AUDITORY PROCESSING DISORDERS: TRAINING CURRICULUM FOR COMMUNICATION PATHOLOGISTS WITHIN THE SOUTH AFRICAN CONTEXT

BY

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In Loving Memory of My Father

Mr. Ayoub Khan

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ABSTRACT

TITLE: Auditory Processing Disorders: Training Curriculum for Communication Pathologists within the South African Context

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This study examined the nature of the undergraduate curricula for Auditory Processing Disorders (APD) for communication pathologists (speech-language therapists and audiologists) within the South African context. An exploratory descriptive survey design was utilised. The respondents were the authoritative voices in the area of APD, i.e. academics based at training institutions involved in the training of Speech-Language Therapists and Audiologists in the field of APD. They represented five of the six South African training institutions training speech-language therapists and audiologists. Information on the training programmes offered in APD was obtained with the use of a specifically designed questionnaire. This was further supplemented by copies of the course descriptors and / or study guides supplied by the respondents from the respective training institutions. A curriculum analysis framework was utilised to analyse the curricula (Jansen & Reddy, 1998). The findings of the study indicated that the curricula offered in APD at all training institutions compared well to current research and literature in the field of

APD. However, information was not transparent on how the South African social and contextual issues were incorporated into training in APD. The researcher proposed that the curricula currently in use did not require major changes but appropriate amendments are required to be considered. The critical paradigm of inquiry was advocated to be used when training in the area of APD. Additionally, the researcher motivated for and recommended additions to the curricula on APD to address the South African situation as an essential part of the curriculum. The researcher's principle guideline for amending the curricula was to incorporate these issues into the training based on the adoption of an **ecological approach to assessment and remediation of APD**.

Key Words: speech-language therapist and audiologist, curricula, Auditory Processing Disorder, training institutions.

OPSOMMING

TITEL:	Ouditiewe Prosesserings Afwyking: Opleidingskurrikulum vir Kommunikasiepatoloë binne die Suid-Afrikaanse Konteks
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Die studie het die aard van die voorgraadse kurrikula vir Ouditiewe Prosesserings Afwykings (OPA) vir kommunikasiepatoloë (spraak-taalterapeute en oudioloë) binne die Suid-Afrikaanse konteks ondersoek. 'n Eksploratiewe beskrywende opname-ontwerp is gebruik. Die respondente was leiers op die gebied van OPA, naamlik, akademici werksaam by opleidingsinstansies betrokke by die opleiding van spraak-taalterapeute en oudioloë, in die veld van OPA. Die respondente het vyf van die ses opleidingsinstansies in Suid-Afrika wat spraak-taalterapeute en oudioloë oplei, verteenwoordig. Inligting aangaande opleidingsprogramme in OPA is versamel deur middel van 'n vraelys; spesifiek vir die doel ontwerp; en is aangevul met kopieë van die kursusbeskrywing en / of studiehandleidings soos deur die respondente van die onderskeie opleidingsinstansies verskaf. 'n kurrikulumanaliserings raamwerk is gebruik om die kurrikula te analiseer (Jansen & Reddy, 1998). Die resultate van die studie het getoon dat die

kurrikula aangebied in OPA by alle opleidingsinstansies goed met huidige navorsing en literatuur op die veld van OPA vergelyk. Inligting aangaande die insluiting van Suid-Afrikaanse sosiale en kontekstuele aangeleenthede in die opleiding van OPA was nie voor die handliggend nie. Die navorser het voorgestel dat die kurrikula in gebruik, nie hoofsaaklik verandering benodig nie, maar wel aangevul behoort te word. Die kritiese paradigma van navorsing is vir opleiding in die gebied van OPA voorgestel. Verder het die navorser aanvullings tot die OPA kurrikula gemotiveer en aanbeveel ten einde die Suid-Afrikaanse konteks as 'n essensiële deel van die kurrikulum aan te spreek. Die navorser se voorstel vir aanvulling tot die kurrikula is gefundeer op 'n **ekologiese benadering tot evaluasie en remediëring van OPA.**

Sleutelwoorde: spraak-taalterapeute en oudioloë, kurrikula, Ouditiewe prosessering afwyking, opleidingsinstansies.

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LIST OF TERMINOLOGY AND ABBREVIATIONS

TERMINOLOGY

1. **Auditory processing disorder:** Auditory processing disorder (APD) is a deficit in neural processing of auditory stimuli that is not due to higher order language, cognitive, or related factors. However, APD may lead to or be associated with difficulties in higher order language, learning, and communication functions. The terms APD and (C)APD are to be considered synonymous (ASHA, 2005).

2. **Curriculum :** The term curriculum or professional education curriculum is to be quoted in its broadest definition as the "…interlinked complex of who is taught, what is taught, how it is taught, who teaches, and within the context we teach" (Gerwel, 1991, p.10). What is taught (the syllabi), who teaches (the professional educators), how it is taught (the teaching and learning process), to whom teaching occurs (the learners), and the context (e.g. lecture theatre). These factors are regarded as basic concepts defining a curriculum.

3. **Undergraduate**: refers to the study process where a student is studying for their first degree at a university.

4. **Post graduate**: refers to the study process where a student has already obtained one degree and is studying at a university for a more advanced qualification.

5. **Screening**: this refers to procedures used to identify individuals who are "at-risk" for an impairment (ASHA, 2005).

6. **Assessment**: for the purposes of this study it involves the use of formal and informal procedures to collect data and gather evidence, and includes evaluation, i.e. the interpretation of assessment data, evidence, and related information (ASHA, 2005).

7. **Remediation/Treatment**: refers to procedures targeted toward elimination of impairment (ASHA, 2005).

8. **Management:** refers to intervention to prevent or remediate a disorder or disease, as well as compensatory approaches e.g., strategies and technologies to reduce the impact of deficits resistant to remediation (Chermak & Musiek, 1997).

9. **Multilingual**: using or knowing more than one language (Lubinski & Frattali,2001).

10. **Multicultural**: a society where more than one culture exists. The creative interchange of numerous ethnic and racial subcultures (Lubinski & Frattali,2001).

11. **Training Institutions**: this refers to the universities, i.e. the higher education centres in South Africa training speech-language therapists and audiologists.

12. **Paradigms**: are axiomatic systems, i.e. (accepted general truth or principle) characterised by their differing set of assumptions about the phenomena into which they are designed to inquire (Guba & Lincoln, 1982).

ABBREVIATIONS

1. APD: Auditory processing disorder
2. HPCSA: health professions council of south Africa
3. AP: Auditory processing
4. ASHA: American speech,language and hearing association
5. PHC: Primary health care
6. SAQA: South African Qualifications Authority
7. NQF: National Qualification framework
8. NCHE: NATIONAL COMMISSION ON HIGHER EDUCATION
9. OBE: Outcomes Based Education
10. PBL: Problem Based Learning Approach or Problem Solving Methodology
11. CANS: Central auditory nervous system

1.   INTRODUCTION and ORIENTATION

" The daring audiologist who raises the topic of central auditory processing disorders, or APD, might be like Noah telling his people about the flood. "
(Jesudas, 2001, p.1)

1.1   Introduction

Auditory processing disorders (APD) is not a new entity (Bellis, 1999), however, the above quotation reflects the backdrop within which Communication Pathologists i.e. Speech-language Therapists and/or Audiologists currently function within the field of APD. For decades speech-language therapists and audiologists have been presented with clients who exhibit auditory difficulties, especially in challenging listening environments despite presenting with normal peripheral hearing. Regardless of the considerable interest and attention paid to the topic, experts and clinicians in the field have been unsuccessful in arriving at a consensus regarding a definition and conceptualisation of the disorder. Consequently, generally agreed upon methods of defining, assessing and managing APD continue to elude speech-language therapists and audiologists (Bellis, 1999). This lack of consensus ultimately impacts on the management of clients who may present with APD.

However, the reality of APD can no longer be doubted as the evidence in recent years confirm the existence of the disorder is mounting (Jerger & Musiek, 2000). Despite the lack of consensus regarding defining and conceptualising APD, researchers agree that APD is a deficit in neural processing of auditory stimuli that commonly impacts listening, spoken language comprehension and learning (ASHA, 1996; ASHA, 2005). As speech and language skills are developed most efficiently through the auditory sensory modality, it is not uncommon to observe APD related speech, language (including written language involving reading and spelling) and hence academic problems in children with APD (ASHA, 2005).

APD is a heterogeneous disorder, resulting in a wide range of variability in the associated problems experienced by children who present with the disorder. APD places the child at risk for developing many of these language (including written language involving reading and spelling), and academic problems (Schminky & Baran, 1999). Therefore, it emphasises the need for a comprehensive assessment and remediation plan that fully explores the nature of the presenting difficulties of each individual suspected of APD. A collaborative approach that includes the audiologist and speech-language therapist in identification, assessment and remediation of this disorder especially in children, is therefore recommended (ASHA, 1996; ASHA 2005).

Bellis (2003) reports that in the past seven years there has been an increase in the awareness of the disorder on the part of professionals, parents, and educators. Personal observations of the SA context reveal that speech-language therapists and audiologists are receiving a greater number of referrals for an APD assessment. Countless journal articles published internationally are dedicated to the topic and with the recently introduced continuing professional development programme by the Health Professions Council of South Africa (HPCSA), workshops and seminars dedicated to APD are a popular choice, e.g. CAPD assessment and management making it work, Durban, 2004. The evaluation and management of APD is within the scope of practice of both audiologists and speech-language therapists and is an accepted clinical activity within the field of communicative disorders (Hall, 1999; Richard, 2004; HPCSA, 2003). However, many speech-language therapists and audiologists feel uncomfortable in evaluating, interpreting and remediating APD, citing lack of course work and knowledge of auditory processing as factors limiting their involvement (Katz, 1994), with dire consequences for a child presenting with APD.

Although the area of APD presents with uncertainty there is a corresponding burgeoning of development in research, assessment and management of clients suspected of having APD (Bellis, 2003). Furthermore, there is rising interest in APD on the part of the speech-language therapists and audiologists (Jerger & Musiek, 2002). Speech-language therapists and audiologists demonstrate a keen

interest in the area, but they are still faced with mounting concerns and challenges, as the divide between developments in the field and their understanding of the area, together with their in/ability to accurately manage clients who present with APD is on the increase.

It is therefore apparent that despite the momentum and attention the area of APD has obtained, hesitation exists on the part of the speech-language therapist and audiologist in participating in APD management (Chermak, Traynham, Seikel & Musiek, 1998; Fourie, 1998). This may be attributed to the training in APD with few training programmes incorporating the study of APD in their curricula (Chermak, et al., 1998; Keith, 2002 & Fourie, 1998). The education and training of graduate speech-language therapists and audiologists in the area of APD has been implicated as a factor contributing to the eventual assessment and management of children presenting with APD both in the United States of America and South Africa. There therefore exists a need for training in APD to be investigated.

1.2   Statement of the problem

Despite the pervasive effect of an APD on children, and the fact that the field is still bound in controversy and that developments are being unravelled (Chermak et al., 1998; Bellis, 1999; ASHA, 2005), training programmes for speech-language therapists and audiologists in APD in South Africa are required to equip students with the necessary competencies enabling them to effectively manage this disorder. It therefore suggests that training programmes are required to portray these developments, concerns, and controversies that surround the field of APD. Apart from incorporating the latter into an undergraduate training programme for APD for speech-language therapists and audiologists, South African training institutions, as with all institutions worldwide are faced with an additional task. Training programmes for therapists have to reflect the situation that is the reality of their countries. In South Africa, training institutions now have the responsibility to address not only the discipline-based knowledge of the area, but of enlightening students about social accountability issues, so that they can critically reflect and articulate the beliefs upon which the profession is based (Kathard, 1999).

Moreover, the demise of apartheid in 1994 led to a period of social reconstruction. This offered unique opportunities and responsibilities to reconstruct a fragmented and deeply discriminatory educational system to establish a unified national system. The latter however, is still in a process of transformation (Department of Education, 2001). Learners with 'special needs' required support and/or specialised programmes in order to engage in some form of the learning process. These learners may have been provided with a separate, sometimes inadequate system of education, or they may have been excluded from the system or they may have experienced a learning breakdown (NATIONAL COMMITTEE ON EDUCATION SUPPORT SERVICES (NCESS) & NATIONAL COMMISSION ON SPECIAL NEEDS IN EDUCATION AND TRAINING (NCSNET), 1997). Poor educational provision to learners with 'special needs' led not only to a dearth of necessary skills and knowledge but has also contributed to a system that was unable to meet the diverse needs of its learners to prevent barriers to learning and development (NCESS & NCSNET, 1997). These barriers to learning and development are an added area that educators of the South African speech-language therapist and audiologist need to consider.

Additionally, the recently legislated and instituted compulsory community service programme for speech-language therapists and audiologists (Buttress, 2002), necessitated a review of current education and training that had to equip students with the knowledge, competence and attitude to respond comprehensively and caringly to the health care needs of the population that they were to serve (NATIONAL COMMISSION ON HIGHER EDUCATION, NCHE, 1996). The development of the district-based health system which integrates primary, secondary and tertiary care requires fundamental changes in the composition, planning, production and management of human resources necessary to provide this service (NCHE, 1996). Training institutions were required to offer a comprehensive curriculum in APD that was relevant to and appropriate for the communities whom they serve.

Hence, training in APD within the professional training of speech-language therapists and audiologists in South Africa requires critical examination and if

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necessary a new curriculum may be proposed to address the needs of clients presenting with APD.

It is within this background that the debates and controversies that surround an understanding of the area of APD both internationally and nationally, is examined and presented. These include the developments in the field of APD, together with the dissonance and lack of agreement in the literature regarding the area of APD, and the research suggesting that training institutions provide inadequate training in the area of APD both internationally and in South Africa. Additionally, an understanding of the issues that impact on training and subsequently service delivery to clients presenting with APD, that are relevant to the South African context will be examined.

1.3   Literature review

The primary reason for caution to be exercised in the area of APD is due to the fact that it has been plagued by controversy. As early as the 1970's, Rees (1973, p.312 in Friel-Patti, 1999) stated that the search for an auditory processing factor or a set of auditory abilities that are essential to language learning was "futile". Two decades after this comment by Rees (1973, p. 312 in Friel-Patti, 1999) there still remains a lack of consensus in the literature on auditory processing (AP) and APD. Keith (1984, p.325, in Peck, Gressard, & Hellerman, 1991) captured the situation in the field of APD when he wrote, "We have 'gotten on' with testing and remediation without agreeing to definitions of the terms or of reaching consensus on the issues involved." This quotation accurately shows that clinical decision making related to defining, assessing and remediating APD remains controversial.

A comprehensive review of the literature of the area of APD was undertaken, and, Figure 1.1 captures the broad areas in the field of APD and highlights the debates that still exist. Although, Figure 1.1 depicts the debates, these areas refer to the trends in the literature on APD as well. Therefore, the researcher maintains that these areas should be viewed as essential knowledge areas to speech-language therapists' and audiologists' understanding of the disorder.

These essential knowledge areas are therefore identified as core elements of what a curriculum should comprise. The areas identified are considered to be fundamental in any curriculum offered for speech-language therapists' and audiologists' on APD.
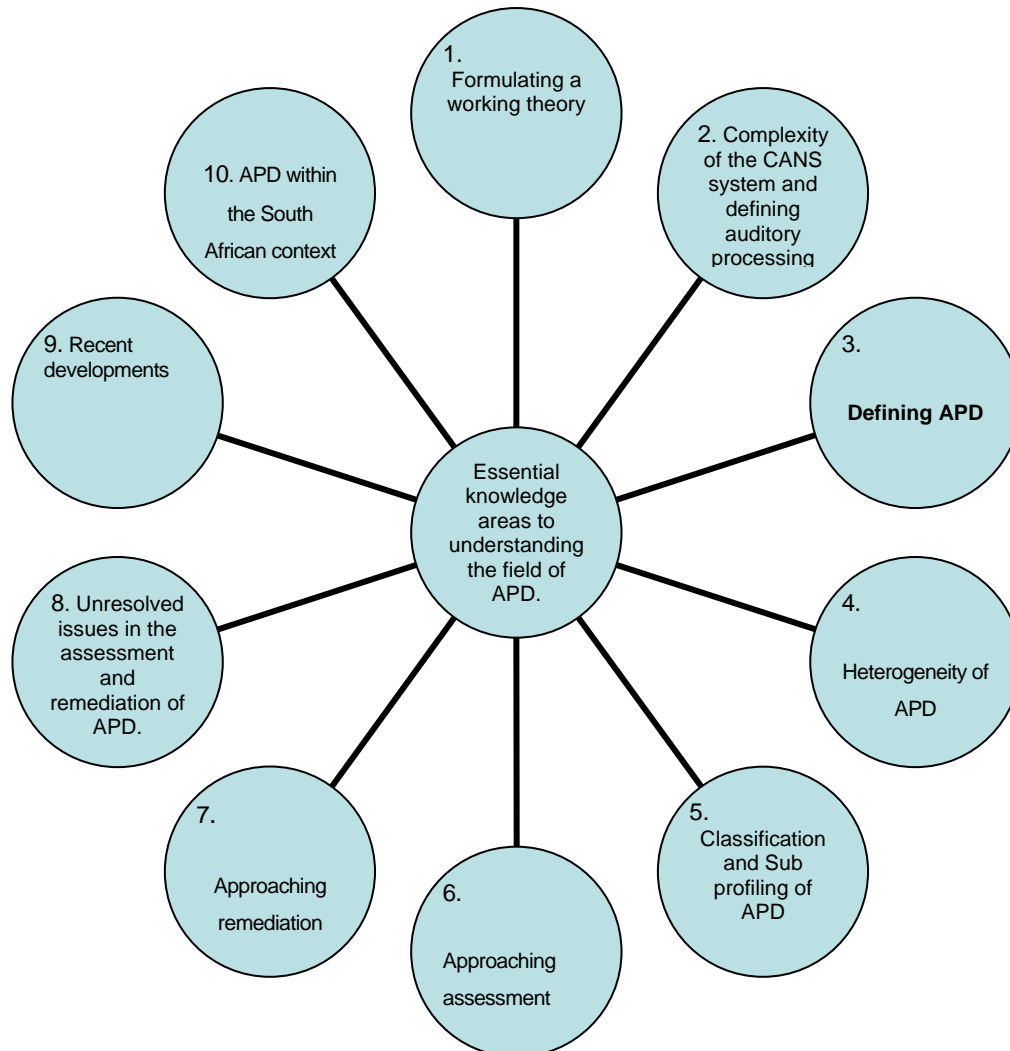
Figure 1.1 Overview of essential knowledge areas in the field of APD

There exists a proliferation of literature devoted to the area, as reflected schematically in Figure 1.1; however critical to this study is an overall understanding of the area of APD. One of the key areas is defining APD. The following discussion will focus on how APD is defined; followed by research suggesting that training institutions provide inadequate training in the area of APD. Additionally, an understanding of issues that impact on training and subsequently service delivery to clients presenting with APD, that are relevant to the South African context will be examined.

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In the year 2000, fourteen senior scientists and clinicians, spearheaded by Jerger and Musiek (2000), met at the University of Texas in Dallas from April 27-29, 2000, and established the Consensus Conference of the Diagnosis of APD in School Aged Children (Jerger & Musiek, 2000). The working group recommended redefining the disorder. At the time, children presenting with APD disorder were referred to as presenting with a central auditory processing disorder (CAPD). However, the group resolved to keep the definition operational but to avoid the attribution of an anatomical location. Hence, they deemed it appropriate to refer to the disorder as an Auditory Processing Disorder (APD). It is broadly defined as a "deficit in the processing of information that is specific to the *auditory modality*. It may be associated with difficulties in listening, speech understanding, language development and learning" (Jerger and Musiek, 2000, p.3). Apart from redefining the disorder, the group formulated guidelines in the areas of screening; differential diagnosis of APD; and offered recommendations with regards to a minimum test battery.

However, not all Audiologists practicing in the area of APD agreed with the consensus report issued by Jerger and Musiek (2000). A group of 13 Audiologists lead by Katz (2002), challenged the merits of the recommendations outlined in the Jerger and Musiek consensus report (Katz, 2002). They were of the opinion that APD required an educational rather than a medical (diagnostic) model. Therefore, the most valuable role of the speech-language therapist and audiologist is to guide the management of the child with APD, instead of merely diagnosing an APD. Katz (2002) cautioned that the ASHA (1996) guidelines on auditory processing therefore offered a comprehensive and a more appropriate goal to develop an APD intervention program. They called for another consensus conference that included educational audiologists, researchers, and clinicians from related professions who dealt with children who present with APD.

Medwetsky (2002) and Bellis (2003) both cautioned as to whether the recommendations by Jerger and Musiek (2000) would be widely accepted by audiologists in the field of APD and raised concern as to the removal of the term 'central' from the definition of APD. APD has been recognised as a 'modality specific perceptual dysfunction' that is not due to peripheral

impairment (Mc Farland & Cacace 1995, in Cacace & Mc Farland, 1998, p.355). Jerger & Musiek's (2000), recommendation to use the term auditory processing disorder was not widely accepted. ASHA convened a working group to review the 1996, ASHA technical report (ASHA, 2005). The technical report developed by the working group was approved by ASHA's Executive board in March, 2005 (ASHA, 2005). The working group considered the use of the term auditory processing disorder (APD), but agreed to use the term (central) auditory processing disorder, i.e. (C)APD for the purpose of the report. The working group acknowledged that there had been a fair amount of confusion and controversy regarding the use of the term APD particularly as most definitions of the disorder focussed on the *central* auditory nervous system (CANS). They concluded that the terms (C)APD and APD were to be considered synonymous (ASHA, 2005). In South Africa, the Health Professions Council of South Africa (HPCSA) competency profiles, which outline standards and guidelines in terms of practice for both speech-language therapists and audiologists in the area of APD, favoured the term CAPD (HPCSA, 2003). In light of the preceding debates, both terms APD and (C)APD are recommended, the researcher has therefore, for the purposes of this project, resolved to use the term auditory processing disorder (APD).

The inference is that, although consensus reports have been released in the area of APD, unanswered questions still remain and a divide exists within the profession regarding understanding the disorder and managing children who present with it. This emphasises that there does not exist a 'gold standard for APD assessment' and that diagnosis should be disentangled from intervention (Jerger & Musiek, 2002 p.19). Against this milieu, South African speech-language therapists and audiologists have to be aware of the issues that prevail in the area of APD, yet they are also faced with unique challenges and difficulties of working within the field of APD (Wilson & Campbell, 2000).

In an attempt to develop an understanding of the field of APD locally, the HPCSA recognised the need and established a task force in 1999. The primary aim was to oversee the initial stages of formal research and development in the field of APD in South Africa (Wilson and Campbell, 2000). In February 2000, the

Executive Committee of the Professional Board for Speech-Language, Hearing Professions approved the task force. The lifespan of the task force was two years and was disbanded by the HPCSA in 2001.

The challenges outlined by the task force (Wilson & Campbell, 2000) were:

- The lack of standardised South African APD test materials in the country,

- The poor quality of available recordings and

- The presence of different recordings of the same test,

- The challenges of 11 official languages,

- Poor training in the administration and interpretation of APD tests and their results,

- Uncertainty about which APD tests to use and

- Finally uncertainty about which intervention procedures to use following diagnosis.

At the end of its lifespan the taskforce submitted a report to the HPCSA with recommendations for over-seeing the developments of APD in South Africa. The SA task force laid the groundwork for continuing research in the area of APD was instrumental in highlighting the challenges that face the South African speech-language therapist and audiologist. Although the challenges outlined in the business plan of the task force still exist, much work is still required in the area of APD in South Africa. Another important contribution of the taskforce was alerting professionals to the challenges faced in the area of APD in South Africa.

Although research is still being conducted in the area of APD locally and internationally in an attempt to resolve the dissonance and lack of agreement surrounding the understanding of the area of APD, research exists that confirms that training institutions provide limited training in the area both in the USA (Peck, Gressard, & Hellerman, 1991; Henri, 1994; Sykes, Tucker and Herr, 1997; Chermak, et al., 1998; Bellis, 1999 & 2003) and South Africa (Fourie, 1998). The

ensuing discussion refers to the studies quoted in the USA, leading to the local study of Fourie (1998).

One of the earliest documented studies to address the uncertainty and hesitation expressed by clinicians in dealing with APD in the USA was conducted by Peck, Gressard, and Hellerman (1991). They surveyed the practices of 26 speech - language therapists and audiologists and the results indicated that 27% of the clinicians did not evaluate children with APD at their facilities. Peck et al. (1991, p. 325) recorded comments from therapists who evaluated children with APD.

The speech-language therapists and audiologists comments included:

- "*Don't' really know what it is – auditory perception? Language processing? ADD?*"

- *"Never been impressed by the reliability of the CAP tests."*

- *"Don't feel comfortable with it (CAP) at all."*

- *"…. The more I do it, the less I know…"*

A question that arose from Peck et al's. (1991) research was, whether clinicians express concern in working in the area of APD because of inadequate professional preparation? Their research set the stage for further research into the training received by speech-language therapists and audiologists in the field of APD.

Henri (1994) conducted a follow up survey studying graduate preparation with treating certain communication disorders in 1993. The respondents were executive directors or clinical managers directly involved in the centres management. They were requested to rate graduate speech - language therapists and audiologists' preparedness in treating various types of communication disorders. Speech - language therapists' rated their preparation for working with children with APD as 'poor', whilst audiologists' rated their preparation as 'fair.' (Henri, 1994, p. 45). Henri (1994) concluded that graduate preparation in many areas, including APD, fell short of educators' expectations. It appeared that graduate preparation did not provide the clinician with the skills

required to obtain intervention results desired by the consumers. In addition, it was recommended that certain areas of graduate training required revisiting and revision.

In 1997, Sykes, Tucker and Herr, conducted a survey of forty ASHA accredited universities. It was reported that, together with the clinical management of clients with tinnitus, and vestibular disorders, APD was also an area where there was no provision for the training of graduate – level audiology students. The respondents indicated that APD had the least amount of importance placed on it in terms of clinical training in assessment and management. The researchers concluded that many students graduated from audiology programmes lacking knowledge of treatment and/ or management of clients with these various disorders (Sykes et al., 1997).

In 1998 Chermak, Traynham, Seikel and Musiek conducted a follow up survey exclusively in the area of APD. Data from 179 Audiologist's across the United States, and employed in various settings were analysed in terms of assessment practices in APD. Seventy eight percent of the respondents expressed an approximate 50% satisfaction rating with their assessment practices in APD whilst 80% had not taken a graduate course dedicated to APD. In addition, respondents obtained a mean of 3 hours of clinical exposure as graduate students to such clients. Based on these research findings it was concluded that a need existed for training institutions to examine the quality of graduate academic and clinical preparation in the assessment of the central auditory nervous system (CANS) and central auditory processing (CAP).

Bellis (1999 & 2003) reiterated that the majority of practising Audiologists in the USA receive limited education in their clinical preparation programmes for dealing with auditory processing (AP) and APD, and few educational programmes deal with the subject of APD in sufficient detail to allow the clinician to apply the knowledge clinically. Bellis and Beck (2000) acknowledged that clinical service delivery in APD has in recent years become a highly debated topic. Hence, this has resulted in numerous requests for information on APD from educators, speech-language therapists and parents, to name but a few. As a result of a rise in public awareness in the USA of APD, there has been a concomitant increase in

demand for clinical services focussing on assessment and management of auditory processing disorders (Bellis & Beck, 2000). Hence, a need existed for practising speech-language therapists and audiologists in the USA to acquire information regarding the underlying science of auditory processing, and methods of assessment and management.

In South Africa, Fourie (1998) conducted a survey in the Gauteng region with 164 speech-language therapists and audiologists. A significant conclusion obtained indicated that insufficient training was received regarding APD. Fourie (1998) revealed that although, 76% of the respondents received training in the area of APD, only 19% indicated that they had received comprehensive training in the area with 53% reporting very little training. This resulted in the participants expressing an overall lack of knowledge and insight into APD. Fourie (1998) identified the need to examine the training in APD at training programmes in South Africa, when she concluded that there was a need for further knowledge and training regarding the comprehensive management of APD both theoretically and clinically.

A review of the aforementioned studies revealed that the task of adequately training speech-language therapists and audiologists has grown increasingly complex in proportion to the developments and growing sophistication of the field of speech-language therapy and audiology, and specifically in the area of APD. Jirsa (1996, p.20) reported that with the ever-broadening scope of practice in Audiology, many programmes in the USA attempted to cover too much material in too short a period of time. The result is often a dilution of course content and inadequate clinical training experience (Jirsa, 1996). To engage in APD diagnosis and intervention requires familiarity with general neuro-physiology, cognitive neuroscience, neuro-psychology, cognitive psychology and auditory neuroscience (ASHA, 2005). Many of these subject areas may not have been addressed, or only tangentially addressed, in the typical audiology and speech-language professional education programmes in the USA (Chermak et al., 1998). Therefore, participation in the diagnosis, assessment, treatment and management of APD typically requires additional training and education beyond the usual scope of the audiologist's and

speech-language therapist's educational preparation (ASHA, 2005). As more clinical doctoral programmes in the USA are developed it is anticipated that the area of APD practice will be taught and discussed more comprehensively. However, in the interim knowledge and skill in the area of APD, will be required to be gained as part of the professional's continuing education programme (ASHA, 2005).

It is acknowledged that the task of training speech - language therapists and audiologists is challenging given the developments in the respective fields. The literature suggests that training both theoretically and clinically in the area of APD requires more attention. Fourie (1998) recommended that South African training institutions examine the quality of theoretical and clinical preparation of undergraduate students in the assessment of a client with APD. The studies reviewed both internationally and locally investigated practising speech-language therapists and/ or audiologist's knowledge and skill in managing clients with APD. The lack of comprehensive training in APD was implicated as contributing to the possible paucity of knowledge and skill in working with clients who present with APD. ASHA (2005) confirmed that participation in APD assessment and management required additional training and education for graduate speech-language therapists and audiologists in the USA, however, no study appears to exist in South Africa that has directly investigated and examined the training received in APD.

The problem with training in APD has been discussed, and an understanding of the changes in the higher education system in South Africa is now essential. Following the first democratic elections in the history of South Africa in 1994, the Government of National Unity was installed, and the country started moving towards establishing a non-racial society based on a constitution that embodies equal rights for every person, the need to establish an equitable and effective higher education system became a top priority. A transformation process was required that would necessitate the management of cultural diversity, and organisational changes within our institutions of higher learning (Norris, 2000). Linked to transformation in higher education was the reality that as health care professionals, speech - language therapists

and audiologists had to accept and acknowledge that they too, had to be accountable to the post-apartheid society that they now served, especially in terms of the country's constitutional and legislative health aims in addressing demographic inequality (Kathard, 1999).

The challenge that higher education institutions training speech-language therapists and audiologists in South Africa were faced with, was the pressure to meet the needs of the underserved majority. The reality was that the profession of speech-language therapy and audiology had to undergo "radical transformation" (Uys & Hugo, 1997, p.29) to avoid duplicating the inequities of the past. This looming transformation had to span all areas of training including, APD.

In post apartheid South Africa, the higher education system in South Africa has undergone rapid transformation. This is due to the major challenges that it was faced with. The challenges included the redress of past inequalities, the transformation of the system to serve a new social order, meeting pressing national needs, and responding to new realities and opportunities (Strydom & Fourie, 1999, p.162). Although the existing structures in health personnel education and training have contributed positively to public health care in South Africa, it has developed in a fragmented and distorted manner that reflects the previous political dispensation (NCHE, 1996).

Characteristic of the health personnel education system are inequalities along race, gender and class lines (NCHE, 1996). The primary health care approach (PHC) is now widely accepted as the philosophy to address the inequities and imbalances of the health care system. A recommendation of the NCHE (1996) was therefore to restructure the health science education model to prepare health personnel to work within the PHC framework. In addition, the NCHE (1996) cautioned that health professional education had to be located within the context of a facilitating social and economic development strategy, which promotes social justice, and clearly demonstrates the education and training outcomes.

With the current transformation in education and training, all institutions, have to on an ongoing basis, have their programmes approved by the South African Qualifications Authority (SAQA). National standards and qualifications were registered with SAQA, and they ensured that the standards and registered qualifications are internationally comparable (Bellis, 1995). In addition, the National Qualification framework (NQF) was introduced to create a national framework for learning achievements, to facilitate access to and mobility within education and training and to enhance the quality of education and training (Bellis, 1995). Furthermore, to meet the requirements of the NQF, high quality, high standards of learning and teaching, of content and relevance are built into the design of the curriculum and the teaching model (Bellis, 1995). Curriculum development is another area that the introduction of the NQF has influenced.

This restructuring of education has important implications for the training of speech-language therapists and audiologists. It is within these developments in education and training that all institutions preparing speech-language therapists and audiologists critically reviewed their programmes offered and all modules taught (Hugo, 1996). There has been rapid transformation in the education and training of speech-language therapists and audiologists in the past nine years. This commenced in 1996, when representatives from the universities training programmes met to discuss the development of Speech-language therapy and Audiology training programmes (Hugo, 1996). The specific focus of the meeting was the development of graduate competency profiles focussing on professional redress and highlighted the need for speech-language therapy and audiology training, to address issues of practice with a black African first language clientele (Hugo, 1996; Pillay, 1997). Entire programmes changed. Of the five institutions training speech-language therapists and audiologists, three ceased offering the dual qualification and commenced with programmes that trained specialist speech language therapists and audiologists separately.

It is, thus, within the background of change and transformation that the study is positioned. The APD curricula offered at the various institutions across the country have been chosen to be the focus of the study and an argument was presented regarding why the curricula is to be viewed from the perspective of the educator and not the learner. Based on the argument presented earlier, the researcher has identified the research question as:

What should core elements of a curriculum be in order to provide baseline knowledge and skills to equip speech-language therapists and audiologists entering the field of Auditory Processing Disorders (APD) within the South African context?

1.4 The rationale for the study

Curriculum studies refer to an area of inquiry in higher education that focuses on what is learned and should be learned in educational institutions (Schubert, 1986). The term "curriculum" is derived from Latin roots to mean "the course of a chariot race" (Schubert, 1986, p.6) yet a race need not be thought of as a pre-established track to follow instead it can be seen as metaphor for a journey of learning and growth that is consciously developed. Many images of curriculum exist, e.g. the most traditional is curriculum as content or subject matter, or curriculum as intended learning outcomes (Schubert, 1986). The current study attempted to view curriculum as a field of inquiry and practise. The latter invokes an ecological perspective in which the meaning of anything must be seen as continuously created by its interdependence with the forces in which it is embedded. Thus, the character of curriculum shapes and is shaped by its external relationships with knowledge, perspectives and practice (Schubert, 1986).

As a result a curriculum in APD being offered at tertiary institutions in South Africa has to account for the South African context. Training institutions can utilise the research, guidelines and curricula from countries like the United States of America, but cannot ignore the needs of the clients within South Africa. What therefore, emerges is the need for a curriculum distinct for the South African context. Table 1.1 (p.17) offers a perspective as to why South

African training institutions cannot solely rely on research and existing curricula conducted and offered in the area of APD from countries like the USA. Table 1.1 highlights the differences in training speech-language therapists and audiologists in the South African and the United States contexts, and differences in resources and infrastructure specifically demonstrate this purpose.

Table 1.1 Differences in training Speech-language therapists and Audiologists in the USA and SA contexts.

UNITED STATES OF AMERICA	SOUTH AFRICA
1. The qualification for a speech-language therapist and audiologist: Is offered at the post graduate level. This enables the speech-language therapist and audiologist to practice.	Is offered at the undergraduate level enabling the speech-language therapist and audiologist to practice. A postgraduate qualification is not required to practice.
2. Institutions offer specific programmes for: Speech-language pathologists or audiologists. There exists a split in the training and both professions have different views with regard to APD management.	The same institutions and disciplines train either a speech-language therapist or an audiologist. Depending on the training institution the student can pursue the single qualification (communication pathology) with a specialisation in either speech-language therapy or audiology. Here, training is still combined at certain levels. Certain institutions still offer the single qualification, i.e. a student can train as both a speech-language therapist and audiologist. As the programme is offered to both speech-language therapists and audiologists, training offers an integrated view with regard to APD management.
3. Resources Assessment resources are standardised for the American context. Materials are freely available.	Assessment resources that are available are not applicable for the South African context.
4. Population demographics Have multilingual and multicultural populations but are in the minority. 80% of the audiologists in the USA are English speakers whilst almost 14% of the population are non-English speakers (ASHA, 1994).	Have a multilingual and multicultural population, with the majority of the population in the country who speak English as an L2 (second language), i.e. 80% of the population are indigenous (Kashchula and Anthonissen, 1995 in Kathard, 1999). SA has 11 official languages and less than 1% of the qualified practitioners are black African first language speakers. (SAMDC, 1995 in Kathard, 1999).

Table 1.1 (continued)

UNITED STATES OF AMERICA	SOUTH AFRICA
5. Population A population of 293 million (July 2004 est.) is served by 115925 members of the American Speech, Language and Hearing Association (ASHA, 2004)	A population of 40 million is served by 1736 members of the Health Professions Council of South Africa (HPCSA, 2004)

Table 1.1 serves to demonstrate the differences in the demographics, resources and training needs of South Africa and the USA, and to highlight the need for curricula to be developed exclusively for the South African context. However, South African training programmes incorporate materials, literature and research findings produced in the USA to enable these programmes to be internationally competitive. In noting the latter statement, it is acknowledged that the context for which the USA is training is different to South Africa and therefore South African graduates require a curriculum that is both internationally competitive but locally relevant. This contention is supported by Hugo (1998, p.4) who succinctly captured the situation by stating "….*a vocationally – oriented programme that educates students to deliver a service to a certain sector of the population – those that cannot speak or hear- should recognize that the specific nature of this community must serve as the basic point of departure for all their educational programmes. This community is an African community. Education will therefore have to be Africanized".*

Why did Hugo (1998) pose the question that education has to be Africanised? South Africans celebrated ten years of democracy in 2004 after three-and-a-half centuries of colonialism and apartheid. Ten years after its liberation from white minority rule, the country still faces many challenges. Although South Africa is now a multiracial society, it is not a pluralistic society where all racial and ethnic groups share equal access to cultural-self-determination (Rajab, 2004). To achieve pluralism, racism must be abolished in institutions of learning and the workplace (Rajab, 2004). For higher education the mission is to provide all students with high quality education that will enable them to

function successfully in an interdependent, multiethnic, multicultural and rapidly changing world (Rajab, 2004).

It therefore follows that South African tertiary training institutions cannot readily apply curricula that rely solely on literature and research from other countries in the area of APD. Training institutions need to ensure that speech-language therapists and audiologists have the skill and knowledge to provide services to a multi-cultural communication impaired population in South Africa (Hugo, 1996). Speech-language therapy and audiology training programmes and curricula would therefore need to incorporate issues that pertain to the South African context, as it may influence ones eventual management of the client. In addition, the professions need to develop a system, which is appropriate for the population that it serves and that works within the educational and health sectors of the country. It must be noted that inequalities in a society, lack of access to basic services, poverty, and factors, which place children at risk, all contribute to learning breakdown and exclusion. Hence, in addition to the theoretical components of an APD curriculum, some of the issues that the may require additional attention include, *multilingualism and multiculturalism*, *impact of the HIV AIDS pandemic*, *poverty, education, lack of services to all,* and the *dearth of speech-language therapists and audiologists in the country.*

Cultural diversity within a nation is a feature of everyday life in many countries. Speech-language therapists and audiologists need to strive to provide relevant services to the population and the need to develop sensitivity to other cultures so they can best serve their clients (Lubinski & Frattali, 2001). The demography of the client populations and the variety of settings in which audiologists and speech-language therapists provide services continues to evolve. The clientele crosses the age span and encompasses a variety of ethnic, economic, and cultural groups (Lubinski & Frattali, 2001). Expanding frontiers necessitate continual self-evaluation and continued education to best meet the needs of client's, families', educators and caregivers (Lubinski & Frattali, 2001).

A key characteristic and difference of South Africa is that it is a multilingual country with 11 officially recognised languages. According to the 2001 census isiZulu is the mother tongue of 23.8% of South Africa's roughly 45 million people, followed by IsiXhosa at 17.6% Afrikaans at 13.3%, Sepedi at 9.4% and English at 8.2% (South Africa. info, 2004). Therefore, assessment and intervention material developed in a western culture like the USA may not be culturally appropriate in South Africa (Fair & Louw, 1999). Furthermore, there is an absence of South African specific normative data for many of the APD tests used (Saleh, Campbell & Wilson, 2003). Additionally, an APD test protocol specific to South African conditions, does not exist particularly in view of 11 official languages spoken, with the dominant languages being the indigenous languages.

Another implication of multilingualism is that teaching and learning for many of the Black African learners takes place through a language, which is not their first language. This not only places these learners at a disadvantage, but it also leads to linguistic difficulties, which contribute to learning breakdown. The learning breakdown may mimic an APD which although is a deficit in neural processing of auditory stimuli, commonly impacts listening, spoken language comprehension and learning (ASHA, 1996; ASHA, 2005). Second language learners are often subjected to low expectations, discrimination and lack of cultural peers. Educators furthermore, often experience difficulties in developing appropriate support mechanisms for second language learners (NCESS & NCSNET, 1997).

Moreover, as highlighted in Table 1.1, in South Africa a dearth of qualified practitioners exists, to address the needs of the majority of English second language learners. In addition, the population of persons with communication disorders can be conservatively estimated at approximately 10% of the population (Hugo, 1998). There is thus a need to change the demographic profile of the graduate speech-language therapists and audiologists. However, in the interim audiologists and speech-language therapists need specialised clinical knowledge to provide equitable services for such clients (Ramkissoon & Khan, 2003).

An additional challenge confronting training institutions is a challenge that has afflicted the entire world, the HIV/AIDS pandemic. No society and no educational programme can ignore the impact of HIV/AIDS. The prevalence of HIV/AIDS in South African is one of the highest in the world (Sachs, 2003 in Levin, 2004). Children are especially vulnerable to HIV infection for a host of social and economic reasons, including poverty, violence, sexual exploitation and lack of access to HIV information and prevention services (Child and Adolescents health development, CAH, 2004). In 2001, there was an estimated 250 000 children living with HIV and AIDS (UNAIDS/WHO epidemiological fact sheet, 2002). Levin (2004) reported that HIV/AIDS was illuminated as one of the primary concerns, with reports of between 60-90% of all children seen in the community service placements being HIV positive. If unattended HIV related auditory disorders might contribute to significant developmental delays and compromised quality of life (Levin, 2004). APD has been observed in diverse clinical populations including those where central nervous system pathology is clear ,e.g. multiple sclerosis, traumatic brain injury (Chermak & Musiek,1997). In the paediatric HIV/AIDS population developmental delays have been noted, e.g. intellectual deficits and delayed language development, an observation implicating the central nervous system (Zuniga, 1999). Differential diagnosis in a young client is therefore essential to rule out a possible APD (Matkin, Diefendorf and Erenberg, 1998; Druck & Ross, 2002).

Moreover, another issue that impinges on the service delivery of speech-language therapists and audiologists is the primary and secondary educational system in South Africa. It is universally recognised that the main objective of any education system in a democratic society is to provide quality education for all learners so that they will be able to reach their full potential and will be able to meaningfully contribute to and participate in that society throughout their lives (NCESS & NCSNET, 1997). However, the education system in South Africa, like much of the history of our country, reflects massive deprivation and lack of provision for the majority of people. The inequities can be directly attributed to those social, economic and political

factors, which characterised the history of South African society during the years of apartheid (NCESS & NCSNET, 1997).

In many countries, especially in South Africa, there are inadequate numbers of centres of learning and other facilities to meet the educational needs of the population. Closely linked to the lack of access to basic services is the effect which sustained poverty has on learners, the learning process and the education system. Apart from poverty being linked as a factor contributing to HIV/AIDS in children, high levels of poverty (71% in rural areas and 50% overall) and unemployment (at least 38%) make it difficult for a client to pay for and access health services and education (South Africa. info, 2004). For learners, the most obvious result of poverty, often caused by unemployment and other economic inequalities, is the inability of families to meet basic needs such as nutrition and shelter. Learners living under such conditions are subject to increased emotional stress, which adversely affects learning and development. Additionally, under-nourishment leads to a lack of concentration and a range of other symptoms, which affect the ability of the learner to engage effectively in the learning process (NCESS & NCSNET, 1997).

Poverty-stricken communities are also poorly resourced communities, which are frequently characterised by limited educational facilities, large classes with high pupil/teacher ratios, inadequately trained staff and inadequate teaching and learning materials. Such factors raise the likelihood of learning breakdown and the inability of the system to sustain effective teaching and learning (NCESS & NCSNET, 1997).

Addressing the various issues that reflect the diversity of our country in revising curricula is critical. Its role is to strengthen the intellectual fibre of our nation, in relation to economic development, and in relation to social, political and cultural life. Redressing curricula imply a special character of intellectuals, linking theory to practice and context, engaged rather than isolated from the outside world, and committed to building a humane society based on compassion and quality of life (Department of Education, South Africa, 2001).

This study therefore aims to investigate the nature of the undergraduate curriculum for Auditory Processing Disorders APD for communication pathologists (Speech-language Therapists and Audiologists) within the South African context, by evaluating the existing curricula using a curriculum analysis schema (Jansen & Reddy, 1998). This will culminate in guidelines proposed for an undergraduate curriculum for APD that is specific for the South African context.

Speech-language therapy and Audiology is a professional qualification that trains both on theoretical and clinical levels. Hence, the professional education curriculum of Speech-language therapy and Audiology facilitates practice (Pillay, Kathard & Samuel, 1997, p.115). The current study will therefore be positioned in education and this vantage point will be used to investigate the nature of the curriculum (both theoretical and clinical) in the field of APD. The curriculum will be analysed in order to develop an understanding of what constitutes the training programme in APD and its influence on ones eventual practice. In addition, the analysis of the curricula will assist the researcher to determine if the curricula in APD are relevant to and deliverable to the communities we serve. Finally, the evaluation of the existing undergraduate curricula will assist with the development of guidelines for a working curriculum.

It is acknowledged that the training programme at the different training institutions in South Africa will reflect their own particular ideology, and specifically so with regard to APD. The manner in which the curriculum is presented may reveal the institutions own orientation to the field of APD and to training. Kathard (1999, p.263) stated that whilst there is no simple one to one relationship between the practice and educational sectors, they have a shared ideology about good professional practice, which is reflected in the professional education curriculum.

Whereas curriculum development involves building the curriculum in order to present a coherent plan, curriculum analysis involves evaluation of the curriculum in order to understand the plan (Jansen & Reddy, 1998). The

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analysis of curriculum involves reducing a curriculum into its component parts in order to facilitate decision-making about the curriculum. Therefore, the purpose of the study is to evaluate current curricula (theoretical and clinical) in the field of APD in South Africa. Guidelines for a working curriculum will be proposed with reference to what is currently being offered.

2. METHODOLOGY

2.1 INTRODUCTION

It has been acknowledged that no profession can continue to exist as is and maintain the status quo if the needs of the communities that they serve are ever changing and dynamic. This applies to the professions of Speech-language Therapy and Audiology in South Africa today. Research has to be relevant to the needs of the South African population resulting in service delivery becoming more appropriate and relevant to the changing needs of the health and education sectors in particular.

Pertinent research in the area of Auditory processing disorders (APD) is required as well, particularly if speech-language therapists and audiologists wish to provide a comprehensive and adequate service to their clients. Moreover, many unanswered questions exist in the area of APD and research in this area is essential to help clarify those areas that remain largely untested and untried, but critical to the overall picture of APD assessment and management (Bellis, 1996).

The purpose of the present chapter is to describe the methodology required to answer the research question presented in the previous chapter. The aim of the study, research design, respondent specifications, materials utilised for data collection, research procedures and data analysis is presented.

2.2 AIM

The main aim of the study is to investigate the nature of the undergraduate curriculum for Auditory Processing Disorders (APD) for Communication pathologists (Speech-language Therapists and Audiologists) within the South African context.

The following sub aims delineate the means by which the primary aim of the study was realised.

- To describe the nature of existing undergraduate APD curricula (theoretical and clinical) offered by tertiary institutions training communication pathologists in South Africa.

- To evaluate the above curricula using a curriculum analysis schema (Jansen & Reddy, 1998).

- To propose guidelines for an undergraduate curriculum for the South African context.

2.3   RESEARCH DESIGN

In this section a plan for selecting respondents, research sites and data collection procedures to answer the research question are provided. As the design provided the foundation for the entire study, the choice of the design was critical (Leedy, 1997).

To achieve the main aim of the study an **exploratory, descriptive survey design** was selected for the study. Neuman (1997) states that the purposes of social research may be organised into three categories, i.e. to explore a new topic (exploratory), describe a social phenomenon (descriptive) or explain why something occurs (explanatory). Studies may have multiple purposes but one purpose is generally dominant. The current study used a combination of two of the three categories. The first was an **exploration** through research of the curriculum offered for APD at tertiary institutions. The second was the **description** of the findings of the curriculum offered and with a further exploration and description of the proposed curriculum.

Exploratory research addresses a new topic or issue in order to learn about it. It answers the 'what' question (Neuman, 1997). The present study was exploratory because it served as a preliminary investigation into the undergraduate curriculum on APD offered at five of the six tertiary institutions in South Africa. Exploratory research allowed the researcher to become familiar with the curricula offered at tertiary institutions. It allowed the researcher to develop a well-grounded picture of what was occurring and formulate questions and refine issues for more systematic inquiry (Neuman, 1997). Hence, this study consisted of exploring

existing curricula, which led to the outcome of the study, i.e. the compilation of guidelines for an APD curriculum for the South African context.

The next component of the research design was the descriptive component. A "description is an essential stage in establishing a professional knowledge base" (Partridge & Barnitt 1986, in Drummond, 1996, p.31). A descriptive study attempts to describe a situation or practice in order to gain additional information. By using such a design, information is collected and enables one to define what actually happens. Descriptive studies have additional applications; these are to attempt to identify problems in practice, justify current practice and for developing theory (Drummond, 1996). This was in keeping with the first sub aim of this study, which investigated and described aspects relating to the current training of Speech-language Therapists and Audiologists in the field of APD.

A survey research strategy as the final aspect to this methodological design was used, as surveys produce quantitative and qualitative information about the social world and describe features of people or the social world (Neuman, 1997). It was selected because it allowed for a detailed inspection of the prevalence of the conditions, practices, or attitudes in a given environment by asking people about them rather than observing them directly and thus the respondents' beliefs, opinions, characteristics, and knowledge could be explained and explored (Schiavetti & Metz, 1997; Neuman, 1997). The survey research design was thus appropriate for the present study, as questions were asked about self-reported beliefs and practices of the training institutions as reported by the respondents.

In order to answer the aim of the study the study was conducted following a series of phases chronicling the course of the study.

The aim of this study, to investigate the nature of the undergraduate curriculum for APD was achieved by describing and evaluating the APD curricula offered currently and by contextualising them within the recommendations put forward by the researcher, and by utilising appropriate findings and recommendations drawn from local and international literature to formulate guidelines for a curriculum for APD training in South Africa.

The descriptive exploratory research design was thus deemed to be appropriate for the present study.

2.4 ETHICAL CONSIDERATIONS

When conducting research the researcher has a moral and professional obligation to be ethical. Ethical issues are the concerns, dilemmas, and conflicts that arise over the proper way of conducting research (Neuman, 1997). Many ethical issues involve a balance between two values, i.e. the pursuit of scientific knowledge, and the rights of those being studied (Neuman, 1997 & Bailey, 1997). The ethical issues pertaining to this study were:

- Voluntary participation (Babbie, 2004). Often, although not always, research involves an intrusion into people's lives. A tenet of research is that participation is voluntary, and no respondent should be forced to participate.

- The ethical norms of voluntary participation and no harm to participants have been formalised in the concept of Informed consent (Babbie, 2004). Consent for this study was obtained from the various heads of department at the five training institutions under study, first telephonically and subsequently in writing. In addition, consent was sought from each respondent participating in the study in the form of a letter informing them of the nature of the study. The respondents were informed that participation in the study was voluntary (See Appendix A & B).

- Right to privacy, anonymity and confidentiality (Neuman, 1997). Confidentially was guaranteed and the identity of the training institutions were preserved. Letters were used to refer to the training institutions in the study.

- In addition to ethical obligations to the respondents researchers have ethical obligations to their colleagues in the scientific community. These 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 (Babbie, 2004).

Ethical clearance for the study was obtained from the Research Proposal and Ethics Committee, Faculty of Humanities, University of Pretoria. Ethics clearance was obtained (See Appendix C) to conduct the study.

2.5   RELIABILITY AND VALIDITY

Reliability is a matter of whether a particular technique applied repeatedly to the same object yields the same result each time. Reliability suggests that the same data would have been collected each time in repeated observations of the same phenomena (Babbie, 2004). Researchers have developed several techniques for cross checking reliability. Informal methods of establishing reliability is to question respondents about issues that are relevant to them and be clear in what is asked. The researcher ensured that this was accomplished in the present study as respondents offered information and provided copies of the course descriptors on the APD modules taught at the respective training institutions (Babbie, 2004). In addition, to enhance the reliability of a measurement instrument it should be administered in a consistent fashion, i.e. there should be standardisation in the use of the instrument from one situation to the next (Leedy & Ormrod, 2004). For the purposes of this study, the respondents completed a standard instrument, namely the questionnaire.

A pilot study was undertaken to increase the reliability of the questionnaire items. Moreover, the researcher requested an APD course descriptor to be returned together with the completed questionnaire. To maintain reliability, the categories that the course descriptors had to contain were predetermined and stipulated in the questionnaire. Additionally, to ensure trustworthiness of the data obtained the researcher indicated in the letter to the respondents that completed questionnaires with the attached course descriptors had to be signed by the head of department. This ensured accuracy of the information obtained.

Validity is a term describing a measure that accurately reflects the concept it is intended to measure. Validity takes different forms, each of which is important in different situations. They include face, content, criterion and construct validity. For the purposes of this study content and construct validity was important. Content validity refers to the degree to which a measure

covers the range of meaning included within a concept, i.e. the extent to which an instrument is a representative sample of the content area (domain) being measured (Babbie, 2004; Leedy & Ormrod, 2004). Concerning content validity an extensive literature review of the area under investigation was conducted. This ensured that the content covered by the questionnaire and requested by the course descriptors was relevant to the topic under discussion. Construct validity is the extent to which an instrument measures a characteristic that cannot be directly observed but, must instead be inferred from patterns in people's behaviour (Leedy & Ormrod, 2004). For the present study the researcher was making an inference regarding the curricula offered. The information contained in both the questionnaire and the course descriptor was utilised and inferences were drawn regarding the nature of the curricula offered.

2.6 RESPONDENTS

According to Leedy (1997) the results of the study are no more trustworthy than the quality of the population or the representativeness of the sample. The study targeted academics at the training institutions as information was requested on the status of the current curriculum in APD. The subject population for this study were the authoritative voices in the area of APD, i.e. academics based at training institutions involved in the training of Speech-language Therapists and Audiologists in the field of APD in South Africa.

2.6.1 Sampling Method

Comprehensive sampling, which is a purposeful sampling strategy, was utilised (McMillan & Schumacher, 2001). This referred to the situation where every participant, group, setting, event or other relevant information was examined and was the preferred sampling strategy.

2.6.2 Respondent Selection Criteria

The respondents were required:

- *To be qualified Speech-language Therapists and/or Audiologists registered with the Health Professions Council of South Africa (HPCSA),*

as professional registration is required for practice. The mandate of the HPCSA is to promote the health of the population, determine standards of professional education and training, and set and maintain excellent standards of ethical and professional practice. In order to safeguard the public and indirectly the professions, registration in terms of the Health Professions Act, 1974 (Act 56 of 1974) is a prerequisite for practicing for any of the health professions with which the Council is concerned. Registration confers professional status upon a practitioner and therefore the right to practice his or her chosen profession (HPCSA, 2004).

- *To be academicians' staff based at a tertiary institution involved in the theoretical and / or clinical training of Speech-language Therapists and Audiologists in the area of APD.* The aim of the study was to investigate the current training in APD, and this information was obtained directly from academicians teaching in the area of APD. As previously stated training programmes have been implicated as contributing to poor training in the field of APD (Bellis, 2003), hence, to directly access the training programme in APD the academic staff were a key component to aid with this investigation.

2.6.3 Sample Size.

Speech-language Therapists and Audiologists are trained at the following six institutions in South Africa:

1. University of Pretoria

2. University of Stellenbosch

3. University of Durban-Westville, now University of Kwa-Zulu Natal

4. University of Cape Town

5. University of the Witwatersrand.

6. MEDUNSA

MEDUNSA was not included in the sample as the university commenced offering a programme for Speech-language Therapists and Audiologists, in February 2001. At the time of data collection, i.e. March 2002, this programme was in its second year and did not offer the APD course both on a theoretical and clinical basis (personal communication, Ms. S.Saleh, part time lecturer MEDUNSA, 12/01). Hence, MEDUNSA was not included in the sample. Academic and clinical staff involved in the training of Speech-language Therapists and Audiologists in APD at the remaining five tertiary institutions constituted the sample.

2.6.4 Respondent Selection Process

The Heads of Department of the five institutions were contacted telephonically informing them of the nature and the purpose of the study. Preliminary permission to conduct the study was obtained telephonically from the respective heads of departments. In addition, the names of staff members involved in the training of APD were requested. Subsequently, all respondents identified, i.e. the academic staff directly involved in the training (theoretical and clinical) of Speech-language Therapists and Audiologists in APD were selected for the study. As research objectives are often 'clouded' in scientific jargon, they must be clarified and presented clearly (Neutens, & Rubinson, 1997, p.103). This was achieved in a letter sent to the head of department (Appendix A) and a letter to each respondent (Appendix B). The head of department presented the questionnaires to the staff to complete. The following was outlined in the letters:

- The motivation and the nature of the study.

- The selection procedure of the study

- The importance of their participation in the study

- Assurance that confidentiality and anonymity will be maintained.

Respondents were asked if they were willing to participate in the study and were advised to complete the questionnaire and return it only if they were willing to do so.

2.6.5   Description of the Training Institutions

Respondents from the five training institutions complied with the selection criteria. The five training institutions differed in terms of the qualifications that are provided. Table 2.1, illustrates the training qualifications offered at the five training institutions under study.

TABLE   2.1   Training   Qualifications   Offered   For   Speech-Language Therapy and Audiology in 2002

QUALIFICATION	TRAINING INSTITUTION				
	A	B	C	D	E
SLTA	Yes	No	No	Yes	Yes
AUD	Yes	Yes	Yes	No	No
SLT	Yes	Yes	Yes	No	Yes

Key:

SLTA	Speech-Language Therapy and Audiology (Dual registration)
AUD	Audiology only (single registration)
SLT	Speech-Language Therapy only (single registration)

At the time of data collection (March 2002), training institutions D and A offered a single qualification in Speech-language Therapy and Audiology, with dual registration at the HPCSA, whilst training institutions A offered the option of the qualification in either Speech-language Therapy or Audiology, with single registration as well. Training institution E offered the qualification in Speech-language Therapy and Audiology, with dual registration at the HPCSA, as well as the qualification for Speech-Language Therapy only with single registration at the HPCSA. This information was relevant at the time of data collection as some programmes have since undergone further changes.

2.6.6   Description of the respondents

Eleven responses were received from the five training institutions out of which nine were selected as respondents. Two of the respondents were excluded, as both respondents did not teach directly in the area of APD. Table 2.2 provides a

comprehensive description of the biographical characteristics of respondents from the five institutions who participated in the study.

TABLE 2.2 Characteristics of the Respondents. (n=9)

Characteristics	Years of experience	Respondents n=9	Percentage of respondents %
Number of subjects representing all tertiary institutions selected. **Training Institution:**			
• **A**		4	44%
• **B**		2	22%
• **C**		1	11%
• **D**		1	11%
• **E**		1	11%
Professional qualification			
• Undergraduate degree		9	100%
• Masters postgraduate degree			
- Obtained		7	78%
- Currently studying		2	22%
• Doctorate postgraduate degree			
- Obtained		2	22%
- Currently studying		4	44%
Work experience as a speech-language therapist			
0-5 years		1	11%
6-10 years		-	-
11-15 years		-	-
16-20 years		-	-
>20 years		-	-
Work experience as an audiologist			
0-5 years		-	-
6-10 years		1	11%
11-15 years		1	11%
16-20 years		-	-
>20 years		-	-
Work experience as a speech-language therapist and audiologist			
0-5 years		1	11%
6-10 years		2	22%
11-15 years		2	22%
16-20 years		1	11%
>20 years		2	22%
Work settings and years of experience in each setting			
Mainstream and Special Education	3-15	3	33%
Hospitals	1-13	6	67%
Private practice	2-15	5	56%
HSRC	2-5	2	22%
Assessment and Therapy centres	5	1	11%

TABLE 2.2 (Continued)

Characteristics	Years of experience	Respondents n=9	Percentage of respondents %
Work Experience as an Educator in the field of Speech-language therapy and Audiology Lecturer			
0-5 years	2-3	4	44%
6-10 years	6	3	33%
11-15 years	14-15	2	22%
16-20 years	-	-	-
>20 years	-	-	-
Clinical tutor			
0-5 years	-	-	-
6-10 years	2-3	3	33%
11-15 years	6-8	4	44%
16-20 years	14-15	2	22%
>20 years	-	-	-
Work experience as an Educator training in the field of APD Lecturer			
0-5 years	6months- 5yrs	6	66%
6-10 years	10	1	11%
11-15 years	-	-	-
16-20 years	-	-	-
>20 years	-	-	-
Clinical tutor			
0-5 years	6months-5yrs	5	55%
6-10 years	8	2	22%
11-15 years	-	-	-
16-20 years	-	-	-
>20 years	-	-	-
6 of the 9 subjects both lectured and offered clinical tutoring in the area of APD.			

According to table 2.2, it is apparent that the respondents in the study were highly qualified and possessed vast experience as Speech-language Therapists and Audiologists before joining the respective tertiary training institutions. Furthermore, they possessed good experience specifically as educators training in the area of APD.

2.7 MATERIALS

A questionnaire and a copy of the course descriptor and / or study guide were the main materials utilised in the study. These materials will be discussed under phase one of the study.

2.8   PROCEDURE

The research process of the current study can be divided into THREE phases. These phases are represented in Figure 2.1

PROCEDURE

PHASE ONE: PREPARATION PHASE AND PILOT STUDY

    a.   To develop the data collection instrument, namely, the questionnaire

    b.   To conduct a pilot study and adopt changes to the questionnaire following the pilot study

PHASE TWO: DATA COLLECTION AND ANALYSIS PHASE

    a.   To distribute the questionnaires and collect the data

    b.   Data analysis utilising curriculum analysis and statistical procedures

PHASE THREE: DEVELOPMENT OF THE GUIDELINES FOR THE PROPOSED WORKING CURRICULUM

    a.   To develop the guidelines for the proposed curriculum

FINAL OUTCOME: RECOMMENDED GUIDELINES FOR AN APD CURRICULUM

FIGURE 2.1 Research procedure of the current study.

2.8.1   PHASE ONE: PREPARATION PHASE AND PILOT STUDY

2.8.1.1   Justification for the Use of a Self Administered Questionnaire.

As the aim of the study was to investigate the nature of the undergraduate curriculum for Auditory Processing Disorders for communication pathologists (speech-language therapists and audiologists) within the South African context,

the survey method of data collection was used with a questionnaire identified as the data collection tool. This enabled the researcher to access a population that was beyond the researcher's physical reach, as logistically the respondents were situated around the country (Leedy, 1997; Neuman, 1997). Apart from allowing the researcher access to respondents distributed over a large area, questionnaires have been proven to be an inexpensive method of obtaining data. Additionally, the information was collected promptly and all respondents received the same information via a standardised package, which helped to eliminate any bias (Drummond, 1996).

2.8.1.2   Development of the questionnaire.

A questionnaire was identified as an appropriate tool that could be utilised to access the population that was beyond the researcher's physical reach (Leedy, 1997). Although the questionnaire is a highly useful instrument, certain issues needed to be considered in the design, as it is essentially an impersonal tool. The language used had to be clear, the questionnaire had to be designed such that the research objective was fulfilled, and questionnaires only succeed if planned meticulously (Leedy, 1997). In the actual questionnaire all questions were presented in a logical manner with clear flow from section to section. Explicit instructions were presented so that the respondent had clear guidelines in completing the questionnaire. Generally questionnaires have either open or closed questions or a combination of the two. Due to the nature of the study an open or unrestricted questionnaire, was adopted. The respondents were allowed to answer in their own words. Neutens et al (1997, p.104) presented some advantages of this format, namely:

- Usable when the responses are unknown.
- Preferable for controversial, sensitive, and complex issues. As in the case of the present study the area in question, i.e. the APD curriculum is controversial and training in APD is a complex issue.
- Allows for respondent creativity, clarification and detail. This was vital for this study, as the respondents had to clearly present the training students receive in the area of APD at their respective training institutions.

Apart from the above advantages that questionnaires presented, the following disadvantages were noted:

- Difficulty in coding and analysis. This was overcome with the current study, as the subject sample constituted staff offering training to communication pathologists in the field of APD at five institutions nationally.
- Greater demands on the respondent in terms of time, and thought. This study will potentially contribute to the training of all communication pathologists in the area of APD, hence respondents in the long term will benefit from participating (Neutens et al, 1997, p.104).

To ensure completion and a prompt return of the questionnaires, the researcher encouraged respondents to do so telephonically.

2.8.1.3   The questionnaire

The aim of the questionnaire was to obtain information on the nature of existing undergraduate APD curricula (theoretical and clinical) offered by tertiary institutions training communication pathologists in South Africa.

The questionnaire (Appendix D) was comprised of three sections to meet the first sub-aim of the study, and is summarised in Tables 2.3 and 2.4.

TABLE 2.3 Layout of the questionnaire.

SECTION	AIM	QUESTIONS
Section 1	Biographical and background information	Questions 1-6
Section 2 & Section 3	Sub aim 1- Investigating the nature of the current undergraduate APD curriculum (theoretical and clinical) offered at all tertiary institutions training communication pathologists in South Africa.	Questions 7-21

TABLE 2.4 Description of and justification for the questions included in the questionnaire.

SECTION 1	BIOGRAPHICAL AND BACKGROUND INFORMATION
QUESTIONS	MOTIVATION FOR QUESTIONS
	The term curriculum or professional education curriculum as quoted in its broadest sense can be defined as the "… interlinked complex of who is taught, what is taught, who teaches and within the context we teach" (Gerwel, 1991, p.10). Hence, the researcher structured the entire questionnaire to capture all identified aspects of what a curriculum should constitute. This section looks at <u>who teaches</u> (the professional educators) and to <u>whom teaching occurs</u> (the learners).
Question 1 • Qualifications • Training institution • Year in which qualifications were obtained and completed	Here the researcher required information on the respondents' *undergraduate and postgraduate qualifications* received. In addition the *training institution* from which these degrees were received and the *year completed.* This information is necessary as they could contribute to the results of the study. The researcher can identify trends with regards to where qualifications were received and when. In addition, the respondents could have received their qualifications from institutions out side South Africa. The year of completion could lend valuable information to APD in particular if the respondent is newly qualified or has qualified a long time ago. A more recently qualified graduate may have up to date knowledge on developments in the field, whilst the graduate that has qualified a long time ago could offer a sound historical perspective on the developments in the area. The information on postgraduate qualification could reveal respondents pursuing or having pursued a degree with a direct interest in the area of APD.
Questions 2-5 • Work experience • Number of years practising • Type of experience accrued • Number of years teaching, and in particular in the area of APD • In what capacity is the respondent teaching, i.e. as a clinical tutor or lecturer?	Information on *work experience* is valuable as the researcher will gain insight into the respondents overall experience teaching at a training institution and experience teaching specifically in the area of APD. In addition, one could ascertain whether newly appointed staff are allocated this area to teach or whether institutions appoint more senior and experienced members of staff to teach the area. The researcher asked respondents to indicate if they are lecturers or clinical tutors in the area as later on in the questionnaire the respondents are asked for study guides on both areas of teaching.

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TABLE 2.4(Continued)

Question 6.	
Information on the programme offered at the institutions	The higher education system in South Africa has undergone rapid transformation. This is due to the major challenges that it is faced with. This includes the redress of past inequalities, the transformation of the system or a new social order, meeting pressing national needs, and responding to new realities and opportunities (Strydom & Fourie, 1999, p.162). The restructuring of education had implications on the training of SLTA's too. In particular there has been rapid transformation in the past five years. Most of the training institutions adopted the modular degree structure and the entire programmes at some institutions have changed. Some of the institutions ceased offering the dual qualification and commenced with a programme that trained both Speech-language therapists and Audiologists but with a specialist qualification as either a Speech-language therapist or Audiologist. Hence, the need for this question. The researcher has to position the information on the curriculum received in light of the programme offered. Are both Speech-language therapists and Audiologists trained in the area? This information is valuable as both Speech-language therapists and Audiologists play pivotal roles in the management of clients with APD.
SECTION 2 **Questions 7-9**	**DESCRIPTION OF THE APD PROGRAMME** *To refer back to the definition of the term curriculum this section targets <u>what is taught</u> (the syllabi) and <u>how it is taught</u> (the teaching and learning process)*
• Description of the theoretical programme in APD	This section will provide the researcher with invaluable information on the current curricula offered in APD. Questions posed provided the researcher with information as to what year of student received lectures in the area of APD with a breakdown of the teaching time. In addition subjects were required to comment on the effectiveness of the structure employed by their training institutions. Questions 7-9 targeted the academic programme.
Questions 10-16 • Description of the clinical programme in APD.	Similarly, questions were asked to obtain information on the structure of the clinical programme in APD, with questions probing when clinical training in the area of APD commenced for learners, the manner in which the clinical programme for APD is structured and how clinical exposure is obtained. Questions 10-16 targeted the clinical programme
SECTION 3 **Questions 17-21**	**GENERAL** Here the researcher acknowledged the challenges faced by educators training Speech-language therapists and Audiologists in South Africa. The researcher provided the respondent with an opportunity to reflect on challenges and recommend changes. In addition it was imperative to determine whether respondents teaching in the area were aware of and were keeping abreast of recent developments in the area of APD in South Africa.

2.8.1.4   Pilot Study

- **Aim**

To determine the suitability of the questionnaire compiled for the current study and to consider further developments to the questionnaire by determining:

- the content validity, i.e. how accurately the instrument measures the information under study (Leedy, 1997, p.33), and

- flaws present, allowing for corrections to be made (Neutens et al, 1997, p.108).

- **Respondents**

Two independent candidates who were qualified Speech-language Therapists and Audiologists, and who had prior experience teaching in the area of APD at a tertiary institution were selected as respondents. The respondents were currently not involved in teaching in the area of APD. Neuman (1997) advises that the questionnaire be pilot tested with a small set of respondents similar to those in the final survey. These respondents were not selected for the main study. They also complied with subject selection criteria stipulated for the main study.

- **Procedure**

The questionnaires were hand delivered to the respondents and a cover letter outlining the aim of the study and the purpose of the exercise was included. The respondents were requested to indicate if the questions were clear and explore their interpretations to establish whether the intended meaning of the research was clear. Apart from completing the questionnaire the respondents were required to critically comment on all aspects of the instrument. This information was obtained via a checklist provided. These were:

- Sensitivity of issues.

- Question wording and order

- Response categories.

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- Reliability checks

- Physical layout

- Length of time for answering, and

- Instructions. (Neutens et al, 1997, p.109).

A period of one week was allowed for completion and submission of the questionnaires and was stipulated to the respondents. If several alterations had been required a re-pilot would have been conducted. This was not necessary as the alterations were minimal.

- **Results and recommendations**

Table 2.5 represents the results and recommendations of the pilot study. Overall the respondents were satisfied with the questionnaire and a few minor changes were recommended by both respondents.

Table 2.5 Results and recommendations of the pilot study.

Observations and recommendations of respondents		Adjustments
Page 1	Question 4 The terminology was initially in point form. The recommendation was to change to table form as it was confusing in the original format.	The terminology was transferred into table form, which was clearer.
Page 1	Question 4.5 The term single qualification, i.e. dual registration was indicated as confusing.	This was changed to dual qualification (dual registration). This was amended in the body of the questionnaire too, for questions 6, 13&14.
Page 4	Question 6.2 The respondents recommended that the word *only* should be added after items A and B on the table. It was pointed out that the instruction for question 6.2.2 was confusing	This was done and read: Speech Language Pathology learners *only* and Audiology learners *only*. This was rephrased.

The adjustments were made to the questionnaire, and the final version used in data collection is shown in (Appendix D).

2.8.2   PHASE TWO: DATA COLLECTION AND ANALYSIS

2.8.2.1   Data collection

- The final version of the questionnaire (see Appendix D) was mailed to the respondents via the heads of department at the respective training institutions. They contained a postage-paid self-addressed envelope and comprised a letter to the head of department and to each respondent (see Appendix A and B), the letters detailed the following:

    - The justification and the nature of the study.

    - The importance of their participation in the study

    - Assurance that confidentiality and anonymity of individual respondents and that of the institution will be maintained.

    - Assurance that they would receive feedback on the outcomes of the study.

- Respondents were notified that they would be contacted telephonically within a specified time period to determine the progress made in completing the questionnaire.

- It was stipulated that each completed questionnaire be signed by the head of department to verify that the information was reliable.

- A period of two weeks was stipulated for return of the questionnaires.

- Once the questionnaires were received the researcher checked the completed questionnaire against a list of respondents.

- A copy of the course descriptors were attached to the completed questionnaires.

The completed questionnaires were then submitted to the statistician for assistance with data analysis.

2.8.2.2   Data analyses

The data was analysed on two levels. Level one analysis relates to sub aim one and level two analysis to sub aim two.

a. Level one analysis involved quantitative and qualitative data analysis, which resulted in the data being organised to identify patterns and categories (Mc Millan & Schumacher, 2001).

The questionnaires were analysed quantitatively in the following manner:

- Quantitative descriptive data analysis techniques were utilised. They served to summarise and organise the data (Mc Millan & Schumacher, 2001). Descriptive statistics that were utilised were frequency counts and measures of central tendency e.g. calculating the mean, median and the mode. This enabled the researcher to locate the midpoint around which the mass of data were equally distributed. As the study investigated the course offered at all training institutions, in this situation measures of spread or variation were utilised to determine whether the scores or observations of each respondent or a group (in this case the training institution) were quite similar [homogenous] or spread apart [heterogeneous] (Neutens et al 1997, p.264). The completed questionnaires were analysed with the assistance of the Department of Statistics at the University of Pretoria.   The data was analysed quantitatively with the use of the SAS (r) Proprietary Software Release 8.2 (TS2M0) - Copyright (c) 1999-2001 by SAS Institute Inc., Cary, NC, USA statistic package. Quantitative data were represented with the use of tables.

  The study guides and/ or course descriptors attached to the questionnaires were analysed qualitatively in the following manner:

- Qualitative data analysis is essentially an inductive process of organising the data into categories and identifying patterns or relationships among the categories (Mc Millan & Schumacher, 2001). In the present study the categories were predetermined and included in the questionnaire. The researcher thus used a priori coding format. The latter form of coding is recommended if the study has a small number of respondents, where named categories are decided upon before coding begins, and data obtained is then sorted by these categories (Bailey, 1997). This form of coding suited the present study as the categories outlined were areas pertaining to the course and are contained in the course descriptor and/ or study guide for a course in APD.

The specified categories were as follows:
1.   Aims and objectives of the course.
2.   Outcomes of the course, in terms of:
   a. Theoretical constructs,
   b. Identification of the child with APD,
   c. Assessment/evaluation/diagnosis of the child with APD,
3.   Management of the child with APD
4.   Outline of content areas, i.e. syllabus covered.
5.   Teaching methodologies utilised.
6.   Resources used (human, physical and technical).
7.   Other areas that the respondents wished to include.

With the predetermined categories in place the final and ultimate goal of qualitative analysis made general statements about relationships among these categories by discovering patterns in the data. A pattern is a relationship among categories. Pattern seeking allows the examining of the data in as many ways as possible (Mc Millan & Schumacher, 2001).

b. Level two analyses involved analysing the curricula utilising a framework for the analysis of a curriculum by Jansen and Reddy (1998). This was utilised to assist with the qualitative analysis of the

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curricula obtained from the five tertiary institutions. The framework in question was selected, as a dearth of information in the literature on analysis of curricula exists. A curriculum analysis framework for post-apartheid South Africa does not appear to exist, and the model proposed by Jansen and Reddy (1998) has been used extensively to deconstruct curriculum in South Africa (personal communication, Dr. R. Sookrajh, 5/10/04). In addition, one of the contributors, Jansen is a known innovative and creative thinker in the area of research in education and is an avid critique of curriculum issues in South Africa (personal communication, Dr. R. Sookrajh, 5/10/04). The model proposed by Jansen and Reddy (1998) met the requirements of the study guided by a logical schedule asking critical questions the curricula were analysed.

Table 2.6 A framework for the analysis of a curriculum (Jansen & Reddy, 1998, p.6)

EXTERNAL *Micro level*	**IMPACT ANALYSIS**	What are the effects of the curriculum?
INTERNAL	**DESIGN ANALYSIS**	What theories, principles, methods, standards and assumptions underpin the curriculum?
EXTERNAL *Macro level*	**POLICY ANALYSIS**	What is the relevance of the curriculum in relation to a particular set of social policies?

A curriculum can be analysed in terms of the three categories stipulated in table 2.6 (Jansen & Reddy, 1998). A researcher may choose to analyse a curriculum in terms of its *impact, design* or *policy.*

a. With regard to **impact analysis** (Jansen & Reddy, 1998), the researcher attempted to look for the effects of the curricula and to ascertain if the curriculum is making a difference. One of the ways of obtaining an impact analysis is to appraise the external impact of the study (Jansen & Reddy, 1998). For the purposes of this study impact analysis was achieved by obtaining a clear understanding of the course goals, purposes and expected results (outcomes). In addition, subjects were questioned about the difficulties and challenges encountered in the area of APD as an educator within the South African context and were requested to comment on changes that they may recommend to their current training programme. The manner in which the impact of the curricula was determined was an adjustment to the literature description as it is usually achieved by questioning the learners. Interviewing the learners was not included in the present study.

b. **Design analysis** (Jansen & Reddy, 1998) involves appraising the curriculum in terms of standards or agreed upon design principles. Design analysis includes, (i) determining the purpose of the curriculum and (ii) measuring the curriculum against agreed upon design principles.
    The purpose of the curriculum was standard across all institutions as training in APD is an essential part of the curriculum for Speech-language Therapists and Audiologists. In order to evaluate a curriculum according to the design principles Posner (1992, in Jansen 1998) recommends examining the curricula in terms of:
    - Claims [what does the curriculum claim will happen to those using or exposed to the curriculum]
    - Assumptions [what does the curriculum take for granted].
    - Silences [what does the curriculum say nothing about].

c. The last aspect of curriculum analysis is **policy analysis** (Jansen & Reddy, 1998**)**. Here a curriculum can be analysed to assess its relevance or relationship to a broader set of educational or social policies. With regard to the training of speech-language therapists and audiologists, policy affecting the training of the professionals will be

considered, namely, scopes of practise and competencies of the speech-language therapists and audiologists.

2.8.3 PHASE THREE

2.8.3.1 Development of the guidelines for the proposed working curriculum

The development of the guidelines for the proposed curriculum for APD, involved the formulation of a template based on theory and policy and existing curricula in APD obtained from the five training institutions in South Africa in phase two of the study and from Bellis (2002) (Appendix E). The latter is a module descriptor of an APD course that was obtained from Professor Terri James Bellis, Department of Communication Disorders, University of South Dakota. This module offered by Professor Bellis is taught to graduate audiology students. The existing data obtained from the five South African training institutions in phase two was compared to multiple data sources. The data sources although largely from the US comprise of taskforce reports and the most recent consensus statements and reports on the consensus statements (ASHA, 1996; ASHA, 2005; Jerger & Musiek, 2000; Jerger& Musiek, 2002; Katz, 2002). These documents, although largely American were selected as they represent cutting edge research and commentary on the current status of APD. In addition, a South African generated taskforce document was included (Campbell & Wilson, 2001). The outcome of this phase was the proposed guidelines for a draft curriculum constituting the syllabus and outcomes for a course in APD.

2.9 CONCLUSION

Hugo (1998, p.8) stated that ''research must be seen as the cornerstone upon which the Africanisation of education can be developed.'' A need for transformation within the field of speech-language therapy and audiology was proposed by Uys and Hugo (1997) and a paradigm shift was required to accomplish it. Research contributes to the transformation process and in particular relevant research is imperative in order to account for the needs of the country and the stakeholders in particular. It is therefore intended that the

information derived from this research will contribute to the training in the area of APD, and ultimately impact on service delivery.

2.10   SUMMARY OF METHODOLOGY

This chapter described the methodology that was utilised in investigating the undergraduate curriculum for Auditory Processing Disorders (APD) for communication pathologists (Speech-language Therapists and Audiologists) within the South African context. The sub aims of the study were specified. Detailed descriptions of the research design, subject selection and materials and apparatus were provided. The research procedure explained how the data was collected. The analysis of the curricula was discussed with reference to the curriculum analysis model by Jansen and Reddy (1998).

3.   RESULTS AND DISCUSSION

3.1   INTRODUCTION

Researchers in South Africa have a specific ethical responsibility to carry out relevant and effective research (Whiston, 1994, in Uys and Hugo, 1997). In South Africa there is a demand for educational redress and a need for a higher education system that is efficient and effective, whilst also being responsive to the country's economic needs. The question for curricula developers is how should curricula reflect and accommodate diversity that is now characteristic of higher education. Banks (1996, p. 4, in Breier, 2004) advocates 'totally transformed, multicultural curricula that motivates students to view and interpret facts, events, concepts and theories from varying perspectives.'

In South Africa each educational institution has a unique culture, which is influenced by its own particular biographical history, social context, resource availability, ideological leanings and curriculum practices (Samuel, 1999). However, are training institutions in South Africa looking at transforming their curricula to correct past exclusions, to better prepare students for increasingly complex and diverse communities and workplaces, and to provide students with the most current and intellectually comprehensive understanding of culture and society? Are we revising curricula that were traditionally western oriented to better account for global realities and the realities of South Africa? The researcher attempted to answer this from the perspective of training speech-language therapists and audiologists in the field of APD.

The aim of this section is to present the results of each sub aim in a meaningful way, to interpret and discuss the results for each sub aim against current literature, to draw meaningful conclusions and recommendations so that guidelines can be proposed for an undergraduate curriculum for the South African context.

3.2 THE NATURE OF UNDERGRADUATE APD CURRICULA OFFERED AT SOUTH AFRICAN TRAINING INSTITUTIONS.

The results that follow will attempt to answer the first sub aim of the study, i.e. to determine the nature of existing undergraduate APD curricula (theoretical and clinical) offered by tertiary institutions training communication pathologists in South Africa. In order to present the nature of the existing curricula the results were extracted from the completed questionnaires and course descriptors/ study guides provided by the respondents. The training schedules for both the theoretical and clinical curricula are presented, followed by the components of the curricula as outlined in the study guides; namely, the aims and objectives of the curricula, the outcomes, outline syllabi, teaching methodologies, assessment strategies and resources used in teaching the theoretical and clinical APD module.

3.2.1 Overview of the theoretical and clinical training schedule.

Table 3.1 provides an overview of the training schedule offered by the respective training institutions with regard to the theoretical and clinical curricula in APD, and the year of study in which the theoretical and clinical curricula are offered.

Table 3.1 Overview of the theoretical and clinical training schedules.

TRAINING INSTITUTION	YEAR OF STUDY IN WHICH CURRICULUM IS OFFERED		APD CURRICULUM			
	THEORETICAL CURRICULA	CLINICAL CURRICULA	THEORETICAL CURRICULA		CLINICAL CURRICULA	
			Lectures combined	Lectures separate	Clinics combined	Clinics separate
A	2ND and 3RD	3rd and 4th	SLTA	SLT AND AUD	None offered combined	SLT AND AUD
B	3RD	4th	SLTA	None offered	None offered combined	SLT AND AUD
C	3RD	No clinics offered	SLTA	AUD ONLY	No clinics offered	No clinics offered
D	2nd and 4th	4th	SLTA	None offered	SLTA	None offered separate
E	3rd	3rd	SLTA	None offered	SLTA	None offered separate

KEY:	SLTA	Speech-language therapy and audiology students		
	AUD	Audiology students only	SLT	Speech-language therapy students only

All institutions indicated that both speech-language therapy and audiology students received **theoretical training** in APD.

All institutions offered combined lectures for both speech-language therapy and audiology students, whilst 2 of the 5 institutions offered them separately as well. Institution A offered an introductory combined curriculum in 2nd year. In 3rd year the audiology students received additional APD lectures as part of an advanced curriculum in audiology. Likewise the speech-language therapy students received lectures in APD incorporated into a curriculum on Language Learning Disability in 3rd year. Institution C offered lectures combined for both speech-language therapy and audiology students for 3 weeks and the audiology students received separate lectures for a further 3 weeks.

Four of the five institutions indicated that students received **clinical training** in the area of APD. At the time of the study Institution C was not offering a clinical curriculum in APD. Of the remaining four institutions, 2 of the institutions offered combined clinics with the remaining 2 offering separate clinics for the speech-language therapy and audiology students in APD. Institution A offered a clinical curriculum both in 3rd and 4th year, dedicated to APD for the Audiology students. For the speech-language therapy students clinical training in APD, formed part of the language learning disability clinic. Similarly, institution B offered separate clinical curricula in 4th year. In contrast the remaining institutions offered combined clinics, namely, Institution E offered a clinical curriculum in the 3rd year whilst Institution D offered one in the 4th year of study.

These results indicated that all five training institutions were committed to training in APD by providing lectures and clinical training in the area. Training in APD in South Africa appeared to be significantly different to training in the United States of America. As presented earlier in the introduction, a fundamental difference between the training in the United States of America (USA) and South Africa is that training in speech-language therapy and audiology is offered in South Africa at an undergraduate level as compared to a postgraduate level in the USA. Additionally, Bellis (2003) indicated that

postgraduate students in Audiology might receive training in the area of APD. Molloy and Lucker (2003), after reviewing speech-language therapy programmes in the USA, commented that speech-language therapy students did not routinely obtain training in APD. ASHA (2005) views the area of APD as a specialist area and suggests that as more students complete the clinical audiology doctorate training the training for audiologists specifically in the field will improve. The latter intimates that the master's degree in audiology in the USA is no longer thorough for the professional preparation of audiologists in the area of APD. Furthermore, what one might surmise from Bellis (2003) and Molloy and Lucker (2003) is that theoretical and clinical training in APD do not appear to be offered as standard practice at training institutions for speech-language therapy and audiology in the USA, in contrast to the situation in South Africa, where training in APD was standard practice.

A comparison was drawn between the South African and USA situations as there was research documenting evidence of training in APD in the USA. Additionally, the researcher was attempting to position the results obtained for the theoretical and clinical training offered in APD in South Africa, against training offered in another country. Speech-language therapists and audiologists qualifying in South Africa will all exit their respective programmes with exposure to theoretical training in APD and those from all but one of the training institutions will exit with exposure to clinical training in APD. Additionally, students at three of the five training institutions under study are offered the qualification with a single registration, i.e. the students qualify as either a speech-language therapist or audiologist. Although, graduates at these universities exit with either the qualification in Audiology or Speech-language therapy, theoretical training at all and clinical training at four of the five training institutions was offered to both speech-language therapy and audiology students in APD. This has implications for assessment and remediation as a multidisciplinary team approach to APD is recommended and necessary to effectively assess the cluster of problems that are often seen in those with APD (ASHA, 2005). This is repeatedly stressed in literature (ASHA, 1996 &2005; Bellis, 2003; Bellis, 2004; Keith, 2002; Chermak, 2003), particularly that a collaborative approach between the speech-language

therapist and audiologist be adopted. The speech-language therapist has been identified as fundamental to the broader assessment and remediation of children presenting with APD (Wertz, Hall & Davis, 2002). In South Africa where training for speech-language therapists and audiologists are provided by the same departments, opportunities exist for demonstrating and endorsing collaborative teamwork, thus facilitating an integrated approach to APD management.

3.2.2 Structure of the theoretical and clinical training curricula in APD.

The results that follow were sourced from the completed questionnaires and provide information on the notional hours allocated to the theoretical and clinical training curricula in APD offered at the respective training institutions.

3.2.2.1 Notional hours allocated to the theoretical training curricula in APD.

Table 3.2 reflects notional hours allocated to the theoretical curricula in APD and offers a summary of the total time allocated to the curriculum in APD across the five institutions.

Table 3.2 Notional hours allocated to the theoretical training curricula in APD

INSTITUTION	NUMBER OF LECTURES	NUMBER OF TUTORIALS	SELF STUDY	TOTAL NUMBER OF PERIODS	PERIOD EQUIVALENTS (MINUTES)	NOTIONAL HOURS
A (2nd year)	15	5	8	28	50	23 hours 30 minutes
A (3rd year) SLT	15	5	0	20	50	16 hours 40 minutes
AUD	6	0	0	6	50	5 hours
B	24	0	0	24	45	18 hours
C	12	0	0	12	60	12 hours
D	6	0	0	6	45	4 hour 30 minutes
E	28	7	27	63	50	53 hours

Key:

AUD	Audiology students only
SLT	Speech-language therapy students only

The time allocated to the theoretical curriculum in APD varied across all institutions. Institutions B and D indicated that the time was insufficient to cover the theory, whilst, Institution C indicated that the time allocated was sufficient for a theoretical curriculum provided it was then complemented in the future with a clinical curriculum. Institution E reported that the time allocated was adequate given the time demands of other curricula. Some of the institutions acknowledged that the time allocated to the module was insufficient. This leads the researcher to question how much time should be dedicated to a theoretical curriculum in APD. However, this decision is required to be considered in light of the entire training programme.

All institutions appeared to utilise all of the allocated time as direct contact time in the form of lectures. In terms of notional hours, Institution E allocated the most time, namely a total of 53 hours for teaching in APD. Of these a total of 29 hours, was direct contact time in the form of lectures and tutorials, i.e. (28 lectures and 7 tutorials).

The time allocated to the theoretical training in APD across the training institutions in South Africa varied significantly from 4 hours 30 minutes to 53 hours. Bellis (2002), (Appendix E) offers a theoretical curriculum in APD to Audiology graduate students. The time allocated to the curriculum is 34 hours. Three of the 5 training institutions in South Africa allocated less time to the theoretical training in APD as compared to Bellis (2002). Additionally, 2 of the 5 training institutions indicated that the time was insufficient. The most recent findings on the situation in South Africa were provided by a study conducted by Fourie (1998), in the Gauteng region in South Africa. This study supported the findings of the present study. It was reported that although, 76% of the respondents received training in the area of APD at the time, only 19% indicated that they had received comprehensive training in the area with 53% reported very little training (Fourie, 1998). Although the results indicate that the student speech-language therapists and audiologists received training in the area of APD the widespread difference in time allocated to the theoretical and clinical

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curricula could be a reason why Fourie (1998) reported that the subjects in her study expressed an overall lack of knowledge and insight into APD.

Consequently, the question that arose was, should parity exist across all training institutions with regard to theoretical training in APD? Ideally one would like to see graduates exit programmes with similar training opportunities. There, thus appears to be a need, to revisit the time allocation not only to the theoretical curriculum in APD but to examine the time allocation within the framework of the entire programme for speech-language therapists and audiologists at the training institutions under study. An academic steering committee could be convened where academics from all training institutions in South Africa collaborate to oversee and develop training of speech-language therapists and audiologists in South Africa, to ensure that graduates leave with equal or similar training opportunities. This would facilitate efficient and effective service delivery.

3.2.2.2. Notional hours allocated to clinical training in APD

Table 3.3 specifies the notional hours allocated to the clinical curricula in APD. The table offers a summary of the total time allocated to the curricula in APD across the five training institutions.

Table 3.3 Notional hours allocated to the clinical training in APD

INSTITUTION	YEAR OF STUDY & PROGRAMME		NOTIONAL HOURS	
	SLT	AUD	SLT	AUD
A	3rd 4th	3rd 4th	10 10	10 10
B	4th	4th	Unspecified	24-48
C	No clinic	No clinic	0	0
D	3rd	3rd	7	7
E	4th	4th	Unspecified	Unspecified

Key:

AUD	Audiology
SLT	Speech-language therapy

Four of the five institutions indicated that dedicated clinical training in APD was offered to both speech-language therapy and audiology students. At

institutions A, B and D the notional hours allocated to clinical training in APD ranged from 7-48 hours, over either the 3rd and/ or 4th year of study. The time allocation for the speech-language therapy student was unspecified at institution B as they were exposed to APD as it arose in the learning disability clinic. A separate APD clinic did not exist. Institution E indicated that the students received clinical exposure but did not specify the exact hours that were accrued and Institution C was not offering a clinical curriculum in APD.

The institutions indicated that the clinical training was accomplished by observation, direct assessment of a client and remediation. Institution A appeared to offer the most widespread form of clinical training to both their speech-language therapy and audiology students in APD, with all three facets of clinical training being offered. For audiology students the respondents indicated that the clinical curriculum offered both observation and training sessions in the administration of the APD test battery. A specific clinic existed at the department to conduct audiological assessments of clients presenting with APD. In addition, school-based therapy provided a comprehensive support service for teachers especially in the foundation school years. At Institution B, audiology students spent 90 % of clinical time was assigned on APD assessment; the remaining 10% was devoted to therapy in the form of school/home programmes to both the teacher and parent. Although Institution C indicated that a dedicated clinical module for APD testing and remediation for the Audiology students did not exist, the respondent indicated that speech-language therapy students based at community clinics and schools obtained some exposure to APD within the speech and language clinics. At Institution E the exact nature of training was unspecified; however, the respondent indicated that cases are referred for specialised APD testing within the hearing clinic on campus. Institution D offered a school-based clinic for students in the dual qualification in both assessment and therapy for APD in children. Training was accomplished by observation, direct assessment of a client and remediation; however, it is apparent that all facets of clinical training were not accomplished at all training institutions. Nonetheless, four of the five institutions offered dedicated clinical training in APD.

The time allocated to the clinical curricula in APD varied from 7 – 48 hours. In an attempt to position these results the researcher made a comparison with a study conducted by Chermak et al. (1998) in the US. The respondents reported little clinical experience during their graduate programmes in assessing auditory processing. The mean number of hours reported in assessing children specifically, was 5.5 hours. In contrast, speech-language therapy and audiology graduates at all but one of the training institutions studied, are receiving some form of clinical contact at undergraduate level to prepare them for APD practice.

To conclude, in contrast to the situation in the USA, the findings of the present study appeared to indicate a more positive situation in South Africa. Although the researcher found no standard with regard to lecture and time allocation, or the year in the programme when training in APD should occur, all training institutions under study offered a commitment to theoretical and most to clinical training in APD. Additionally, the recently drafted competency profiles, for the newly qualified audiologist and speech-language therapist clearly outlines the competencies that are required by the speech-language therapist and audiologist in the area of APD. The competency profiles compiled by the Professional Board for Speech-Language and Hearing Professions of the Health Professions Council of South Africa (HPCSA, 2003), clearly stated that traditionally the client presenting with APD was specified in the client base of the audiologist alone. However, due to the complexities of this condition and the relationship with language processing, the speech-language therapist was required to be involved in management of APD. However, the professional board advised that diagnostic audiometric assessment of APD should be excluded from the minimal competencies required for speech-language therapists (HPCSA, 2003).

In light of these competency profiles drawn up for speech-language therapists and audiologists and the disparity observed in this study regarding the time allocation for theoretical and clinical training in APD, together with the findings by Fourie (1998), it is recommended that an academic steering committee be implemented. The function of the committee would be to oversee, evaluate

and streamline existing training programmes for speech-language therapists and audiologists in South Africa. This may prevent the situation where graduate speech-language therapists and audiologists exit training programmes feeling inadequate in their knowledge and insight into APD and the clinical management thereof.

3.2.3 Presentation of the APD course descriptors using predetermined categories.

In addition to the completed questionnaires, all respondents were asked to provide a course descriptor/ study guide with a comprehensive course outline for both the theoretical and clinical curricula in APD. The course descriptors referred to the document that contained information compiled according to a set format that described the module taught. Based on the format, i.e. the predetermined categories, as recommended in the questionnaire (see Figure 3.1 below), the course descriptors from all five institutions were analysed and discussed. The course descriptors that were received are represented according to the predetermined categories in Tables 3.4 - 3.8. The predetermined categories were outlined in the questionnaire and contained in Figure 3.1.
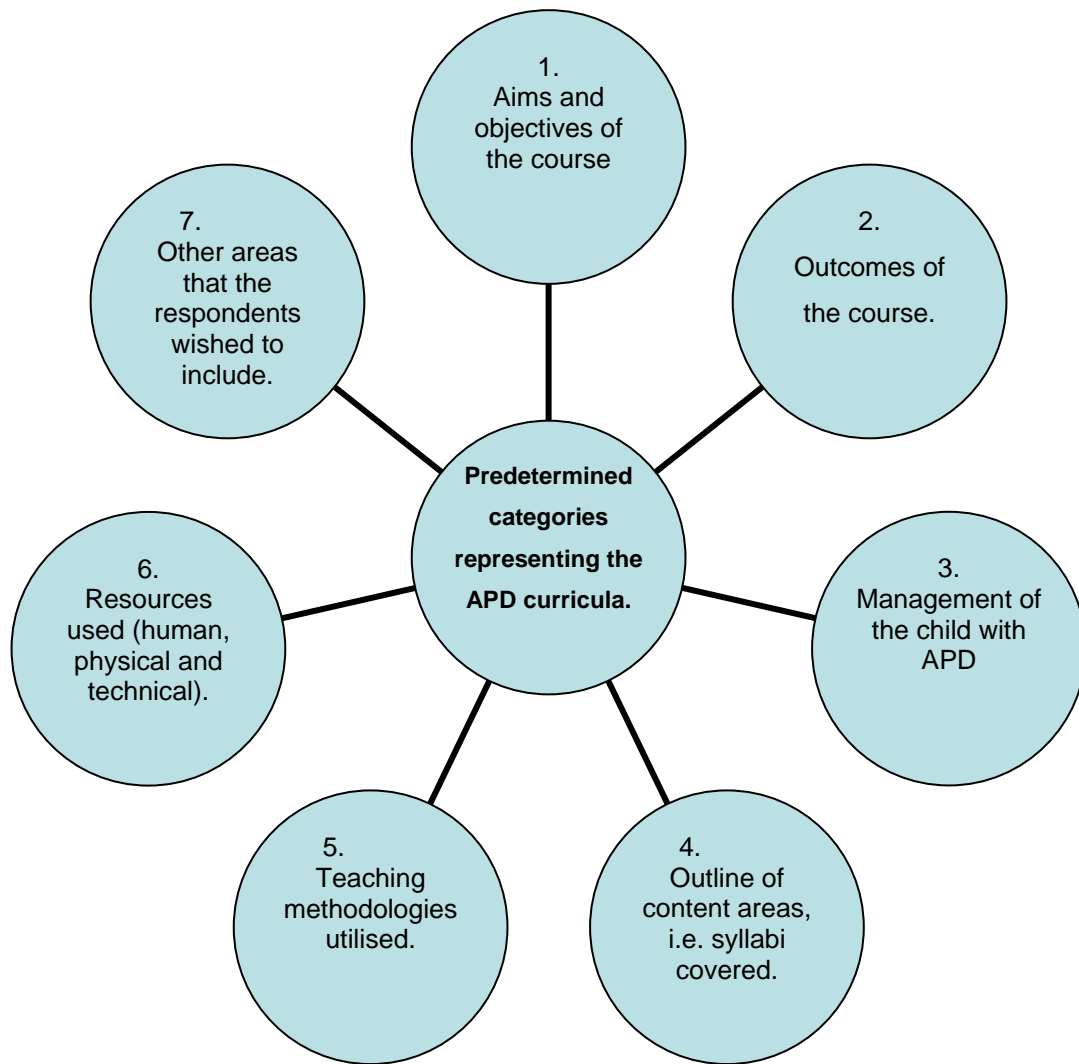
FIGURE 3.1 The predetermined categories representing the APD curricula.

3.2.3.1   Aims and objectives of the APD curricula

The following table contains the aims and objectives of the curricula in APD as indicated by the training institutions under study.

Table 3.4 The aims and objectives of the APD curricula offered at training institutions In South Africa.

CATEGORIES	INSTITUTION				
	Institution A	Institution B	Institution C	Institution D	Institution E
1. Aims and objectives of the curricula.	To equip the student with the necessary theoretical background knowledge and clinical skills that they will need in managing auditory processing disorders in the clinical setting. Furthermore, it is hoped that this module will stimulate further research in the field of auditory processing.	To provide learning opportunities to facilitate an understanding of the nature and management of central auditory processing disorders in children.	To provide theoretical knowledge regarding the evaluation of the central auditory nervous system.	*No aims or objectives were provided in the course descriptor*	To familiarise the student with the diagnosis and rehabilitative responsibilities of the audiologist of individuals with APD's.

It was evident that the curricula were designed to provide the students with theoretical knowledge necessary for the understanding of the nature of APD and the management thereof in the clinical setting. The aims and objectives of the curricula offered at the training institutions under study were in keeping with those presented by (Bellis, 2002), (Appendix E). Bellis (2002) stated in the course descriptor, that the curriculum was designed so that the student was familiar with the principles of APD, thereby enabling them to develop clinical competence in the area. The only training institution that differed in terms of the aims and objectives was Institution C. This institution stressed that the curriculum was designed to evaluate the Central auditory nervous system (CANS), with no reference being made to the disorder and management thereof. Institution B stated that the curriculum was designed to deal with APD in children only. Institution D provided no information on the aims and objectives of the curriculum.

A comparison was made with the curriculum offered by Bellis (2002) a leading researcher in the field of APD, to determine if the curricula offered locally are internationally competitive. In terms of the aims of objectives of the respective

curricula, the researcher determined that they compared well with the curriculum offered by Bellis (2002). Apart from being internationally competitive the curricula offered locally have to be relevant for the South African context. This opinion is sanctioned by Uys and Hugo (1997, p.25) who motivated for a change in the training of speech-language therapy and audiology students. This motivation and support is clearly enunciated in the following quotation, "Professional programmes at the higher education levels should prepare the professional of the future (the student of today) to meet the needs of South Africa, while still maintaining the scientific and professional standards of the international market". They further stated that if change in training and service delivery in speech-language therapy and audiology in South Africa is based on the traditional western or medical model, then such change will never cater for the needs of the communicatively disabled in South Africa (Uys & Hugo, 1997).

All training institutions did not explicitly indicate that an aim of the curriculum should be to allow students the opportunity to critique the concept of APD as it related to the South African situation. Furthermore, the curricula are silent on encouraging critical learnership to equip students with the ability to apply the theory and practice of APD to the South African context. Such application and critique of knowledge in APD to the South African context is deemed critical to the success of a contextually relevant curriculum. Therefore to meet the needs of the entire population the profession has to adjust both its training and professional practices (Tuomi, 1994) to be contextually relevant. South Africa is a young democracy and a country with a plethora of languages and cultures that is still facing many challenges. To meet these challenges basic training programmes are required to address South African issues in keeping with a nation that reflects a mosaic of cultural and linguistic diversity. Based on this context the curriculum should be viewed as a dynamic entity for facilitating practice during this dynamic period of social transformation (Pillay, et al., 1997). It is therefore essential that a major aim of any curriculum contributing to the training programme for speech-language therapists and audiologists should feature issues that pertain to the South African context. This aim is fundamental to creating awareness amongst the students. The

outcome of which is to urge students to apply relevant knowledge to each client presenting with this disorder. This will hopefully influence their own understanding of the disorder and impact on their eventual management of the client.

3.2.3.2 The outcomes of the APD curricula

The outcomes of the APD curricula as indicated by the training institutions under study are presented in table 3.5.

Table 3.5 The outcomes of the APD curricula offered at training institutions In South Africa.

CATEGORIES	INSTITUTION				
	A	B	C	D	E
2. Outcomes of the curricula, in terms of: a. Theoretical constructs, b. Identification of the child with APD, c. Assessment/ evaluation/ diagnosis of the child with APD, d. Management of the child with APD.	**Specific outcomes in terms of essential knowledge for the curricula at 2nd year** were provided. • Discuss the anatomy and physiology of the CANS • Discuss the prenatal development, neuro-maturation and plasticity of the CANS • Appraise the effects of pathology on the CANS • Compare the differences between organic and functional lesions of the CANS • Compile a management program for clients with organic lesions of the CANS • Provide a definition of APD and evaluate it against the background of the controversy which surrounds the field of APD • Examine the causes of APD • Describe the behaviour of children and adults with APD • Evaluate the use of sub profiles in the management of APD • Propose and motivate which team members you would include in the APD team as well as the role of each member. • Evaluate the current status of assessment tools in the field of APD from the perspective of both the Speech-language Therapist and Audiologist. • Compose guidelines for when the audiologist should consider diagnostic testing & Evaluate the use of sub profiles in the management of APD • Propose and motivate which team members you would include in the APD team as well as the role of each member. • Evaluate the current status of assessment tools in the field of APD from the perspective of both the Speech-language Therapist and Audiologist. • Compose guidelines for when the audiologist should consider diagnostic testing	The student shall demonstrate an understanding of the nature of central auditory processing disorders in children, and demonstrate knowledge about the assessment and treatment principles and methodologies.	• To provide the rationale and purpose for conducting evaluations of the central auditory nervous system (CANS). • To familiarise the students with assessment protocols and methods used in the evaluation of the CANS. • To be able to interpret test findings and provide appropriate recommendations for management using current models and theory.	• On completion of the course students will understand the relationship of APD to hearing loss. • They will be able to describe the neuroanatomy and neurophysiology of hearing and how this relates to the basic concepts underlying APD testing. • They will be able to identify clients at risk for APD	• Discuss the function of specific central auditory structures • Define central auditory processes • Explain the effect of pathology of the central auditory system • Discuss hemispheric specialisation • Identify auditory tasks that depend on temporal processing and binaural interaction. • Explain the principles of the evaluation of APD and to perform some tests • Be able to differentiate between categories of APD • To integrate the evaluation of language with the central auditory test battery • Be able to interpret the result of a test battery • Select the rehabilitation principles for different cases and apply auditory, meta-linguistic and cognitive strategies.

3.2.3.3 The outcomes of the APD curriculum for audiology students only.

Table 3.6 reflects the outcomes for the 3rd year curriculum offered as part of a broader curriculum for the audiology students offered only at institution A.

Table 3.6 The outcomes of the APD curriculum for audiology students offered at training institution A.

CATEGORIES	INSTITUTION A
2. Outcomes of the curriculum, in terms of: a. Theoretical constructs, b. Identification of the child with APD, c. Assessment/ evaluation/diagnosis of the child with APD, d. Management of the child with APD.	**Specific outcomes in terms of essential knowledge for the curriculum at 3rd year for the audiology student only.** • Define APD • Appraise the fundamental requirements of testing namely, reliability and validity • Analyse the information which can be obtained from the case history when considering further diagnostic testing and appraise the value thereof • Compare the different levels of APD testing • Construct guidelines for when diagnostic testing should be considered • Categorise and discuss the different tests of APD and test batteries, which are available. • Evaluate the current status of assessment tools in the field of APD • Appraise the use of sub-profiles in the management of APD • Propose and motivate which team members you will include in the APD team and discuss the role of each member • Explain the value and importance of an integrated tam approach to the assessment of APD. • Compile an integrated management plan for the remediation of APD and discuss the content and value thereof.

All training institutions identified that understanding the theoretical constructs of APD; the neuro-anatomy, physiology, maturation and plasticity; identification of the child with APD, assessment/evaluation/diagnosis of the child with APD and management of the child with APD as outcomes of the curricula. Learning outcomes are the things that learners should be able to do at the end of their period of training and that educators would like graduates to be able to do as a result of their learning (Boughey, 2005).The outcomes appeared to be comprehensive, covering all pertinent areas of APD as outlined as essential knowledge areas in figure 1.1., and international guidelines and research (ASHA, 1996 & 2005; Bellis, 2003). However, a critical appraisal of the essential knowledge areas with regard to the South African context was not highlighted.

3.2.3.4 Outline of the APD syllabi.

All training institutions under study offered an outline of the syllabi for the theoretical curricula offered in APD to the speech-language therapy and audiology students. This is presented in table 3.7.

Table 3.7 The outline of the APD syllabi offered at training institutions In South Africa.

CATEGORIES	INSTITUTIONS				
	A	B	C	D	E

3. Outline of content areas, i.e. syllabi covered.	• Anatomy and physiology of the CANS
	• Prenatal development, neuro-maturation and plasticity of the CANS
	• Effects of pathology on the CANS
	• The differences between organic and functional lesions of the CANS
	• The management program for clients with organic lesions of the CANS
	• Causes, symptoms, assessment & rehabilitation and teamwork.
	• What is an APD? Definition, theories, approaches and co-existing disorders.
	• Causes of APD
	• The behaviour of children and adults with APD
	• Types and sub profiles of APD
	• The APD team.
		• Introduction
		• Terminology
		• Perspectives on auditory processing
		• Neuro-anatomy, Physiology and Specialised Functions of the Central Auditory Mechanism
		• Auditory processing of Speech
		-Development of auditory processing.
		-Implications for assessment of auditory processing.
		• Auditory processing disorders
		-What is a central auditory processing disorder?
		-Definitions and concepts
		-Nature of Auditory Processing Disorders
		-Factors associated with an auditory processing dysfunction including Otitis media.
		-Causes of auditory processing disorders
			• Introduction and terminology
			• Types and subgroups of APD
			• Development of auditory function
			• Principles which can be applied to functional evaluation of the cans
			• Behavioural measures of central auditory function using monaural stimuli
			• Behavioural measure of central auditory function using dichotic stimuli
			• Electrophysiological measures of the central auditory system
			• Limitations of central auditory measures
			• Localisable neural hearing defects
			• Diffuse central hearing defects.
			• Pseudo central hearing loss.
				• Background Definition: what is central auditory processing
				• Review of the neuro-anatomy and neuro-physiology of the auditory system.
				• Basic concepts underlying the assessment of APD:
				  a. Dichotic listening
				  b. Temporal processing
				  c. Binaural interaction
				• Implications of neuro-maturation and neuro-plasticity of the auditory system for intervention
				• Who should be tested and who should be involved in APD? The role of the audiologist as a team member
				• Overview of the central tests (in relation to the basic concepts)
				• Specific tests
				• Interpretation of results
				• Management
					Not specified but can be extracted from the outcomes of the course.

Table 3.7 (continued)

CATEGORIES	INSTITUTIONS				
	A	B	C	D	E

3. Outline of content areas, i.e. syllabus covered.	• The assessment of APD: The role of the SLP:
	 - Areas of assessment = language, language based auditory processing skills and phonological awareness;
	 -Overview of assessment materials and procedures.
	 The role of the audiologist:
	 - Fundamental requirements of testing: validity and reliability, case history and basic test battery,
	 - Levels of testing: mass screening, secondary screening and diagnostic testing.
	 - Guidelines for when diagnostic testing should be done.
	 - Overview of available test batteries.
	 • Integrated approach to assessment.
	 • The remediation of APD
	    - The role of the SLP
	    - The role of the audiologist
	    - An integrated approach to remediation
		• Auditory processing and attention deficit disorder (AD/HD).
		 • Assessment
		 -Parameters affecting auditory processing
		 -Overview of approaches to auditory processing
		 -Types and subgroups of APD and Classification models.
		 -Screening in APD
		 -Assessment Considerations
		 -The Audiologists Test Battery
		 -The Speech – Language Therapists test battery
		 • -A Multidisciplinary approach to the CAP Evaluation
		 • Management of Auditory Processing disorder
		 -Remediation of AP disorders – The role of the Speech therapist and Audiologist.
		 -A Multidisciplinary approach to Central Auditory Evaluation and Remediation.
		 • APD in South Africa			

In order to obtain a comprehensive understanding of the curricula that were taught at all five institutions the course descriptors provided were analysed qualitatively, in terms of theoretical constructs, identification of the child with APD, assessment/ evaluation/ diagnosis of the child with APD and the management of the child with APD. Patterns in the data were identified and compared to reported research in the field of APD.

The qualitative analysis indicated that most of the training institutions under study appeared to cover all areas as per the predetermined categories. The curricula offered differed in terms of comprehensiveness. However, this appeared to be in keeping with the time allocated to the module. Overall the outline syllabi incorporated the fundamental areas required to equip the graduate speech-language therapist and audiologist with the necessary theoretical background knowledge to manage auditory processing disorders in the clinical setting. These are in keeping with reported research in the field of APD (Jerger & Musiek, 2000 & 2002; Bellis, 2003; ASHA, 1996 & 2005; Katz, 2002; HPCSA, 2003).

Molloy and Lucker (2003) reported that many audiology programmes in APD in the USA, focussed primarily on administering and scoring tests, with little emphasis on intervention. The latter was viewed as being outside the practice of audiologists. Furthermore, they reported that there are no standards of qualification specific to APD, neither for assessment nor for treatment. In contrast the curricula in APD offered by South Africa training institutions equip both speech-language therapists and audiologists in all areas of APD. Such training both on a theoretical and clinical basis is guided by the HPCSA (2003) competency profiles for both speech-language therapists and audiologists in the area of APD. The competency profiles compiled by the HPCSA define the overall scope of practice for the speech-language therapist and audiologist. The committee that compiled the document were optimistic that the guidelines laid out would serve as a blue print for clinical training and professional conduct (HPCSA, 2003).

In addition, the curricula reflected research trends in the field of APD and compared well to the curriculum described by Bellis (2002), (Appendix E). The latter is taught to audiology graduate students; and offered to speech-language pathology graduates as an elective. Training institutions in South Africa are commissioned with an added responsibility of training students to provide an appropriate and relevant service to all clients within the South African context. There did not appear to be any direct evidence of this in the curricula provided. Therefore, there is a need for student speech-language therapists and audiologists to be well versed with issues and challenges faced by the wide spectrum of clients seen in the South African context and to apply this knowledge and skill critically to these clients (Uys & Hugo, 1997).

3.2.3.5 Teaching methodologies utilised

As a component of the course descriptors, the respondents were requested to provide information on the teaching methodologies utilised as part of the training in APD. Table 3.8 reflects the teaching methodologies utilised by the respective training institutions under study.

Table 3.8 The teaching methodologies utilised in the APD curricula offered at training institutions in South Africa.

CATEGORIES	INSTITUTIONS				
	A	B	C	D	E
4. Teaching methodologies utilised.	Outcome based method of education is followed, to foster creative and independent thinking. Student's ideas and participation are valued and form an integral part of the contact time.	Lectures, small group discussions, class presentations and self-study. Students will be required to do reading and individual preparation on an ongoing basis.	No information provided	No information provided.	Lectures and self study

Only three of the five training institutions offered information on this section. With reference to the institutions that commented, teaching appeared to be via lecturing specifically; with institution A clearly stating that the outcome based method of education is followed. Institution B appeared to follow a similar teaching methodology. The South African education system reflects a paradigmatic shift, from the previous emphasis on content to a focus on outcomes. Outcomes-based education (OBE) is learner-centred with the

emphasis on what the learner should be able to know, to understand, to do and to become (NCESS & NCSNET, 1997). This method of teaching appeared to be well suited to the area of APD as the training institutions have a benchmark, in the form of outcomes against which to measure the learner's competence.

Furthermore, if the course descriptors are presented to the students then they also have a yardstick against which to measure their knowledge and skill in the required area, e.g. APD. Inherent and embedded in outcomes or competency based education is the concept of life long learning (Uys & Hugo, 1997). By measuring competency the student understands the foundation of his or her skills. On qualification, together with appropriate professional values that have been learnt over the years, the graduate can work independently and continue to manage and monitor his or her own growth (Uys & Hugo, 1997). An outcomes or competency based method of education reflects good teaching practice and therefore allows the student audiologist and speech-language therapist to demonstrate specified levels of knowledge and skill in APD. These are competency based. However, to foster the concept of lifelong learning a problem-based learning methodology (PBL) was recommended for the discipline of audiology and speech-language therapy (Uys & Hugo, 1997). The researcher recommends an OBE approach as it is competency based. However, the use of an OBE approach in conjunction with the PBL method of instruction requires further exploration by academics in the field of audiology and speech-language therapy.

3.2.3.6   Resources used in the APD curricula.

The respondents were requested to include in the course descriptors, resources that they utilised both in the theoretical and clinical curricula. Resources as stipulated in the questionnaire referred to human, physical and technical resources. All five institutions presented the prescribed references and readings that were used in the teaching of the module. At the time of data collection the references utilised were up to date, appropriate and reflected the recent trends in APD research and, these are presented in Appendix, F. There were no references included that reflected local practices or highlighted

South African issues. Only Institution A indicated that a technical resource was the audiometric equipment together with the CD player, to conduct behavioural APD assessment. Information on other resources, were not provided, i.e. resources in the form of assessment tools for both audiology and speech-language therapy. The behavioural and electrophysiological tools for assessing APD were not specified. Resources for managing APD in the form of therapy programmes or computerised software were not stipulated.

3.2.3.7 The assessment practices for the curricula in APD

The manner in which students are assessed was identified as a key component of the curricula. Students are required to be familiar with this component of any curriculum. Assessment assists students to become better monitors of their own learning, and to obtain feedback on the quality of their learning. Assessment for the teacher enables them to evaluate the effectiveness of their teaching (Singh, 2004). These findings are presented in table 3.9.

Table 3.9 The assessment practices utilised in evaluating student performance in the APD curricula offered at training institutions in South Africa.

CATEGORIES	INSTITUTIONS				
	A	B	C	D	E
5. Other areas that the respondents wished to include. - evaluation	2nd year: Two written tests and examination 3rd year: Oral practical examination 4th year: Mark awarded for client evaluations	One test and one assignment. A written examination	No information provided	One test written	One test and one assignment. A written examination

Assessment practices appeared to be largely via tests, assignments and a written examination. What was encouraging was that the training institutions appeared to assess the students by utilising various assessment practices. It is advantageous to the students to be assessed in different ways as the primary aim of assessment should be about enhancing learning (Singh, 2004). However, regardless of the assessment practices utilised, educators need to

be aware of the outcomes of assessment. Student assessment should concentrate on what is learned rather than what is taught, with a student-centred rather than a teacher centred focus. Additionally, it should promote and facilitate learning, by helping students to own and evaluate their own strengths and weaknesses realistically. Assessment should not prevent students from making and reflecting on their mistakes. Moreover, it should not place undue reliance on theory or practice, but rather enable students to make links between practice and theory (Singh, 2004). This is critical if the students are expected to adequately manage clients specifically with APD.

To conclude, the results and discussion provided revolve around the information extracted from the course descriptors that reflected the curricula offered in APD at the training institutions under study. Although variation existed amongst all training institutions, theoretical and clinical training was provided at all five training institutions with the exception of one institution where no clinical training was provided at the time of data collection. The training presented at the respective institutions differed with regard to the time spent in training and subsequently impacted on the comprehensiveness of the theoretical and clinical training. However, a commitment to providing theoretical and clinical training in keeping with local and international policy, guidelines and literature was observed. An evaluation of the curricular obtained from the training institutions utilising the curriculum analysis framework follows.

3.3   EVALUATION OF THE CURRICULA OBTAINED FROM TRAINING INSTITUTIONS IN SOUTH AFRICA, USING A CURRICULUM ANALYSIS SCHEMA. (Jansen & Reddy, 1998)

The results that follow will answer the second sub aim of the study, i.e. to evaluate the above curricula using a curriculum analysis schema (Jansen & Reddy, 1998). An evaluation of the curricula was achieved by applying the curriculum analysis schema to the course descriptors that were completed and provided by the respondents. The course descriptors and the questionnaires obtained from the five institutions were analysed in terms of Impact, Design and Policy (Jansen & Reddy, 1998).

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3.3.1 Impact Analysis

For the purposes of this study impact analysis was determined by obtaining a clear understanding of the aims and objectives of the curricula and the expected results (outcomes) that were contained in the course descriptors. Additionally, in the questionnaire the respondents were asked to comment on the difficulties and challenges encountered in the area of APD as an educator within the South African context. This was included as the researcher intended to determine if difficulties and challenges highlighted by the respondents would have impacted on the curriculum that was offered at the respective training institutions.

The aims and objectives are statements of what the learners will be expected to accomplish once they have completed a specified course of instruction. The course objectives state the purpose of the curriculum in terms of what the instructor aims to do (NCGIA GISCC, 2005).

By perusing through the aims and objectives of each course it was clear that the aims and objectives of most institutions shared a common thread. The institutions declared that the curricula were designed to provide the learner with the theoretical knowledge and opportunity to assess and remediate problems in clients who presented with APD. This indicates that all training institutions identified the aims and objectives of their curricula, while students were provided with an explicit overview of the nature of the curricula. Without well constructed learning aims and objectives, educators will not know what to be teach and learners will not know what they are supposed to learn. Therefore, the aims and objectives form the basis for what is to be learned, how well it is to be performed, and under what conditions it is to be performed. (Clark, 2000)

All training institutions offered lectures with a combined class of both speech-language therapy and audiology students. Additionally, of the four training institutions that offered clinical training, two offered combined clinics. As a result the aims and objectives of the curricula

were directed to both sets of students. This is a positive step in training, given the nature of the disorder. Literature on APD has recurrently indicated that in addition to auditory processing difficulties, school aged children diagnosed with APD may experience associated learning difficulties (e.g. spelling, reading and speech and language problems) (ASHA, 2005). The presence of these associated difficulties highlights the fundamental role that speech-language therapists have in the broader assessment and management of individuals with APD (Wertz, et al., 2002). A key feature of an impact analysis is to ascertain the effect of the curriculum and to determine if the curriculum is making a difference. It can therefore be observed that all training institutions under study are taking a positive step in training speech-language therapists and audiologists by exposing them both to the disorder. Additionally, by incorporating audiology and speech-language therapy students in combined classes and in some cases combined clinics, the training institutions are fostering the role of a multidisciplinary team approach to the assessment and management of a child who may present with the disorder. In order to develop a complete understanding of the ramifications of APD, a multidisciplinary assessment is required to determine the functional impact of the disorder and to guide treatment and management of the disorder and associated deficits (ASHA, 2005).

The expected outcomes of the theoretical curricula for APD were clearly stipulated by all institutions with students provided with a comprehensive description of the outcomes of the curriculum. This was acceptable as Posner (1995) stated that the official curriculum is documented in terms of syllabi, curriculum guides, scope and sequence (outcomes) and a list of objectives. By providing clear outcomes for the curricula the training institutions ensured that students had a comprehensive idea of the outcomes of the curricula in terms of the essential theoretical knowledge areas in APD. A comprehensive list of outcomes conveys the exact training requirement to the student. Learning outcomes help educators tell students what is expected of

them. This often focuses on two questions, i.e. (1) What do you want learners to know by the time they finish a module, a course or a diploma programme?, and (2) What do you want learners to be able to do with what they know by the time they finish a module, a course or a diploma programme? (NCGIA GISCC, 2005). The outcomes for the curriculum in APD were stipulated, namely, in terms of the theoretical constructs, identification of the child with APD, assessment/ evaluation/ diagnosis of the child with APD and management of the child with APD.

 All the training institutions under study appeared to cover all areas as per the predetermined categories i.e., (the essential theoretical knowledge areas in APD). As indicated earlier in section 3.2 due to some institutions allocating more time to the theoretical curriculum in APD, they presented a more comprehensive set of outcomes. Although the training institutions on the whole presented a comprehensive set of outcomes in terms of the essential knowledge areas, the researcher expresses concern as to whether South African graduates are truly being offered a comprehensive training especially in light of the most recent technical report compiled by ASHA (ASHA, 2005).

The technical report states that in order to engage in the assessment and remediation of APD, the graduate is required to possess knowledge on general neurophysiology, cognitive psychology and auditory neuroscience (ASHA, 2005). Many of these subject areas may not have been addressed, or only tangentially addressed, within the typical speech-language pathology and audiology professional education programmes in American universities (Chermak, et al., 1998). The trend in training in audiology in the USA is currently towards the AuD programmes, and ASHA anticipates that this area of practice will be taught and discussed more thoroughly, thus better preparing entry-level professionals in these programmes. It is the view of ASHA that participation in the assessment, diagnosis, and treatment/management of APD often requires additional training and education beyond the typical scope of the audiologist's, and speech-

language therapist's educational preparation (ASHA, 2005). Training institutions in South Africa should take cognisance of these new developments. Prior to curricula in APD being revised, a possible avenue for audiologists and speech-language therapists to gain the necessary knowledge and skills may be through continuing professional development.

Despite the five training institutions under study all differing in terms of the qualification offered, i.e. single or dual registration with the HPCSA, the trend observed was that the curricula in APD were offered to both audiology and speech-language therapy students. The outcomes of the curricula in APD apply to both the speech-language therapy and audiology graduate. It is apparent that all training institutions under study are aware of the integral relationship that both speech-language therapists and audiologists share in APD assessment and remediation. APD is an auditory deficit; therefore, the audiologist is the professional who diagnoses APD (ASHA, 2005; HPCSA, 2003). The speech-language therapist's role in APD focuses on "collaborating in the assessment of (central) auditory processing disorders and providing intervention where there is evidence of speech, language, and/or other cognitive-communication disorders" (ASHA, 2001, p. 5, in ASHA, 2005). A full understanding of the ramifications of APD for the individual requires a multidisciplinary assessment involving other professionals to determine the functional impact of the diagnosis and to guide treatment and management of the disorder and associated deficits (ASHA, 2005). Once again, this trend observed in the training was in keeping with literature that advocates a multidisciplinary approach to APD assessment and remediation (ASHA, 1996; ASHA, 2005; Bellis, 2003; Bellis, 2004; Keith, 2002; Chermak, 2003; HPCSA, 2003).

Additionally, in an attempt to analyse the impact of the curricula, the respondents were asked in the questionnaire to comment on the difficulties and challenges encountered in the area of APD as educators within the South African context. The respondents reported

many challenges; Institution C indicated that although students received theoretical input in the area of APD, the challenges facing educators were poor access to assessment materials coupled with financial constraints experienced by training institutions. The lack of standardised assessment materials in the area of APD suitable for the South African context was reiterated by Institution A and B. The respondents acknowledged that the lack of standardised assessment tools for the South African population impacted negatively on the clinical training of the audiology and speech-language therapy student. This impacted seriously on the speech-language therapists and audiologists when they proceeded to undertake a comprehensive behavioural and electrophysiological assessment in APD.

The lack of standardised assessment tools for use in South Africa, and tools that are linguistically and culturally appropriate was an issue that was addressed by the now disbanded South African APD taskforce (Wilson and Campbell, 2000). The first goal was to compile a test battery with a low-linguistic load (low-linguistically loaded material refers to the use of non-speech stimuli, digits and words rather than sentences that place a higher linguistic load on the client) (Campbell & Wilson, 2001), which could be used in the interim until diagnostic materials for all language groups could be developed. This was supported by ASHA (1996 & 2005) were it was stated that although tests should utilise verbal and non-verbal stimuli, caution should be exercised until tests incorporating verbal stimuli are available in other languages. In the interim evaluation of a second language English speaker may therefore require the reliance on nonverbal stimuli.

Although many of the training institutions cited a lack of standardised and linguistically and culturally appropriate tools as a shortcoming in our country, especially in the area of APD, this issue was not raised nor explicitly stated in the aims and outcomes as a key or focus area in training, i.e. in the theoretical course. However, when questioned about knowledge and awareness of the South African APD taskforce, 3 of the

5 training institutions stated that they were aware of the taskforce and its work. Additionally, 2 of the 5 institutions stated that they had been exposing their students to all the information offered by the taskforce. Although the issue of a lack of standardised and linguistically and culturally appropriate tools for APD assessment did not appear to be overtly stated in the aims, objectives, or the outcomes of the course descriptors provided, the training institutions did inform students of the work of the taskforce. Therefore, some information on the issues pertaining to the lack of standardised and linguistically and culturally appropriate tools in South Africa, as well as the initiative taken by the HPCSA to attend to this issue in South Africa was conveyed to the students at some of the training institutions.

Furthermore, a defined outcome of informing students of the lack of standardised and linguistically and culturally appropriate tools was not made apparent by the respondents in their responses to the clinical curricula offered. The purpose of specifying the lack of standardised and linguistically and culturally appropriate tools as an outcome would have served to increase awareness amongst the students of the situation in terms of assessment in APD. Furthermore, this would in the interim, encourage the exploration of other means of assessment, diagnosis and management. An outcome in the course descriptor of the 3rd year audiology students at Institution A did indicate that the students were required to evaluate the current status of assessment tools in the field of APD. The researcher speculates that issues pertaining to the lack of standardised and linguistically and culturally appropriate tools for South Africa were probably covered in this curriculum. Institution B included a broad section entitled APD in South Africa, which the researcher can only assume addressed some of these issues. Once again the researcher acknowledges that based on the knowledge that 3 of the 5 institutions possessed on the work of the taskforce, these issues could have been raised with the students during the clinical training. However these issues were not highlighted in the content and description of the clinical curricula in APD.

An impact analysis is conducted to determine if a curriculum is relevant and effective, and to determine which parts of the curriculum should be strengthened or removed (Jansen & Reddy, 1998). Although the researcher conclude that the aims, objectives and the outcomes of the curricula clearly reflected an appropriate and accurate curricula for managing a client with APD and which is aligned with literature in the field of APD, the researcher questions the application of the curricula within the South African context. The researcher acknowledges that 3 of the 5 institutions were exposed to the work of the taskforce, with 2 of the 5 institutions conveying this information to the students. However, it is recommended that in order to strengthen the impact of the curricula, the students have to be prepared with the skills to do and to develop the inclination and ability to analyse what they do in terms of its consequences on the clients whom they serve (Mokgalabone, 1998). The students are therefore required to be equipped with the appropriate knowledge, skills and attitudes to serve all clients, including those who are culturally and linguistically diverse. Additionally, the students are required to be au fait with all issues pertaining to the South African context, including issues of language difference, as this impacts on assessment, diagnosis and management of APD. This point of view has been articulated and addressed by the taskforce headed by Campbell and Wilson (2001).

3.3.2 Design Analysis

This is the second aspect of the curriculum analysis process proposed by Jansen and Reddy (1998). The purpose of the curriculum is to be common across all institutions as training in APD is an essential part of the curriculum for speech-language therapists and audiologists. In order to evaluate a curriculum according to the design principles, Posner (1992, in Jansen, 1998) offered a model to probe the design of the curriculum. He recommended examining the curriculum in terms of its assumptions, claims and silences.

3.3.2.1 Assumptions [what does the curriculum take for granted].

The areas stipulated on the outline syllabus, i.e. theoretical constructs, identification of the child with APD, the diagnosis and assessment and management of the child with APD, can be viewed as assumptions (Jansen & Reddy, 1998). All the training institutions assumed or took for granted that the areas covered by the outline syllabus were sufficient for a training curriculum in APD and adequate to enable and guide a student in the assessment and management of a child presenting with APD. However, the respondents acknowledged that, as educators in the area of APD they were faced with certain challenges. A major challenge facing most training institutions was poor access to resources, i.e. there is a lack of appropriate assessment materials coupled with financial constraints (Campbell & Wilson, 2001). Due to the limited standardised material available for use in South Africa within the field of APD, audiologists and speech-language therapists may be faced with the predicament of making an accurate diagnosis of APD when undertaking a comprehensive behavioural and electrophysiological assessment (Campbell & Wilson, 2001).

Uncovering the assumptions is a subjective process and when evaluating curricula there is often a lack of awareness of the assumptions that influence the curricula. Uncovering assumptions requires probing beneath the surface of the curriculum by reading between the lines and making inferences (Jansen & Reddy, 1998). The researcher therefore concludes that training institutions tend to speculate that the curricula offered are suitable for training in the area of APD in South Africa.

3.3.2.2 Claims [what does the curriculum claim will happen to those using or exposed to the curriculum]

The claims were drawn from the outcomes presented in the course descriptors. All the training institutions claimed that the curricula were designed to provide the student with theoretical knowledge necessary

for understanding the nature of APD and the management thereof in the clinical setting. An inherent claim was that the knowledge imparted was adequate to meet this outcome and that the students possessed sufficient knowledge to meet the needs of the clients that they would serve. The researcher considers this claim to be appropriate as the outcomes outlined were clearly in keeping with literature in the field of APD.

However, the respondents acknowledged that poor accessibility and financial constraints limited access to appropriate behavioural and electro-physiological assessment tools and materials. This prevented them from meeting the desired outcomes for a curriculum in APD. In the course descriptor of the 3rd year module for audiology students at Institution A, an outcome was that students be trained to evaluate the current status of assessment tools in the field of APD. Although the latter was acknowledged by the remaining training institutions, no information was provided on how this matter was addressed in training, i.e. how were the students being trained to deal with the lack of standardised assessment material, specifically in the area of APD. The researcher acknowledges at this point that the data collection instrument, namely the questionnaire, may not have yielded in depth and comprehensive information to permit a through evaluation of the curricula.

3.3.2.3   Silences [what does the curriculum say nothing about].

Each curriculum offered at the training institutions, demonstrated that in theory, they appeared to cover all areas as per the predetermined categories i.e., (the essential theoretical knowledge areas in APD) and compared well to recent literature in the field of APD. The majority of the training institutions appeared to offer a curriculum focussing on generic knowledge and skills required in assessing and managing a child presenting with APD. However, 2 of the 5 training institutions indicated in the questionnaire that students at their institutions were

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informed of issues pertaining to the South African context. However, this was not transparent in the course descriptors. Therefore, the lack of information and emphases in the course descriptors on issues peculiar to the South African situation can be perceived as a silence. The researcher is referring to issues pertaining not only to the lack of standardised assessment and linguistically appropriate tools for APD, but also to issues pertaining to diversity, and to the fact that the majority of South Africans are affected. The latter relates to the issues of poverty with all its social, economical and educational sequelae, and the effect of the HIV/AIDS pandemic, specifically on speech, language and hearing development (Druck & Ross, 2002). These issues must be considered and clearly articulated in the curricula.

The respondents acknowledged that they possessed poor and inadequate resources that are culturally and linguistically appropriate for the South African community. However, what the respondents were silent about was whether and how the training programmes in APD dealt with these issues in training to adequately equip the students to deal with these challenges. Additionally, were other contextual and socio-political issues addressed? However, at this juncture, it has to be acknowledged that the questionnaires did not specifically question the respondents about these issues and their inclusion in their curricula. The questionnaire was probably not explicit enough in probing for this information.

With reference to the design analysis, the course descriptors and the questionnaires were analysed in terms of the assumptions, claims and silences. It was concluded that, apart from the essential knowledge areas on APD that is vital to assessment and management of a client with APD, the challenge for the training institutions in South Africa is to be internationally competitive and to reflect current trends in the area of APD. The training institutions under study appeared to present curricula in APD that reflected the essential knowledge areas in APD, and addressed the current trends both locally and internationally. This

was apparent from the reference lists that were provided by the respective training institutions.

However, at the same time the students have to be equipped with the knowledge and skill to provide appropriate and relevant services pertaining to assessment and management to all clients within the South African context. Although, respondents at 2 of the 5 institutions claimed to provide this information to the students, the course descriptors provided by the training institutions appeared to be silent on these issues. The researcher at this point acknowledges that the questionnaire completed by the respondents to support the information contained in the course descriptors did not directly address the contextual and cultural issues that pertain to the South African context. This could be a possible reason why the information was not presented and shared with the researcher. The respondents could have been of the opinion that the researcher was purely concerned with the disorder, namely APD, at a generic level.

3.3.3. Policy Analysis

The last aspect of curriculum analysis is **policy analysis**. Here a curriculum can be analysed to assess its relevance or relationship to a broader set of educational or social policies (Jansen & Reddy, 1998). With regard to the training of speech-language therapists and audiologists the policy affecting the training of the professionals will be considered, namely, scopes of practice and competencies of the said professionals.

The researcher was unable to determine the kinds of policy/ies adhered to in the training, as they were not explicitly referred to in the course descriptors. The assumption is that, as professional, speech-language therapists and audiologists function within the ambit of the HPCSA. Furthermore, the training programmes of institutions are subject to regular evaluations by the professional board of the HPCSA. The professional training of speech-language therapists and audiologists are therefore guided by the policies of the HPCSA.

The guidelines that direct the training of speech-language therapists and audiologists in South Africa are competency statements produced by the HPCSA. One such document was the minimal competency profile document developed by the Professional board for Speech – Language and Hearing profession of the HPCSA (2003) This document clearly states that assessing and remediating the client with APD falls within the competencies of the both the audiologist and speech-language therapist. However, the speech-language therapist is not allowed to conduct the diagnostic audiometric test battery to diagnose a child with APD. This document therefore clearly guides the training institutions in terms of minimal competency requirements for speech-language therapists and audiologists with regard to practice in the field of APD.

The joint role of the audiologist and speech-language therapist in assessment and remediation of APD, as recommended by the competency profiles and exit level outcomes document produced by the education committee of the Professional board for Speech, Language and Hearing Professions of the HPCSA (HPCSA, 2003), was included in the course descriptors provided by Institution A and B. The latter addressed the role of the speech-language therapist in assessment and remediation of APD, and called for an integrated plan with regard to approaching assessment and remediation, whilst Institution E addressed the role of the speech-language therapist in assessment only. The course descriptors provided by Institutions C and D appeared to focus on the role of the audiologist as being primary in the assessment and remediation of the child with APD. Although the curricula offered at only 2 of the 5 institutions highlighted the role of the speech-language therapist and audiologist in assessment and remediation of APD, all institutions reported that the curriculum in APD was directed to both speech-language therapy and audiology students who attended the lectures together.

The competency profiles and exit level outcomes document was ratified in 2003, after the data for the present study was collected. However, the competencies and outcomes stipulated in this document with regard to the area of APD would need to be adopted by all training institutions, ensuring that their curricula are in keeping with current policy that governs the profession. The competency profiles and exit level outcomes documents clearly states that training institutions should take note of the content of the document and "tailor" their programmes based on the decisions and recommendations set out in the document. Additionally, it was recommended that the document serve as a blueprint for training speech-language therapists and audiologists (HPCSA, 2003).

To conclude, the curricula provided by the training institutions under study were evaluated using the curriculum analysis schema (Jansen & Reddy, 1998). Application of the curriculum analysis schema enabled the researcher to obtain clear insight into the curricula offered in APD at the training institutions under study. On the whole the curricula are sufficient in scope to address the needs of clients who present with an APD. Furthermore, the researcher acknowledged the problems and challenges facing educators in the field of APD that impact on the training. However, the researcher called for transparency with regard to key issues that permeate the context that South African graduates in speech-language therapy and audiology work in. Current policy as directed by the HPCSA is viewed as a positive step in creating some standard in the area of training in APD. However, greater consistency is required in training among the training institutions in South Africa with regard to APD. Finally, the researcher acknowledges that the data collection instrument probably did not adequately capture or address the points that the researcher wished to raise. However, a point worth noting is had these issues been directly raised in the questionnaire, the researcher could have possibly generated false responses from the respondents.

3.4 PROPOSED GUIDELINES FOR AN UNDERGRADUATE APD CURRICULUM FOR THE SOUTH AFRICAN CONTEXT.

3.4.1 Introduction

The final sub aim of the study was to propose guidelines for an appropriate undergraduate curriculum in the area of APD for the South African context. Such a proposal would be based on the evaluation of the curricula obtained from training institutions in South Africa.

Before proposing guidelines for a curriculum in APD, a brief discussion on the function of curricula, models of curriculum design and issues concerning the designs of curricula in South Africa is provided. The purpose of providing this information is to demonstrate that curricula design and or development is a process that involves sound decision making to determine the who, what, when, where, why, and how of training. It is characterized by an orderly process for gathering and analyzing collective and individual performance requirements, and by the ability to respond to identified training needs. This ensures that training programmes are continually developed in an effective and efficient manner to match the variety of needs in an ever rapidly changing environment (Clark, 2000). This is followed by the paradigms which theoretically position the proposed guidelines. The curriculum analysis framework by Jansen and Reddy (1998) utilised for the evaluation of the curricular is proposed as a framework to guide the recommendations for a future curriculum for APD.

a.   A proposed model for curriculum design

Curricula serve numerous functions. The function that higher education curricula render for the speech-language therapy and audiology profession is *specialisation*. A specialisation function is rendered by a curriculum in which the current standards of a profession or academic discipline prevail (Mc Neil, 1996). Linked to the functions that curricula provide are the models for designing curricula. These models include inter alia, the needs assessment model, the futuristic model, the rational model and the vocational model (Mc Neil, 1996), and most recently the Instructional design model (Clark, 2000).

The needs assessment model is defined by the needs assessment process. Here educational needs are defined and priorities set. Within the context of the curriculum, a need is defined as a condition in which a discrepancy exists between the acceptable state of learner achievement or attitude and an observed learner state (Mc Neil, 1996). The next model utilised for curriculum development is the futuristic model. The futuristic model is based on the realisation that the world of the future is going to be different from the present. Efforts have been made to develop educational objectives consistent with this realisation. Another model that is well known is the rational model by Ralph Tyler (Mc Neil, 1996). This is a well-known model for formulating educational purposes, selecting and organising education experiences, and determining the extent to which purposes are being attained. All the models discussed have their strengths and weaknesses; however the vocational model was seen to have application to higher education curricula development. This model can be applied to training programmes training professionals within a specific vocation, e.g. speech-language therapy and audiology. This model has two functions, the first is to reveal particular occupational needs that the institutions or programmes serve, and the second is to determine the specific competencies that must be taught in order for learners to take their place within the target occupation (Mc Neil, 1996).

However, the Instructional design model is designed along the principles of the systems theory approach. The application of a systems approach to training ensures that training programmes and the required support materials are continually developed in an effective and efficient manner to match the variety of needs in an ever rapidly changing environment, (Clark, 2000). It is thus a planned creation of a training programme that uses step-by-step processes to solve problems. It therefore provides a framework for the systematic production of quality instruction on which the approaches for learning are based. They serve as guidelines for the teacher to teach the concepts. Learning theory is the base for any instructional design. These theories help us understand how people think and learn and is considered essential to creating effective instruction (Dhamapurkar, 2001). There are many Instructional design models available but all are designed on the

principles of ADDIE, i.e. analysis, design, develop, implement and evaluate (Clark, 2000). Refer to (Appendix G) for an overview of the model. (Clark, 2002, in Clark, 2004) stress that the various components are probably the most basic building blocks of any good training programme.

An Instructional design model for curriculum design can be adopted for the purposes of this study as it is a model that is thorough, comprehensive and rigorous. However, Strydom, Hay and Strydom (2004, p.48) cautioned about the blanket use of generic models for curriculum design. After studying different models of curriculum design and development, they recommended that for the South African context four critical questions must be answered in the restructuring and or design of any curricula, in higher education. These questions are:

1. *What educational outcomes should the programme seek to attain?* Those responsible for the curriculum development must determine the educational outcomes of their specific learning programmes. Outcomes usually lead to the curricula being delivered to the students.

2. *What educational experiences (knowledge and skills) can be provided that is likely to attain these outcomes?* After outcomes have been determined, attention should shift to educational experiences (knowledge and skills). These experiences are the teaching-learning situations that must be developed and put into place to present the curriculum in its course or modules to students. They form the packaging of the educational content.

3. *How can these educational experiences be effectively organised and presented?* What is the most effective way to package the written curriculum to make sure that it becomes the taught curriculum and also the tested curriculum? This helps ensure curriculum alignment among those associated with the curriculum.

4. *How can we determine whether these outcomes are being attained?* The concern here is assessment practices.

The critical questions posed are proposed for the development of any curricula for the South African context. For the purposes of this research project the researcher proposed guidelines in terms of outcomes required for a curriculum in APD. Hence, the first critical question proposed by Strydom, et al. (2004), was addressed in the proposed guidelines. The areas that were addressed by critical questions two, three and four that focussed on the content, organisation, presentation and assessment of the curriculum was not within the scope of this research project. These questions are crucial for the overall design of any curriculum and should be determined by the individual training institutions.

The critical questions are represented schematically in figure 3.2. This figure shows the cyclical and interlinked nature of the four critical questions as they apply to the design of a curriculum (Naidoo & Cooke, 2004, p.117). The highlighted question represents the focus of the present study and the area in which guidelines for a curriculum for APD was provided.

4. Implement and
Evaluate

1. Outcomes

COURSE

DESIGN

3. Design,
teaching,
learning and
assessment
approaches

2. Content
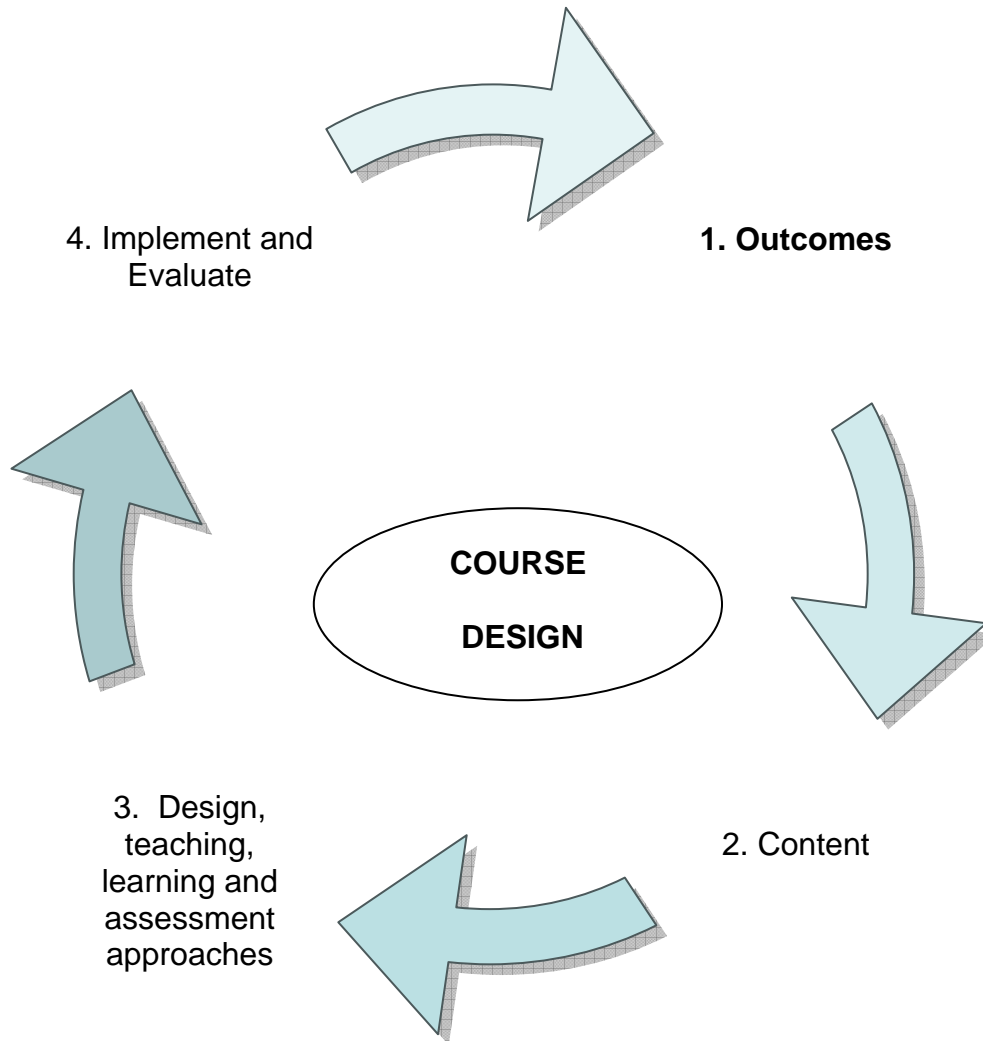
Figure 3.2 Course Design (Adapted from Naidoo & Cooke, 2004, p.117).

b.   Proposed Teaching Methodology

Prior to embarking on the development of the guidelines in terms of outcomes, it was critical for the researcher to justify these areas of a curriculum in terms of the South African educational context. Curricula based on discipline knowledge alone tend to be "back-ward-looking" (Chambers, 1993, p.790). Chambers (1993, p.791) added that discipline specific knowledge is neutral and it describes what is based on best science and not what '"ought to be". Content by discipline establishes limits on what can be taught and does not offer guidance about the vast collective knowledge base that is essential and even most important to cover (Chambers, 1993). As traditional education and

training in South Africa was content based with little emphasis placed on the results of learning, it led to the development of the National Qualification framework (NQF) which is grounded in an outcomes based education (OBE) approach to education and training with the intended outputs as the driving force for the design and development of the curriculum (Naidoo & Cooke, 2004). Adopting such an OBE approach is a major paradigm shift. In this approach the emphasis is on outcomes of high quality which culminates in demonstrations of significant learning in specific contexts defined as competence (Naidoo & Cooke, 2004).

Competencies are skills essential to beginning the practice of speech-language therapy and audiology, with competency statements forming the bridge between education and practice (Chambers, 1993). One of the most significant implications of this paradigm shift is for the process of curriculum development. A traditional content centred and teacher centred approach values subjects and syllabi. In contrast, in OBE the starting point for learner centred curriculum development is the intended outcomes and the focus is on the learners achieving competence. To achieve applied competence the outcomes must integrate the knowledge, skills and attitudes relevant to the field of study and be responsive to local, national and global societal and economic needs. Therefore this means making transparent what a learner knows, is able to do and what values and attitudes are demonstrated (Naidoo & Cooke, 2004).

The outcomes based education (OBE) approach to education and training appears to be a suitable model for training in APD. However, to foster the concept of lifelong learning, a problem-solving or problem based methodology (PBL) was recommended for the discipline of audiology and speech-language therapy (Uys & Hugo, 1997). Although the OBE method that is competency based appeared to be suitable for teaching in the area of APD, and was utilised at two of the training institutions, Uys and Hugo(1997), raised the question as to whether PBL should be explored as an alternative teaching methodology for the profession of speech-language therapy and audiology. The researcher therefore recommends that training institutions should explore

the use of an OBE method of education in conjunction with a PBL method of instruction.

Milhouse (2005) reported that the problem-solving or problem based learning (PBL) methodology is suited to the academic at African training institutions. The 21st Century African lecturer is required to be equipped with the resources that can enable him or her to develop the African learner to have critical and independent thinking skills and the ability to apply content knowledge while working in collaboration for the solution of complex problems. PBL is recognized by lecturers throughout the world as an instructional strategy that challenges students to develop critical thinking and problem-solving abilities (Savin-Baden, 2000, in Milhouse, 2005). It is particularly suitable for lecturers in Africa because research shows that many African lecturers are now finding that the traditional lecture format is not always suitable for preparing students for life beyond the classroom (Quinn & Voster, 2004, in Milhouse, 2005). The African lecturer is aware that life situations beyond the classroom seldom parallels those structured problems provided in the classroom. So the learner's ability to solve neatly packaged traditional school-based problems does little, if anything, to develop the relevant, critical thinking skills he or she will need to interact with life beyond the classroom. PBL is also suitable to the African learning context because it empowers students to work together to solve problems in their community (Milhouse, 2005). It is within this context that the researcher chose to provide guidelines in terms of outcomes and content for a curriculum for APD.

Additionally, when designing curricula the framework by Jansen and Reddy (1998) utilised for the purposes of evaluating the curricula should form part of curriculum design. The researcher acknowledges that apart from assisting educators to guide the analysis of any curriculum, the areas of impact, design and policy analysis can be considered to guide the development of any new curriculum.

c.   Proposed paradigm of inquiry to guide the execution of a curriculum

It is acknowledged that the Speech-language therapy and Audiology programmes at the different training institutions studied reflect their own particular ideology, and specifically so with regard to APD. The manner in which the curriculum is presented may reveal the institutions own orientation to the field of APD and to training. Kathard (1999, p.263) states "that a professions' practice and development is influenced by a connected set of beliefs, values and rules or a paradigm." Paradigms are axiomatic systems, i.e. (accepted general truth or principle) characterised by their differing set of assumptions about the phenomena into which they are designed to inquire (Guba & Lincoln, 1982).

To theoretically position and guide the proposed curriculum, the researcher has chosen to utilise paradigms of inquiry, i.e. a pattern or model for how inquiry may be conducted. This paradigm is used as a theoretical tool to assist with positioning the guidelines proposed for an undergraduate APD curriculum, specifically for the South African context. Habermas (in, Schubert, 1986) deals with the theory of knowledge and its cultural implications. He outlines a comparative analysis of three paradigms of inquiry. This is based on his theory of knowledge constitutive interests (Schubert, 1986). They are the *empirical-analytical paradigm, the hermeneutic-interpretive paradigm and the critical paradigm.* Carson (1990, p.168, in Pillay, 1997, p.20) provides a basic definition of each paradigm "… [Habermas'] three basic orientations…governed by a particular interest. One is an orientation to material well-being, governed by a technical interest in acting on the world. This produces an empirical knowing in the form of facts and generalisations. A second orientation, towards communication, is governed by a practical interest in understanding others. The form of knowing that this produces is situational and interpretive, rather than generalisable and empirical. The third orientation is toward freedom and it is governed by an emancipatory interest in liberating persons from oppressive situations. This produces a critically

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reflective knowledge." In the critical paradigm the educational process in located within a broader social order.

When the paradigms of inquiry were applied to the APD course descriptors obtained from the training institutions, the curricula offered at the training institutions under study appeared to cover the essential knowledge areas required for practice in the area of APD. However, the curricula on offer at the various training institutions according to the paradigms appear to be grounded by the empirical - analytical paradigm. This paradigm has a technical interest and knowledge generated via a scientific process is regarded as neutral, absolute and forms the basis of technical or discipline specific knowledge (Kathard, 1999). This paradigm features a content-based curriculum, with a strong reliance on textbook knowledge because experts in the field have constructed the knowledge as with APD. In addition, the western model of service provision is disorder oriented. Speech-language therapists and audiologists are taught to diagnose and treat a client with a communication disorder (Hugo, 1998). What the people of Africa require is the provision of a functional service that includes services such as awareness and prevention programmes and multi-disciplinary consultation, i.e. a shift from disorder-orientation to function orientation (Uys & Hugo, 1997).

The use of the empirical-analytical and hermeneutic paradigms is not suitable to transform a profession. The profession of Speech-Language Therapy and Audiology have to provide an equitable service to black African first language speakers, in keeping with the political imperative (Pillay, Kathard & Samuel, 1997). Although the training institutions appeared to train using the empirical-analytical paradigm in the APD module specifically, the researcher acknowledges that this evaluation was based on the evaluation of the course descriptors and information contained in the questionnaire. The respondents were not questioned on their teaching methodologies or on the mission, vision and philosophy of the training institution. It is possible that issues that pertain to the South African context that the researcher felt was lacking could have been addressed in the teaching, allowing for a more critical engagement of the theory on APD. These issues that the researcher is referring to impact on

all aspects of the roles and functions of speech-language therapists and audiologists in South Africa today and at present they could possibly be addressed by the training institutions in a curriculum specifically designed for that purpose. Training institutions could be offering a curriculum that specifically looks at culturally sensitive service delivery principles that is overarching and serves to consolidate all information pertaining to the South African context. This may be presented in one curriculum and, therefore, offered in a comprehensive and less fragmented way. The researcher concedes that these issues which are imperative and encompass all areas of practice as a speech-language therapist and audiologists could be handled under a specific curriculum which deals with service delivery principles, and which is then applied to disorders in specific curricula.

Notwithstanding this, based on the evaluation of the information provided by the training institutions on their curricula, the researcher advocates that the training institutions utilise the **critical paradigm of inquiry** when training in the field of APD. This paradigm maintains that classrooms are not an isolated world wherein students learn without being affected by the inequalities, dominant ideologies and economic policies in the broader society (Mokgalabone, 1998). This paradigm appears to be well suited to the South African context in that it includes an effort to look critically at impingement of ideology and economics on human growth and development. Moreover, it seeks vigorously to point out inequities of educational access, opportunity and quality, experienced on the basis of race, gender, socio-economic status and other differences. Not only does inquiry in this paradigm point out constraints and inequities, it strives to overcome them (Kathard, 1999).

The critical paradigm promotes diversity and pluralism. A pluralistic society allows its members to express their beliefs freely. Therefore, we need to take a pluralistic approach to education. The profession of speech-language therapy and audiology have to provide an equitable service to black African first language speakers, in keeping with the political imperative. Traditional education makes the communication and accrual of knowledge facts, the primary objective. The primary objective of non-traditional education is to

develop the power of the mind and to aid the learner both mentally and morally in using his powers properly for the pursuit and application of knowledge (Tuomi, 1994).

Critical theory is directed in the interest of emancipation (Kathard, 1999). Emancipation refers to the freeing of one's self to enable growth and development from the 'taken for granted' ideology of social conventions, beliefs and modes of operation. Specifically, within the field of APD, it allows one to free oneself from the belief that all clients are white, English first language speaking from a middle class background. Every client, especially those in our heterogeneous urban areas are diverse. Unfortunately, many curriculum plans, education programmes and instructional materials treat clients as a homogenous unit (Schubert, 1996). This cannot be conclusively stated about the APD curricula obtained from the training institutions under study, however, it is easy for educators to inculcate uncritically and unwittingly middle class values. Educators need to grasp the interdependent network (ecology) of curricula (planned or unplanned) that forge the outlooks and ideals learned in a culture, society or work (Schubert, 1986)

Traditionally, a professional is defined as an individual who possesses an expert body of knowledge and often focuses almost exclusively on the propositional content of academic knowledge required within the professions discipline (Kathard, 1999). However, Samuel (1999) adds that the redefined notion of a professional must include the discipline-based knowledge of ones profession, together with an awareness of social accountability issues. Furthermore the professional should be able to articulate a critical appraisal /reflection of the accepted general truths or principles upon which the profession is based, can actively promote the goals of equity, relevance and cost effectiveness within a particular social, and historical political context. The researcher thus advocates that in their training of speech-language therapists and audiologists, training institutions in South Africa should adopt the redefined notion of a professional for the area of APD.

The preceding discussion focussed on the principles of curriculum design for the South African context and the areas of design that the present study

addressed. The critical paradigms which theoretically positioned and directed the guidelines for a curriculum for APD were discussed. Additionally, the researcher proposes that the components of the curriculum analysis framework by Jansen and Reddy (1998) be utilised to guide the development of any curriculum, together with the instructional design model incorporating the principles of ADDIE i.e. (analysis, design, develop, implement and evaluate (Clark, 2000).

3.4.2 The Proposed Guidelines for the Undergraduate APD Curriculum.

a. Curriculum Planning

The training institutions on the whole appeared to cover a generic curriculum in APD with some institutions not offering as comprehensive a curriculum as others. The time allocated to the curriculum may have been one of the contributing factors. The time allocation varied from 4 to 68 hours for the theoretical curricula in APD, to 7- 48 hours for the clinical training. Thus, the researcher acknowledges that any curriculum, e.g. the APD curriculum has to fit in with the overall programme of the specific training institution. The APD curriculum forms part of a Gestalt. It is a part of a bigger whole and has to fit in with the needs of the overall programme offered for the training of speech-language therapists and audiologists at the respective training institution.

The researcher acknowledges that the curricula in APD covered the theory in APD and this was reflected by the course descriptors. Therefore, the proposed guidelines for a curriculum in APD encapsulate the generic theory surrounding the field of study together with a primary focus of the South African context. The researcher is proposing that the module has to be relevant for, and encompass issues pertaining to the South African context. The proposed guidelines were not meant to be prescriptive. The researcher acknowledges that the decision about what should be taught in an institution is a decision that revolves around the purpose of curricula. Curriculum planning, including decisions about what to teach and for what purpose, occurs at different levels of remoteness from intended learners (McNeil, 1996). They are *societal,* these include boards of education and national curriculum reform committees; *institutional*, here administrators and faculty

groups, may include parents and students; *Instructional* – refers to teachers deciding upon purposes that are appropriate for the learners and *Personal or experiential*, this is consistent with the view that learners generate their own purposes and meaning from their classroom experiences and are not merely passive recipients of curriculum ends and means (McNeil, 1996, p. 111). In the case of the profession of speech – language therapy and audiology it is guided by the guidelines set out by the Professional board for Speech-language and hearing Professions, specifically the competency profiles (HPCSA, 2003). However, the researcher recommends that the training institutions consider all levels when planning their curricula for APD.

b.   Areas proposed that require inclusion in the APD curriculum.

The challenge for higher education in South Africa is to produce through research and teaching and learning programmes, a knowledgeable and skilled workforce that will enable South Africa to engage proactively, critically and creatively with globalisation and to participate in a highly competitive global economy (Cloete, Pillay, Badat & Moja, 2004). The 1997 White paper on higher education (1997, in Cloete et al., 2004, p. 7) identified the various and indeed diverse, social purposes that higher education must serve:

- Attention to the pressing local, regional and national needs of South African society and to the problems and challenges of the broader African context.
- The mobilisation of human talent and potential through lifelong learning to contribute to the social, economic, cultural, and intellectual life of a rapidly changing society.
- Laying the foundations of a critical civil society with a culture of public debate and tolerance which accommodates differences and competing interests.
- The training and provisions of a skilled workforce to strengthen the country's enterprises, services and infrastructure. This requires the development of professional and knowledgeable workers with globally equivalent skills, and who are socially responsible and conscious of their role in contributing to the national development effort of social transformation.

▪ The production, acquisition and application of new knowledge: … a well organised, vibrant research and development system which integrates the research and training capacity of higher education with the needs of industry and of social reconstruction.

The researcher is therefore proposing that training institutions encompass the above guidelines in planning any curriculum and specifically the APD curricula for the purposes of this study.

It is anticipated that the guidelines will serve to ''level the playing fields'', ensuring that graduates all leave with similar competencies in the area of APD. The researcher is proposing minimal competencies suitable for all contexts. The ensuing discussion focuses particularly on the guidelines recommended for a curriculum for APD in South Africa in terms of outcomes. The recommendations discussed for a curriculum for APD are represented in the form of aims and objectives, and critical and specific outcomes for a curriculum for APD.

Although the area of APD is laden with controversy (Bellis, 1999; Jerger & Musiek, 2002), and poses many challenges, the outcomes and outline syllabi of the respective course descriptors obtained from the training institutions, does clearly show that the essential knowledge areas of APD were covered in the theoretical curriculum in APD. What was revealed from the qualitative analysis of the course descriptors and through the curriculum analysis process, was a lack of direct emphasis on the issues that may impact on APD in South Africa (refer to Section 3.3). Hence, the researcher motivates for and recommends additions to the curricula on APD in an attempt to address the South African situation as an essential part of the curriculum. The researcher is therefore, proposing that the curricula currently in use do not require radical change. However, with careful consideration, appropriate adjustments and amendments are required to be made.

The guidelines that are recommended for a curriculum for APD are largely based on the issues that were highlighted in section 3.3, namely the cultural and linguistic diversity of our population, multilingual populations and

inappropriate assessment tools, the various barriers to learning (poverty, HIVAIDS, problems with education, lack of services and speech therapy and audiology personnel) (NCESS & NCSNET 1997; Swanepoel, 2004). These factors may impinge on the identification, assessment and remediation of APD in children in South Africa. The proposal to recommend guidelines to the curriculum is based on a quotation from Makgoba (1996, p.115, in Hugo, 1998, p.3) who said, "…. an African university should be one who's cultural and philosophical foundations are located with the African paradigm in its values and ethos…………… Its curricula and culture should reflect the culture of Africa in its fullest sense, that is: diverse, vibrant, dynamic, accommodating and tolerant".

It is imperative that the guidelines recommended are made with an understanding that the curricula have to be appropriate for all sectors of the community that speech-language therapists and audiologists serve. South Africa consists of a unique mixture of developed and developing components, and this scenario limits the relevance of service delivery models, created in developed countries such as the USA and the UK to the South African context (Louw, 1998, in Fair & Louw, 1999). The researcher is therefore, proposing guidelines to the curricula that would serve all clients, including those whose needs cannot be met by a western model of service provision. Hugo (1998, p.4) pointed out "…. this community is an Africa community. Education will therefore have to be Africanised". However, the researcher emphasises that Africanisation does not mean that all existing (western) influences must summarily be disregarded, and that everything with an African stamp be indiscriminately embraced (Hugo, 1998).

Additionally, the diagnosis of APD can be complicated by three interlocking factors (Jerger & Musiek, 2000):

- Other childhood disorders may exhibit similar behaviors, e.g. ADHD.
- Audiological procedures presently used to evaluate children with APD may fail to differentially diagnose children presenting with disorders that share similar behaviors as APD, and

- When assessing children with APD other processes and functions may confound the diagnosis, i.e. lack of motivation, attention and cooperation, which may lead to an erroneous diagnosis of APD.

Jerger and Musiek (2000) were criticised by Katz, (2002) who argued that although audiologists must be alert to problems that masquerade as APD this must not be the focus of the evaluation. However, the researcher contemplates that APD as indicated by Jerger and Musiek (2000) can be complicated by other factors and disorders, the situation may be more complex in South Africa. The researcher speculates that within the South African context there may exist additional issues peculiar to the South African context that may impact on the assessment and remediation of APD in a child. If these issues and their ramifications are not accounted for in the assessment and remediation process, then they may confound the results and impact on the total management of the client suspected of presenting with an APD. These controversies and issues should be presented to speech-language therapy and audiology students.

At this juncture the researcher reiterates that these issues may already be incorporated into the APD curriculum or a curriculum that serves to cover these issues at the respective training institutions. However, if they are not addressed, a few noteworthy issues are identified and recommended for inclusion into curricula for APD:

1.   Cultural and linguistic diversity

Battle (2002, p. XV) states that it is illogical to assume that all cultures will co-exist in our society and will assimilate into the melting pot. It is the multicultural character of ones country that is its great strength. Cultural competence is as important to the audiologic encounter as clinical competence. Both contribute significantly to successful diagnosis and rehabilitation. Speech-language therapists and audiologists will be required to provide services to individuals and families from a wide variety of cultures, each with their own normative behaviour, learning styles, social beliefs and worldviews. The success of speech-language therapists and audiologists depends on their ability to make sure that any cultural differences that may

exist do not bias or affect their results (Wolf, 2004), and audiologists and speech-language therapists need to understand and approach cultural diversity as they would approach clinical competence, with a commitment to lifelong learning (Wolf, 2004). No individual can know all cultures, but understanding the critical features that differentiate them gives clinicians an essential treatment tool. However, many training institutions have attempted to make provision for cultural diversity, by adding snippets and pieces of information about different cultures to the curriculum. This, unfortunately is merely "band aiding" the situation (Hugo, 1998).

More than 80% of the population of South Africa are indigenous Black, African first language speakers (Kashchula and Anthonissen, 1995, in Kathard, 1999), in stark contrast to this are the 1% qualified Black African first language speaking practitioners. Whilst it may take a few years to undo this imbalance in the Black African first language speaking client-clinician ratio, the challenge to higher education departments is to incorporate into curricula, material from indigenous cultures. A lawyer, doctor and similarly speech-language therapist and audiologist who are out of touch with the society that he serves, cannot serve that society well (Makgoba, 1996). To address this situation Makgoba (1996, p.178) states that "*education has to be contextualised and for the majority population this means the removal of the dominant and alienating Eurocentric philosophy to the humanistic Afrocentric philosophy*". Makgoba (1996, p.180) cautions against our training institutions reproducing, reflecting and servicing a dominant western ethos, rather "the *pursuit of knowledge and the truth with rigour and excellence; with a purpose and social responsibility*" is what our training institutions should strive to accomplish.

2.   **The lack of and use of inappropriate assessment tools for both Monolingual and Multilingual populations.**

There exists limited tools available to perform the identification of speech and language problems, and those that do exist are inadequate (Pillay et al., 1997). Additionally, audiologists have no linguistically suitable tool to assess children speech discrimination ability (Pillay, 2002a). Pillay (2002b) commented that communication pathologists in South Africa are still

inappropriately valuing English based standardised tests and therapeutic procedures from economically developed countries. And we are yet to witness similar levels in the production of South African resources and materials for local consumption.

Audiologists are thus being challenged to provide accurate assessment tools for such diverse clients who are not English first language speakers. Moreover, there is no clear acceptance of a "gold standard" test battery for assessment (Schow, Seikel, Chermak & Berent, 2000,p.63), and in South Africa with no less than 11 current official languages and an unknown number of dialectal variations, the development of linguistic and culturally appropriate South African English speech tests is a formidable task (Wilson, Jones and Fridjhon, 1998). In the absence of the full development of South African tests for APD, audiologists and speech-language therapists have traditionally used tests from other countries with or without modification. Apart from posing significant reliability and validity issues, one could seriously misdiagnose a client suspected of presenting with APD as there is an absence of South African specific normative data for many of the APD tests. (Saleh, Campbell & Wilson, 2003). This issue was highlighted by ASHA (1996) were it was stated that although tests should utilise verbal and non-verbal stimuli, it was suggested that until tests incorporating verbal stimuli are available in other languages, evaluation of the non-native listener may require reliance on nonverbal stimuli. Although, this issue was highlighted as a major problem facing the audiologist and speech-language therapist assessing APD in the South African context by the respondents, the manner in which the training institutions are addressing the issue was not indicated.

Apart from the lack of standardised assessment tools for the English second language speaker, there exist problems with utilising APD tests on English first language speakers, on whom the tests have not been normed. A study conducted by Marriage, King, Briggs & Lutman (2001) demonstrated the pitfalls of administering tests for APD not designed for the South African population. The study was conducted in the United Kingdom (UK) on school going children measuring their performance on the SCAN test. The results of

the study suggested that the published norms for the SCAN test are not valid for direct application to the children in the UK. It was hypothesized that a high referral rate for further diagnostic testing would occur if published criteria were applied. New normative data is required to be collected from a representative sample. A similar finding was obtained in a study conducted by Campbell and Wilson (2003). In this study, although the children were English first language speakers and normative data was obtained for a low linguistically loaded test battery, the authors concluded that there was still sufficient load to disadvantage South African English first language speakers and accent mismatch alone could not account for the poorer scores compared to their American counterparts. These results have implications for all clients in South Africa, those that are English first and second language speakers. American normative data was not considered appropriate for immediate use in South Africa (Campbell & Wilson, 2003).

A number of screening test protocols, questionnaires, checklists, and other procedures have been suggested to identify individuals who are candidates for auditory processing evaluation. Typically, screening questionnaires, checklists, and related measures probe auditory behaviors related to academic achievement, listening skills, and communication (ASHA, 2005). The SCAN test is one of the known tests advocated for use in screening for APD (Campbell & Wilson, 2001). It is suggested that the use of the SCAN (adapted) test with local norms be used as an interim measure until test material can be developed. Additionally, it was recommended that the SCAN test be used in conjunction with the Children's Auditory Processing Performance Scale (CHAPPS) (Smoski, 1990, in Campbell & Wilson, 2001) and the Fisher's Auditory Problem's Checklist (Fisher, 1985, in Campbell & Wilson, 2001). (ASHA, 2005) reported that presently, there is no universally accepted method of screening for APD, and there remains a need for valid and efficient screening tools for this purpose. This need is extended to the South African situation as well. Audiologists unaware of the shortcomings of APD tests are thus assessing APD by using inappropriately normed materials and tests when they are not aware of differences in outcomes related to language or culture.

Apart from the linguistic and dialectal variations other factors that can impact on a child's test performance include stress, medication, cognitive level and language ability. Therefore, effective APD tests should minimise linguistic variables and have limited cognitive and memory requirements (Young, 2001). Even observation of the child during preliminary audiometric testing may help in determining if the child has the vigilance and linguistic ability to be reliably assessed (Young, 2001). The respondents in the present study unanimously agreed that there exists a lack of materials to assess and subsequently manage clients who present with APD. Research has indicated that the situation is not ideal for the both the first and second language English speaker. What may be perceived as an obvious and ideal solution to this problem, may be the development of tests for the South African population. Training institutions could collaborate via staff and student research projects to develop appropriate test materials. However, this is a long term solution to an immediate problem. In the interim, with the lack of appropriate assessment tools to assess APD for the South African population, it is imperative that South African training institutions incorporate these issues into their training and train students to adopt alternate ways of assessing children with APD.

3. Barriers to learning

Other factors that one has to bring to the fore when dealing with APD in South Africa is the impact of poverty, the HIV-AIDS pandemic, poor access to education and the lack of services to a large proportion of the population in South Africa. An understanding of these areas and the impact on management of a child with APD is critical as these could serve as *barriers to learning* and impact on the child's performance at school. Students need to demonstrate an awareness of these variables, and consider them in the differential diagnosis of APD.

Barriers to learning can be located within the learner, within the centre of learning, within the education system and within the broader social, economic and political context. These barriers manifest themselves in different ways and only become obvious when learning breakdown occurs, when students 'drop out' of the system or when the excluded become visible. The key to

preventing barriers from occurring is the effective monitoring and meeting of the different needs among the learner population and within the system as a whole. The relationship between education provision and the socio-economic conditions in any society must be recognised. Effective learning is fundamentally influenced by the availability of educational resources to meet the needs of any society (NCESS &NCSNET, 1997). APD is a deficit in neural processing of auditory stimuli that is not due to higher-order language, cognitive, or related factors. However, APD may lead to or be associated with difficulties in higher-order language, learning, and communication functions. Although APD may coexist with other disorders (e.g., ADHD, language impairment, learning disorder), it is not the result of these other disorders (ASHA, 2005). However, speech-language therapists and audiologists must be aware of the following barriers to learning that may mimic an APD and or a learning problem.

These barriers to learning are:

- Lack of Access to Basic Services

One of the most significant barriers to learning remains the inability of students to access the *educational provision* that exists and their inability to access other services, which contribute to the learning process, e.g. therapeutic services. In most instances the inability to access educational provision results from inadequate or non-existent services and facilities, which are vital to participation in the learning process (NCESS & NCSNET, 1997). Swanepoel (2004) reported that there exists a large discrepancy in the level of education across race and gender. Fourteen percent African male and 20% African females have received no education at all while 99% white male and females have. Furthermore, 5% of children between the ages of 10 - 16 years of age are not in school. In addition to the discrepancy in access to education in many poor communities, particularly in South African rural areas, students are unable to reach centres of learning because there are no *transport facilities* available to students or the roads are so poorly developed and maintained that centers cannot be reached (NCESS & NCSNET, 1997).

While inadequate transport remains a key element preventing access to education, other basic services such as access to clinics also impinge on the learning process. If a child has a chronic illness, for example, regular medical treatment, may result, at best, in students experiencing periods of long absence from the classroom to access treatment or, at worst, in students 'dropping out' of school in order to be hospitalised in a facility where no provision exists for learning to continue during the period of treatment. This barrier not only leads in many cases, to increased impairment, but also to a decreased capacity to learn, particularly in integrated settings.

Closely linked to the lack of access to basic services, is the effect that sustained *poverty* has on students, the learning process and the education system. In South Africa six out of every 10 children live in poverty (Children in 2001, 2000 in Swanepoel, 2004). Children living under such conditions are subject to increased emotional stress, which adversely affects learning and development. Additionally, under-nourishment leads to a lack of concentration and a range of other symptoms, which affect the ability of the learner to engage effectively in the learning process (NCESS& NCSNET, 1997).

- Factors Which Place Students at Risk

Effective learning is directly related to and dependent on the social and emotional well-being of the learner. It is important to recognise that particular conditions may arise within the social, economic and political environment in which the learner lives. These impact negatively on the learner's social and emotional well-being, thus placing the learner at risk for learning breakdown (NCESS & NCSNET, 1997).

In recognising and identifying those factors within the broader environment which place students at risk, it is important to recognise that problems such as natural disasters or epidemics that arise in any society have a significant impact on students. For example, over the last decade more and more children and adults have been affected by the HIV/AIDS epidemic. Approximately one third of children born to HIV positive

mothers are infected and an estimated one in seven will acquire it through breast feeding (Children in 2001, 2000, in Swanepoel, 2004). Children living with HIV/AIDS are susceptible to other infections and neurological complications that can compromise auditory function. If unattended, HIV related auditory disorders might contribute to significant developmental delays and compromise quality of life (Matkin, et al., 1998). Furthermore, Druck and Ross (2002) added that HIV/AIDS affects all areas of human development, namely gross and fine motor skills, cognitive and linguistic ability, psychosocial functioning, feeding, and emotional and physical health.   Progressive central nervous system deterioration affects cognitive, linguistic, and motor functions (Davis & Mc Farland, 2000, in Druck & Ross, 2002). This information is imperative to the area of APD as a client with HIV/AIDS may present with symptoms that mimic an APD and would require a careful, comprehensive assessment in order to achieve a differential diagnosis. Research evidence indicates central nervous system involvement, which may well predispose a child to present with an APD. Moreover, there is no research available on the symptomatology and experiences with regards to co-morbidity of APD and HIV/AIDS in children. Many students not only have had to deal with chronic illnesses resulting from the disease, but also have had to deal with the loss of family members, particularly breadwinners (NCESS & NCSNET, 1997).

It is obvious from the above that the impact of socio-economic barriers is more severe for those students who are already excluded or marginalised in the society. Students with disabilities, students living in poor communities, students discriminated against on the basis of gender, race, culture or other characteristics which used to marginalise people, are often subjected to a range of these barriers. These compounded effects often render them even more vulnerable to exclusion or to experience a learning breakdown (NCESS & NCSNET, 1997).

- Attitudes

Negative and harmful attitudes towards difference in our society remain a critical barrier to learning and development. Discriminatory attitudes resulting from prejudice against people on the basis of race, class, gender, culture, disability, religion, ability, sexual preference and other characteristics manifest themselves as barriers to learning when such attitudes are directed towards students in the education system. For the most part, negative attitudes toward different students manifest themselves in the labelling of students. Sometimes these labels are just negative associations between the learner and the system such as 'drop outs', 'repeaters' or 'slow students'. Whilst it is important to recognise the impact which this kind of labelling has on the learner's self-esteem the most serious consequence of such labelling results when it is linked to placement or exclusion. Sometimes students are placed in a particular learning environment merely because they are labeled as belonging to a category of students for which a particular kind of educational placement exists. Because the placement has occurred through the attachment of a label rather than through an appropriate assessment of the educational needs of the learner or what is required by the system to meet those needs, the placement may not only be inappropriate to the learner's needs but it may also result in the learner being marginalized (NCESS & NCSNET, 1997).

Labelling also perpetuates the failure of the system to change or adapt to meet such needs. Sometimes negative attitudes and labelling result from fear and a lack of awareness about the particular needs of students or the potential barriers, which they may face. Children who are HIV+ have been excluded from attending school with other children because of the negative assumptions and misconceptions associated with the disease. Because of poor knowledge of the disease and its transmission, these children, by merely attending school with other children, are seen to be placing other children at risk of infection (NCESS & NCSNET, 1997).

A further barrier arising from the curriculum, are those, which result from the *medium of teaching and learning*. Teaching and learning for many students takes place through a language, which is not their first language. This not only places these students at a disadvantage, but it also leads to linguistic difficulties, which contribute to learning breakdown. Second language students are often subjected to low expectations, discrimination and lack of cultural peers. Furthermore, educators often experience difficulties in developing appropriate support mechanisms for second language students (NCESS & NCSNET, 1997).

It is vital that graduate speech-language therapists and audiologists recognize the impact of the various barriers to learning on clients referred for an APD assessment. Students need to be aware that overcoming and preventing these barriers must involve a range of mechanisms, which recognise the needs of the learner and the needs in the society. These must be met (NCESS & NCSNET, 1997). A review of these key issues highlights the significant challenges facing the delivery of speech-language and hearings services in South Africa and specifically in the area of APD. Swanepoel (2004) stated that the first step toward meeting these challenges entails a close familiarity with the contexts from which they arise. By developing a clearer understanding of the context, the students will contribute to the development and implementation of speech - language and hearing services that is well suited to the characteristics of the country. Understanding of these issues is vital to the overall training of the speech - language therapist and audiologist, including the area of APD.

The reason why it is important to consider these issues when embarking on a differential diagnosis of APD is because of the nature of the disorder. APD may lead to, or be associated with difficulties in higher order language, learning, and communication functions. Bellis (2003) cautions that the complexity of the central auditory nervous system precludes a simplistic approach to the identification and treatment of central disorders. Moreover, due to the heterogeneity of APD, it disallows a single way of addressing the needs of this population. Although APD may coexist with other disorders (e.g.,

attention deficit hyperactivity disorder [ADHD], language impairment, and learning disability), it is *not the result of* these other disorders. Thus, it would not be appropriate to apply the diagnostic label of APD to the listening difficulties exhibited by these children unless a co-morbid deficit in the CANS can be demonstrated (ASHA, 2005).

APD is best viewed as a deficit in the neural processing of auditory stimuli that may coexist with, but *is not the result of*, dysfunction in other modalities. Thus, although many children with cognitive or language disorders may have difficulty processing spoken language, that is complicated by cultural and contextual issues, we should not automatically assume that a APD is the underlying cause of their difficulties without the demonstration of an auditory deficit through appropriate auditory diagnostic measures (ASHA, 2005). It is for these reasons that the researcher is proposing the inclusion of these issues in the curricula on APD.

By possessing an awareness of these issues the students can be alert to their effects in the assessment process. One of the ways to address these issues is via the interview process. ASHA (2005) stressed that the importance of the case history for diagnosis and treatment/management cannot be overstated. The information obtained in the case history interview can help determine the nature and type of disorder, as well as its impact and functional ramifications. Once the information is obtained, it needs to be reviewed carefully, prior to the diagnostic examination.

Moreover, training institutions will be required to provide the student audiologist and speech-language therapist with the necessary opportunities to develop the skills in assessing and managing clients who may potentially present with some of these complicating factors. They may not benefit from an assessment protocol that fits the first language English speaking client. The researcher's principle guideline for amending the curricula is to incorporate these issues into training and that it be based on an **ecological approach to assessment and remediation of APD**.

The term ecological is used to refer to the naturalistic management of an individual with a communication disorder by considering the effects of the physical, social, and psychological context of the individuals' performance (Westby, Dominguez & Oetter, 1996). When dealing with the majority of the South African population, one cannot apply a western model of service provision. Hugo (1998) clearly states that the western model has an inherent feature that makes it alien to Africa: it is disorder oriented. There is growing awareness that differences across and within cultural-linguistic groups need to be accounted for. One has to rethink previous practices that defined assessment and remediation on the values, beliefs and behaviours of the White middle class culture (Louw and Avenant, 2002). It is critical therefore, to possess a greater understanding of the client spanning all cultural and linguistic backgrounds, so as to address the underlying issues that account for the presenting problems. One has to also understand test results that may be typically fragmented because they may be obtained by different people evaluating the child. Furthermore, a lack of interdisciplinary consultation and a poor understanding of how to look at the whole child or rather the child as a whole and may also compromise the intervention strategy (Lucker, 2003).

The goal should not be to make a diagnosis, since we don't have the tools for our context to make such a diagnosis, especially for the greater population. If one does not look at the child holistically, the danger exists that an APD will be diagnosed. Thus, in a generic sense, if APD is a problem with listening and understanding, then anyone having such problems has APD. This may include people who are deaf, hard of hearing or who are unable to understand language due to second language factors, due to primary language deficits, developmental language delays, due to memory problems. Some children who are unable to process information via the auditory channel due to auditory channel deficits may perform poorly and may also be diagnosed as having an APD (Lucker, 2003).

An ecological assessment considers the effect of the physical, social and psychological context on a child's performance (Bronfenbrenner, 1977, in Westby, Dominguez & Oetter, 1996). An **Ecological, judgement based**

(include insights, knowledge, impressions of professionals and parents who work with the child), **dynamic assessment** (evaluator presents a series of tasks, teachers the tasks in one or several ways and observes which methods are most effective for the child, how the child learns and the strategies used in learning) is recommended. The latter is particularly effective in documenting factors that are not easily measured by traditional instruments.

An ecological model recommended by Louw and Avenant (2002) specific for early intervention, can be adapted to any area within the disciplines of audiology and speech-language therapy. This model recognises the multitude of factors that are likely to impinge on development. The model is based on the understanding that social units do not act in isolation but interact both between and within levels. Louw and Avenant (2002) added that the model acknowledges that reverberations across all planes of the child's development occur if the focus of intervention is placed in the ecosystem in which the child is found.

The proposal therefore for managing APD within the South African context is the use of an ecological, judgement – based dynamic assessment approach that involves systematic observation of ongoing behaviour. This type of assessment is useful in documenting factors that are not easily measured by traditional instruments, such as attention, motivation, communication, problem solving strategies. Some of the specific skills that the speech-language therapist will assess are attending, discrimination, memory, integration, phonological awareness skills, and receptive and expressive language ability (Westby, et al., 1996).

Non-standardised, but systematic observation of auditory behaviour, including an observational assessment should consider multiple domains (speech-language, social/emotional, etc.) across multiple settings (home, school, practice site) with multiple persons (parents, teachers, clinicians); and focus on the competencies necessary to meet current and expected environmental demands. Such a comprehensive assessment enhances the validity and usefulness of the assessment (Westby, et al., 1996).

Behaviours the audiologist and/or speech-language therapist should observe include:

- Attention span,
- Attention to both structured and unstructured tasks,
- Cooperation and willingness to perform both easy and difficult tasks
- Response to frustration
- Need for praise encouragement in order to complete a task.

APD is a heterogeneous disorder that impacts on different people in different ways (Bellis, 2003); therefore using a multidisciplinary integrated team approach to assessment and remediation within an ecological framework will allow the audiologist and speech-language therapist to conduct an individualised assessment and management plan. Interpretation of the results should never occur in a vacuum, instead within an ecological framework. The audiologist and speech-language therapist will look for intra and inter patterns from their respective assessment results.

Furthermore, an individualised intervention programme was recommended by Bellis (2004). She cautioned speech-language therapists and audiologists that there are no simple, cookie-cutter recommendations for intervention, appropriate for all children with APD. The intervention plan is based on a thorough understanding of the functional auditory difficulties exhibited by the client and the concomitant speech-language deficits. To reiterate, a multidisciplinary integrated assessment and remediation plan, as advocated by (ASHA, 1996 & 2005; Bellis, 2003; Bellis, 2004; Keith, 2002; Chermak, 2003), but within an ecological framework, is thus recommended.

In summary, the researcher identified the areas of the curriculum in which guidelines were proposed. Additionally, the critical paradigms which theoretically positioned and directed the guidelines for a curriculum for APD were discussed. The areas that were identified as important additions to a curriculum for APD in South Africa were discussed. The ecological judgement based dynamic approach to assessment and remediation was recommended. This may serve to overcome obstacles to assessment and remediation in the South African context prior to the availability of standardised assessment and

remediation procedures. These guidelines are based on the findings of the study and include the suggestions and needs articulated by the respondents.

These recommended guidelines are represented in Tables 3.10 and 3.11.

Table 3.10 Proposed aims and objectives and specific outcomes for a curricula in APD

1.   Aim: To provide guidelines for training the undergraduate communication pathology student (speech-language therapist and audiologist) in the areas of knowledge, and skills related to APD so that: 1. The speech-language therapist and audiologist are provided with the learning opportunities that will facilitate the development of a *theoretical* understanding of the nature and management of auditory processing disorders in children.   2. The speech-language therapist and audiologist are provided with the learning opportunities that will facilitate the development of *clinical skills* and a *clinical* understandin*g* of the nature and management of auditory processing disorders in children.
2.   Objective: The aim of the curriculum will be achieved by equipping students with the necessary theoretical knowledge and practical skills that are required in managing children with auditory processing disorders, specifically for the South African context.
3.   Specific Outcomes: The student shall demonstrate an understanding of the nature of auditory processing disorders in children, and demonstrate knowledge about the assessment and treatment principles and methodologies guided by the goal of APD management, i.e. to understand and deal with the child's learning and communication difficulties as it relates to auditory processing. In addition students have to be aware and possess the knowledge of the unique challenges that face speech-language therapists and audiologists in South Africa when dealing with clients with APD, AND understand the impact that they may have on the overall management of the child.

Table 3.11 Outcomes for a module in APD

The outcome for graduates of this educational process is critical and reflective, i.e. the graduate is aware of the broader issues of the day and seeks to address them in practice (Kathard, 1999). After taking this course, graduates will demonstrate competence in:

DOMAIN [Professional task and/or academic area]	COMPETENCIES [Outcomes of the programme]		
	Audiologist (AUD)	Speech-language therapist and Audiologist (SLTA)	Speech-language therapist (SLT)
The Communication Pathologist (speech – language therapist and audiologist) will demonstrate competence in: Theoretical constructs underlying APD.	*As for the SLTA*	• Discuss the anatomy and physiology of the central auditory nervous system (CANS). • Discuss the prenatal development, neuro-maturation and plasticity of the CANS • Discuss the presumed neurological bases for central auditory processes. • Provide the rationale and purpose for conducting an evaluation of the CANS • Identify the relationships between APD and language, attention, learning, and communication. • Define APD and evaluate it against the background of the controversy, which surrounds the field of APD • Describe and examine the causes of APD • Describe the behaviour of children with APD. • Critically appraise the theoretical constructs that underlie APD, in relation to factors that may serve as barriers to learning with certain clients in SA. (Bellis, 2003; ASHA,2005)	*As for the SLTA*
Identification of the child with APD.	*As for the SLTA*	Selecting and appraising the methods and procedures utilised in screening for APD. Critically appraise in terms of applicability to the South African context.	*As for the SLTA*

Table 3.11 (Continued)

DOMAIN [Professional task and/or academic area]	COMPETENCIES [Outcomes of the programme]		
	AUD	SLTA	SLT
Assessment of the child with APD	• Propose and motivate which team members you would include in the APD assessment team. • Appraise the role of team members. • Evaluate the current status of assessment tools in the field of APD from the perspective of both the speech-language therapist and audiologist. • Demonstrate knowledge and understanding of the assessment protocols and methods used in the evaluation of the CANS, including identifying subcategories of central auditory tests • Appraise the fundamental requirements of testing namely reliability and validity • Analyse the information, which can be obtained from the case history when considering further diagnostic testing and appraise the value thereof. • Compile and construct guidelines for when the audiologist should consider diagnostic testing. • Categorise and discuss the different tests of APD and test batteries, which are available. • Evaluate the current status of assessment tools in the field of APD and in South Africa specifically • Consider the use of a functional, ecological assessment for L2 clients • Discuss interpretation of central test findings • Understand and recognise the relationship between APD with attention deficit hyperactivity disorder (ADD/HD) and specific learning and language disorders, i.e. differential diagnosis. • Explaining the value and importance of an integrated team, approach to the assessment of APD. • Discuss and utilise the sub-profiles as a guide in the interpretation of APD test results (Bellis, 2002 & 2003;ASHA,2005)	*Assessment is specific for the audiologist and speech language therapist*	• Evaluate the current status of assessment tools in the field of APD from the perspective of both the speech-language therapist and audiologist. • Integrate the evaluation of language with the language based central auditory test battery and phonological awareness. • Understand and recognise the relationship between APD with attention deficit hyperactivity disorder (ADD/HD) and specific learning and language disorders, i.e. differential diagnosis. • Conduct ecological, judgement – based, dynamic assessment. • Appraise the fundamental requirements of testing namely reliability and validity • Explain the value and importance of an integrated team, approach to the assessment of APD • Discuss interpretation of central test findings • Discuss and utilise the sub-profiles as a guide in the interpretation of APD test results. (Bellis, 2002 & 2003; Westby, Dominguez & Oetter 1996; ASHA,2005)

Table 3.11 (Continued)

DOMAIN [Professional task and/or academic area]	COMPETENCIES [Outcomes of the programme]		
	AUD	SLTA	SLT
Management of the child with APD.	• Discuss the rationale behind deficit – specific management for auditory processing disorders. • Appraise the use of sub profiles in the management of APD. • Compile and implement an integrated and collaborative management plan for the remediation of APD and discuss the content and value thereof. • Propose and motivate which team members you will include in the APD remediation team and discuss the role of each member. • Appraise the critical role of the teacher in APD remediation. • Discuss the interpretation of test findings and provide appropriate recommendations for management using current models and theory. • Select the rehabilitation principles for different cases and apply auditory, meta-linguistic and cognitive strategies. • Compile accurate APD reports. • Measure the outcome of remediation. (Bellis, 2002 & 2003; ASHA,2005)	For the client who speaks English as a second language, both the speech-language therapist and audiologist are required to plan and design a management plan that is individualised, prescriptive and evidence-based (Wertz, Hall& Davis, 2002)	• Discuss the rationale behind deficit – specific management for auditory processing disorders. • Appraise the use of sub profiles in the management of APD. • Compile and implement an integrated and collaborative management plan for the remediation of APD and discuss the content and value thereof. (Bellis, 2002 & 2003; ASHA,2005)

The Outcomes proposed in Table 3.11 apply to both the theoretical and clinical curricula in APD. However, additional guidelines for a clinical curriculum for APD that are recommended are:

- That the critical paradigm of inquiry guides the educational process of the undergraduate communication pathologist. The relationship between theory and practice within this educational process is not merely one of prescribing practice on the basis of theory or of informing practical judgement (Carr & Kemmis, 1986). The critical paradigm of inquiry views the relationship between theory and practice not as linear and hierarchical but rather, reflexively and constructively interlinked (Pillay, 1997). This results in a reflective practitioner who is involved in a form of self reflective practice in order to improve the rationality and justice of their practices, and the situations within which these practices are carried out (Carr & Kemmis, 1986).

- Opportunities have to be presented to both speech-language therapy and audiology students to identify, screen and assess clients referred for an APD assessment i.e. students are required to be exposed to all aspects of APD management as outlined in the outcomes and the outlined syllabus.

These proposed guidelines provide the aims and objectives, the specific and critical outcomes, i.e. competency profiles, for the communication pathologist (speech-language therapist and audiologist), and general guidelines for the clinical curriculum. It has been compiled with the researcher's intention of providing a base and a focus for professional preparation and in so doing promote delivery of quality client care. It is anticipated that the guidelines are sufficiently flexible to permit both innovation and acceptable variation, yet sufficiently definitive to guide training institutions in decisions making for appropriate clinical outcomes. The guidelines reflect current practice based on the best available knowledge, because the area of APD is a dynamic and continually developing area and advances are expected to alter this document. In addition, a fundamental element of the guidelines is equipping the student with the knowledge of issues pertaining to the South African context that may distinguish itself from other contexts.

3.5 CONCLUSION

Bellis (2003) cautions that the complexity of the central auditory nervous system precludes a simplistic approach to the identification and treatment of central disorders. Moreover, due to the heterogeneity of APD, it disallows a single way of addressing the needs of this population. In order to provide a comprehensive and adequate service to the client with APD, what is required is the development and implementation of a comprehensive central auditory processing service delivery programme (Bellis, 2003). This can be accomplished by adopting a multifaceted approach involving audiologists, speech-language therapists and educators (Jirsa, 2003), with careful consideration of cognitive, memory, and linguistic parameters. Diagnosis relies on the synthesis of information from the case history, behavioural and electrophysiological tests, as well as ancillary procedures and the careful consideration of confounding factors (Bamiou, Musiek & Luxon, 2001). This has been recommended and reflected in the proposed guidelines for a curriculum for APD. If we train students within the critical paradigm of inquiry and adopt an ecological approach to APD, we will be creating critical, analytical and adaptable graduates who will be educated for lifelong learning.

It is anticipated, that in the area of APD, training institutions may live up to the hope resonated by Makgoba (2005), when he quoted a Chinese proverb that says: "If you are planning for a year, grow rice. If you are planning for 20 years, grow trees. If you are planning for centuries, grow people." Truly South African training institutions should recognize the link between the long-term growth of our people and the long-term growth of our nation.

4.   CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

4.1   INTRODUCTION

The essential distinguishing characteristic of an autonomous profession is the generation of research by its members. In order for the profession to continue to be viable we need to seek ways to encourage colleagues and students to engage in research endeavours whether they are basic or applied. This will enable the fields of audiology and speech-language therapy to develop knowledge along with new diagnostic and intervention strategies and techniques for use throughout the new millennium (Gladstone & Moss, 1999).

Training institutions have a responsibility to provide programmes that are innovative, adaptable, relevant and accountable – not only in terms of the requirements of the present, but also with a vision toward the future (Hugo, 1996). In keeping with the latter statement, this study on training conducted in the area of APD yielded results that can inform both theoretical and clinical training in South Africa and may lead to further research in the area. The aim of this section is to present the general conclusions and implications of this empirical research, to critically evaluate the findings and make recommendations for future research.

4.2   CONCLUSIONS

The empirical research was conducted according to three sub aims, which resulted in the summarised conclusions that follow:

4.2.1 Sub aim 1: To describe the nature of the existing undergraduate APD curricula (theoretical and clinical) offered by tertiary institutions training communication pathologists in South Africa.

The results revealed that despite the differences that existed in the training programmes offered, all five training institutions studied indicated that both speech-language therapy and audiology students receive **theoretical training** in APD. At the time of data collection, all training institutions offered combined lectures for both speech-language therapy and audiology students. Four of

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the five institutions indicated that students received **clinical training** in the area of APD. All five training institutions under study offered a commitment to training in APD by providing lectures and clinical training in the area.

Additionally, by offering joint training in APD to audiology and speech-language therapy students, it engenders the promotion of a multidisciplinary team approach to assessing and remediating APD. A full understanding of the ramifications of APD for the individual requires a multidisciplinary assessment involving other professionals (*inter alia* speech-language therapists, audiologists, teachers and psychologists) to determine the functional impact of the diagnosis and to guide treatment and management of the disorder and associated deficits (ASHA, 2005). The conclusion drawn is that the training institutions in South Africa were meeting the international imperative when it comes to training in the field of APD.

Results revealed that the curricula offered at the South African training institutions were designed to provide the student with theoretical knowledge necessary in understanding the nature of APD and for management in the clinical setting. Additionally, the outcomes, namely, understanding the theoretical constructs of APD; the neuro-anatomy, physiology, maturation and plasticity; identification of the child with APD, assessment/evaluation/ diagnosis of the child with APD and the management of the child with APD appeared to be comprehensively covered (Bellis, 2003). It was further ascertained that the curricula offered locally were internationally competitive. This was supported by Hugo (1996) who stated that South African speech-language therapists and audiologists have to meet the requirements of the competency profile that is used for setting standards to ensure that South African qualifications are recognised locally as well as internationally.

Apart from being internationally competitive, the curricula offered locally had to be relevant to the South African context. There is a critical need to ensure that speech-language therapists and audiologists have the skills and knowledge necessary to provide services to a multi-cultural communication impaired population which is most evident in the South African context (Hugo, 1996). Curricula need to be revised at appropriate intervals to ensure that they

reflect the current trends in health care and satisfy the changing needs and requirements of the health care professionals (Druck & Ross, 2002). It was observed that all training institutions did not explicitly indicate whether an aim and objective of the curricula would be to expose students to understanding, assessing and remediating APD within the South African context. Additionally, outcomes that allowed for the critical appraisal of the essential knowledge areas with regards to the South African context were not highlighted. Although this was not transparent in the curricula on APD, the researcher acknowledges that as early as 1996, representatives from the various training institutions began discussions on changing the educational programmes offered. This process can be accelerated within the present and favourable transforming post - apartheid atmosphere. The ideal of offering relevant, effective and accountable vocational training programmes as suggested by Hugo (1996) can become a reality.

Finally, teaching appeared to be via lecturing specifically; with two institutions appearing to follow an outcome based approach of education. This finding is pertinent as Outcomes-based education (OBE) is learner-centred and it involves using the discipline to teach students to achieve these learning outcomes. Learning outcomes help instructors more precisely to inform students of what is expected of them (Boughey, 2005). Merely understanding disciplinary content is not an outcome. An outcome is something else that is underpinned by the clear understanding of content. They are the things educators want graduates to be able to do as a result of their learning (Boughey, 2005). This approach to teaching appeared to be well suited to the area of APD as the training institutions have a benchmark in the form of outcomes to measure the learner's competence against.

The first sub aim was met satisfactorily with the researcher gaining an insight into how the curricula is structured and taught at the training instititions under study.

4.2.2 Sub aim 2: Evaluation of the curricula using a curriculum analysis schema (Jansen and Reddy, 1998).

The impact analysis revealed that all institutions provided clear outcomes for the curriculum, thus ensuring that the student was familiar with what they were expected to achieve. Additionally, the curricula were up to date in keeping with international trends and reflected essential knowledge areas in the field of APD. Furthermore, they compared well with the curriculum described by Bellis (2002). It can be concluded that all training institutions under study were taking a positive step in training speech-language therapists and audiologists by providing them with a comprehensive curriculum in APD. Additionally, the curricula were integrated where the perspectives of the audiologist and speech-language therapist in management of APD were discussed. Both audiology and speech-language therapy students were jointly exposed to the curriculum.

Moreover, impact analysis involved determining the challenges that the respondents reported in the area of training in APD. The primary challenge cited by the training institutions was the dearth of standardised linguistically and culturally appropriate assessment tools for use in South Africa for the purposes of an APD assessment (Wilson & Campbell, 2000), and the financial constraints faced by many of the training institutions. Although many of the training institutions raised the former issue, it did not appear to be raised nor explicitly stated in the aims and outcomes as a key area in the training, i.e. in the theoretical or clinical curricula. The researcher concluded that as the dearth of standardised linguistically and culturally appropriate assessment tools fundamentally affects the assessment and subsequent management of clients who may present with an APD, the students may have been provided with this information. This could have occurred despite not being clearly reflected in the curricula.

The design analysis revealed that all the training institutions appeared to present with a module in APD that reflected the essential knowledge areas in APD, and addressed the current trends both locally and internationally. This

was apparent from the reference lists (Appendix F) that were provided by the respective training institutions.

However, the researcher observed a lack of inclusion of information on issues pertaining to the South African context. These issues relate not only to the lack of linguistically and culturally appropriate tools for APD, but broader issues that affect a large proportion of South Africans. These are the issues of poverty with all its social, economical and educational sequelae, and the effect of the HIV/AIDS pandemic, specifically on speech, language and hearing development (Druck & Ross, 2002). The researcher acknowledges that training institutions could be incorporating the latter in a curriculum particularly devoted to these issues. However, speech-language therapists and audiologists need to be aware of the impact of the characteristics of the South African context as they may mimic an APD and or a learning problem and may confound the assessment and remediation process.

The policy analysis involved analyses in terms of a broader set of educational or social policies. The researcher was unable to determine the kinds of policy/ies adhered to in the training, as they were not explicitly referred to in the course descriptors. However, at the time of data collection a specific policy to guide training in the area of APD in South Africa was not available. This was the minimal competency document developed by the professional board for speech – language and hearing profession of the HPCSA (2003). This document was ratified in 2003, well after the data for the present study was collected. It clearly states that assessing and remediating the client with APD fell within the competencies of the both the audiologist and speech-language therapist, with the proviso that the speech-language therapist is disallowed from conducting the diagnostic audiometric test battery to diagnose a child with APD. It is concluded that this document will guide training programmes in restructuring their curricula in the area of APD.

Sub aim two was achieved as the curriculum analysis revealed that the training institutions were offering adequate curricula in APD that incorporated the essential knowledge areas and trends, despite a few shortcomings.

4.2.3 Sub aim 3: The proposal of guidelines for an undergraduate curriculum for the South African context.

The researcher concluded that due to the unique demands of the South African context, training programmes should utilise the critical paradigm of inquiry when training in APD. This paradigm is well suited to developing a graduate who is critical, reflective and who becomes a life-long learner.

Additionally, the instructional systems design model (ISD) for curricula design is best suited to the area of APD and has application to other areas of speech-language therapy and audiology. ISD is concerned with the identification of training requirements based on the analysis of job performance requirements data obtained from experts in the job to be performed. Training objectives are formulated as a result of the job analysis process (Clark, 2000). In this way, training institutions would be able to design their curricula in such a manner so as to meet the needs of the communities that they serve.

Finally, the proposal for amending the curricula is based on serving clients whose needs cannot be met by a western model of service provision. Attention needs to be focussed on the pressing local, regional and national needs of South African society and to the problems and challenges of the broader African context. In addition, due to the heterogeneity and complexity of APD these issues require consideration in the differential diagnosis of APD. Therefore, the proposal for amending the curricula is largely based on the issues that were highlighted during the analysis of the curricula, i.e. issues pertaining to cultural and linguistic diversity of our population, multilingual populations and inappropriate assessment tools for clients from all sectors, and the various barriers to learning (poverty, HIVAIDS, problems with education, lack of services and speech therapy and audiology personnel). Furthermore, a critical prerequisite for human development is the creation of a humane graduate that is trained to demonstrate respect for human rights, dignity, diversity and sound ethics (Makgoba, 2005). To accomplish this it is thus recommended that training institutions adopt a critical paradigm allowing students to engage with these issues that may impact on the identification, assessment and remediation of APD in children in South Africa. The primary

proposal for the amendment of the curricula is the adoption of an ecological approach to assessment and remediation of APD.

The results of the study offered insight into the APD curricula offered at the training institutions under study. The researcher obtained information on the overall structure, aims and objectives and outcomes of the curricula in APD. The findings of the study revealed that the curricula were comprehensive and internationally competitive, with the exception of a few shortcomings pertaining to the unique issues facing South Africans. Based on the results of the study the researcher proposed that the curricula in place do not require major revision. However, with careful consideration, appropriate adjustments and amendments are required to be made.

4.3 IMPLICATIONS OF THE STUDY

The present study focussed on training in the area of APD. The findings of the study, therefore, have implications primarily for institutions training speech-language therapists and audiologists to manage clients presenting with the disorder. Additionally, overall clinical implications of this study are addressed.

4.3.1 Implications for the education and training of South African speech-language therapists and audiologists in APD.

- At the time of data collection it was observed that all the training institutions under study chose to offer lectures combined to both speech-language therapy and audiology students. Although speech-language therapists and audiologists will not be involved in all aspects of assessment and remediation (HPCSA, 2003), the combined training is valuable as it will only serve to improve and enhance service delivery to the APD population. It will allow students to understand and appreciate that an integrated management plan is essential in managing the client with APD and enable students to identity the roles and responsibilities of each professional. A combined introductory theory course comprising both speech-language therapy and audiology

students is thus recommended. This should be continued at all training institutions.

- Combined clinical training was offered at two of the five training institutions under study. This has implications for practice as literature has repeatedly stressed a multidisciplinary team approach to assessment and remediation (ASHA, 2005; Bellis, 2003). A separate clinical curriculum in addition to the introductory theoretical curriculum is recommended. Speech-language therapists and audiologists will be involved in different assessment procedures to determine the type and extent of the APD. However, due to the integrated nature of the management, it is recommended that joint planning be conducted before remediation commences. Bellis (2003) recommends that remediation be deficit specific and individualised. This can only be achieved if both professionals liaise once assessment is complete to plan an individualised management plan for the client with APD. This will involve joint tutorial, case discussion and planning sessions. The latter will facilitate an understanding and appreciation in students for an integrated management plan that is essential in managing the client with APD.

- It was further observed that the time allocated to the clinical and theoretical module in APD, differed across all training institutions. Altering the time allocation of the APD course cannot be done unilaterally, but this decision has to be made by the respective training institutions in line with the entire training programme. An academic steering committee could be convened where academics from all training institutions in South Africa to collaborate to oversee and develop the training of speech-language therapists and audiologists in South Africa, to ensure that graduates leave with equal or similar training opportunities enabling efficient and effective service delivery. There should exist a universal (national) basis for education and training standards for speech-language therapy and audiology (Hugo, 1996).

- Speech-language therapists and audiologists working within the South African context are required to possess the necessary knowledge and skills to work in the area of APD. Moreover, they are required to be aware of issues that may impact on the assessment and remediation of APD in children in South Africa. These are issues pertaining to cultural and linguistic diversity of the South African population, poverty, HIVAIDS, and the discrepancy in access to education. The content of the APD curricula should be related at all times to these factors to adequately prepare professionals for the local context and to the benefit of those whom we serve. If these issues are not addressed in the programmes offered at the training institutions currently, the researcher recommends their inclusion.

- The diversity in language and culture in South Africa and the growing awareness and recognition of this diversity presents a challenge to service delivery (Louw & Avenant, 2002). Speech-language therapists and audiologists are required to provide an equitable service to all clients including black African first language speakers, specifically within the field of APD. They need to possess the necessary knowledge, skill and attitudes in assessing and remediating these clients who may not benefit from practices that suit a monolingual, monocultural clientele. Every client especially those in heterogeneous urban areas are filled with diversity. Until an APD test battery is designed for South Africans and particularly culturally appropriate APD test materials, training institutions are encouraged to train speech-language therapy and audiology students to adopt an ecological model of assessment and remediation for APD in children (Westby, et al., 1996).

- A final implication identified is the urgent need to redress the profession of speech-language therapy and audiology in terms of the graduate profile. Research has been quoted to indicate that the majority of the population of South Africa are English second languages speakers, i.e.

80% of the population are Black African (Kashchula and Anthonissen, 1995 in Kathard, 1999; Swanepoel, 2004). Additionally, with 11 official languages, less than 1% of the qualified practitioners are Black African first language speakers (SAMDC, 1995 in Kathard, 1999). Consequently there exists a dire need for training institutions to take in students that reflect the multilingual and multicultural nature of South Africa. The benefit of which would be to increase the number of trained professionals from diverse language groups. They may then contribute to the research, teaching and service functions of the professions. Their input specifically into the understanding of APD from their cultural and linguistic perspectives will serve to enrich our professional roles.

Implications as they pertained to training in the area of APD were presented and discussed. That which follows is a discussion of implications that have clinical significance. The implications recommended are clinical in nature as they will impact directly on practice and service delivery with clients presenting with APD.

4.3.2 Implications for the speech-language therapist and audiologist in the delivery of APD services in South Africa.

- There have been developments in the area of APD over the past decade with the most recent technical report provided by ASHA (2005). This document was designed to augment and update the information presented in the 1996, ASHA technical report, "Central Auditory Processing: Current Status of Research and Implications for Clinical Practice" (ASHA, 1996). This report served to build on the cumulative scientific and professional advances over the past decade. Additionally, the competency profile compiled by the HPCSA includes updated competencies with regard to practising with a client presenting with APD (HPCSA, 2003). Speech-language therapists and audiologists currently working in the field may not possess updated competency in the field of APD. This issue may need to be addressed by the Professional board for speech-language hearing professions of the HPCSA. Will therapists currently practising in the field be able to

develop competency via a continuing professional development programme? Or would the board stipulate that additional licensing is required in order to practise in the area of APD? It is recommended that this issue is determined by the board.

- Speech-language therapists and audiologists are required to work collaboratively to effectively manage a client presenting with APD. Bellis (2003) cautions that the complexity of the central auditory nervous system precludes a simplistic approach to the identification and treatment of central disorders. Moreover, due to the heterogeneity of CAPD, it disallows one way of addressing the needs of this population. In order to provide a comprehensive and adequate service to the client with CAPD, what is required is the development and implementation of a comprehensive central auditory processing service delivery programme (Bellis, 2003). The responsibility of implementing such a programme falls on the audiologist and speech-language therapist. The roles and functions of the speech-language therapist and audiologist have been highlighted by the competency profile compiled by the HPCSA (2003). Furthermore, the continuing involvement of speech-language therapist in the team approach to assessment and management of APD is crucial to the efficacy of the intervention (ASHA, 2005).

4.4 RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the results of the study the following recommendations are made for further research:

- An investigation into the perceptions of recently graduated speech-language therapists and audiologists on the training offered at all training institutions in South Africa in the area of APD. By investigating graduate perceptions, curricula analysis will be enhanced as one can obtain a balanced evaluation of the overall training offered in terms of teaching, learning and assessment. The curricula in the present study were analysed according to the curriculum analysis framework (Jansen

& Reddy, 1998). This involved analysis in terms of impact, design and policy analysis. One of the ways of obtaining an impact analysis is to appraise the external impact of the study (Jansen & Reddy, 1998). This can be achieved by questioning the alumni of the respective training institutions. An Exploratory, descriptive survey research design could be conducted. The results of this study could offer invaluable recommendations from the perspective of the alumni with regard to training in APD.

- The development of a behavioural assessment test battery for APD for clients who speak English both as a first and second language. It is recognized that there is a need for the development of speech materials not only for APD but also the basic audiometric test battery. The need for valid measures in languages other than English has been well documented for speech audiometrey (Ramkissoon, 2002). Similarly, there is a need to develop more efficient screening tools to identify individuals at risk for APD, as well as both screening and diagnostic measures appropriate for multicultural/multilingual populations (ASHA, 2005). Furthermore, studies have demonstrated the pitfalls of administering tests for APD not designed for the population of that country, even though they may be first language English speakers (Marriage et al., 2001; Campbell, et al., 2003). There is therefore a need to develop a standardised behavioural test battery for clients who speak English as a first language within the South African context. Additionally, with eleven official languages spoken in South Africa, (Swanepoel, 2004), and the need to develop culturally appropriate standardised materials there exists a further need to develop materials in another language. Developing standardised behavioural measures in all eleven official languages is unrealistic. As isiZulu is spoken by 24% of the population (Swanepoel, 2004) material could initially be developed in this language. The South African APD task force was instated to oversee the initial stages of research and development in the area of APD. It is now recommended that a steering committee be developed to oversee the development of

appropriate assessment tools for use in APD, and for other areas of audiology and speech-language therapy practice.

- Research into the efficacy of adopting an ecological model of assessment and remediation for clients identified with APD. The researcher recommended that an ecological, judgement based dynamic model of assessment and remediation be undertaken. Research is required to verify the utility of this approach. This is imperative as there is a paucity of empirical data regarding the efficacy of management approaches to APD (Bellis, 2003). This method was recommended as it considers the naturalistic management of an individual with a communication disorder by considering the effects of the physical, social, and psychological context of the individuals' performance (Westby, et al., 1996). There is growing awareness that differences across and within cultural-linguistic groups need to be accounted for and therapists cannot readily apply a western model of service provision. This has been recommended by the researcher as an alternate or an adjunct to assessing and remediating clients with APD. However, it is a recommendation based on theory and its efficacy in a clinical setting would therefore need to be determined.

In conclusion the researcher has discussed theoretical and clinical implications and has made recommendations for further research derived from this study. It is suggested that training institutions, practitioners and researchers in the field of speech-language therapy and audiology use this information to further develop and expand the area of APD. It is hoped that it will serve to directly benefit speech-language therapists and audiologists in training, as well as in practise and eventually benefit the communities that we serve.

4.5 CRITICAL EVALUATION OF THE RESEARCH

A critical evaluation of the research is essential as it helps to establish the value of the research project undertaken. In addition, a comprehensive

evaluation of the study will guide research projects of a similar nature, especially in view of the lessons learnt by the researcher.

This study was conducted on five of the six institutions training speech-language therapists and audiologists in the area of APD in South Africa. The institution that was not included in the study was not offering a course in APD at the time of data collection. A strength of the study was that it was a comprehensive evaluation of APD curricula at the remaining five institutions training speech-language therapists and audiologists.

Research in the field of APD in the USA and SA, suggested that training institutions were not providing adequate training in the area (Peck, Gressard, & Hellerman, 1991; Henri, 1994; Sykes, Tucker and Herr, 1997; Chermak, Traynham, Seikel and Musiek, 1998; Bellis, 1999 & 2003, Fourie, 1998). In order to investigate this situation in South Africa an exploratory, descriptive survey research design was selected. This design enabled an exploration of an area not previously researched and yielded sufficient qualitative and quantitative data allowing for a comprehensive description of the training in APD in South Africa.

A further strength of the study was the utilisation of the questionnaires and the course descriptors. All training institutions co-operated and complied by making the course descriptors for the APD curricula available. This enabled a comprehensive analysis of the curricula in APD offered at the training institutions under study.

In addition to the strengths of the study the limitations of the study were considered:

The researcher acknowledges that personal interviews with the respondents and preferably a focus group interview with all respondents would have provided the researcher with more in-depth information and a richer perspective of the actual training in the area of APD. Focus group interviews can yield a great deal of useful information. It allows the researcher to interview several participants simultaneously, and with the help of a moderator the respondents are focussed on the topic at hand (Leedy & Ormrod, 2004).

The researcher speculates that in an open forum like a focus group interview, greater discourse would have been generated on the challenges facing educators at South African training institutions today and specifically in the area of APD.

In addition, scheduling the focus group interview following receipt of the course descriptors would have allowed the researcher to obtain information not contained in the course descriptors and allowed the respondents an opportunity to provide greater detail on the curriculum offered in APD. Although the researcher acknowledges that the focus group interview may have been the preferred method of data collection, following receipt of the course descriptors, this would have been logistically challenging. The researcher further acknowledges that apart from the questionnaire not probing on the issues pertaining to the South African context, comprehensive information was obtained on the curricula offered in APD at the training instititions under study. This was possible due to the cooperation of the respondents and heads of department at the respective training institutions.

The researcher acknowledges that the questionnaire had its limitations in that it did not adequately probe the social and contextual issues with regard to the South African context. This would have enhanced the evaluation of the curricula and offered comprehensive information to support the curricula offered. Leedy and Ormrod (2004) stated that by eliminating questions that could be asked about the issue at hand, the researcher is likely to obtain only limited information. However, the researcher did not explicitly ask about these issues for fear of biasing or swaying the responses obtained from the respondents.

A qualitative research design with the use of a focus group interview comprising speech-language therapy and audiology alumni as respondents would have enhanced the study. The researcher could have allowed them the opportunity to comment on the theoretical and clinical curricula offered in APD, at their respective training institutions. This may have, enhanced the evaluation of the curricula. A qualitative research design would have captured

the individual's point of view through detailed interviewing, and would have secured rich descriptions of the area of study, namely training in APD (Denzin & Lincoln, 1998). However, in spite of this omission sufficient data was obtained to obtain a comprehensive description of the curricula offered in the area of APD.

Finally, the researcher acknowledges that changes in the training in APD could have occurred since the time of data collection. In the present study information obtained from questionnaires and course descriptors applied to the APD curricula offered in 2002. Developments in the field of APD and within training institutions could have subsequently resulted in an altered and/or enhanced curriculum currently offered at the respective training institutions. The results of the present study are therefore required to be viewed in light of these developments. It is possible that some of the limitations highlighted may already have been addressed in more recent curricula.

The researcher finally acknowledges that although the study could have been conducted differently, it still fulfilled the aims of the study with sufficient data obtained to provide an understanding of the nature of the undergraduate APD curricula offered at the training institutions under study.

The critical evaluation of the research has indicated the benefits and limitations inherent in the research process undertaken to determine the nature of the curriculum for APD offered at the various training institutions. The benefits allow one to appreciate the value of the research and the limitations urge the readers to consider the findings within the confines of this study.

4.6   FINAL COMMENTS

Professional educators have a responsibility to themselves, their students and their programmes to ensure that the practices that they advocate are motivated by the best of current science. Additionally, for the South African context the curricula have to be coupled with a critical appraisal of APD in light

of issues pertaining to the South African context. The profession of Speech-language Therapy and Audiology have to provide an equitable service to all clients irrespective of race or language, to keep in line with the social and political imperatives of South Africa. This is necessary if one is seeking to transform curricula, via appropriate research to be relevant and effective in dealing with the complexities of APD.

There is a certain noble motivation underlying the professional identity of speech-language therapists and audiologists. Practising professionals are always seeking better assessment and intervention techniques and technologies to serve clients. As the profession advances, however, speech-language therapists and audiologists must move from idealistic to realistic perspectives. Their commitment must be fortified in new ways to meet societal and economic changes. To meet these changes, our basic training programmes need to dynamically address South African issues that are unique to our nation that reflects a mosaic of cultural and linguistic diversity (Lubinski & Frattali, 2001).

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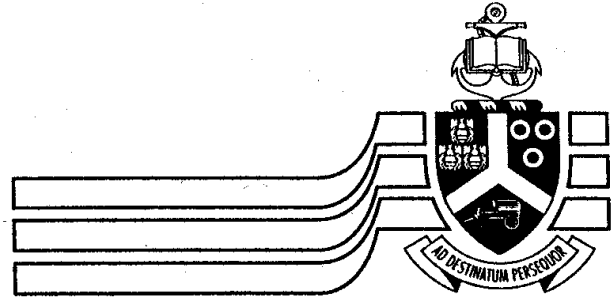
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APPENDIX A

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DISCIPLINE OF COMMUNICATION PATHOLOGY

7March 2002

Head of Department

Department of Communication Pathology

Re: Dissertation In Communication Pathology

Dear Colleague,

I am currently involved in a research project as part of the requirements of the degree, Masters in Communication Pathology, at the University of Pretoria. The title of the study is:

Professional Training and Clinical Preparation of Speech –Language Pathologists and Audiologists in CAPD, in South Africa.

Central Auditory Processing Disorders (CAPD) have in recent years received much interest internationally, as the profession still has not reached consensus on definitions, assessment and remediation. Similarly in South Africa we experience the same hurdles and this led to the creation of the SA CAPD task force of which I am a member. Apart from critical research required in the area of assessment and remediation, international and local studies have revealed Speech Language Pathologist's and Audiologist's (SLPA's) dissatisfaction and apprehension in dealing with CAPD. Numerous reasons were provided but one in particular indicated that insufficient training in the field of CAPD is received. Clinicians expressed an overall lack of knowledge and insight in CAPD.

The business plan of the SA CAPD task force outlined numerous aims, with the task force attempting to address the critical area of assessment currently. One of the aims of the task force is to promote collaboration with and between the

different academic institutions to insure a high standard off training in the area of CAPD. Hence, this study will attempt to ask and answer the question, what constitutes the training and clinical preparation of SLPA's in CAPD in South Africa? By scrutinising the curriculum, the outcome of the study will be to reach some kind of consensus regarding training and clinical preparation of SLPA's in CAPD, hence equipping graduates with the knowledge and skills required to manage this challenging group of clients.

As the study is addressing the area of training in CAPD all academic institutions that train SLPA's have been identified, and staff directly involved in the academic instruction and clinical training in the area of CAPD have been identified as subjects. Your staff participation in this study is thus vital and I give you the assurance that complete anonymity and confidentiality will be maintained. Each participant will receive feedback on the results of the study and a plan identifying the way forward will be presented.

I would greatly appreciate it if your institution will participate in the study and if staff that are directly involved in academic and clinical training of students in CAPD, could complete the attached questionnaire. These staff members will comprise the subjects of the study. In your capacity as head of the department please sign the questionnaire after completion. This will indicate that the information on the questionnaire is accurate.

Your participation in this study and contribution to this particular field of study is greatly appreciated.

Thank you,

Yours sincerely,

_____

Student: Farhana Khan

Research Supervisors:

Ms. N Campbell

Prof. R Hugo

Student contact details: Tel (W) 031-2044592/ (H) 033-3941091 Fax: 031-2044622

Email: farhana@pixie.udw.ac.za
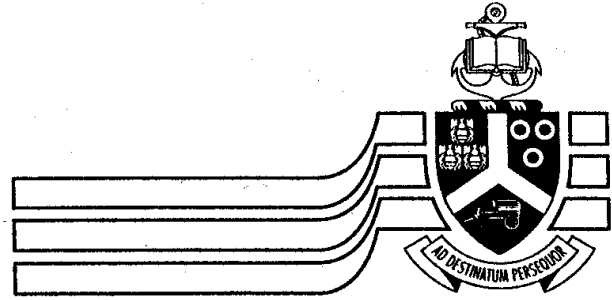
University of Pretoria

APPENDIX B

Department of Communication Pathology Speech, Voice and Hearing Clinic
Tel: +27 12 420 2357
Fax: +27 12 420 3517
Email: shugo@postino.up.ac.za

DISCIPLINE OF COMMUNICATION PATHOLOGY

7 March 2002,

To whom it may concern

Department of Communication Pathology

Re: Dissertation In Communication Pathology

Dear Colleague,

I am currently involved in a research project as part of the requirements of the degree, Masters in Communication Pathology, at the University of Pretoria. The title of the study is:

Professional Training and Clinical Preparation of Speech –Language Pathologists and Audiologists in CAPD, in South Africa.

Central Auditory Processing disorders (CAPD) have in recent years received much interest internationally, as the profession still has not reached consensus on definitions, assessment and remediation. Similarly in South Africa we experience the same hurdles and this led to the creation of the SA CAPD task force of which I am a member. Apart from critical research required in the area of assessment and remediation, international and local studies have revealed Speech Language Pathologist's and Audiologist's (SLPA's) dissatisfaction and apprehension in dealing with CAPD. Numerous reasons were provided but one in particular was

that insufficient training in the field of CAPD is received. Clinicians expressed an overall lack of knowledge and insight in CAPD.

The business plan of the CAPD task force outlined numerous aims, with the task force attempting to address the critical area of assessment currently. One of the aims of the task force is to promote collaboration with and between the different academic institutions to insure a high standard off training in the area of CAPD. Hence, this study will attempt to ask and answer the question, what constitutes the training and clinical preparation of SLPA's in CAPD in South Africa? By scrutinising the curriculum, the outcome of the study will be to reach some kind on consensus regarding training and clinical preparation of SLPA's in CAPD, hence equipping graduates with the knowledge and skills required to manage this challenging group of clients.

As the study is addressing the area of training in CAPD all academic institutions that train SLPA's have been identified, and staff directly involved in the academic instruction and clinical training in the area of CAPD have been identified as subjects. Your participation in this study is thus vital and I give you the assurance that complete anonymity and confidentiality will be maintained. Each participant will receive feedback on the results of the study and a plan identifying the way forward will be presented.

Enclosed is a copy of the questionnaire that I would appreciate you completing and a self-addressed envelope. I would appreciate it if the head of department could sign the questionnaire on completion ensuring that the information is accurate.

Your participation in this study and contribution to this particular field of study is greatly appreciated.

Thank you,

Yours sincerely,

_____

Student: Farhana Khan

Research Supervisors:

Ms. N Campbell

Prof. R Hugo

Student contact details: Tel (W) 031-2044592/ (H) 033-3941091 Fax: 031-2044622

Email: farhana@pixie.udw.ac.za

APPENDIX C
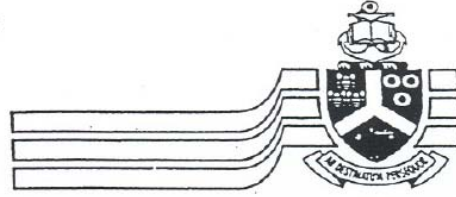
Universiteit van Pretoria

Lede: Navorsingsetiekkomitee
Prof. D Beyers; Dr. R Delport; Dr. J Hinch;
Prof. E Krüger; Prof. B Louw;
Dr. M Painter-Morland; Prof C Potgieter;
Prof. D Prinsloo; Prof. H Solomon; Dr. E Taljaard;
Dr. J van Eeden; Prof. A Wessels

Navorsingetiekkomitee
Fakulteit Geesteswetenskappe

Beste Mev. Campbell

Projek: The development of a curriculum for the training of Communication Pathologists in Auditory Processing Disorders
Navorser:Mev. F. Khan
Leier: Mev. N. Campbell
Departement:Kommunikasiepatologie
Verwysingsnommer:9627543

Baie dankie vir die aansoek wat u voorgelê het aan die Navorsingetiekkomitee, Fakulteit Geesteswetenskappe.

Die aansoek is formeel deur die komitee goedgekeur op 28 November 2002. Die etiese komitee beveel aan dat u krities na die punktuasie in die titel sal kyk.

Die komiteè wil u graag versoek om bogenoemde goedkeuring aan Mev. Khan oor te dra

Ons wens u sukses met die projek toe.
Vriendelike groete,

Dr. Delport namens:
Prof. Brenda Louw
Voorsitter: Navorsingetiekkomitee
Fakulteit Geesteswetenskappe
UNIVERSITEIT VAN PRETORIA

<u>**APPENDIX D: QUESTIONNAIRE**</u>
<u>**TOWARD THE DEVELOPMENT OF AN APD CURRICULUM FOR**</u>
<u>**SOUTH AFRICA.**</u>

Please complete the attached questionnaire as thoroughly as possible, in your capacity as either a lecturer or clinical tutor in the area of Auditory Processing Disorders (APD).

1. There are **3 sections** in this questionnaire. Please answer the questions by either:
   a. Writing your answer in the space provided or
   b. By placing a tick [✓] in the box next to the answer you have chosen.

2. For questions **9** and **16** please provide either a course descriptor or a study guide as outlined in the questionnaire (refer to 4.7 for a definition of these terms). Please ensure that you address all areas outlined and attach these documents at the end of the questionnaire.

3. Paper is provided at the end of the questionnaire for your responses to **Section 3.**

4. The terminology used in the questionnaire may not be standard across institutions. I have therefore included a brief definition of terms used:

4.1	**Learner/s-learning**	is the term used to refer to lectures and clinical practicals
4.2	**Lecturer**	is the person responsible for designing and executing the theoretical component of the module.
4.3	**Clinical tutor**	is the person responsible for designing and executing the clinical component of the module
4.4	**Training**	refers to both theoretical and clinical education
4.5	**Dual qualification (dual registration)**	i.e. the graduate is trained as both a speech language pathologist and an audiologist.
4.6	**Course descriptor/study guide**	refers to information compiled into a format that describes the module taught (both clinical and theoretical). This documentation should include the following: ✓ Aims and objectives of the course. ✓ Outline of content areas covered. ✓ Teaching methodologies utilised. ✓ Assessment strategies utilised. ✓ Resources used (human, physical and technical). ✓ Outcomes of the course, in terms of (knowledge, skills and attitude) ✓ Other areas that you wish to include.

1

TOWARD THE DEVELOPMENT OF AN APD CURRICULUM FOR SOUTH AFRICA.

□**Respondent number**	V1 ☐☐ 1-2

SECTION 1 – BIOGRAPHICAL and BACKGROUND INFORMATION

Question 1:

Please complete the following table. State all qualifications received.

NAME	
CONTACT TELEPHONE NUMBER & HOURS OF AVAILABLITY	
Undergraduate: Degree Training institution Year completed	
Postgraduate: degree/diploma (Indicate if currently studying toward a qualification) Training institution Year completed	

V2 ☐ 3
V3 ☐ 4
V4 ☐☐☐☐ 5-8

V5 ☐ 9
V6 ☐ 10

V7 ☐☐☐☐ 11-14

Question 2:

With regards to your work experience, please indicate the following:

2.2.1   How many years have you been practising as a:

Speech Language Pathologist and Audiologist	
Speech Language Pathologist	
Audiologist	

V8 ☐☐ 15-16

V9 ☐☐ 17-18

V10 ☐☐ 19-20

2

2.2.2 Indicate in what settings you gained your work experience and how many years you worked in the respective settings.

SETTINGS	NUMBER OF YEARS

V11 ☐ 21
V12 ☐☐ 22-23
V13 ☐ 24
V14 ☐☐ 25-26
V15 ☐ 27
V16 ☐☐ 28-29
V17 ☐ 30
V18 ☐☐ 31-32
V19 ☐ 33
V20 ☐☐ 34-35
V21 ☐ 36
V22 ☐☐ 37-38

Question 3:

How many years have you been involved in the training of SLP/A learners in the field of Speech Language Pathology and Audiology, in each of the following positions?

Lecturer	
Clinical Tutor	

V23 ☐☐ 39-40
V24 ☐☐ 41-42

Question 4:

How many years have you been involved in the training of SLP/A learners in the area of APD, in each of the following positions?

Lecturer	
Clinical Tutor	

V25 ☐☐ 43-44

Question 5:

In what capacity do you currently train students in APD?

Lecturer	1
Clinical Tutor	2

V26 ☐ 45

3

Question 6:

6.1 Does your institution offer an undergraduate training qualification for:

Speech Language Pathologists (SLP)	1
Audiologists (A)	2
For the dual qualification (SLP&A)	3

V27☐ 46

V28☐ 47

V29☐ 48

6.2 If programmes are offered for both Speech Language Pathologists and Audiologists:

6.2.1   Which learners receive learning in the area of APD?

A	Speech Language Pathology learners only	1
B	Audiology learners only	2
C	Both, Speech Language Pathology and Audiology learners	3

V30☐ 49

6.2.2   With reference to the above question, is the learning joint or separate, i.e. do the SLP&A learners sit the lectures and clinical practicals together or separately. (Note learning refers to lectures and clinical practicals).

Lectures	Joint	1	Separate	2
Clinical practicals	Joint	1	Separate	2

V31☐ 50

V32 ☐ 51

6.2.3   Comments:

SECTION 2: DESCRIPTION OF THE APD PROGRAMME

Please complete this section if you are involved in LECTURING in the area of APD.

THEORETICAL MODULE

Question 7:

7.1 In what year of study do learners receive lectures in APD?

1st	
2nd	
3rd	
4th	

V33 ☐ 53
V34 ☐ 54
V35 ☐ 55
V36 ☐ 56

7.2 Provide reasons for this:

Question 8:

8.1   How many learning time periods are dedicated to the area of APD?
       Please indicate how long each learning period is.

How Many	
Time Period of each (minutes)	

V37 ☐☐ 57-58

V38 ☐☐ 59-60

8.2 Do you think that the hours dedicated to APD lectures are adequate?
Explain.

8.3 Describe how the learning time is allocated,
   e.g.   10 hours -direct teaching time,
          5 hours - self study.

TOTAL LEARNING TIME	LECTURES	TUTORIALS	SELF STUDY	OTHER
e.g. 15 hours	10	3	2	-

Question 9:

Provide a course descriptor/ study guide and a comprehensive course outline for the APD course detailing the following?

- ✓ Aims and objectives of the course
- ✓ Outline of content areas covered
- ✓ Teaching methodologies utilised
- ✓ Assessment strategies utilised
- ✓ Resources used (human, physical and technical).
- ✓ In your own words what are the outcomes of the theoretical module in APD, in terms of (knowledge, skills and attitude).
- ✓ Other

Please attach at the end of the questionnaire.

Question 10:

Provide a recommended reference list that you utilise for the course? Please comment on key references.

Please attach at the end of the questionnaire.

Please complete this section if you are involved in the CLINICAL TRAINING in the area of APD.

CLINICAL MODULE

Question 11:

In what year of study do learners primarily receive clinical training in the area of APD?

1st	
2nd	
3rd	
4th	

V43 ☐ 69
V44 ☐ 70
V45 ☐ 71
V46 ☐ 72

Question 12:

How many hours are accrued for clinical training in the area of APD per year?

LEVEL	NUMBER OF HOURS
1st	
2nd	
3rd	
4th	

V47 ☐☐ 73-74
V48 ☐☐ 75-76
V49 ☐☐ 77-78
V50 ☐☐ 79-80

Question 13:

Indicate which learners receive clinical training in the area of APD

LEARNERS	YES	NO
Speech Language Pathology (SLP)	1	2
Audiology (A)	1	2
For the dual qualification (SLP&A)	1	2

V51 ☐ 81

V52 ☐ 82

V53 ☐ 83

7

Question 14:

Describe the nature of the training for the respective learners at your institution i.e. observation, APD assessment, remediation/therapy, other (e.g. school based) etc.
Please provide a breakdown in the form of a percentage detailing time spent under each category, e.g. Observation = 30%.

LEARNERS	NATURE OF TRAINING			
	Observation	Assessment	Therapy	Other
Speech language pathology				
Audiology				
For the dual qualification				

Question 15:

Indicate how the clinical training is achieved, e.g. are the students based at different settings in the community or is a clinic dedicated to the area of APD, offered at the institution.

Question 16:

Provide a course descriptor and a comprehensive course outline for the clinical course in APD detailing the following?

- ✓ Aims and objectives of the course
- ✓ Outline of content areas covered
- ✓ Teaching methodologies utilised
- ✓ Assessment strategies utilised
- ✓ Resources used (human, physical and technical).
- ✓ In your own words what are the outcomes of the clinical module in APD, in terms of (knowledge, skills and attitude).
- ✓ Other

Please attach at the end of the questionnaire.

SECTION 3: GENERAL

Please enter responses on the pages attached at the end of the questionnaire.

Question 17:

What are the difficulties and challenges that Speech Language Pathologists and/or Audiologists encounter in the area of APD within the South African context?

Question 18:

18.1 What are some of the difficulties and challenges that you encounter in the area of APD as an educator within the South African context?

18.2 What changes would you recommend to your current training programme (theoretical and clinical) in APD? Please motivate your recommendations.

Question 19:

Do you have information on the SA CAPD taskforce and what has been achieved to date? Please comment.

Question 20:

Comment on the moratorium that the HPCSA instituted with regard to APD testing.

9

Question 21:

Please feel free to share any final comments.

Final Reminders:

1. Please complete within 2 weeks and post. A self-addressed envelope is enclosed.
2. Please remember to include the:
   - ✓ course descriptor/study guide
   - ✓ comprehensive course outline
   - ✓ recommended reference list
3. Please provide a contact telephone number where you can be reached.
4. Please ensure that the head of department signs the questionnaire on completion

----
Head of Department

**YOUR TIME AND CO-OPERATION IS GREATLY APPRECIATED
THANK YOU**

Please enter your responses to Section 3 here

APPENDIX E

CENTRAL AUDITORY PROCESSING DISORDERS (DCOM 730)

(Bellis, 2002)

TIME ALLOCATION: 41 LECTURE PERIODS x 50 MINUTES = 34 HOURS.

COURSE DESCRIPTION

The course will acquaint students with current perspectives regarding the science underlying central auditory processing, the relationship between CAPD and various learning/language disorders, methods of screening for and diagnosing CAPD in children and adults, and methods of developing deficit-specific management programs for CAPD. Also included will be topics related to programming and service delivery. The need for an interdisciplinary team approach to CAPD assessment and management will be emphasised. Because of the complexity of the topic of central auditory processing and its disorders, students should not expect to become clinically competent in this area merely by taking DCOM 730. However, at the end of this course, students should be familiar with the fundamental principles of central auditory processing disorders so that they can begin the process of developing clinical competence in this area through additional study and clinical experience.

LEARNING OBJECTIVES

After taking this course, students will:

- Discuss presumed neurological bases for central auditory processes
- Identify relationships between CAPD and language, learning and communication
- Discuss methods of screening for CAPD
- Delineate purposes of central auditory assessment
- Identify subcategories of central auditory tests
- Discuss interpretation of central test findings
- Discuss the rationale behind deficit-specific management for auditory processing disorder

- Identify several management strategies appropriate for individuals with a auditory processing disorders

AN OUTLINE SYLLABUS, REQUIRED TEXTS AND READINGS, AND ASSESSMENT STRATEGIES WERE PROVIDED.

APPENDIX F

RESOURCES USED IN THE APD CURRICULA.

REFERENCES UTILISED:

Institution A

1. American Speech –Language Hearing Association. (1996). Central Auditory Processing: Current Status of Research and Implications for Clinical Practice. Task Force on Central Auditory Processing Consensus Development. American Journal of Audiology, 50 (2), 41-52.

2. Bellis, T .J. (1996) Assessment and Management of Central Auditory Processing Disorders in the Educational Setting. From Science to Practice. San Diego: Singular Publishing Group Inc.

3. Chermak G.D & Musiek, F.E (1997) Central Auditory Processing Disorders. New Perspectives. San Diego: Singular Publishing Group, Inc.

4. DeConde Johnson, C. Benson, P.V. And Seaton, J.B. (1997). Educational Audiology Handbook. Singular Publishing Gropu,Inc:San Diego

5. Riccio, C.A. And Hynd, G.W. (1996) Relationship between ADHD and CAPD: A Review of Literature. School Psychology International, 235-253.

6. Musiek, F.E. And Rintelman, W.F. (1999) Contemporary Perspectives in Hearing Assessment. Allan & Bacon.

7. Masters, G.M., Stecker, N.A., Katz, J. (1998) Central Auditory Processing Disorders: Mostly Management. Boston: Allyn & Bacon.

8. Bellis, T.J. (2002). When the Brain Can't Hear .Unravelling The Mystery of Auditory Processing Disorder.

Institution B

1. American Speech –Language Hearing Association. (1996). Central Auditory Processing: Current Status of Research and Implications for Clinical Practice. Task Force on Central Auditory Processing Consensus Development. American Journal of Audiology, 50 (2), 41-52.

2. Bellis, T .J. (1996) Assessment and Management of Central Auditory Processing Disorders in the Educational Setting. From Science to Practice. San Diego: Singular Publishing Group Inc.

3. Bellis, T.J. (1999). Editorial: Auditory Processing Disorders in Children. Journal of the American Academy of Audiology, 10, (6).

4. Bellis, T.J. & Beck, B.R. (2000). Central Auditory Processing In Clinical Practice. Http.// Audiologyonline.

5. Bellis, T.J. &Ferre, J.M (1999) Multidimensional Approach to the Differential Diagnosis of Central Auditory Processing Disorders in Children. Journal of the American Academy of Audiology. Vol. 10:19-328.

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8. Chermak, G.D., Somers, E.K. & Seikel, J.A. (1998) Behavioural Signs of Central Auditory Processing Disorder and Attention Deficit Hyperactivity Disorder. Journal of the American Academy of Audiology, 9, 78-84.

9. Crandell.C.C. (1998) Using Soundfield Fm Amplification in the Educational Setting. The Hearing Journal, 51(5), 11-19.

10. Friel-Patti, S. (1999). Clinical Decision – Making In the Assessment and Intervention of Central Auditory Processing Disorders. Language, Speech and Hearing Services in Schools, 30,345-352.

11. Hall, J.W. (1999) CAPD in Y2K: An Introduction to Audiological Assessment and Management. The Hearing Journal. Volume 52, No.10.

12. Jerger, J & Musiek, F. (2000) Report Of the Consensus Conference on The Diagnosis Of Auditory Processing Disorders In School Aged Children. Journal of the American Academy of Audiology, 11,467-474.

13. Masters, G.M., Stecker, N.A., Katz, J. (1998) Central Auditory Processing Disorders: Mostly Management. Boston: Allyn & Bacon.

14. Musiek, F. (1999) Habilitation And Management Of Auditory Processing Disorders: Overview Of Selected Procedures. Journal of the American Academy of Audiology, 10:329-342.

15. Musiek, F.E., Baran, J.A., Schochat, E. (1999) Selected Management Approaches to Central Auditory Processing Disorders. Scandinavian Audiology, 28, Suppl. 51:63-76.

16. Sloan, C. (1998). Management of Auditory Processing Difficulties. A Perspective from Speech- Language Pathology. Seminars in Hearing, 19(4), 367-378.

Institution C

1. Bellis, T .J. (1996) <u>Assessment and Management of Central Auditory Processing Disorders in the Educational Setting. From Science to Practice</u>. San Diego: Singular Publishing Group Inc.

2. Hood, L. And Berlin, C. (1996). <u>Central Auditory Function and Disorders</u>. Chapter 3. In Handbook Of Neuropsychology, Vol. 7: Child Neuropsychology. Eds. Segalowitz, S. And Rapin, I. Elsevier Science Publishers.

3. Katz, J. (1985). Ed.3 <u>Handbook of Clinical Audiology</u>. William and Wilkins. Baltimore.

4. Tanaka, Y., Kamo, T., Yoshida, M. And Yamadori, A. (1991). So Called Cortical Deafness. <u>Brain</u>, 114, 2385-2401.
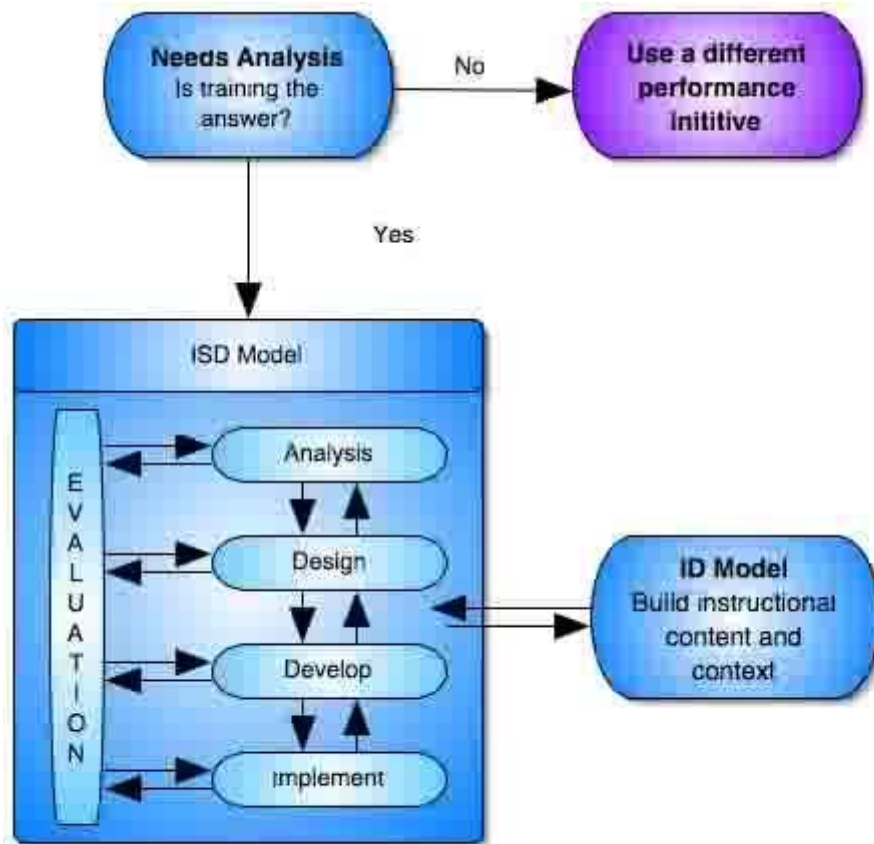
Institution D

1. Bellis, T .J. (1996) <u>Assessment and Management of Central Auditory Processing Disorders in the Educational Setting. From Science to Practice</u>. San Diego: Singular Publishing Group Inc.

2. Hamaguchi, P.M. (1995) <u>Childhood Speech, Language And Listening Problems: What Every Parent Should Know.</u> John Wiley & Sons, Inc: New York, USA.

3. Mueller, H.G. And Hall, J.W. (1997). <u>Audiologist's Desk Reference Volume I</u>. Singular Publishing Inc: San Diego, USA.

Institution E

1. Bellis, T .J. (1996) <u>Assessment and Management of Central Auditory Processing Disorders in the Educational Setting. From Science to Practice</u>. San Diego: Singular Publishing Group Inc.

2. Chermak G.D & Musiek, F.E (1997<u>) Central Auditory Processing Disorders. New Perspectives</u>. San Diego: Singular Publishing Group, Inc.

3. Masters, G.M., Stecker, N.A., Katz, J. (1998) <u>Central Auditory Processing Disorders: Mostly Management.</u> Boston: Allyn & Bacon.

Appendix G
The Instructional Design Model.

Needs Analysis
Is training the
answer?

No

Use a different
performance
Inititive

Yes

ISD Model

E
V
A
L
U
A
T
I
O
N

Analysis

Design

Develop

Implement

ID Model
Build instructional
content and
context

The Various Parts of Instructional Design
Click on the parts for more information

Clark, R in Clark, D(2004) *ISD at Warp Speed – 2002*. Created May 21 2004. Retrieved June 12, 2005 from, http://www.nwlink.com/~donclark/history_isd/isdwarp.html