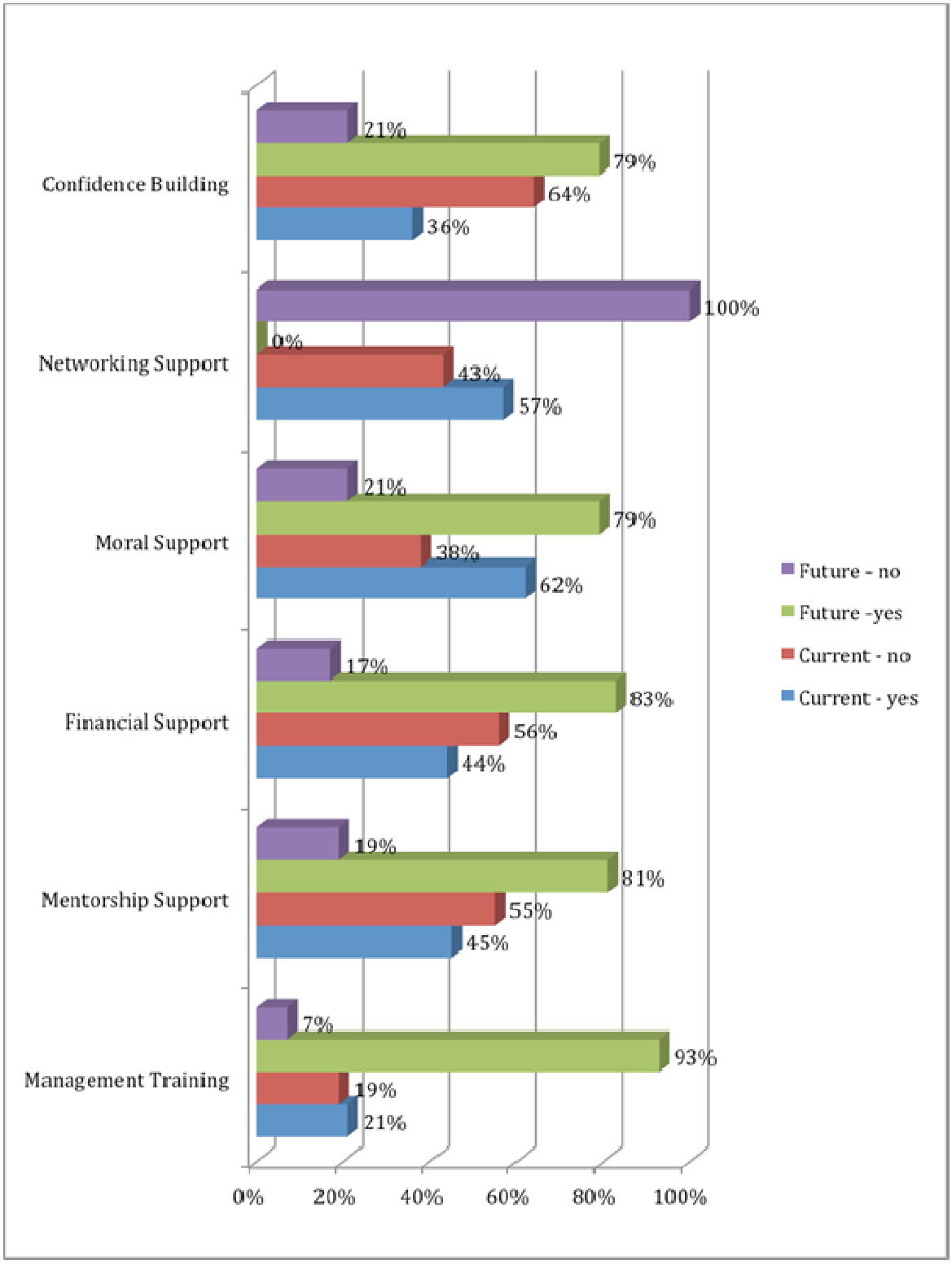
Isaacs, Visser, Friedrich and Brijlal (2007) concluded that entrepreneurship education and training needs to be localised, i.e. researching the local environment and circumstances before implementing another general programme which will not in any way contribute to skills improvement and therefore to small and medium enterprise development and ultimately job creation.

These authors also stated that education alone cannot completely prepare entrepreneurs to be successful business owners, but education increases the chances of success. Entrepreneurship education reflects the concern that people should possess the skills, knowledge and attitudes to create their own future, manage their own affairs, and solve their own problems. This includes:

- Education *for* enterprise (i.e. developing business-related skills);
- Education *about* enterprise (i.e. knowledge and understanding); and
- Education *through* enterprise (i.e. learning to be enterprising) (Isaacs, Visser, Friedrich & Brijlal, 2007).

Support systems

The following results show the need for business support systems to enable the entrepreneurs to perform. There is currently a dysfunctional entrepreneurship-enabling environment within the context of support systems in specific areas. Graph 14 indicates what current support is offered and secondly what enabling support is required to increase entrepreneurial performance:



Graph 14: Entrepreneurship enabling support systems – current and future.

As can be seen from the above, a significant need for enabling support systems exists - particularly in the following areas:

- Confidence building (79%)
- Moral support (79%)
- Financial support (83%)
- Mentorship support (81%)
- Management training (93%)

According to Verwey (2005), a women entrepreneurship programme should include financial assistance; management assistance and training; as well as networking, mentoring and counselling. Confidence is a huge factor that influences performance, as confidence in one's own skills, knowledge, and ability to start a new business increases entrepreneurial alertness, and therefore leads to the creation of more new businesses (Langowitz & Minniti, 2007). Attitudes toward entrepreneurship (or anything else for that matter) reflect, to a large extent, subjective perceptions rather than objective conditions. Results show that a strong positive and significant correlation exists between self-confidence, opportunity perception, and the likelihood of starting a new business. In fact, the perception of having sufficient skills is a dominant variable that seems to have an effect independent of institutional settings, culture, and overall level of entrepreneurial activity. Results also suggest that perceptions explain an important portion of the difference in entrepreneurial propensity across genders, since men tend to perceive themselves in a more optimistic light and, as a result, have stronger incentives to start new businesses (Langowitz & Minniti, 2007).

Bruin *et al.* (2007) stated that the self-perceptions of women may restrict their ability to recognise business opportunities, thus constraining entrepreneurship or leading to certain forms of female entrepreneurship. This refers to self-imposed barriers where women (wrongly) perceive that they may not have the right opportunities and know-how to start or grow their own businesses (Bruin *et al*., 2007).

In terms of the relationship analysis between constructs the following propositions were tested:

Proposition 1

P. 1.0. There is no relationship between the entrepreneurial skills of a woman entrepreneur and innovation.

From this study it is evident that there is a significant relationship between entrepreneurial experience and innovation. The inferential statistical analysis proved that a significant relationship exists between: entrepreneurial experience and innovation ($r = 0.982$, $p = 0.000$); entrepreneurial skills and innovation ($r = 0.449$, $p = 0.000$); age and innovation ($r = 0.251$, $p = 0.059$ – only at 6% level); and motivation and innovation ($r = 0.313$, $p = 0.018$). The primary proposition P1.0 was rejected.

Proposition 2

P. 2.0. There is no relationship between the business skills of a woman entrepreneur and innovation.

The terms 'small business' and 'entrepreneurial venture' are often used interchangeably (Zeithaml & Rice, 2005). Business skills are necessary to enable a person to start and operate a business, whereas entrepreneurship skills are more about creating a new business venture where the emphasis is on profitability, growth and exit strategies (Isaacs, Visser, Friedrich & Brijlal, 2007). Inferential results showed that a significant relationship exists between: business skills and innovation ($r = 0.476$, $p = 0.000$); and qualifications and innovation ($r = 0.364$, $p = 0.007$). The primary proposition P2.0 was rejected.

Proposition 3

P 3.0: Women audiologists as entrepreneurs do not have entrepreneurship training needs.

Isaacs, Visser, Friedrich and Brijlal (2007) argued that a positive correlation exists between education and business creation. Based on Timmons and Spinelli (2004) and others who were of the opinion that entrepreneurship can be learnt, Kuratko (2003) observed the decision by many tertiary institutions in the United States of America, Europe, East Asia and Latin America to design and implement relevant entrepreneurship teaching programmes. The findings show that the primary proposition P3.0 was consequently rejected.

Proposition 4

P 4.0: There are no support structures for women audiologists as entrepreneurs in private practice.

It is noteworthy that even though 43% of audiologists felt that there was currently no support in terms of networking, 100% of the respondents felt that there was no future need for networking support, despite all the literature that proves that it is the key to success. This might be due to the fact that they have not been contextualised with the entrepreneurial benefits of networking. Chengadu (2010) concurred that one of the reasons that women lack entrepreneurial intentions is because of the absence of role models and networking. The author gathered that women want more role models of the same sex; they want to network with them and to hear about their failures and successes. Based on these findings, the primary proposition P4.0 was accepted.

CONCLUSION AND RECOMMENDATIONS

According to Stoop (2008), South African audiologists in private practice measure low on innovation and subsequently a clear entrepreneurial orientation. Their practices are characterised by a culture of caring and service, but are not managed like other businesses with a focus on profitability. According to this study, audiologists are not creative in terms of engaging in the process of innovation in the sense of the development of products, processes or services, even though 61% of the respondents regarded themselves as being entrepreneurs and Maija, Carsrud and Brannback (2009) stated that innovation is the lifeblood of virtually every successful technology-based business.

This study shows that audiologists have inadequate entrepreneurial experience in terms of being creative, taking risks and identifying new opportunities for growth. Even though the results clearly show that client satisfaction is of the utmost importance to the audiologists, and that users and consumers play a role with firms involving them in the innovation process in order to better satisfy their needs (Moore, 2010), the results of this study still show that audiologists do not innovate in terms of products, processes or services, whilst regarding themselves as entrepreneurs.

It is hereby found that audiologists need a better working knowledge in terms of business skills to be able to run their practices in a more profitable manner (where profit forms a critical component of the entrepreneurial process). It does not have to be a solid professional knowledge, but as the owner of a practice, it would greatly benefit the entity if she was a generalist who had a good working knowledge of the most important functional aspects of the business and the entrepreneurial process. Audiologists predominantly focus on their clients and technical service offerings, and not on functional business managerial tasks and specifically innovation as a strategy. In order for an audiologist to offer value, primarily through processes and services, she needs - at a minimum - a working knowledge of business processes.

From these results it also seems that there is a dire need for training in both business skills and entrepreneurial skills. 71% of the audiologists felt that they had not received sufficient tertiary training to be able to manage a private practice successfully. Bakker (2010) confirmed these results prior to this study by stating that there are only basic business modules that provide for limited understanding of entrepreneurial and business skills.

In terms of enabling support structures, this study suggests that there are currently limited support systems in the areas of management training, mentorship support, financial support and confidence building. One can conclude from these findings that the mind-set of an audiologist is not that of an entrepreneur, but rather that of a small business owner. Autonomy and security are the primary objectives of most of the practice owners. This lack of performance is caused by a severe absence of entrepreneurial and business skills training in the industry, coupled with almost non-existent support systems as well as a lack of self

confidence in taking risks and identifying new opportunities. All of these are core components of entrepreneurial orientation, and more specifically, drivers of innovation.

Recommendations

The findings of this research have two key recommendations that could enhance the audiology profession and their stakeholders:

Recommendation 1:

The inclusion of entrepreneurial and business skills training in the curricula of the audiologist. These skills will not only induce much-needed innovative products, services and products aligned with feasible market opportunities, but also enable the entrepreneurial audiologist to manage her practice effectively and efficiently as a business venture within the frame of all the functional managerial spheres.

Recommendation 2:

The creation of an efficient entrepreneurship enabling environment that establishes an industry focused support system with reference to mentorship, guidance and confidence building.

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