

**Audiology practice management in South Africa:
What audiologists know and what they should know**

by

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My heavenly Father for the grace to complete the process and for teaching me perseverance.

Romans 5:3-5 “And not only that, but we also glory in our tribulations, knowing that tribulation produces perseverance; and perseverance, character; and character, hope.”

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“Education is the most powerful weapon which you can use to change the world.”

-Nelson Mandela-

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University of Pretoria
Faculty of Humanities
Research Proposal & Ethics Committee

DECLARATION

Name and student number: Deidré Bezuidenhoudt

Assignment topic/ report: Audiology practice management in South Africa: What audiologists know and what they should know

I declare that this assignment/report is my own original work. Where secondary material has been used (either from a printed source, a previous report or the internet), this has been carefully acknowledged and referenced. I understand what plagiarism is and I am aware of university policy and implications in this regard.

Signature:

Date: July 2015

With due acknowledgement to the Department of English at the University of Pretoria

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ABBREVIATIONS

CPD: Continuing Professional Development

HPCSA: Health Professions Council of South Africa

SAAA: South African Association of Audiologists

SASLHA: South African Speech-Language-Hearing Association

NHI: National Health Insurance

USA: United States of America

ABSTRACT

Background: In future, the South African Department of Health aims to purchase services from accredited private service providers. Successful private audiology practices can assist to address issues of access, equity and quality of health services. It is not sufficient to be an excellent clinician, since audiology practices are businesses that must also be managed effectively.

Objective: The objective was to determine the existing and required levels of practice management knowledge as perceived by South African audiologists.

Method: An electronic descriptive survey was used to investigate audiology practice management amongst South African audiologists. A total of 147 respondents completed the survey. Results were analysed by calculating descriptive statistics. The Z-proportional test was used to identify significant differences between existing and required levels of practice management knowledge.

Results: Significant differences were found between existing and required levels of knowledge regarding all eight practice management tasks, particularly legal and ethical issues and marketing and accounting. There were small differences in the knowledge required for practice management tasks amongst respondents working in public and private settings.

Conclusion: Irrespective of their work context, respondents showed that they need significant expansion of practice management knowledge in order to be successful, to compete effectively and to make sense of a complex marketplace.

Key Words: Audiology, practice management, training, South Africa, levels of knowledge, existing, required, survey

CHAPTER 1

INTRODUCTION

1.1 Background

Audiology in South Africa has evolved over the past five decades from an adjunct to the profession of Speech-Language Pathology into an autonomous profession in its own right (Swanepoel, 2006). The first programme was established in 1938 at the University of the Witwatersrand (Swanepoel, 2006). Since then Audiology has expanded, offering clinicians a variety of practice opportunities across a number of settings (Glaser & Traynor, 2008). According to American literature (Gnewikow, Gnewikow, & Cieliczka, 2009), the first self-employed audiologist began practicing independently of medical and academic centres in the 1970s. Since then, the number of audiologists choosing to enter private practice has increased significantly and private practice emerged as the dominant employment mode in the late 1990s (Hosford-Dunn, Roeser, & Valente, 2008).

According to the US Department of Labour, Bureau of Labour Statistics, the field of Audiology is growing and is predicted to increase with 10% by 2016 (Gnewikow et al., 2009). Audiology was also listed in the top ten excellent and fastest growing careers in the USA for 2006 (Nemko, 2006). The number of audiologists engaging specifically in private practice is also predicted to increase. Thus, an increasing number of audiologists are choosing private practice as their preferred service delivery option. Private practice has now become a new frontier for entrepreneurial audiologists (Gnewikow et al., 2009). It appears that growth in the profession can also be expected in South Africa.

South Africa's health system consists of a larger public sector and a smaller, but fast-growing, private healthcare sector (Bakker, 2008). The private sector also attracts the majority of the country's health professionals. Healthcare in South Africa is undergoing far-reaching reforms to revitalise and restructure the system and to ensure access to healthcare for all. As part of improving the healthcare system and ensuring that all South Africans have equitable access to essential healthcare services, government is introducing the National Health Insurance (NHI) system. In future, health services will be obtained from accredited public and private service providers (Matsoso & Fryatt, 2013).

The success of private audiology practices is therefore also important for the future engagement between sectors in order to address issues of access, equity, and quality of health services.

With the growth in the number of private audiology practices and many new graduates entering the private sector, there are also new challenges, such as the unique need of the audiology profession to straddle both healthcare and business (Thomas, 2005). The practice management requirements of the private audiology practice may also differ from the audiologist's patient-first professionally motivated practice requirements (Hosford-Dunn et al., 2008). According to Gnewikow et al. (2009), practice management is the most underestimated challenge to the private audiologist. A successful private practitioner must provide exceptional patient care and customer service, but the success of a practice often depends on the audiologist's management ability (Gnewikow et al., 2009; Hosford-Dunn et al., 2008). Audiologists in private practice must often take on the roles of accountant, office manager, marketing expert, insurance coding and billing specialist, physician liaison, payroll clerk, equipment and computer technician, and janitor (Gnewikow et al., 2009). Therefore, it is not enough to be an excellent clinician, since every audiology practice becomes a business that must also be managed effectively (Traynor, 2006).

Limited preparation to practice independently may pose the greatest challenge in performing these various roles. Some audiology training programmes offer a practice management module, but the number of hours spent learning practice management principles is limited when compared to the time spent learning audiometric skills or understanding pathologies (Gnewikow et al., 2009). Although a wide variety of audiology skills need to be mastered prior to working as an audiologist, practice management proficiency is of equal importance in any environment. Management skills are important for the economic survival of a practice, but they are rarely mastered in the course of a semester (Gnewikow et al., 2009). Audiologists must be able to use many management skills in practice that may not have been acquired in undergraduate training.

Audiologists entering private audiology practice encounter several unique problems that require a renewed evaluation of the type of skills training required by practitioners to enable them to achieve success in the private sector (Foxtrot, 2001). Since 1996, Metz

emphasised the importance of audiologists having the ability to stand alone in the business community with profitable and valuable private practices. The future of private audiology practices depends on how well audiologists are able to take their clinical training and practice management skills to the marketplace (Metz, 1996). This basic requirement also applies to the future of audiology practices in South Africa.

1.2 Rationale

Audiology training at universities in South Africa is geared towards a community-based service delivery model so that services meet the unique needs of the broader South African community (Swanepoel, 2006). As a result, practice management may only be included superficially in undergraduate curricula. In a country-wide survey conducted in South Africa by Wemmer (2007), a substantial number of participants (n=50; 35%) indicated that their undergraduate education left them completely unprepared for practice management, while 22% indicated that it had not been included in the undergraduate curriculum. In another South African study conducted by Bakker (2008), 86% of participants (n=37) did not receive any practice management training in their undergraduate studies. According to a survey of audiologists (n=256) in the United States of America and Canada (Henson, Williamson, & Jacques, 2006), it was clear that practising audiologists in those countries also felt they did not have the required practice management skills to compete in the marketplace. Participants reported great deficits in practice management knowledge that impacted on their work and careers (Henson et al., 2006).

Based on a literature review and the researcher's own clinical experience of working in a private audiology practice in South Africa, it appears that the current programmes at South African universities and elsewhere may provide insufficient training specific to management skills and general business knowledge, both of which are required to successfully run a private audiology practice. Audiologists receive excellent clinical training, but limited or no formal preparation for the challenges that the management of a private practice brings (Bakker, 2008). Thus the practices are often poorly managed, based on common sense or the practitioner follows the example of other practices in the area.

Although Audiology practice is characterised by a culture of caring and service, it should also be managed responsibly (Bakker, 2008). Many healthcare professionals currently choose to attend popular business management courses, which is an indication that an increasing number of private practitioners have realised that such skills are indispensable if they want to manage private practices effectively and survive in the marketplace (Foxtrot, 2001). Ideally, training that addresses the specific challenges in South Africa should be developed for graduate audiologists or audiologists who are contemplating a move to private practice or management careers. It was therefore deemed important to conduct a survey to investigate to which extent South African audiologists require knowledge and skills regarding practice management tasks that are considered the common body of knowledge for business namely accounting, finance, marketing, legal and ethical issues, organisational behaviour and human resources, operations and systems management, strategic management, and managerial decision-making (Henson et al., 2006; Hosford-Dunn et al., 2008).

1.3 Problem statement

Little is currently known of the South African audiologist's specific needs in terms of practice management. A better understanding of differences between the existing levels of knowledge and the required levels of knowledge of the participants may lead to the formulation of recommendations regarding practice management training for South African audiologists. This study aimed to determine the self-perceived existing and required levels of practice management knowledge amongst South African audiologists.

TERMINOLOGY USED IN THE STUDY

Accounting	The process of managing the recording, reporting and analysis of financial transactions of a business.
Finance	The process of acquiring, investing and managing resources such as offices and equipment.
Legal and ethical issues	Liability, labour law, agency and organisational law and ethical decision-making.
Marketing	The process of defining target markets, selecting market positions and managing products, pricing, communications and channels decisions.
Managerial decision-making	The use of research design and statistical tools to improve decision-making.
Management	Management is the process of planning, organizing, leading, and controlling the efforts of organization members and of using all other organizational resources to achieve stated organizational goals.
Operations and systems management	Managing the processes that produce and distribute products and services.
Organisational behaviour and human Resources	Staffing issues such as hiring and firing, and management issues such as leadership and motivation.
Practice	A practice is a professional organization.
Strategic management	The process by which an organisation determines its long-term direction and sets goals and objectives.

Sources: Henson et al. (2006); Hosford-Dunn et al. (2008)

CHAPTER 2

METHODOLOGY

The following chapter contains the aims of the research and includes a detailed description of the procedures that were followed to reach the objectives.

2.1 Research aims

In order to conduct this study, the following aims were identified and described.

2.1.1 Main aim

The main aim of the study was to determine the self-perceived existing and required levels of practice management knowledge amongst South African audiologists.

2.1.2 Sub-aims

The following sub-aims were formulated in order to reach the main aim:

- To determine the existing levels of knowledge necessary to perform practice management tasks as perceived by the participants;
- To determine the required levels of knowledge necessary to perform practice management tasks as perceived by the participants;
- To determine if there are differences between the existing levels of knowledge and the required levels of knowledge necessary to perform practice management tasks as perceived by the participants;
- To determine if there are differences between the existing perceived levels of knowledge and the required levels of knowledge between participants working in public settings and private settings;
- To describe strengths, management challenges and training needs as perceived by the participants; and
- To describe the participants' recommendations regarding practice management training for South African audiologists.

The method, results and discussion were compiled and described in the article titled "Audiology practice management in South Africa: What audiologists know and what they should know" (Chapter 3), submitted for publication in the *South African Journal of*

Communication Disorders, 28 November 2014, it has been peer reviewed on 6 April 2015 and accepted for publication on 30 May 2015 (See appendix A).

2.2 Research design

A cross-sectional, descriptive survey was used to investigate audiology practice management amongst South African audiologists (Leedy & Ormrod, 2013). A web-based survey was developed by consulting previous studies regarding practice management (Henson et al., 2006) and refined after a pilot study was completed.

A cross-sectional research design entails the collection of data on more than one case and at a single point in time (Neuman, 2012). A descriptive quantitative research approach involves identifying the characteristics of an observed phenomenon (Leedy & Ormrod, 2013) – in this case, the practice management knowledge of South African audiologists. The target population of the research was all the registered audiologists and dually qualified speech-language therapists and audiologists in South Africa, whether they are involved in practice management or not. Survey research is commonly used as a means of collecting information about certain characteristics and practices in order to use it for descriptive purposes and has been widely used to study professional and clinical issues in the fields of speech-language pathology and audiology (Maxwell & Satake, 2006). A content analysis was also used to identify patterns, themes or biases through thorough and systematic examination of the contents of the data collected from the web-based survey (Leedy & Ormrod, 2013).

2.3 Ethical considerations

Ethics tell us what is moral, right, or proper and what is not. Social researchers have a clear moral and professional obligation to behave in an ethical manner at all times. This ensures that the research is conducted in a way that is morally acceptable and that will prevent scientific misconduct (Neuman, 2012).

The basic ethical principles according to the Health Professions Council of South Africa (HPCSA, 2008) were followed for guidance. The principles of autonomy, confidentiality, beneficence, non-maleficence and justice were incorporated as follows:

2.3.1 Ethical clearance

The research was approved by the Research Ethics Committee of the Faculty of Humanities at the University of Pretoria (Reference number: 26162289) before commencement of the study (Appendix B).

2.3.2 Autonomy

Participants who are capable of deliberation should be afforded the opportunity to make informed decisions with regard to their participation in the research (HPCSA, 2008). Accordingly, informed consent was obtained from each participant. They were informed of the voluntary nature of participation, participant confidentiality, and their right to withdraw from the study at any time with no negative consequences (Leedy & Ormrod, 2013). See the informed consent letter Appendix C. By completing the web-based survey (Appendix D) the participants gave their consent to participate in the study on a voluntary basis.

2.3.3 Anonymity

Any research involving human beings should respect participants' right to privacy and confidentiality (Leedy & Ormrod, 2013). The data was collected anonymously and treated with confidentiality. Participants were not identified based on the way they responded and no employers were able to identify employees based on their responses either. No one (including the researcher) was able to identify any participants due to the nature of the web-based survey (Appendix D), as their names did not appear on the survey. The researcher was not able to identify any email address where the survey came from as the study was web-based. The results will be securely stored in the Department of Speech-Language Pathology and Audiology for 15 years after the study has been conducted (Appendix E).

2.3.4 Beneficence and non-maleficence

Risks and harms of participating in the study must be minimised (HPCSA, 2008). The potential inconvenience of participating in the study (the time and effort to complete the web-based survey) was indicated in the letter of consent. The participants were not exposed to any physical or psychological harm during their participation. No incentives or rewards were offered for participation in the study. The benefits of the research should outweigh the risk to the participants (HPCSA, 2008). There was no direct benefit

to the participants, but they might benefit in future if practice management training is made available as a result of the current study.

2.3.5 Justice

Each participant was treated in accordance with what is right and proper (HPCSA, 2008). Participants were selected using specific predetermined criteria based on the aims of the study. In addition to ethical obligations to the participants, researchers also have ethical obligations to their colleagues in the scientific community. These obligations concern the analysis of data and the way the results are reported. The highest integrity was maintained in reporting on all phases of the study exactly as they occurred (Neuman, 2012). The application of ethical guidelines formed the foundation of this research project.

2.4 Reliability and validity

When conducting a research study, it is important to consider the validity and reliability of the measurement instrument that is used. The reliability and validity of measurement instruments influence the extent to which a researcher can learn something about the phenomenon under investigation, the probability that the researcher will obtain statistical significance in any data analysis, and the extent to which the researcher will draw meaningful conclusions from the data (Leedy & Ormrod, 2013). The reliability of a measurement refers to the stability and consistency of the measurement (De Vos, Strydom, Fouché, & Delpont, 2011). The following measures were used to increase the reliability of the questionnaire: a specific questionnaire (Appendix D) was designed for this study using various principles of questionnaire construction such as information needed, length and format of the questionnaire, pilot testing of the questionnaire, as well as ways to ensure completion of the questionnaires. The questionnaire was modelled on a published study by Henson et al. (2006). Questions were formulated in such a way as to decrease uncertainty and items that were unclear were eliminated. Every participant was issued with the same questionnaire. A pilot study was conducted in advance to determine the optimal procedure for data collection and to identify any factors which might influence the results. The pilot study gave the researcher a template to work from, ensuring that each participant underwent exactly the same procedure (De Vos et al., 2011).

A valid measuring instrument has been described as doing what it is intended to do and as measuring what it is supposed to measure (De Vos et al., 2011). Thus, validity refers broadly to the degree to which an instrument measures what it is intended to measure (De Vos et al., 2011).

Face validity implies the following question: Does the measurement technique look as if it measures the variable it claims to measure (De Vos et al., 2011)? To ensure face validity, the researcher needs to be sure that the questionnaire addresses all the necessary areas and does so using appropriate language. The face validity of the current questionnaire was based on the researcher's subjective judgement and a pilot study to confirm the clarity, comprehensiveness, layout, structure and acceptability of the questionnaire.

Content validity implies that the questionnaire was compiled after extensive review of literature to ensure that it includes all the concepts relevant to the topic of research. The researcher, statistician, and supervisors made judgements about whether the questionnaire covers the necessary facets. Although this process is subjective, it implies that there are more people to serve as a check of bias or misrepresentation (De Vos et al., 2011). Furthermore, the self-compiled questionnaire was pilot tested to ensure that it was applicable and relevant to the purpose of the study. Construct validity is the extent to which an instrument measures a characteristic that cannot be directly observed but is assumed to exist based on patterns in people's behaviours (Leedy & Ormrod, 2013). Examples of constructs in the present questionnaire are the opinion and perceptions of the participants and their knowledge of practice management. During the construction of the questionnaire, the researcher carefully considered the guidelines in the literature regarding question type, response format and construction. A pilot study was conducted to ensure that the questionnaire reflects the theoretical contents of the study and that it measured what it anticipated to measure. To ensure validity, the questions in the questionnaire were carefully formulated in order to answer the aims stated. The processes of conducting a literature review, reflecting on the researcher's own experience regarding practice management, and spending extensive time on the study led the researcher to a deep insight into the difficulties that audiologists may encounter when managing their practices, which enhanced the credibility and dependability of the study. Using a questionnaire allowed more thoroughly considered answers from the

participants, therefore increasing the reliability and validity of the answers given (De Vos et al., 2011).

2.5 Research participants

Participants are an essential element of the study and therefore special consideration of the following aspects are important:

2.5.1 Participant sampling and selection

The criteria for participant selection and sampling procedure will be discussed below.

2.5.1.1 Criteria for participant selection

The formulation of participant selection criteria was an important part of the preparation of the study as it ensures that the research question can be answered with validity. The participant selection criteria were as follows:

- Academic qualifications: Audiologists who were selected had to be registered with the HPCSA and had to have valid qualifications to practice Audiology in South Africa. This was deemed necessary as the study investigated audiology practice management in South Africa.
- Proficient in English: Audiologists who were selected had to be proficient in English as this was the only language in which the web-based survey was available.
- Computer and internet access: Participants needed to have computer and internet access to be able to receive and complete the web-based survey. It was reasonable to assume that almost all professionals in South Africa currently have internet access.
- Affiliations: The audiologists had to belong to the SAAA or SASLHA in order to be included in the study because the researcher had access to the databases of these affiliations. Therefore the researcher could easily contact prospective participants if they belong to these affiliations.

No further criteria were imposed, as the population of audiologists constitutes a heterogeneous population – differing in age, experience, work contexts and qualifications. Any impact these variables might have on the results were taken into consideration in the analysis of data and used to account for differences amongst

homogenous subgroups that might have existed amongst the participants. In addition, the size of the population group would have been substantially limited if further criteria were imposed. This would have made the study less representative of the population group as a whole and thus have reduced the reliability of the results.

2.5.1.2 Sampling procedure

The population of interest was registered audiologists and dually qualified speech-language therapists and audiologists working in public or private settings in South Africa – whether they were involved in practice management or not - to obtain as many opinions as possible. A non-probability, convenience sampling strategy was employed (Leedy & Ormrod, 2013). As a result of the large number of audiologists who are dually qualified, it was not possible to determine how many of the professionals were practicing only as audiologists. At the time of data collection there were 1749 audiologists and dually registered speech-language therapists and audiologists registered with the Health Professions Council of South Africa (HPCSA, 2013), but their email addresses could not be obtained. The HPCSA does not supply practitioner contact information such as e-mail addresses but postal addresses may be purchased from them (HPCSA, 2013). In addition to their professional registration, some audiologists also joined professional organisations such as the South African Association of Audiologists (SAAA) and the South African Speech-Language-Hearing Association (SASLHA). The email regarding the current research project was sent to the databases of SAAA (n=326) and SASLHA (n=1300) as their member databases are updated annually and they were able to send the survey to all their members. Since there was no effective way to determine which of the SASLHA members practice only as speech-language therapists, a number of redundant emails were sent to speech-language therapists. Some audiologists are also registered with both the SAAA and SASLHA, with the result that some participants might have received duplicates of the invitation to participate twice. An email message providing the web address where the participant could link directly to the survey was thus sent to a total of 1626 prospective participants. A total of 147 participants completed the survey, which indicated a minimum response rate of 9%. The response rate was below the desirable rate described in the literature (Maxwell & Satake, 2006) and therefore findings cannot be generalised to the greater population of audiologists.

2.5.2 Description of participants

A description of the participants is provided in Table 1.

TABLE 1: Description of participants (n=147)

Characteristics	Values	Frequency (n)	%
Gender distribution (six missing values)	Male	3	2.1
	Female	138	97.9
Age	Mean age	34.9 years	-
	Median age	32	-
	Minimum	23	-
	Maximum	61	-
	Standard deviation	9.63	-
Employment status (six missing values)	Employer/owner	45	31.9
	Practice manager	17	12.1
	Full-time employee	59	41.8
	Part-time employee	10	7.1
	Other	10	7.1
Current employment context (six missing values)	Government hospital	25	17.7
	Private hospital	3	2
	Private practice: own venture	39	27.7
	Private practice: together with/under another person	38	27
	School setting	9	6.4
	Academic setting	7	5
	Hearing aid company	12	8.5
	Other	8	5.7
Institution where undergraduate training was completed (11 missing values)	University of Cape Town	13	9.6
	University of KwaZulu-Natal (Durban Westville)	16	11.8
	University of Limpopo (Medunsa)	3	2.2
	Stellenbosch University	8	5.9
	University of Pretoria	75	55.1
	University of the Witwatersrand	20	14.7
	Other	1	0.7
Professional qualifications (11 missing values)	Speech-Language Therapist and Audiologist (STA)	89	65.4
	Audiologist (AU)	47	34.6
Academic qualification (11 missing values)	Bachelor in Speech-Language Pathology and Audiology	72	52.9
	Bachelor in Audiology	30	22.1
	Master's in Audiology	17	12.5
	Doctorate in Audiology (DPhil)	1	0.7
	Doctorate in Audiology (AuD)	2	1.5
	MBA	4	2.9
	Other qualifications not related to practice management	10	7.4
Practice location (11 missing values)	Urban	101	74.3
	Semi-urban	25	18.4
	Rural	10	7.4
Province where employed (six missing values)	The Eastern Cape	2	1.4
	The Free State	5	3.5
	Gauteng	67	47.5
	KwaZulu-Natal	20	14.2
	Limpopo	9	6.4
	Mpumalanga	7	5.0
	The Northern Cape	1	0.7
	The North West	5	3.5
	The Western Cape	25	17.7

According to Table 1 the participants consisted mostly of females (97.9%), which is consistent with the population of audiologists in South Africa. Ages ranged between 23 and 61 years with a mean age of 34.9 years. The majority of participants were dually qualified as speech-language therapists and audiologists (65.4%) with a bachelor's degree obtained from the University of Pretoria (55.1%). The largest group of participants were full-time employees (41.8%) working in a private practice (54.6%) located in an urban area (74.3%) in the Gauteng province (47.5%). There is incongruity in terms of the size of each province and the number of participants per province. Some provinces such as the Northern Cape were underrepresented in the survey. Some training institutions were also underrepresented in the study. This should be taken into consideration during the interpretation of results.

2.6 Data collection

Material and apparatus used for data collection, data collection procedure as well as data processing and analysis will be discussed below:

2.6.1 Material and apparatus for data collection

In order to obtain the necessary data to provide the researcher with accurate information to deduct appropriate conclusions, specific materials and a specific apparatus were used during the course of the study.

2.6.1.1 Material

The data collection material that was used in order to obtain the information required from the participants is presented as follows.

Letter of consent/cover letter:

A cover letter accompanied all questionnaires (see Appendix C). According to Leedy and Ormrod (2013), the cover letter should contain the following information:

- A brief description of the nature of the study.
- A description of what participation will involve, in terms of activities and duration, and a statement indicating that participation is voluntary and can be terminated at any time without penalty.
- The guarantee that all responses will remain confidential as no names will appear on

the web-based questionnaire.

- The researcher's name and contact information as well as an individual or office that the participant can contact should they have any questions or concerns about the study.
- Data storage particulars: participants were informed that the research data will be stored for 15 years by the department of Speech-Language Pathology and Audiology.

Questionnaire:

A questionnaire is an instrument of data collection consisting of questions and/or other types of items designed to solicit information relating to the research topic (De Vos et al., 2011). According to Maxwell and Satake (2006), several factors must be considered in developing the items and format of a questionnaire that will hopefully elicit reliable and valid answers from participants. The questionnaire items must be developed in light of the aims of the study. The items in the questionnaire should be free of jargon, unambiguous, clearly and simply stated and without inappropriate assumptions. The questionnaire should also be designed to sample information within the realm of participants' abilities to provide relevant information. To reduce the effort required for completing the questionnaire and to favour a higher response rate, the questionnaire should be kept as straightforward and as concise as possible (Walliman, 2005).

The researcher decided to use a web-based questionnaire for the following reasons (Couper & Bosnjak, 2010):

- Web-based questionnaires are self-administered, computerised, interactive and rich in visual tools.
- The self-administered nature of web-based questionnaires means that interviewers are removed from the equation, interviewer effects are eliminated, and the questionnaires are significantly cheaper.
- Since web-based questionnaires are computerised, they have the benefits of modern computerised interviewing software. Some of the features that can be incorporated into a web-based questionnaire are the following: 1) accommodation of a variety of question types, including multiple responses and numeric responses, 2) delivery of questions to a participant, based on answers given in one or more earlier questions, and 3) editorial checks or data validation, including customised error messages and

data completeness checks, e.g. reminders can be included if questions are unintentionally omitted (Couper & Bosnjak, 2010).

- A web-based questionnaire is advantageous for audiologists as they are professionals and therefore require a convenient and rapid way to respond to questionnaires.

Disadvantages related to a web-based survey include the following (Leedy & Ormrod, 2013):

- Low response rate,
- Clarification cannot be sought,
- It is difficult to interpret the participants' understanding,
- Participants may be too busy to respond,
- Participants cannot be observed,
- Accurate mailing lists are needed, and
- Participants would be limited to people who are comfortable with computers and spend time on the internet, who enjoy partaking in research studies, and who have been sufficiently enticed by the research topic.

In order to maximise the response rate, the following techniques were used (Leedy & Ormrod, 2013):

- The researcher attempted to make a good first impression,
- The researcher offered feedback regarding results of the study,
- The researcher was gently persistent, and
- The researcher kept the web-based questionnaire as short as possible.

Contents of questionnaire:

Section A was assigned to training and education in practice management to gather information regarding the level of training participants have received in practice management. This section requested the participant's opinions regarding the need for practice management training, when and how it should be presented, as well as what the content, duration and format of such training should entail.

Section B was assigned to management in practice. This section was used to determine the participants' challenges as well as strengths in practice management. In this section the researcher also determined existing and required levels of knowledge necessary to perform practice management tasks as perceived by the participants. Questions in this section were based on a study conducted by Henson et al. (2006), which included eight areas which are considered essential knowledge for practice management, namely accounting, finance, marketing, legal and ethical issues, organisational behaviour and human resources, operations and systems management, strategic management, and managerial decision-making.

Section C was assigned to demographic information to gather information about the profile of participants and their audiology practices. This was included in the study to allow for statistical analysis of correlation, as it was surmised that subgroups would be identified (See Appendix D). Demographic information was gathered at the end of the survey as participants tend to lose interest when too much demographic information is asked in the beginning.

Format of questionnaire:

A web-based questionnaire (Appendix D) was used for this study. As such questionnaires are completed by the participants themselves, no physical contact was necessary (Neuman, 2012). Structured closed-ended questions, partially open questions and open-ended questions were used in the questionnaire. According to Neuman (2012) closed-ended questions have the advantage of saving the participant time, increasing the amount of information that is collected because participants usually understand these questions better than open-ended questions. The closed-ended questions were presented as multiple choice questions, Likert-type scales, checklists and dichotomous questions. Partially open questions allow participants to offer an answer that was not included as a response option. Open-ended questions have the advantage that the participants may provide additional information that might not have been elicited through closed-ended questions (De Vos et al., 2011). Open-ended questions were kept to a minimum as they increase the time it takes to complete the questionnaire, can be the cause of non-response, and are more difficult to analyse (De Vos et al., 2011). Therefore, only a few open-ended questions were used in this study to elicit additional information required from the participants when needed. The questionnaire focused on the context-

specific management challenges, strengths, and training needs, as well as existing and required levels of practice management knowledge amongst South African audiologists. With the use of questionnaires the researcher's attitude did not influence the participant's responses and therefore objectivity was enhanced.

2.6.1.2 Apparatus

For the purposes of this study, the only apparatus needed was a computer with internet accessibility. Each participant used their own computer. Software programmes such as *Survey Monkey*, EXCEL and Statistical Package for the Social Sciences (*IBM SPSS Version 22*) were used to process and analyse the data.

2.6.2 Data collection procedure

The procedure for data collection is discussed below:

2.6.2.1 Pilot study

In all cases it is essential that newly constructed questionnaires be thoroughly pilot tested before they are used in the main investigation (De Vos et al., 2011). A pilot study ensured that errors could be rectified immediately at little cost. Nine participants who complied with the selection criteria were asked to complete the web-based survey and were not selected for the main study. Apart from completing the web-based survey they were asked to comment critically on all aspects of the instrument. Comments were submitted via a table the participants had to complete. The pilot study was conducted to determine how long it took to complete the web-based survey, which questions were ambiguous and/ or vague, whether the electronic procedure of questionnaire completion was satisfactory, and if the required data could in fact be obtained by using the questionnaire. They were also asked to comment on the wording of the questions, the sequence of the questions, possible redundant questions, missing questions and confusing questions (De Vos et al., 2011). The pilot study helped to improve the face validity and content validity of the web-based survey. It was also used to test the technical aspects of online completion and submission by a novel user. The main value of the pilot study was that modifications could be made to the questionnaire after the pilot study and prior to the main investigation. This resulted in an improved measuring instrument and a more meaningful main investigation (De Vos et al., 2011).

The researcher distributed nine questionnaires to audiologists who met the selection criteria as well as a consultant who has completed a master's in business administration. All nine participants were given a table to complete as a means to comment on the various aspects of the questionnaire. Overall the participants were satisfied with the web-based survey and they only recommended a few minor changes such as changes to the flow of questions and the format of skip questions to enhance the efficacy and practicality of the survey.

2.6.2.2 Data collection procedure

The procedure for data collection is crucial to ensure optimal use of available time. The pilot study indicated any necessary changes to the recommended procedure. The information and feedback from the pilot study were used to formulate the final questionnaire. After the researcher had completed the procedure for participant selection, the following steps were taken to obtain data for research purposes:

- SAAA and SASLHA were contacted to send out the link to the web-based survey to professionals in their databases.
- An email consisting of a cover letter (Appendix C) containing the web address which could link the recipient directly to the survey was sent by SAAA and SASLHA to all prospective participants, inviting them to take part in the study. The informed consent letter formed part of the survey and was the first page when participants clicked on the link. By completing the web-based survey participants gave their consent to participate in the study on a voluntary basis.
- At the end of the survey a thank you note appeared.
- Two weeks after the first email was sent a second email was sent reminding and encouraging prospective participants to complete the questionnaire and informing them of the closing date for the web-based survey.
- The survey was open for participation for a period of three months, since data collection coincided with December school holidays.

2.6.3 Data processing and analysis

The goal of data analysis is to classify, organise, summarise, and generalise data obtained through data collection in order to allow for convenient numerical evaluation of the available data so that meaningful information can be extracted from it (Maxwell & Satake, 2006). *Survey Monkey* was used to collect the data online. The data from *Survey*

Monkey was exported to *IBM SPSS (Version 22)* for statistical analysis. Results were quantitatively analysed by calculating descriptive statistics such as percentages, frequency distribution, measures of central tendency and standard deviation. This assisted in organising and summarising the data. The Z-proportional test (Maree, 2007) was used to determine if two groups of participants differed significantly on selected characteristics. A content analysis was also used for analysing data derived from open-ended questions. Underlying patterns, themes, and biases were identified through thorough and systematic examination of the text data collected from the web-based survey (Leedy & Ormrod, 2013). The analysed data enabled the researcher to identify common themes and trends, which will be discussed according to the sub-aims. Thus, information was organized and described in a manner that easily highlights trends in data.

CHAPTER 3 ARTICLE

AUDIOLOGY PRACTICE MANAGEMENT IN SOUTH AFRICA: WHAT AUDIOLOGISTS KNOW AND WHAT THEY SHOULD KNOW

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Audiology practice management in South Africa: What audiologists know and what they should know

Significance of work: This paper reports on audiology practice management in South Africa. The aim was to determine practice management challenges and strengths, as well as training needs of South African audiologists. Audiology training at universities in South Africa is particularly geared towards a community-based service delivery model. As a result practice management in undergraduate curricula appears to be superficially included. In light of future engagement between private and public sectors when the National Health Insurance (NHI) system is implemented, adequate knowledge regarding audiology practice management will be essential. Irrespective of the participant's working environments the findings of the study highlighted that significant expansion of practice management knowledge is necessary. Furthermore, the participants' recommendations have the potential to improve practice management training.

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A.K. (University of Pretoria) was the supervisor of the research study. M.S. (University of Pretoria) was co-supervisor. D.B. (University of Pretoria) conducted the research. A.K., M.S., and D.B. compiled the article.

Audiology practice management in South Africa: What audiologists know and what they should know

Abstract

Background: In future, the South African Department of Health aims to purchase services from accredited private service providers. Successful private audiology practices can assist to address issues of access, equity and quality of health services. It is not sufficient to be an excellent clinician, since audiology practices are businesses that must also be managed effectively.

Objective: The objective was to determine the existing and required levels of practice management knowledge as perceived by South African audiologists.

Method: An electronic descriptive survey was used to investigate audiology practice management amongst South African audiologists. A total of 147 respondents completed the survey. Results were analysed by calculating descriptive statistics. The Z-proportional test was used to identify significant differences between existing and required levels of practice management knowledge.

Results: Significant differences were found between existing and required levels of knowledge regarding all eight practice management tasks, particularly legal and ethical issues and marketing and accounting. There were small differences in the knowledge required for practice management tasks amongst respondents working in public and private settings.

Conclusion: Irrespective of their work context, respondents showed that they need significant expansion of practice management knowledge in order to be successful, to compete effectively and to make sense of a complex marketplace.

Key Words: Audiology, practice management, training, South Africa, levels of knowledge, existing, required, survey

Introduction

Audiology in South Africa has, over the past five decades, advanced from a combined profession of speech and hearing therapy into two interweaved, but autonomous, professions of audiology and speech-language therapy (Swanepoel, 2006; Edwards, 2009). Audiology has now diversified within this multiracial, multilingual, and multicultural context as a hearing healthcare profession aimed at providing quality services to meet the diverse needs of the entire population (Swanepoel, 2006). Audiologists are offered a wide selection of practice opportunities across a number of work settings in South Africa. The country has a large public sector and a smaller but fast-growing private healthcare sector (Bakker, 2008). According to Lefemine (2012), the private sector in South Africa attracts the majority of the country's health professionals. Consequently, there is a shortage and maldistribution of key healthcare workers across the rural-urban and public-private divides (Swanepoel, 2006; Ward, Sanders, Leng, & Pollock, 2014). Annually, an estimated 6116 infants will be born with or acquire permanent bilateral hearing loss, with approximately 92% born in the public health sector (Swanepoel, Storbeck, & Friedland, 2009). Therefore, one of the main challenges in the public health care sector is a shortage of audiologists (Kanji & Kara, 2013). As part of improving the healthcare system and ensuring that all South Africans have equitable access to essential healthcare services, the South African Government is introducing the National Health Insurance (NHI) system. In future, the Department of Health aims to purchase services from accredited private service providers (Matsoso & Fryatt, 2013; Ward et al., 2014). The strategy aims to increase the number of health care personnel indirectly by enjoining those in the private sector to provide services to the general public (George, Quinlan, Reardon, & Aguilera, 2012). The success of private audiology practices is, therefore, also important for the future engagement between sectors in order to address issues of access, equity and quality of health services by increasing private sector participation.

The future of private audiology practices depends on how well audiologists are able to take their clinical training and practice management skills to the marketplace (Metz, 1996). This basic and longstanding requirement also applies to the future of audiology practices in South Africa. A successful audiologist must provide exceptional patient care and customer service regardless of the setting, but if equal attention is not paid to the business aspect of the practice the success of the practice could be risked (Gnewikow, Gnewikow, & Cieliczka, 2009; Hosford-Dunn, Roeser, & Valente, 2008). According to

Clark and Benson (2008) audiologists must understand the difficulty of balancing the need to serve the public in the highest ethical manner and also making a living by operating a business. The practice management requirements of the private audiology practice may also differ from the audiologist's patient-first professional motives (Hosford-Dunn et al., 2008). Therefore, practice management is the most underestimated challenge to the private audiologist, since every audiology practice becomes a business that must also be managed effectively (Gnewikow et al., 2009; Traynor, 2006,). Although a wide variety of core audiology skills need to be mastered prior to working as an audiologist, practice management proficiency is of equal importance in any environment. Audiologists must be able to use many management skills in practice that may not have been acquired in undergraduate training (Clark & Benson, 2008).

There appears to be a lack of recent research regarding practice management needs amongst South African audiologists. In a country-wide South African survey of Audiologists by Wemmer (2007) a significant number of participants (35%) indicated that their undergraduate education left them unprepared for practice management, whilst 22% indicated that it had not been included in the undergraduate curriculum. In another South African study of Audiologists conducted by Bakker (2008), 86% of participants did not receive practice management training in their undergraduate studies. According to a survey of audiologists (n=256) in the USA and Canada (Henson, Williamson, & Jacques, 2006) it was clear that practicing audiologists in those countries also felt they did not have the required business skills to compete in the marketplace. Participants reported great deficits in management and business knowledge that impacted their work and careers (Henson et al., 2006). It is not currently known how practice management training is perceived by audiologists in South Africa. It was therefore important to conduct a survey to determine context specific management challenges, strengths and training needs as well as the self-perceived existing and required levels of practice management knowledge amongst South African audiologists. This survey included eight practice management tasks that may be considered as the most important body of knowledge for business, namely accounting, finance, marketing, legal and ethical issues, organisational behaviour and human resources, operations and systems management, strategic management, and managerial decision-making (Henson et al., 2006; Henson, Presley, Korfmann, 2008; Hosford-Dunn et al., 2008). The results may identify differences between the existing levels of knowledge and the required levels of knowledge of the

participants. This may lead to the formulation of recommendations regarding practice management training for South African audiologists.

Method

Aim

The aim of the study was to determine the self-perceived existing and required levels of practice management knowledge amongst South African audiologists.

Objectives

- To determine the existing levels of knowledge necessary to perform practice management tasks as perceived by the participants.
- To determine the required levels of knowledge necessary to perform practice management tasks as perceived by the participants.
- To determine if there are differences between the existing levels of knowledge and the required levels of knowledge necessary to perform practice management tasks as perceived by the participants.
- To determine if there are differences between the existing levels of knowledge and the required levels of knowledge between participants working in public settings and private settings.
- To describe strengths, management challenges and training needs as perceived by the participants.
- To describe the participants' recommendations regarding practice management training for South African audiologists.

Research design

A descriptive survey using electronic questionnaire distribution was used to investigate audiology practice management amongst South African audiologists. A web-based survey was deemed the most effective method to gather the opinions of as many South African audiologists as possible.

Ethical considerations

Ethical clearance to conduct the study was obtained from the Research Ethics Committee of the Faculty of Humanities at the University of Pretoria (Reference number:

26162289). The data was collected anonymously and treated with confidentiality. No identifying information of the participants was reported and internet protocol addresses were not tracked. An informed consent letter formed part of the web-based survey and was the first page that participants viewed once they clicked on the link. By completing the web-based survey participants gave their consent to participate in the study on a voluntary basis.

Participants

The population of interest was registered audiologists and dually qualified speech-language therapists and audiologists working in public or private settings in South Africa – whether they are involved in practice management or not - to obtain as many opinions as possible. A non-probability, convenience sampling strategy was employed. Because a large number of audiologists are still dually qualified, it was not possible to determine how many of the professionals are practicing only as audiologists. At the time of data collection there were 1749 audiologists and dually registered speech-language therapists and audiologists registered with the Health Professions Council of South Africa (HPCSA, 2013), but email addresses could not be obtained. The HPCSA does not supply practitioner contact information such as email addresses, but postal addresses may be purchased from them (HPCSA, 2013). In addition to their professional registration, some audiologists also joined professional organisations such as the South African Association of Audiologists (SAAA) and the South African Speech-Language-Hearing Association (SASLHA). The email was sent to the databases of SAAA (n=326) and SASLHA (n=1300) as their member databases are updated annually, and they were able to send the survey to all their members. Since there was no effective way to determine which of the SASLHA members practice only as speech-language therapists, a number of redundant emails were sent to speech-language therapists. Some audiologists are also registered with both the SAAA and SASLHA, meaning that some participants might have received an invitation to participate twice. An email message providing the web address where the participant could link directly to the survey was thus sent to a total of approximately 1626 prospective participants. A total of 147 participants completed the survey indicating a minimum response rate of 9%. A description of the participants is given in Table 1.

TABLE 2: Description of participants ($n = 147$)

Characteristics	Values	Frequency (n)	%
Gender distribution (six missing values)	Male	3	2.1
	Female	138	97.9
Age	Mean age	34.9 years	-
	Median age	32	-
	Minimum	23	-
	Maximum	61	-
	Standard deviation	9.63	-
Employment status (six missing values)	Employer/owner	45	31.9
	Practice manager	17	12.1
	Full-time employee	59	41.8
	Part-time employee	10	7.1
	Other	10	7.1
Current employment context (six missing values)	Government hospital	25	17.7
	Private hospital	3	2
	Private practice: own venture	39	27.7
	Private practice: together with/under another person	38	27
	School setting	9	6.4
	Academic setting	7	5
	Hearing aid company	12	8.5
	Other	8	5.7
Institution where undergraduate training was completed (11 missing values)	University of Cape Town	13	9.6
	University of KwaZulu-Natal (Durban Westville)	16	11.8
	University of Limpopo (Medunsa)	3	2.2
	Stellenbosch University	8	5.9
	University of Pretoria	75	55.1
	University of the Witwatersrand	20	14.7
	Other	1	0.7
Professional qualifications (11 missing values)	Speech-Language Therapist and Audiologist (STA)	89	65.4
	Audiologist (AU)	47	34.6
Academic qualification (11 missing values)	Bachelor in Speech-Language Pathology and Audiology	72	52.9
	Bachelor in Audiology	30	22.1
	Master's in Audiology	17	12.5
	Doctorate in Audiology (DPhil)	1	0.7
	Doctorate in Audiology (AuD)	2	1.5
	MBA	4	2.9
	Other qualifications not related to practice management	10	7.4
Practice location (11 missing values)	Urban	101	74.3
	Semi-urban	25	18.4
	Rural	10	7.4
Province where employed (six missing values)	The Eastern Cape	2	1.4
	The Free State	5	3.5
	Gauteng	67	47.5
	KwaZulu-Natal	20	14.2
	Limpopo	9	6.4
	Mpumalanga	7	5.0
	The Northern Cape	1	0.7
	The North West	5	3.5
The Western Cape	25	17.7	

According to Table 1 the participants consisted mostly of females (97.9%), which is consistent with the population of audiologists in South Africa (Wemmer, 2007). Ages ranged between 23 and 61 years with a mean age of 34.9 years. The majority of

participants were dually qualified as speech-language therapists and audiologists (65.4%) with a bachelor's degree obtained from the University of Pretoria (55.1%). The small sample size and the fact that most participants graduated from one tertiary institution influenced the generalisability of the findings, especially findings regarding training. The largest group of participants were full time employees (41.8%) working in a private practice (54.6%) located in an urban area (74.3%) in the Gauteng province (47.5%). Very few participants worked in a public setting (30.8%) compared to those who worked in a private context (69.2%). It is possible that private practitioners had a greater interest in the topic of practice management than participants working in a public setting, and therefore more participants from a private context participated in the study.

There is also incongruity regarding the number of participants employed in each province and the size of each province. Some provinces, such as the Northern Cape, were underrepresented in the survey. There were a few missing values ($n=11$) as demographic information was obtained last in the web-based survey, and some participants did not complete all the questions.

Materials

A web-based survey was developed by consulting previous studies regarding practice management (Henson et al., 2006), and refined after a pilot study was completed. Structured closed-ended questions and open-ended questions were used in the survey. Section A was assigned to training and education in practice management to gather information regarding the level of training participants have received in practice management. This section requested the participant's opinions regarding the need for practice management training, and when and how it should be presented. Their opinions on what the content, duration, and format of such training should entail was also requested. Section B was assigned to management in practice. This section was used to determine the participants' challenges as well as strengths in practice management. In this section the researcher also determined the existing and required levels of knowledge necessary to perform practice management tasks as perceived by the participants. Questions in this section were based on a study conducted by Henson et al. (2006), which included eight areas which may be considered as the most essential knowledge for business, namely accounting, finance, marketing, legal and ethical issues, organisational

behaviour and human resources, operations and systems management, strategic management, and managerial decision-making. Section C was assigned to demographic information to gather information about the profile of participants and their audiology practices. According to Haslam and McGarty (2014), demographic information should be gathered at the end of a survey as participants tend to lose interest when too much demographic information is asked in the beginning.

Procedures

A pilot study was conducted to pre-test the web-based survey. The preliminary survey was sent to nine participants. They recommended changes to the flow of the questions and the format of skip-questions to enhance the efficacy and practicality of the survey. For the main study, SAAA and SASLHA sent an email message to their databases. The email message consisted of a cover letter addressed to prospective participants, inviting them to participate in an anonymous web-based survey. The message also provided the web address to link directly to the survey. *Survey Monkey* was used to collect the data online. Two weeks after the first email was sent, a second email was sent reminding prospective participants to complete the survey and informing them of the closing date. The survey was open for participation for three months as data collection coincided with December 2013 and January 2014 school holidays.

Data analysis

The data from *Survey Monkey* was exported into the Statistical Package for the Social Sciences (*IBM SPSS, Version 22*) for statistical analysis. Results were quantitatively analysed by calculating descriptive statistics such as percentages, frequency distribution, measures of central tendency and standard deviation. This assisted in organising and summarising the data. The Z-proportional test (Maree, 2007) was used to determine if two groups of participants differed significantly on selected characteristics. Content analysis (Leedy & Ormrod, 2013) was also used to analyse qualitative data derived from open-ended questions. Underlying patterns, key themes and trends were identified by thorough and systematic examination of the text data collected from the web-based survey.

Results and Discussion

Existing knowledge of audiology practice management tasks

Participants were requested to evaluate their self-perceived existing levels of knowledge regarding eight practice management tasks and rate them as very low, low, high or very high on a 4-point Likert scale. Very low and low and high and very high self-perceived existing levels of knowledge were combined to summarise the data. The results are presented in Table 2.

TABLE 2: Existing levels of knowledge ($n = 147$)

Management task	Low and very low knowledge	High and very high knowledge	Ranking according to high and very high knowledge
1. Accounting	62.6%	37.4%	8
2. Finance	57.1%	42.9%	5
3. Marketing	56.5%	43.5%	3
4. Legal and ethical issues	60.6%	39.4%	7
5. Organisational behaviour and human resources	55.1%	44.9%	2
6. Operations and systems management (one missing value)	43.8%	56.2%	1
7. Strategic management	56.5%	43.5%	4
8. Managerial decision-making	59.2%	40.8%	6

Results in Table 2 indicated that participants' self-perceived existing knowledge of practice management tasks were mostly low or very low for all eight practice management tasks. Operations and systems management was the practice management task participants reported they knew the most about (56.1%). Operations and systems management is an integral part of an audiologist's daily tasks, which includes managing the processes that produce and distribute products and services such as diagnostic hearing tests and the fitting of hearing aids. Participants may therefore mostly report a high level of existing knowledge regarding operations and systems management. Accounting was the management task for which the largest number of participants indicated a lack of knowledge (37.4%). The results were in agreement with Henson et al. (2008), who found that accounting was the task that chiropractors in the USA knew the least about. Knowledge of accounting is necessary to make financial decisions – from purchasing equipment and supplies to expanding services and determining salaries

(Traynor, 2008). Accounting is a specialised field and would not have been included during undergraduate studies. According to Clark and Benson (2008) audiologists must have an understanding of basic bookkeeping and accounting.

Required knowledge to perform audiology practice management tasks

Participants were requested to indicate required levels of knowledge regarding eight practice management tasks and rate them as very low, low, high or very high on a 4-point Likert scale. Very low and low results and high or very high results were combined to summarise the data. The results are presented in Table 3.

TABLE 3: Required levels of knowledge ($n = 147$)

Management task	Very low and low required knowledge	High and very high required knowledge	Ranking according to high and very high required levels of knowledge
1. Accounting (two missing values)	8.3%	91.7%	5
2. Finance	8.2%	91.8%	3
3. Marketing (three missing values)	4.2%	95.8%	1
4. Legal and ethical issues	4.8%	95.2%	2
5. Organisational behaviour and human resources	10.9%	89.1%	8
6. Operations and systems management (one missing value)	10.3%	89.7%	6
7. Strategic management (two missing values)	8.3%	91.7%	4
8. Managerial decision-making (two missing values)	10.3%	89.7%	7

Results in Table 3 indicated that the participants' self-perceived required levels of knowledge regarding practice management tasks were high or very high for all eight business tasks. Participants were aware of the high need for practice management knowledge. Participants were of the opinion that they required the most knowledge about the practice management task of marketing (95.8%). Marketing is the creation of demand for a particular product or service by establishing public awareness (Traynor, 2006; Taylor, 2015b). Audiologists have to market their services and qualifications to the community to create greater awareness of the available services, but must also follow the ethical rules regarding advertising (HPCSA, 2008). This is especially applicable to private

practitioners, where marketing is integral to their success (Taylor, 2015b). Therefore, the development of marketing skills should be as much a priority as the development of hearing evaluation skills (Staab, 2008; Kotler & Keller, 2009). Finance, accounting and other business functions will be irrelevant in the absence of a sufficient demand for products and services in order to make a profit (Kotler & Keller, 2009).

Legal and ethical issues (95.2%) were also rated highly. Finance (91.8%), accounting (91.7%) and strategic management (91.7%) were considered by the participants to be equally important. An ability to understand the financial drivers of a successful practice is a fundamental and long-lasting skill set that will benefit any professional regardless of his or her work setting (Traynor, 2008). Participants realised the importance of this by rating the required levels of knowledge highly. Organisational behaviour, managerial decision-making, operations and systems management were rated lower in terms of required knowledge.

Differences between the existing levels of knowledge and the required levels of knowledge necessary to perform practice management tasks as perceived by the participants

By combining the two tables, differences in knowledge can be highlighted. The difference between the required and the existing levels of knowledge levels is indicated in Table 4.

TABLE 4: Difference between participants' existing levels of knowledge and required knowledge necessary to perform practice management tasks ($n = 147$)

Management task	Required knowledge	Existing Knowledge	Difference	Significance (p-value = 0.05)	Ranking of differences
1. Accounting	91.8%	37.4%	54.4%	0.000*	2
2. Finance	91.8%	42.9%	48.9%	0.000*	4
3. Marketing	95.8%	43.5%	52.3%	0.000*	3
4. Legal and ethical issues	95.2%	39.5%	55.7%	0.000*	1
5. Organisational behaviour and human resources	89.1%	44.9%	44.2%	0.000*	7
6. Operations and systems management	89.7%	56.2%	33.5%	0.000*	8
7. Strategic management	91.7%	43.5%	48.2%	0.000*	6
8. Managerial decision-making	89.7%	40.8%	48.9%	0.000*	5

*Statistically significant

As indicated in Table 4 the difference in knowledge is the difference between the percentages of participants who described their self-perceived existing and required levels of knowledge as high or very high. This result was not obtained from the participants directly but rather serves as an informative way to summarise the data and highlight differences in knowledge as previously done by Henson et al. (2006). As indicated in Table 4 the Z-proportional test revealed statistically significant differences between the required and existing levels of knowledge for all eight practice management tasks ($p < 0.05$). The results are in agreement with Henson et al. (2006), who also found a significant difference between required and existing levels of knowledge amongst participants in the USA and Canada. The majority of the participants (95.2%) in the current study were of the opinion that audiologists need high or very high levels of knowledge about legal and ethical issues to effectively manage audiology practices. In reality only 39.5% were of the opinion that they possessed high or very high knowledge about legal and ethical issues. The results were in agreement with Naudé and Bornman

(2014), who found that despite the fact that knowledge of ethics in audiology grew between 1980 and 2010, retrospective analysis identified gaps in the current knowledge. This was the largest difference amongst the practice management tasks followed, again, by the difference in knowledge about accounting (54.4%) and marketing (52.3%). This disparity may partly be due to a lack of opportunity for audiologists to acquire fundamental knowledge of practice management. According to Traynor (2006) it is not surprising that audiologists perform outside their educated expertise in these areas.

Comparison between existing and required levels of knowledge for public and private working environments

Table 5 indicates a comparison between the existing and required levels of knowledge amongst participants working in public or private settings.

TABLE 5: Comparison of existing and required levels of knowledge between public ($n= 41$) and private ($n= 92$) working environments

Management task	Existing knowledge private	Existing knowledge Public	Difference between existing knowledge	Required knowledge private	Required knowledge Public	Difference between required knowledge
1. Accounting	42.2%	31.7%	10.5%	90.1%	95%	-4.9%
2. Finance	48.9%	31.7%	17.2%	91.3%	90.2%	1.1%
3. Marketing	52.2%	22%	30.2%*	97.8%	90%	7.8%
4. Legal and ethical issues	41.3%	29.3%	12%	95.7%	95.1%	0.6%
5. Organisational behaviour and human resources	50%	31.7%	18.3%*	91.3%	85.4%	5.9%
6. Operations and systems management	68.1%	34.1%	31%*	91.2%	85.4%	5.8%
7. Strategic management	48.9%	31.7%	17.2%	90%	92.7%	-2.7%
8. Managerial decision-making	40.2%	41.5%	-1.3%	89%	87.5%	1.5%

*Statistically significant

According to Table 5, there were small differences between self-perceived existing knowledge in private and public settings. The Z-proportional test however, revealed statistically significant differences between existing levels of knowledge regarding marketing ($p=0.001$), organisational behaviour and human resources ($p=0.049$) and operations and systems management ($p=0.000$). Participants working in a private setting had a higher existing knowledge regarding these three tasks. Participants working in a private setting may gain more experience regarding marketing as they have to actively market their practices. It is possible that participants working in the public sector might be

overburdened by the demand for their services and therefore have limited knowledge regarding marketing. Participants working in the private sector are solely responsible for organisational behaviour and human resources. In a public setting these responsibilities are handled collectively. The Z-proportional test revealed no significant differences between participants working in a public and/or private context regarding their required levels of knowledge in all eight of the practice management tasks. The results indicated that there is a great need for knowledge regarding practice management irrespective of the working environment. Participants work in a variety of employment contexts throughout their careers with various common traits; for example, they all have to conform to legal and ethical constraints. Therefore, the required level of knowledge regarding legal and ethical issues is high, regardless of the employment context.

Strengths, management challenges and training needs as perceived by participants

Participants indicated in the text data section that their biggest strengths were patient satisfaction, successful marketing, and starting their own practices. Participants indicated that a lack of training, knowledge, experience and sufficient finances were their biggest challenges in practice management in South Africa. In the open comments section of the survey, one participant stated that “a lack of knowledge and education before starting your own private practice is the biggest challenge in practice management in South Africa”. The majority of participants indicated that training is required to overcome these challenges.

Recommendations regarding audiology practice management training

TABLE 6: Summary of training recommendations ($n = 147$)

Area	Top three recommendations of participants			Options not favoured
When training should be offered	Undergraduate level	Continuing professional development	When entering private practice	Postgraduate level
	80.8%	57.7%	34.6%	28.9%
Who should co-ordinate the training	Individuals with practice management experience	Department of Audiology at universities	SAAA	Entrepreneurs
	59.6%	59.0%	52.6%	7.05%
Format of training	Short course	In-service training	Continuing professional development activities	Distance learning programme
	45.7%	43.1 %	23.4%	4.8%
Evaluation methods	Assignments throughout the course	Practical business project	Written business plan	Written exam and oral presentations
	60%	32.9%	28.4%	14.2%
Topics for training	Marketing	Legal and ethical issues	Customer Service	Operations and systems management
	93.5%	91.5%	91.5%	73.2%

According to Table 6, the majority of participants (80.8%) believed that there is a need for practice management and that such training should be offered at an undergraduate level. Taking into consideration that audiologists working in both public and private settings had a low existing level of knowledge, training at an undergraduate level would be ideal. In reality, just under a quarter (22.7%) of the participants indicated that it was presented as an undergraduate module, emphasising the need for change regarding practice management training. Continuing professional development (CPD) activities were also rated highly (57.7%). For audiologists to maintain their registration with the HPCSA they have to obtain 60 CPD points in a two year cycle (HPCSA, 2011). Therefore, CPD activities will be a good means to address the need for practice management training and acquiring CPD points.

When asked who should co-ordinate practice management training, individuals with practice management experience (59.6%), and departments of audiology at universities were rated highly. The latter indicated that participants wanted to learn from lecturers with experience in the field, and that universities are held in high regard by the

participants. According to Fasokun, Katahoire and Akpovire (2005), experience is regarded as more important than knowledge amongst adults in South Africa, therefore participants may have rated individuals with experience highly. Participants recommended that practice management training should be presented as a short course (45.7%), or as on-the-job training (43.1%), but distance learning was not favoured (4.8%). Since participants were mostly young female professionals in their thirties, employed full-time in private practices (Table 1) with little spare time, having to balance both career and family life they may have preferred short courses or in-service training. According to Fasokun et al. (2005) adult learners are physically, psychologically and culturally different from young learners. As a result of differences, adults apply habitual styles when learning. Owing to their individual needs, adult learners may easily feel left out of learning activities, and this may be why distance learning was not favoured by participants (Baloglu, 2007, Fasokun et al., 2005). The majority of participants (60%) preferred assignments throughout the course. According to Gibbs and Simpson (2004), adult learners consider coursework to be fairer than exams and measure a greater range of abilities. The quality of learning has also been shown to be higher in assignment-based courses (Gibbs & Simpson, 2004).

Marketing was rated as the most important topic to be included in training (93.5%), which is in agreement with the required levels of knowledge as indicated by the participants in Table 3. Participants have to promote their private practices, since these are essentially small businesses. According to Staab (2008), audiologists must understand the fundamental principles of marketing and have basic marketing skills. Great emphasis was placed on basic marketing skills as marketing the profession is also important for the future of audiology. Marketing was closely followed by legal and ethical issues (91.5%). Ethical considerations should go hand in hand with promoting a practice (Solodar & Williams, 2007). Audiologists have a professional code of ethics and standards as well as guidelines for good practice (HPCSA, 2008; SASLHA, 2011) that ensures high ethical standards and which provide the foundation for good customer service. According to Taylor (2015a), a trusting relationship with the audiologist is rated highly by patients. For this reason audiologists inherently place a large emphasis on legal and ethical issues.

Conclusion

This study found significant differences between participants' self-perceived existing and required knowledge in all eight practice management tasks. Legal and ethical issues, as well as marketing and accounting, revealed the biggest differences. Participants recognised that they need significant expansion of their practice management knowledge, skills and attitudes in order to be successful irrespective of their work context. The success of private audiology practices is also important for the future engagement between private and public sectors when the National Health Insurance system is implemented.

To address these needs audiology programmes should incorporate aspects of all eight practice management areas that compose what is considered the most important body of knowledge for practice management (Henson et al., 2006; Hosford-Dunn et al., 2008). According to Henson et al. (2006), there are many options for audiologists in the USA and Canada seeking additional practice management education. This may include web-based learning, professional association conventions, continuing professional education activities, manufacturer support, mentoring, books and educational opportunities outside those tailored to the profession. Despite the assistance provided by these individual opportunities, Simpson (2011) states that one of the most prevalent means of business education for audiologists remains that of "trial and error". According to Bakker (2008), audiologists receive excellent clinical training, but limited or no formal preparation for the challenges that the management of a private practice brings. Audiology practice management is a specialised field as audiologists face unique challenges such as marketing restrictions stipulated by the HPCSA (2008).

There are several alternatives that may address this need as perceived by the participants, such as future research into the content and methods taught in undergraduate training programmes in South Africa to make specific recommendations for incorporating additional practice management training, as recommended by participants. According to Henson, Presley and Korfman (2008) giving up clinical modules to practice management modules or extending programme durations will be difficult as the focus of most university programmes internationally is on clinical training, as this is the core professional function. Therefore, postgraduate training, continued professional education and short courses as recommended by the participants, can be

considered. Henson et al. (2008) recommended an industry-wide effort to develop and manage a practice management education programme designed specifically for healthcare professionals. This effort could be led by a national or international association and developed at universities that offer audiology programmes (Henson et al., 2008). Taking into consideration what audiologists know and what they should know and using their recommendations to make improvements, practice management training has the potential to enhance all aspects of the profession, improve service delivery, empower practitioners, create awareness of the profession and increase satisfaction of both providers and patients (Hosford-Dunn et al., 2008).

A limitation of the current study is the fact that the results reported on are derived from a small sample of audiologists and dually qualified speech-language therapists and audiologists in South Africa. The response rate was below the desirable rate described in the literature (Maxwell & Satake, 2006). As a result, the findings may be biased and cannot be generalised to the greater population of audiologists. Despite these limitations the data was stable as similar findings were reported by other studies (Bakker, 2008; Henson et al., 2006; Wemmer, 2007), and significant conclusions could be drawn about what participants know and what they should know. Recommendations for further studies include that the same study be conducted with speech-language therapists. Most of the participants (65.4%) were dually qualified as speech-language therapists and audiologists. Therefore, some of the participants might still practice as speech-language therapists as well; hence, it is assumed that speech-language therapists would have similar practice management training needs, although this should be investigated further in a separate study.

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COMPETING INTERESTS

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

AUTHOR'S CONTRIBUTIONS

A.K. (University of Pretoria) was the supervisor of the research study. M.S. (University of Pretoria) was co-supervisor. D.B. (University of Pretoria) conducted the research. A.K., M.S., and D.B. compiled the article.

CHAPTER 4

DISCUSSION AND CONCLUSION

4.1 Discussion of results

To the researcher's knowledge little is currently known of South African audiologists' specific needs in terms of practice management training. Audiologists receive excellent clinical training, but limited or no formal preparation for the challenges that the management of a private practice brings. Therefore, practices are often poorly managed, based on common sense, "trial and error" or the practitioner follows the example of other practices in the area (Bakker, 2008; Henson et al., 2006). It was therefore important to determine what South African audiologists know and what they should know about practice management. According to Henson (2006) there are many options for audiologists in the USA and Canada seeking additional practice management education. This may include web-based learning, professional association conventions, continuing professional education activities, manufacturer support, mentoring, books, and educational opportunities other than those tailored to the profession.

The results of the current study indicated that participants' self-perceived existing knowledge of practice management were mostly at a low or very low level for accounting, finance, marketing, legal and ethical issues, organisational behaviour and human resources, operations and systems management, strategic management, and managerial decision making. Despite the unrepresentativeness of the sample, the results were consistent with other studies (Foxtrot, 2001; Henson et al., 2006). Operations and systems management was the practice management task participants reported they knew the most about (56.1%), but even that was not a high percentage. Operations and systems management is an integral part of an audiologist's daily tasks, which includes managing the processes that produce and distribute products and services such as diagnostic hearing tests and the fitting of hearing aids. Participants may therefore understandably report a high level of existing knowledge regarding operations and systems management.

Accounting was the task they knew the least about (37.4%). Knowledge of accounting is necessary to make financial decisions – from purchasing equipment and supplies to expanding services and determining salaries (Traynor, 2008). Accounting is a specialised field and would not have been included during undergraduate studies.

Participants' self-perceived required levels of knowledge regarding practice management tasks were high or very high for all eight practice management tasks. They were aware of the great need for practice management knowledge. In the current study, participants were of the opinion that the practice management task of marketing was the function they required the most knowledge about (95.8%). This finding is consistent with the findings reported by Henson et al. (2006) who also noted that marketing was the practice management task that audiologists said they needed to know the most about. A total of 92% of the participants said that a high or very high level of marketing knowledge is needed by audiologists in the USA and Canada (Henson et al., 2006). Marketing is the creation of demand for a particular product or service by establishing public awareness (Traynor, 2006). Audiologists have to market their services and qualifications to the community to create greater awareness of the available services. This is especially applicable to private practitioners whose success depends on how effectively they market themselves and their profession (Foxtrot, 2001). Therefore, the development of marketing skills should be as much a priority as the development of hearing evaluation skills (Staab, 2008; Kotler & Keller, 2009). The use of marketing strategies by audiologists is regulated by the Code of Ethics and Standards which states that a practitioner can advertise services provided that the advertisement is not unprofessional, untruthful, deceptive or misleading, or causes consumers unwarranted anxiety about the possibility that they may be suffering from a health condition (SASLHA, 2011). Audiologists should know what is permitted in the Code of Ethics and Standards. They should know how to choose target markets and how to source and retain clients (Kotler & Keller, 2009). Consequently, training in marketing is essential to ensure the growth and future of the profession in the transforming healthcare market (Foxtrot, 2001). Finance, accounting and other business functions will be irrelevant in the absence of a sufficient demand for products and services in order to make a profit (Kotler & Keller, 2009).

Finance (91.8%), accounting (91.7%) and strategic management (91.7%) were considered by the participants to be almost equally important. In the current competitive

market, practices must engage in strategic planning to survive and prosper (Noe, Hollenbeck, Gerhart, & Wright, 2010). An ability to understand the financial drivers of a successful practice is a fundamental and long-lasting skill set that will benefit any professional regardless of his/her work setting (Traynor, 2008). Financial records are deemed necessary by law (as per the Receiver of Revenue) to obtain financing and to maintain financial control over a business (Foxtrot, 2001). Financial management also includes controlling costs in order to be able to make a profit and adding value to products and services (Thompson & Martin, 2005). Participants realised the importance of financial management by rating the required levels of financial knowledge highly.

The difference between the percentages of self-perceived required and existing levels of knowledge was not obtained from the participants directly, but rather served as an informative way to summarise the data. The Z-proportional test (Maree, 2007) revealed statistically significant differences between the required and existing levels of knowledge for all eight practice management tasks ($p < 0.05$). It is therefore clear that the participants were very aware of what audiology practice management demands of them. The results are in agreement with those noted by Henson et al. (2006) who also found a significant difference between required and existing levels of knowledge amongst participants in the USA and Canada. It appears that, in South Africa as well as other countries, there are large differences between existing knowledge gained at university and elsewhere and required levels of knowledge to perform practice management tasks. The results of the current study therefore corresponded with an international need to improve practice management training.

The majority of the participants (95.2%) in the current study were of the opinion that audiologists need high or very high levels of knowledge about legal and ethical issues to effectively manage audiology practices. In reality, only 39.5% were of the opinion that they possessed a high or very high level of knowledge about legal and ethical issues. Audiologists adhere to a professional Code of Ethics and Standards (SASLHA, 2011) that promotes high ethical standards and provides the foundation for good customer service. Legal and ethical issues are therefore held in high regard by audiologists. Legal and ethical issues was the largest difference in levels of knowledge amongst the practice management tasks, followed by the difference in knowledge about accounting (54.4%) and marketing (52.3%). The disparities may partly be due to a lack of opportunity to

acquire fundamental knowledge of these practice management tasks. Therefore, it is not surprising that participants perform outside their educated expertise in these areas (Traynor, 2006).

There were minor differences between self-perceived existing knowledge of participants in private and public settings. The Z-proportional test (Maree, 2007), however, revealed statistically significant differences between the two groups in respect of existing levels of knowledge regarding marketing ($p=0.001$), organisational behaviour and human resources ($p=0.049$), and operations and systems management ($p=0.000$). Participants working in a private setting reported they had more knowledge regarding these three tasks than participants working in the public sector. Participants working in a private setting may gain greater experience regarding marketing as they have to actively market their practices. It is possible that participants working in the public sector might be overburdened by the demand for their services and therefore have less need for knowledge regarding marketing and consequently reported a low level of knowledge regarding marketing. Human resource management practices include attracting potential employees, teaching employees how to do their work, and evaluating their performance (Noe et al., 2010). Participants working in the private sector are single-handedly responsible for organisational behaviour and human resources as well as operations and systems management in their own practices. Consequently, they also reported increased knowledge regarding these practice management tasks. In a public health care setting these responsibilities might be handled collectively.

The Z-proportional test (Maree, 2007) revealed no statistically significant differences between participants working in a public setting ($n=41$) and those working in a private context ($n=92$) regarding their self-perceived required levels of knowledge in all eight of the practice management tasks. The results indicated that there is a high need for knowledge regarding practice management irrespective of the working environment. Throughout their careers audiologists may work in a variety of employment contexts with various common traits, for example, they all have to conform to legal and ethical constraints (Hosford-Dunn et al., 2008). Therefore, the required level of knowledge regarding legal and ethical issues was rated highly, regardless of the employment context. It is also necessary to take into consideration very few participants in the study worked in a public setting ($n=41$) compared to those who worked in a private context

(n=92). It is possible that private practitioners had a greater interest in the topic of practice management than participants working in a public setting and therefore more participants from a private context participated in the study.

Participants indicated that their greatest strengths were client satisfaction, successful marketing, and starting their own practices. Participants indicated that a lack of training, knowledge, experience and sufficient finances were their greatest challenges in practice management in South Africa. In the 'open comments' section of the survey, one participant stated that a lack of knowledge and education before starting an own private practice was the greatest challenge in practice management in South Africa. The majority of participants indicated that training is required to overcome these challenges.

The majority of participants (80.8%) believed that there is a need for practice management and that such training should be offered at an undergraduate level. A similar sentiment was recorded by Wemmer (2007) in whose study the majority of audiologists (89.3%; n=150) also indicated that practice management training should be included at an undergraduate level. Considering that participants from both public and private settings reported insufficient knowledge of practice management, training at an undergraduate level appear to be ideal. Furthermore, based on the results of this study, it is evident that those professionals who have been in private practice for a number of years also reported a lack of practice management knowledge. The results highlight the notion that management competencies are not innate but are acquired by training (Hosford-Dunn et al., 2008). Practice management skills may also not be sufficiently gained by experience. Only a few (22.7%) participants indicated that practice management was presented as an undergraduate module in their training courses, emphasising the need for change regarding practice management training. CPD activities was also rated highly (57.7%). CPD activities provide an opportunity to acquire knowledge and skills in areas where graduates perceive their undergraduate training to be inadequate (Wemmer, 2007). For audiologists to maintain their registration with the HPCSA they have to obtain 60 CPD points in a two year cycle (HPCSA, 2011). Therefore, CPD activities are considered a suitable means to address both the need for practice management training and acquiring CPD points.

When asked who should co-ordinate practice management training, individuals with practice management experience (59.6%) and departments of Audiology at universities were both rated highly. The latter indicates that participants want to learn from lecturers with experience in the field and that universities were held in high regard by the participants. Participants recommended that practice management training should be presented as a short course (45.7%) or as in-service training (43.1%), but distance learning was not favoured (4.8%). The majority of participants were young professionals in their thirties, employed full-time in private practices (Table 1) with little spare time and having to balance both career and family life; hence, they preferred short courses or in-service training. Adult learners also have different learning styles and cultural backgrounds (Baloglu, 2007). They may easily feel they are being left out of learning activities (Baloglu, 2007). The majority of participants (60%) preferred assignments throughout the course. According to Gibbs and Simpson (2004), adult learners consider coursework to be a fairer manner of assessment than exams and coursework also measures a greater range of abilities. The quality of learning has also been shown to be higher in assignment-based courses (Gibbs & Simpson, 2004).

Ideally, specialised training that addresses the specific challenges in South Africa should be developed for graduate audiologists or audiologists contemplating a move to private practice or management careers. Based on the results of the current study and evidence from several earlier studies, it is clear that there is a need to extensively expand practice management training and education for audiologists.

4.2 Clinical implications and recommendations

This study reported on audiology practice management in South Africa: What audiologists know and what they should know. The aim was to determine the self-perceived existing and required levels of practice management knowledge amongst South African audiologists. Audiology training at universities in South Africa is particularly geared towards a community-based service delivery model. As a result, practice management appears to be included only on a superficial level in undergraduate curricula. In the light of future engagement between private and public sectors when the National Health Insurance (NHI) system is implemented, adequate knowledge regarding audiology practice management will be essential. Irrespective of the participants' working environments, the findings of the study highlighted that significant expansion of practice

management knowledge is necessary. Furthermore, the participants' recommendations were useful and have the potential to improve practice management training if implemented.

4.3 Critical assessment of study strengths and limitations

The strengths and limitations of this research study were considered critically. This critical evaluation can aid in directing future and continuing research. The strengths and limitations are discussed below.

4.3.1 Strengths of the study

This study may contribute to the enhancement of practice management training for audiologists registered in South Africa. A well-founded understanding of existing and required levels of knowledge may have significant implications for practice management training. Improved practice management training for audiologists is necessary for managing profitable practices which lead to the growth of the profession. The content of the web-based survey may have encouraged participants to consider where their practice management skills and knowledge might be lacking and they may have been encouraged to seek some form of training.

4.3.2 Limitations of the study

A limitation of the current study is the fact that the results reported on are derived from a small sample of audiologists and dually qualified speech-language therapists and audiologists in South Africa. The response rate was below the desirable rate described in the literature (Maxwell & Satake, 2006) and therefore findings cannot be generalised to the greater population of audiologists in South Africa or elsewhere. Some provinces and universities were underrepresented in the study. The fact that most participants graduated from one tertiary institution also influences the generalisability of the findings, especially findings regarding the training of participants. The web-based survey was only available in English, which might have put second language English speaking participants at a disadvantage. Consequently, their actual opinions might not have been recorded as accurately as possible. Despite the small sample size the data was consistent and significant conclusions could be drawn. The researcher is of the opinion that the research results present a fairly accurate snapshot regarding what participants know and what they think they should know.

4.4 Future research

Recommendations for further studies include that the same study be conducted with speech-language therapists. Most of the participants (65.4%) were dually qualified as speech-language therapists and audiologists. Therefore, some of the participants might practice as speech-language therapists as well; hence, it is assumed that speech-language therapists would have similar practice management training needs, although this should be investigated further in a separate study. Training should be conducted on all levels, including undergraduate and CPD activities, and then the questionnaire should be administered again to determine if there are changes in existing and required levels of knowledge. It will also be interesting to administer the same questionnaire in five years' time to a larger sample in order to compare results.

4.5 Conclusion

The main conclusion that can be drawn from this research study is that irrespective of their work context, participants showed that they need significant expansion of practice management knowledge in order to be successful, to compete effectively and to make sense of a complex marketplace. This study found significant differences between participants' existing and required knowledge in all eight practice management tasks. Legal and ethical issues as well as marketing and accounting revealed the greatest difference in levels of knowledge. The success of private audiology practices is also important for the future engagement between sectors when the National Health Insurance system is implemented. To address these needs, audiology programmes should incorporate aspects of all eight practice management areas that compose what is considered the common body of knowledge for practice management (Hosford-Dunn et al., 2008). Audiologists receive excellent clinical training, but limited or no formal preparation for the challenges that the management of a private practice brings (Bakker, 2008). There are several alternatives that might address this need. Firstly, a significant redesign of undergraduate audiology programmes to incorporate additional practice management training is recommended. Giving up clinical modules to practice management modules or extending programme durations will be difficult as the focus of most university programmes is on clinical training (Henson et al., 2008). Therefore, postgraduate training, continued professional education, and short courses, should be considered as recommended by the participants. Henson et al. (2008) recommend an industry-wide effort to develop and manage a practice management education

programme designed specifically for healthcare professionals. This effort could be led by a national or international association and developed at one or more of the universities that currently offer audiology programmes (Henson et al., 2008). Taking into consideration what audiologists know and what they should know and using their recommendations to make improvements, practice management training has the potential to enhance all aspects of the profession, improve service delivery, empower practitioners, create awareness of the profession, and increase satisfaction of both providers and clients (Hosford-Dunn et al., 2008).

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APPENDICES

Appendix A:

Proof of submission to South African Journal of Communication Disorders



deidre bezuidenhoudt <deidre1bez@gmail.com>

SAJCD Editor Decision - 114: Revisions Required

Dr Anita Edwards <anitaedwards247@gmail.com>

Mon, Apr 6, 2015 at 9:17 AM

To: Miss Deidre Bezuidenhoudt <deidre1bez@gmail.com>

Cc: Alta Kritzinger <alta.kritzinger@up.ac.za>, Maggie Soer <maggie.soer@up.ac.za>

Dear Deidre, Alta and Maggie

Ref. No.: 114

Title: Audiology practice management in South Africa: What audiologists know and what they should know

Journal: South African Journal of Communication Disorders

We have reached a decision regarding your submission.

The reviewers have recommended that revisions are required before this article can be considered for publication.

Please indicate if you are willing to revise the manuscript taking the reviewer comments below and in the edited versions on the website, into account. If so please submit the revised version with a detailed table of how the reviewer comments were addressed within 3 weeks.

Kind regards

Anita Edwards

SAJCD Editor

Cell 0832307704

anitaedwards247@gmail.com

Reviewer B:

This topic is very relevant in the South African context. Well presented and easy to follow and understand. The article will be of great interest to Audiologists currently in private practice and those in the public sector looking to pursue a career in the private setting.

I have commented on minor editorial issues to be considered. The conclusion is well written and ties up nicely with the results and discussion. However, the introduction does not flow as well and it may help to link each paragraph so that it builds the case for the chosen methodology.

In terms of literature, are there any more studies (even internationally) that were done for Audiologists or any other allied profession that can be used as a comparison to the findings of the current study?

Nice, comprehensive reference list - note that one reference is missing and one is incorrect (refer to track changes in the text)

Reviewer C:

The author displays excellent scientific language skills. Statements are clearly defined and well supported with appropriate research. All aspects of the research show logical reasoning and result in a well-designed research study. Input from other relevant role-players (i.e. academic institutions) would have been valuable in order to provide collateral for the current information and insight into the practical implementation of the author's recommendations.



deidre bezuidenhoudt <deidre1bez@gmail.com>

SAJCD Editor Decision - 114: Revisions Required

Dr Anita Edwards <anitaedwards247@gmail.com>

Sat, May 30, 2015 at 11:44 AM

To: Miss Deidre Bezuidenhoudt <deidre1bez@gmail.com>

Cc: Alta Kritzinger <alta.kritzinger@up.ac.za>, Maggie Soer <maggie.soer@up.ac.za>

Dear Deidre, Alta and Maggie

Ref. No.: 114

Title: Audiology practice management in South Africa: What audiologists know and what they should know

Journal: South African Journal of Communication Disorders

Thank you for your details on the comment 60.

The manuscript now addresses most of the reviewer comments.

However I believe the title or the methodology needs to reflect the dates when this study was conducted. Please consider how the information given to the reviewers about when the study was conducted can be reflected or available for a reader.

Once that has been addressed the article can be accepted for publication.

I do however want to warn you that the SAJCD annual subsidy amount from SASLHA has been reached and therefore you will have the option of waiting until 2016 to have the article published or of paying the page fees in order to have the article published in the 2015 edition. The journal management will be able to provide you with the costs once the article has been copy edited and the final page number has been calculated.

Kind regards

Dr Anita Edwards

SAJCD

Cell 0832307704

anitaedwards247@gmail.com

South African Journal of Communication Disorders<http://www.sajcd.org.za/index.php/sajcd>

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Appendix B:

Ethical Clearance – Faculty of Humanities, University of Pretoria



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

22 October 2013

Dear Prof Kritzinger

Project: Current status of audiology practice in South Africa
Researcher: D Breytenbach
Supervisor: Prof A Kritzinger
Department: Communication Pathology
Reference number: 26162289

Thank you for your response to the Committee's letter of 9 October 2013.

I have pleasure in informing you that the Research Ethics Committee formally **approved** the above study at an *ad hoc* meeting held on 22 October 2013. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should your actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

Prof. Sakhela Buhlungu
Chair: Research Ethics Committee
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: sakhela.buhlungu@up.ac.za

Research Ethics Committee Members: Dr L Blokland; Prof S Buhlungu (Chair); Prof M-H Coetzee; Dr JEH Grobler; Prof KL Harris; Ms H Klopper; Prof A Mlambo, Dr C Panebianco-Warrens; Prof GM Spies; Prof E Tallard ; Dr FG Wolmarans, Dr P Wood

Appendix C:

Informed consent and participant information letter



June 2013

Dear Audiologist/ Speech-language therapist and Audiologist

As part of a master's research programme at the University of Pretoria, I am currently investigating: **The current status of audiology practice management in South Africa.**

Private practice has become an attractive option for many qualified Audiologists. It is the practitioner's goal for the practice to become a successful, financially independent practice. In order to achieve these goals successful practice management practices are required. It is the purpose of this study to determine the current status of audiology practice management in order to determine the strengths, training needs and management challenges of South African Audiologists. The results of this study will be used to make recommendations regarding practice management training for South African Audiologists.

Please note the following:

- All Audiologists and dually qualified Audiologists and Speech-language therapists may participate in the study even if you are not working in a private practice or as a manager.
- The study involves an anonymous web based questionnaire. Your name will not appear on the questionnaire and the answers you give will be treated as strictly confidential. You cannot be identified in person based on the answers you give.
- You may choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the web based questionnaire as completely and honestly as possible. This should not take more than 20 minutes of your time.
- The results of the study will be used for research purposes only and will be published in an academic journal. I will provide you with a summary of our findings on request.
- Data will be securely stored for 15 years at the University of Pretoria.

- By completing the web based questionnaire you give your consent to participate in the study on a voluntary basis

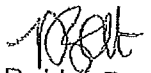
I would appreciate your time and effort to complete the web based questionnaire.


Please click on the following link to complete the questionnaire: xxxxxx

Please contact me, Deidre Breytenbach (0832815778, deidre1bez@gmail.com) if you have any questions or comments regarding the study.

Thank you for your participation.

Yours sincerely,


Deidre Breytenbach
Researcher


Dr. Maggi Soer
Co-supervisor


Prof. Alta Kritzing
Supervisor


Prof. Bart Vinck
Head: Dept of Communication Pathology

Appendix D:
Questionnaire

Dear Respondent,

Thank you for giving up some of your precious time for this research.

The following questionnaire is part of a research study undertaken to investigate the current status of audiology practice management in South Africa. Your own opinion is crucial. There are no right or wrong answers but it is important to indicate your personal view irrespective of what you may believe others will think.

The study has been approved by the Research Ethics Committee of the Faculty of Humanities, University of Pretoria.

It will be highly appreciated if you would complete it as thoroughly as possible. All information will be treated as confidential and will only be used for research purposes and reported in terms of descriptive statistics such as mathematical averages, variances and correlations.

Participation is voluntary and you may withdraw from participation in the study at any time and without any consequences. By completing this survey you:

- Consent to take part in the research study (as mentioned above) by completing the web based questionnaire;
- Understand that all information will be collected anonymously; and
- Understand that raw data will be securely stored for 15 years at the University of Pretoria

The questionnaire should take you about 15 minutes to complete.

Thank you very much,

Deidre Breytenbach
Masters student
Dept of Communication Pathology
University of Pretoria
Deidre1bez@gmail.
Mobile: 0832815778

Prof Alta Kritzinger & Dr Maggi Soer
Dept of Communication Pathology
Alta.Kritzinger@up.ac.za; maggi.soer@up.ac.za

.....
Instructions for completion:

ALL Audiologists and dually qualified Audiologists and Speech-Language Therapists MAY participate in the study even if you are not working in a private practice or as a manager.

A. Training and education in practice management

***1. Was business or practice management included in your undergraduate degree?**

Yes

No

***2. Have you attended any training in business or practice management?**

Yes

No

3. If yes please provide details of the training:

What type of training? (Tick all applicable)

- CPD (continuing professional development) activities
- E-learning
- MBA
- Observation
- On the job training
- Undergraduate module
- Working with supervisors
- Other (please specify)

4. Where did you attend the training as mentioned above? (Tick all applicable)

- At work
- At a university/training institution
- At an informal study group
- Over the internet
- Other (please specify)

5. How long was the training mentioned in Question 2? (in hours)

6. Were you examined on the course content of the training mentioned in Question 2?

- Yes
- No

7. What were the main topics/themes of the training mentioned in Question 2?

***8. Where did you receive most of your training/knowledge in business or practice management?**

- Books
- CPD (Continuing professional development) activities
- Coaching
- E-learning
- Internet information
- Journal Articles
- Mentoring
- Undergraduate studies
- Post graduate studies
- On the job training
- Knowledge sharing with colleagues
- Trial and error
- Other (please specify)

***9. Do you think there is a need for training in practice management?**

- Yes
- No

If no (Please specify why not)

10. If yes please provide the following information:

At what stage in your training as an audiologist do you think it is necessary for audiologists to learn about practice management? (Tick all applicable)

- Undergraduate level
- Post graduate level
- When entering private practice
- Part of continuing professional education
- Never
- Other (please specify)

11. In what format do you think such training should be conducted?

Please rank the options in order of importance where 1 is the most important approach and 4 is the least important approach

	1	2	3	4
Continuing professional development activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance learning programme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-learning course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Short course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On the job training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

12. How many hours are you prepared to spend on practice management training?

13. Who do you think should co-ordinate practice management courses for Audiologists?

(Tick all applicable)

- SAAA
- SASLHA
- Health Professions Council of South Africa; Professional Board for Speech Therapy and Audiology
- Business management schools
- Entrepreneurs
- Financial institutions
- Department of Audiology at universities
- Hearing aid companies
- Individuals with practice management experience
- Private consultants
- Other (please specify)

14. How do you think someone who has attended practice management training should be evaluated to determine if he/she has the necessary knowledge and skills?

(Tick all applicable)

- Assignments throughout the course
- Practical business project
- Written exam
- Oral presentations
- Written business plan
- No evaluation is necessary
- Other (please specify)

15. What topics do you think should be included in a practice management training course? (Tick all applicable)

- Accounting (process of managing the recording, reporting and analysis of financial transactions of a business e.g. capturing daily sales, invoicing patients)
- Finance (process of acquiring, investing and managing resources such as offices and equipment)
- Marketing (requires defining target markets, selecting market positions and managing product, pricing, communications and channels decisions)
- Legal and Ethical issues (liability, labour law, agency and organizational law and ethical decision making)
- Organizational behaviour and human resources (staffing issues such as hiring and firing and management issues such as leadership and motivation)
- Operations and systems management (managing the processes that produce and distribute products and services e.g. order stock)
- Strategic management (the process by which an organization determines its long run direction and sets goals and objectives)
- Managerial decision making (problem solving)
- Customer Service (consumer protection act, customer satisfaction measurements)
- Other (please specify)

B. Management in the practice

*16. Please indicate your existing levels of knowledge in each of the following areas:

	1 Very low	2 Low	3 High	4 Very high
Accounting (process of managing the recording, reporting and analysis of financial transactions of a business)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finance (process of acquiring, investing and managing resources such as offices and equipment)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing (requires defining target markets, selecting market positions and managing product, pricing, communications and channels decisions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legal and Ethical issues (liability, labour law, agency and organizational law and ethical decision making)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizational behaviour and human resources (staffing issues such as hiring and firing and management issues such as leadership and motivation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operations and systems management (managing the processes that produce and distribute products and services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic management (the process by which an organization determines its long run direction and sets goals and objectives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managerial decision making (the use of research design and statistical tools to improve decision making)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 17. Please indicate the level of knowledge you consider a requirement to successfully perform the following tasks:**

	1 Very low	2 Low	3 High	4 Very high
Accounting (process of managing the recording, reporting and analysis of financial transactions of a business)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finance (process of acquiring, investing and managing resources such as offices and equipment)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing (requires defining target markets, selecting market positions and managing product, pricing, communications and channels decisions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legal and Ethical Issues (liability, labour law, agency and organizational law and ethical decision making)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizational behaviour and human resources (staffing issues such as hiring and firing and management issues such as leadership and motivation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operations and systems management (managing the processes that produce and distribute products and services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic management (the process by which an organization determines its long run direction and sets goals and objectives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managerial decision making (the use of research design and statistical tools to improve decision making)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Based on your own experience , please rate the importance of the following activities in practice management: (If you do not have any audiology practice management experience, you can skip this question)

	Not at all important	Somewhat important	Very important	Extremely important
Planning and setting goals (establishing short and long term objectives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing (making your community aware of your services, establishing a referral network)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management (management of the practice finances)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff performance reviews (conducting appraisals of employee performance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time management (effective use of available time)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Record keeping (maintaining all client based data)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measuring client satisfaction (determining satisfaction with services received)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost containment (reducing the cost of services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clinical duties (assessment and intervention)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuous professional development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)				

19. What do you consider the single biggest challenge in practice management in South Africa?

20. Which factor(s) contribute most to this challenge?

21. What do you think is required to overcome this challenge?

22. What was your biggest success in practice management?

23. Which factor(s) contributed most to this success?

C. Demographics

***24. Are you:**

- Male
 Female

***25. How old are you?**

***26. Please rank the language(s) in which you provide services where 1 is your first language, etc.**

Afrikaans	<input type="text"/>
English	<input type="text"/>
IsiNdebele	<input type="text"/>
IsiXhosa	<input type="text"/>
IsiZulu	<input type="text"/>
Northern Sotho	<input type="text"/>
Sesotho	<input type="text"/>
Setswana	<input type="text"/>
Siswati	<input type="text"/>
Ishivenda	<input type="text"/>
Xitsonga	<input type="text"/>

***27. In which province do you currently practice?**

- Eastern Cape
 Free State
 Gauteng
 Kwazulu-Natal
 Limpopo
 Mpumalanga
 Northern Cape
 North West
 Western Cape

***28. How many years have you been practicing Audiology?**

***29. How many years private practice experience do you have?**

***30. In which working environment(s) have you practiced your profession to date?**

(Tick all applicable)

- Government hospital
- Government clinic
- Private hospital
- Private practice: own venture
- Private practice: together with/under another person
- School setting
- Academic setting
- Hearing aid company
- Other (please specify)

***31. In which environment are you currently working?**

- Government hospital
- Government clinic
- Private hospital
- Private practice: own venture
- Private practice: together with/under another person
- School setting
- Academic setting
- Hearing aid company
- Other (please specify)

***32. In what capacity have you practiced your profession to date?**

(Tick all applicable)

- Employer/owner
- Practice manager
- Full-time employee
- Part-time employee
- Locum
- Other (please specify)

***33. In what capacity are you currently working?**

- Employer/owner
- Practice manager
- Full-time employee
- Part-time employee
- Locum
- Other (please specify)

34. If you are an employer or manager, how many employees are currently working under you?

***35. Where did you obtain your undergraduate qualification?**

- University of Cape Town
- University of KwaZulu-Natal (Durban- Westville)
- University of Limpopo (Medunsa)
- University of Stellenbosch
- University of Pretoria
- University of the Witwatersrand
- Other (please specify)

***36. In what year did you obtain your undergraduate qualification?**

***37. Are you registered as a...? (Please mark the relevant option)**

- Speech-Language Therapist and Audiologist (STA)
- Audiologist (AU)

***38. What is your highest professional qualification(s)?**

- Bachelor in Speech-Language Pathology and Audiology
- Bachelor in Audiology
- Masters in Audiology
- Doctorate in Audiology (DPhil)
- Doctorate in Audiology (AuD)
- MBA
- Other (please specify)

***39. Please indicate how many hours per day you work?**

Monday	<input type="text"/>
Tuesday	<input type="text"/>
Wednesday	<input type="text"/>
Thursday	<input type="text"/>
Friday	<input type="text"/>
Saturday	<input type="text"/>

***40. Where is your practice located?**

- Urban
 Semi-urban
 Rural

***41. What type of Audiology Services do you provide? (Tick all applicable)**

- Auditory Brainstem Response
 Basic Audiometric Testing
 Balance disorders and vertigo
 Central Auditory Processing Disorders- specialist audiological testing
 Cochlear Implant MAPing- specific MAPing clinic
 Electrocochleography
 Ear Mould Laboratory
 Electronystagmography
 Dispensing of Hearing Aids and Assistive Listening devices
 Industrial Audiology
 Medico-Legal
 Neonatal Screening
 Noise Protection
 Otoacoustic Emissions
 Pediatric Audiology
 Auditory Rehabilitation
 Steady State Evoked Potentials
 Tinnitus Retraining Therapy
 Other (please specify)

***42. Which additional roles do you fulfill in the workplace? (Tick all applicable)**

- Accountant
- Office manager
- Human resources manager
- Marketing expert
- GP/ENT liaison
- Payroll clerk
- Computer and equipment technician
- Caretaker
- Medical aid administrator
- None
- Other (please specify)

Thank you for your co-operation!

Appendix E:

Declaration of the conservation of research data and/or documents



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

FACULTY OF HUMANITIES
RESEARCH ETHICS COMMITTEE

Declaration for the storage of research data and/or documents

I/ We, the principal researcher(s) Deidre Breytenbach

and supervisor(s) Prof. Alta Kritzinger and Dr. Maggi Soer

of the following study, titled Current status of audiology practice management in South Africa

will be storing all the research data and/or documents referring to the above-mentioned study in the following

department: Department of Communication Pathology, University of Pretoria

We understand that the storage of the mentioned data and/or documents must be maintained for a minimum of 15 years from the commencement of this study.

Start date of study: July 2013

Anticipated end date of study: July 2014

Year until which data will be stored: July 2029

Name of Principal Researcher(s)	Signature	Date
Deidre Breytenbach	<i>[Handwritten Signature]</i>	19.06.2013

Name of Supervisor(s)	Signature	Date
Prof. Alta Kritzinger	<i>[Handwritten Signature]</i>	13.06.2013
Dr. Maggi Soer	<i>[Handwritten Signature]</i>	24-08-2013

Name of Head of Department	Signature	Date
Prof. Bart Vinck	<i>[Handwritten Signature]</i>	2/9/2013

Appendix F:

Letter to SAAA and SASLHA



June 2013
SAAA & SASLHA

To whom it may concern,

The current status of audiology practice management in South Africa.

I am an Audiologist, presently working at the Ear Institute in Pretoria. I am currently registered for the degree MCommunication Pathology at the University of Pretoria. As part of the requirements of the degree, I am conducting a study regarding the current status of audiology practice management in South Africa.

I hereby wish to kindly appeal to you to send an e-mail with a participant information letter as well as a link to the web based questionnaire regarding the current status of audiology practice management to your database to assist me in my research.

It is the **purpose of this study** to determine the current status of audiology practice management in order to determine the strengths, training needs and management challenges of South African Audiologists. The results of this study will be used to make recommendations regarding practice management training for South African Audiologists.

The **procedures** of this study entail a web based questionnaire that will take approximately 20 minutes.

Ethical clearance will be obtained at the Research Ethics Committee of the Faculty of Humanities at the University of Pretoria before commencement of the study.

Rights of the participants include the following: Participation is strictly voluntary. Participants will be given the opportunity to withdraw from the research project at any stage. Prospective participants will be informed that there will be no negative consequences should they withdraw from the study.

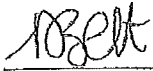
Strict confidentiality will apply throughout the study. Only the researcher, supervisors, and statisticians will have access to the information. Data will be statistically analysed and utilised for international publications or conference presentations on the mentioned topic. The results will also be recorded in a master's thesis. According to University policy all data will be kept safe in the Department of Communication Pathology for a period of 15 years.

University of Pretoria
Pretoria
0002
South Africa

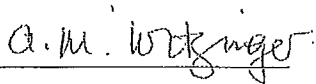
deidre1bez@gmail.com
Tel: 0832815778

Your co-operation will be highly appreciated. Should you need any further information you can contact me at 0832815778 or deidre1bez@gmail.com

Yours sincerely



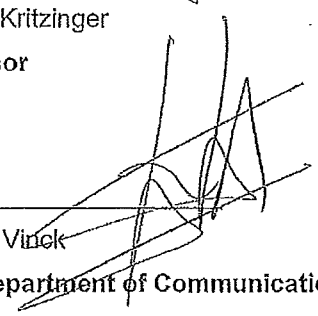
Deidre Breytenbach
Speech-Language Therapist & Audiologist
MCommunication Pathology student



Prof Alta Kritzinger
Supervisor



Dr Maggi Soer
Co-Supervisor

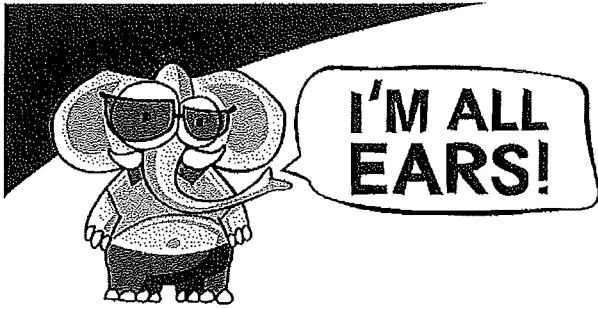


Prof Bart Vinck

Head: Department of Communication Pathology

Appendix G:

Permission letter from SAAA and SASLHA



28 October 2013

To whom it may concern

RE: ASSISTANCE IN MASTER RESEARCH

The South African Association of Audiologists (SAAA) has agreed to help Deidre Bezuidenhout in sending the link to her web bases questionnaire for her masters research, at a fee, to all our members.

Please do not hesitate to contact us should you have any queries.

Kind regard,
Kelly Nathan
SAAA President

SOUTH AFRICAN ASSOCIATION OF AUDIOLOGISTS

T: +27 82 727 5977 | W: www.audiologysa.co.za

from: **SASLHA** <admin@saslha.co.za>
to: deidre bezuidenhoudt
<deidre1bez@gmail.com>
cc: Erika Bostock
<erikab@social.mpu.gov.za>
date: Thu, Jun 6, 2013 at 3:58 PM
subject: RE: masters
: Important mainly because it was
sent directly to yo

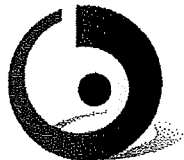
Dear Diedre,

Thank you for your inquiry. As SASLHA is committed to research, we do not charge post-graduate students at a South African universities to send out e-mails to assist with research. When you have a letter ready with a link to the survey website, we will be able to send it out to the SASLHA members free of charge.

Kind Regards

Vanathi Knight

SASLHA - OFFICE MANAGER



SASLHA

South African Speech Language Hearing Association

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Email : admin@saslha.co.za
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