CHAPTER 3

SERVICE DELIVERY BY THE EDUCATIONAL AUDIOLOGIST

"…educational audiologists are no longer new creatures on the scene… their job first and foremost is advocating for the needs of individuals with hearing impairment within the educational setting" (adapted from English, 1995:ix).

3.1 INTRODUCTION

In the previous chapter, the role of the teacher of the child with hearing loss has been explained. Furthermore, areas in which the teacher may require support from the educational audiologist have been clarified. This chapter will attempt to clarify service delivery by the educational audiologist. Firstly, a brief overview of the evolvement of educational audiology will be provided followed by discussions on the inclusive service delivery system and the service delivery structure, roles, and responsibilities of the educational audiologist within the inclusive educational system. Based on this, a preliminary educational audiology model for use within the inclusive educational system will be presented.

One effective way of improving the quality of the learning environment of the child with hearing loss, is by investigating teachers' unique needs and challenges (English, 1995) and then addressing these needs as far as possible through the development of an educational audiology service delivery model for the inclusive educational system. According to Education White Paper no 6 (2001), teachers are the primary resource for achieving the goal of an inclusive educational system and will require support from specialists to address the barriers to learning. Furthermore, Salend (2001) cautions about the adequacy of teacher support services and teacher training that affects teachers' attitudes toward inclusion and that may ultimately impact on the

success of inclusion. The government acknowledges the important part that teachers' needs and skills play in the success of inclusion and stresses that *"… educators may need to improve their skills and knowledge, and develop new ones."* and furthermore proposes *"… ongoing assessment of educators' needs …"* (Education White Paper no 6, 2001:18). Therefore, addressing teachers' needs as far as possible through the development of an educational audiology service delivery model is in line with the proposal for the future development of teacher skills as well as the move toward enhanced teacher support within and inclusive educational system as set out in the Education White Paper no 6 (2001). The service delivery model discussed in this chapter will establish a framework from which the educational audiologist can attempt to address the needs of teachers in the inclusive educational system.

The educational audiologist can greatly contribute to the success of educating children with hearing loss by supporting teachers within the school domain (Johnson, Benson & Seaton, 1997). However, the educational audiologist can only provide appropriate support to teachers if an educational audiology model is in place to provide suitable guidelines for accountable service delivery (Johnson, Benson & Seaton, 1997). Currently, in South Africa, the educational audiologist mainly supports teachers of children with hearing loss in *special schools*. From clinical observation, it is clear that not all schools providing for children with special needs, including schools providing for children with hearing loss, have posts for educational audiologists. Furthermore, in some schools that do have posts for educational audiologists, these posts remain vacant for years due to the limited number of educational audiologists, whereas children with hearing loss in mainstream schools often rely on the services of a private audiologist (Pottas, 1998). The inclusive educational system will require the educational audiologist to support teachers to effectively educate children with hearing loss attending either a special school, full-service school or an ordinary school (Education White Paper no 6, 2001). Therefore, an educational audiology service delivery model in South Africa will have to embrace the differences of managing the child with hearing loss in different educational placements and consequently provide appropriate support to the teachers.

Based on this, the aim of this chapter will be to outline the service delivery structure, roles, and responsibilities of the educational audiologist. This outline will help to conceptualise a preliminary educational audiology model for use within the inclusive educational system and thus provide a framework of support to teachers of children with hearing loss. This preliminary model will be adapted and modified in chapter 6 in order to incorporate the findings from the empirical study.

3.2 THE EVOLVEMENT OF THE SPECIALIST FIELD OF EDUCATIONAL AUDIOLOGY

The global evolvement of educational audiology is scantily documented, primarily because in many countries this field is not necessarily regarded as a separate entity and an audiologist can be employed in the school setting without having received any specialised or expert training. Literature on the development of this field in the United States of America is more readily available, because this is where the term "educational audiology" first originated and it is here where an attempt was made to clearly differentiate between *clinical* audiology and *educational* audiology (Johnson, Benson & Seaton, 1997). According to Medwetsky (1994), one of the earliest uses of the term "educational audiologist" is found in a **1965** report by the American Joint Committee on Audiology and Education of the Deaf. A superintendent of a public residential school wrote the following complaint to the committee: *"Audiology has always been, and still is, too far removed from the classroom. The audiologist generally knows too little about educational methods and yet he prescribes to parents… He should be an* ***educational audiologist*** *and not a clinical audiologist"* (Medwetsky, 1994:503). The Joint Committee Conference discussed the superintendent's criticism, and the committee made the following suggestions (Medwetsky, 1994):

- audiologists require more training and exposure in the delivery of services to children with hearing loss;
- audiologist should be more involved in educational programs for children with hearing loss; and

- they should offer more teacher support services in schools.

These recommendations were the first step towards the specialisation of audiology services in schools.

The practise of educational audiology continued to grow in the United States during the **1970's**, mostly due to federal legislation mandating specific services for children with physical and sensory disabilities (Johnson, Benson & Seaton, 1997 and Tucker & Nolan, 1984). In the early 1970's, Berg and Fletcher defined the unique role of the audiologist in the school setting and developed a curriculum as part of a graduate training course for audiologists working within the educational setting (English, 1995). In the emerging years up to the early 1980's, audiologists in schools mostly applied the clinical audiology model in the educational setting (Berg, 1991). This model was not effective, because at the time, according to Blair and Berg (1982), children with hearing loss were in need of a specialist who could bridge the gap between audiology and education. Consequently, a need for additional knowledge and skills in this field of practice arose.

In **1984**, the specialisation of "educational audiology" was formalised in the United States with the establishment of the Educational Audiology Association (EAA). The aim of the EAA was to *"facilitate the delivery of a full spectrum of audiological services to children with auditory impairments in educational settings"* (Berg, 1991:305). Currently, the EAA is an international organisation that continues to promote the delivery of quality audiology services in schools as well as to encourage educational audiologists to keep up to date with the latest practises in educational audiology (EAA, 2002b).

In other countries, no formal distinction or level of specialisation is generally made between *clinical* audiologists and *educational* audiologists. As a rule of thumb, audiology students receive professional training, which includes, courses in intervention with the paediatric population, and some courses that include educational audiology practises. Thus, most countries deem their graduates competent to render services within a school setting without further

specialisation. In the **United Kingdom**, audiologists are based at National Health Services (NHS) were they mainly provide services to hospitals and clinics. In addition, they provide services to special schools and mainstream schools where needed (University of Manchester, 2002). In **Australia**, the government-funded organisation Australian Hearing, is contracted to provide hearing services for all children. The paediatric audiologists from Australian Hearing are based at centres and regularly visit schools that provide primarily for children with hearing loss as well as regular schools (Australian Hearing, 2002). In **Canada**, audiologists are employed in a variety of settings, which include schools providing for children with hearing loss, as well as regular schools. In some Canadian provinces, audiologists are based at a district level and routinely serve the respective schools in their province (Toronto Hearing Services, 2002). In the **Netherlands,** students can either qualify as *audiologists* or obtain a dual qualification in *audiology and logopedics*. Those who have qualified as *audiologists* are based at medical centres and clinics and sometimes routinely serve special schools and mainstream schools (Federatie van Nederlandse Audiologische Centra, 2002), whereas *audiologists/speech-language therapists* are employed either at special schools or at mainstream schools (Katholieke Universiteit Leuven, 2002). In **South Africa**, professional degrees in audiology and speech-language therapy is being presented as either a dual or single qualification at different universities. A limited number of audiologists/speech-language therapist are currently being employed at, inter alia, schools providing for children with special needs which include schools for children with hearing loss.

Although most countries do not refer to their audiologists working in school-settings as “educational audiologists”, unquestionably, a high level of specialisation is involved. These audiologists have to possess unique knowledge and skills in order to manage the school-going child’s audiological and educational needs (English, 1995).

Service delivery by the educational audiologist is far more specialised and extensive than conceptualised previously (English, 1995). Therefore, it is currently recognised in most countries that educational audiologists are

valued members of the educational team, and are vital stakeholders when improving the educational environment of children with hearing loss (English, 1995).

3.3 INTERNATIONAL MODELS OF EDUCATIONAL AUDIOLOGY SERVICE DELIVERY

Before the most suitable option for service delivery by the educational audiologist can be considered within the South African context, international literature on educational audiology service delivery systems should be examined. International literature on educational audiology service delivery systems will give a broad overview of what should be included in a South African system. Although a variety of systems or models for service delivery have been proposed by authors such as Allard and Golden (1991) and Blair (1991), these service delivery systems have been reduced to three main options by the authors Johnson, Benson and Seaton (1997), namely the school-based system, contractual agreement system, and a combination of the two systems. In a school-based system, the school employs a full-time educational audiologist (or more than one) to render services at the school. With a contractual agreement system, the school utilises a private audiologist from outside the school to render part-time services at the school. The last service delivery system is a combination of the first and second option, in which the school employs a full-time educational audiologist who receives part-time assistance from other private audiologists in order to render services at the school (Johnson, Benson & Seaton, 1997).

In order to determine the most suitable service delivery system for educational audiologists, the comprehensiveness and cost effectiveness of the services must be considered (ASHA, 1993). Adding to these two considerations, the needs of teachers with regard to educational audiology service delivery systems should also be taken into account. The needs of teachers with regard to educational audiology service delivery systems will be explored

during the empirical part of the study. A brief summary on the comprehensiveness and cost effectiveness of the three options will follow.

A school-based system is often more comprehensive than contracted services, because the in-house educational audiologist has continued and easy access to the children, well-established daily communication with teachers and other team members, as well as a greater personal investment in the school, due to his/her permanent employment at the school (Allard & Golden, 1991). On the other hand, the school-based system is usually more costly than other systems, because of greater financial implications related to salaries and fringe benefits of in-house educational audiologists as well as the purchase and maintenance of audiological equipment and materials (ASHA, 1993).

The contractual-agreement system may be less comprehensive, because contracts are mostly limited to the provision of audiological services with less emphasis on educational intervention (Johnson, Benson & Seaton, 1997). Private audiologists working for a contractual-agreement system tend also to have less exposure to educational audiology and are more inclined toward clinical audiological practises within the school system (ASHA, 1993). Contractual services are usually more cost-effective, because services are provided on a fee-for-service basis and the private audiologist is responsible for providing his/her own audiological equipment and materials (ASHA, 1993).

A combination of the school-based system and the contractual-agreement system may result in varying degrees between comprehensiveness and cost-effectiveness that depends on the unique variations within the system (Johnson, Benson & Seaton, 1997). When evaluating the comprehensiveness and cost effectiveness of the three service delivery systems it becomes clear that the more comprehensive a system is, the less cost effective the system appears to be. And the opposite also seems true, namely, the less comprehensive the system, the more cost effective the system appears to be.

However, the above-mentioned literature only describes the *placement options* of the educational audiologist and does not provide a comprehensive perspective on the service delivery model of the educational audiologist. It seems that only Berg (1991) attempted to provide an expanded educational audiology service delivery model. Berg (1991) proposed a schematic presentation of a more detailed educational audiology service delivery model by including aspects such a the educational audiologists direct intervention activities which included identification, diagnosis, amplification, et cetera. This model also depicted indirect activities such as the improvement of speech and language skills. However, Berg's model (1991) does not make provision for the various roles that the educational audiologist may fulfil on the educational team, such as that of service co-ordinator or family and community liaison. Furthermore, activities such as prevention and hearing conservation were not included. Finally, the classification of tasks included in direct intervention and indirect intervention is confusing, because it is generally difficult to determine where one ends and the other begins, as, in many cases, an activity can be interpreted as both (Johnson, Benson & Seaton, 1997).

With the discussion of international service delivery models serving as a background, service delivery by the educational audiologist in the South African inclusive educational system should now be considered.

3.4 SERVICE DELIVERY BY THE EDUCATIONAL AUDIOLOGIST IN THE SOUTH AFRICAN INCLUSIVE EDUCATIONAL SYSTEM

To date, no educational audiology service delivery models for the South African context have been implemented. One of the reasons may be that educational audiology is not seen in South Africa as separate from speech-language therapy and therefore the functions of an educational audiologist are included in general models that depict services delivered by the speech-language therapist. These models are not adequate in depicting the full range of services delivered by educational audiologists within the school setting.

The move toward the inclusive educational system implies that the South African educational audiologist is faced with an improved educational system that will undoubtedly benefit the child with hearing loss as well as his/her teacher. Benefits include that the unique educational needs of the child with hearing loss may be addressed by means of better skilled teachers and that professional assistance will be made available to teachers where needed (Education White Paper no 6, 2001). The inclusive educational system may also be better equipped to provide for all degrees of hearing loss, because the inclusive educational system will offer a range of educational placements varying from special schools/resource centres to full-service schools and ordinary schools (Education White Paper no 6, 2001). Children with hearing loss will be placed in these schools according to their unique level of learning needs, ranging from high-intensive educational support through to low-intensive educational support. The better dispensation of financial and human resources as well as the provision for the unique educational needs of the child with hearing loss will favour the delivery of support services by an educational audiologist.

It must also be recognised, at this stage, that the educational audiologist's delivery of services extends beyond exclusively providing for children with hearing loss, but includes children with auditory processing deficits; and children with hearing loss with additional disabilities such as visual, cognitive and/or physical disabilities (Johnson, Benson & Seaton, 1997). The education of children with multiple disabilities create additional challenges for teachers, and educational audiologists are well equipped to assist teachers in overcoming these children's barriers to learning (Johnson, Benson & Seaton, 1997). Furthermore, it must also be stated that the educational audiologist should involve, apart from the school team, the child's caregivers, family and community in order to render comprehensive and accountable educational audiology services (Johnson, Benson & Seaton, 1997).

The educational audiologist will have to redefine his/her traditional role of service delivery in order to render appropriate and quality services within the inclusive educational system.

Within the envisioned inclusive educational system, the following questions therefore arise:

- Where will the educational audiologist be posted? (i.e. service delivery structure);
- In which capacity will the educational audiologist function? (i.e. roles); and
- What duties will the educational audiologist perform? (i.e. responsibilities).

Thus, a new model for service delivery should be developed for the educational audiologist. A preliminary model should be based on answering these three questions.

3.4.1 Where will the educational audiologist be posted?

The *structure* of service delivery depends on the government's distribution of posts for educational audiologists. The White Paper on Education has not yet clarified the distribution of posts of professional support personnel such as educational audiologists, but an attempt will be made to speculate on the best placement of the educational audiologist within the inclusive educational system. The educational audiologist can either be stationed at a special school/resource centre, and/or full-service school and/or ordinary school. Indications to the placement of educational audiologists can be found in Education White Paper no 6 (2001:39) which states that: *"… it makes sense for specialist educators not to be based at each school, but at the district level to be drawn upon by each school as required"*. It seems likely that educational audiologists will primarily be posted at special schools/resource centres and render services to full-service schools and ordinary schools as deemed necessary. Providing services in this way will rely heavily on the training of teachers in order to make the immense caseload of the educational audiologist more manageable (Johnson, Benson & Seaton, 1997). A discussion on the training of teachers will follow in section 3.4.3.4.

Whether a school-based system, contractual agreement system, or a combination of the two systems will be the most appropriate will be

determined by future policy resolutions as well as by exploring teachers' specific needs for such services. However, an attempt should be made to speculate on what service delivery system will be the most suitable for the South African context.

Currently, educational audiologists are faced with the unique challenges of the South African context. Firstly, a lack of financial and human resources within the educational system (Hall & Engelbrecht, 1999; Steyn, 2000) makes it an extremely difficult task to render quality services to the large numbers that require educational audiology intervention. Over and above the overcrowding of learners in classrooms (Education White Paper no 6, 2001), only a limited number of schools have full-time posts for speech-language therapists/audiologists, thereby creating an unfavourable scenario for adequate service delivery. Educational audiologists in South Africa often have an extensive caseload that makes effective service delivery an unattainable goal. Furthermore, the lack of financial resources causes the limited provision of amplification devices such as FM systems and hearing aids (Penn & Reagan, 1995). Therefore, educational audiologists often have to rely on donations from private institutions to provide children with these much-needed devices and sometimes the unfortunate has to do without. The vast physical distances between neighbouring schools and a lack of proper infrastructure (Reeves, 1994) also prevents South African educational audiologists from delivering services to all schools in need of educational audiology intervention.

Fortunately, the documentation on educational policy acknowledges the past educational system's challenges with regard to financial resources, human resources, classroom overcrowding and the lack of professional support services and aims to address these obstacles in the inclusive educational system (Education White Paper no 6, 2001). Government proclamation proposes the development of more appropriate funding strategies that will first and foremost target areas such as an increase in human resources which will include teachers, as well as professional support personnel such as educational audiologists (Education White Paper no 6, 2001). Special

mention is made of funds allocated for the provision of assistive devices such as hearing aids to all learners who cannot gain access to learning without these devices (Education White Paper no 6, 2001). The inclusion of a greater number of learners into full-service schools is also planned, so as to achieve a more natural geographical distribution of learners with disabilities, resulting in a more efficient system with respect to the utilisation of both limited financial resources and professional support services (Education White Paper no 6, 2001). In addition, Education White Paper declares that *"… the key to reducing barriers to learning within all education and training lies in a strengthened education support service"* (Education White Paper no 6, 2001:28). It seems therefore that professional support personnel such as the educational audiologist is valued and decisions made will therefore be committed to addressing the challenge of limited professional support personnel that characterise the past educational system.

In Figure 3.1 below, suggestions are provided as to where the educational audiologist will be posted in the inclusive educational system.

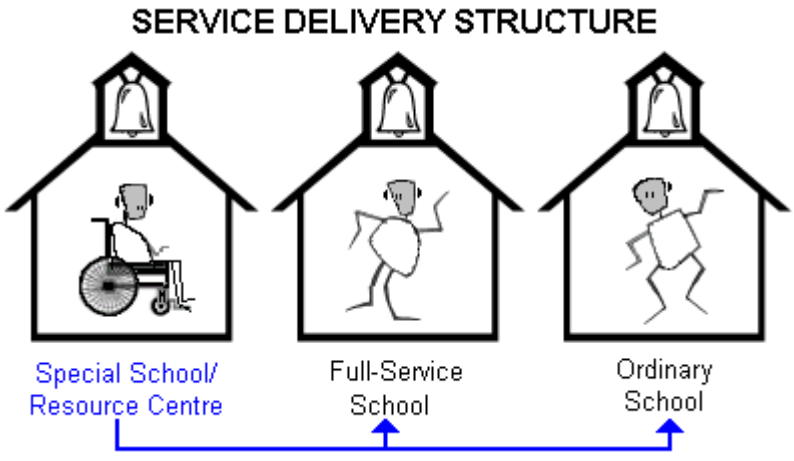

Figure 3.1: The service delivery structure of the educational audiologist

In Figure 3.1 an outline is provided of where the educational audiologist will be posted in the inclusive educational system.

Two suggestions for the South African context:

(a) Employment of educational audiologists at central establishments such as special schools/resource centres, so that the educational audiologist will be centrally located and able to render services at the respective school as well as to neighbouring full-service schools and ordinary schools when needed.

This will overcome challenges such as the lack of availability of educational audiologists in South Africa (Pottas, 1998), and the lack of financial resources within the educational system (Hall & Engelbrecht, 1999; Steyn, 2000).

This solution complies with guidelines proposed in the Education White Paper no 6 (2001).

(b) In addition, following a combination of the school-based system and the contractual-agreement system in the inclusive educational system.

The combination system will ensure a healthy balance between comprehensiveness and cost-effectiveness of services (Johnson, Benson & Seaton, 1997).

The combination system allows for outside audiologists to support the school-based audiologists in terms of selection and fitting of amplification devices as the school-based audiologist in South Africa mostly do not have access to the full range of technological resources due to financial constraints within the educational system.

Suggestions have been made as to where the educational audiologist will be posted. This discussion will be followed by the role of the educational audiologist within the service delivery system.

3.4.2 In which capacity will the educational audiologist function?

In order to determine in which capacity the educational audiologist will function, the *role* of the educational audiologist within the inclusive educational system should first be explored.

Regardless of the service delivery structure selected for inclusive education, it is critical to bear in mind that the primary aim of an educational audiology service delivery model is to provide an optimal education through direct audiological services the child with hearing loss and, most importantly, indirectly through support services to the child's school team, caregivers and family (EAA, 2002c). Literature states that, in addition to performing audiological services, the educational audiologist should serve on the team at various times, in any or all of the following roles, namely as service co-ordinator, instructional team member, consultant, supervisor, as well as family and community liaison (EAA, 2002b; English, 1995; Johnson, Benson & Seaton, 1997).

These different roles of the educational audiologist can metaphorically be regarded as different "hats" that the educational audiologist may wear depending on the different roles that he/she fulfils on the educational team (see Figure 3.2). For instance, when other team members look to the educational audiologist for guidance and leadership, the educational audiologist may wear the "hat" of service co-ordinator and when team members function independently from each other, the educational audiologist may wear the "hat" of consultant.

It is clear, therefore, that the role of the educational audiologist may vary depending on the participation and availability of other support personnel within the educational system (Johnson, Benson & Seaton, 1997). What is certain is that the educational audiologist should work in a team with other personnel such as psychologists, speech-language therapists, occupational therapists, school nurses and teachers in order to render a comprehensive and integrated service to children with hearing loss (English, 1995).

These roles will briefly be discussed with regard to their relevance within the inclusive educational system.

3.4.2.1 The educational audiologist as a service co-ordinator

The role of a service co-ordinator implies communication and co-ordination with other team members in order to establish effective collaboration that will aim to address the needs of children with hearing loss. The service co-ordinator is primarily responsible for monitoring and co-ordinating the educational programme of the child (Johnson, Benson, & Seaton, 1997). The co-ordinator should share the proposed intervention plan with the child's caregivers and family and should involve them in the decision making process throughout the child's school career (Johnson, Benson, & Seaton, 1997).

The educational audiologist is uniquely skilled in managing the effects of hearing loss on the child's educational development. The educational audiologist has expertise in hearing loss and the effect thereof on the child's: auditory skills, language skills, speech acquisition, communication skills, literacy skills, academic achievement, and psychosocial development (ASHA, 1993; English, 1995; Jamieson, 1994; Johnson, Benson, & Seaton, 1997). Consequently, the educational audiologist is highly competent to act as the service co-ordinator of the team in order to oversee that the audiological and educational needs of children with hearing loss are met (English, 1995). Furthermore, according to Ross (1982), the educational audiologist has broad enough training in order to serve as an information conduit and synthesiser on the team of the child with hearing loss, and is therefore the most appropriate member to co-ordinate the educational team of the child with hearing loss.

According to Johnson, Benson and Seaton (1997), one of the tasks of a service co-ordinator is to ensure that teachers and other support personnel are sufficiently prepared and informed in order to work with the child with hearing loss. This may be a crucial role to fulfil in the inclusive educational system in South Africa, because children with hearing loss have unique educational considerations and may present overwhelming challenges to teachers who have no prior experience in the education of children with hearing loss (English, 1995). Insufficient teacher training in South Africa for teachers providing for children with hearing loss (Pottas, 1988), may also

warrant that the educational audiologist act as service co-ordinators of teams serving children with hearing loss. Therefore, educational audiologists should assist teachers in identifying the audiological and educational needs of children in the classroom and determine and co-ordinate the support services required by children with hearing loss (English, 1995). Traditionally, caregivers and family members of children with hearing loss in South Africa were not involved as part of the child's intervention team, therefore the educational audiologist will have to ensure that the child's caregivers and family members are actively involved in intervention efforts made by the team (English, 1995). Another significant task of the service co-ordinator is to evaluate each child's educational placement and to make recommendations for placement changes as required (Johnson, Benson & Seaton, 1997). The *correct* placement of children with hearing loss in either special schools/resource centres, full-service schools, or ordinary schools will certainly form the backbone of a successful inclusive education. The educational audiologist has expertise in assessing the most appropriate educational placement option for the child with hearing loss and re-evaluating the placement of the child in order for the child to maximally benefit from the educational environment (EAA, 2002b; English, 1995; Johnson, Benson & Seaton, 1997). The educational audiologist is trained to educate the child's caregivers and family as to the consequences of these various placement options and will help the child's significant others to provide support to the child in his/her educational environment, thereby ensuring that the child maximally benefits from all educational efforts (Johnson, Benson & Seaton, 1997).

From current observations within the South African context, it seems that the psychologist and in some cases the social worker, generally fulfils the role of service co-ordinator at special schools, mainly due to their expertise in child development, especially in areas related to cognition. It is unclear who will continue to fulfil the role of service co-ordinators on teams in the inclusive educational system. Most likely, the psychologist will continue to play this role. However, if the educational audiologist does not function as the service co-ordinator, it should not be seen that he/she has a diminished role on the

team, because the educational audiologist has a vital contribution to make towards team interventions, regardless of his/her specific role on the team (English, 1995). However, when the need arises, the educational audiologist will have the appropriate knowledge and skills in order to function as a service co-ordinator on the educational team of the child with hearing loss.

3.4.2.2 The educational audiologist as instructional team member

When teachers, other support personnel, caregivers, and family members require training and information exchange with regard to the audiological and educational management of the child with hearing loss, the educational audiologist has to fulfil the role of instructional team member (Johnson, Benson & Seaton, 1997).

Educational audiologists have, because of the specific nature of their profession, expertise in equipping the team with knowledge and skills in order to provide the best opportunities for learning to children with hearing loss through educational and audiological intervention (English, 1995).

The educational audiologist as instructional team member will typically provide routine in-service training by means of workshops, information sessions, in-class demonstrations, and home-visits. Themes for in-service training that the educational audiologist often may include are: ways to improve classroom acoustics, maintenance of amplification devices, et cetera (Johnson, Benson & Seaton, 1997). Another task of the educational audiologist as instructional team member is to promote and advocate the services provided by the educational audiologist that will benefit the educational development of children with hearing loss (Johnson, Benson & Seaton, 1997). In addition, the educational audiologist will train the caregivers and the family of the child to appropriately manage the child with hearing loss at home in order to ensure that the child benefits from stimulation provided in the home environment, that will, in turn, favour the child's performance within the school environment (English, 1995). According to Anderson (2002), caregiver instruction and

involvement are the “magic” ingredients for producing successful outcomes in children with hearing loss.

In South Africa, the roles and responsibilities of the educational audiologist are not commonly known among teachers (Pottas, 1988) and even among caregivers. Therefore, educational audiologists should acquaint teachers and caregivers with the benefits of their skills and knowledge for the child with hearing loss in the inclusive educational system. If teachers and caregivers are made aware of the advantages of collaborating with the educational audiologist, the child will be able to receive adequate support in order to benefit from educational efforts (English, 1995).

Expanded discussions on the educational audiologist’s responsibilities with regard to teacher training will be explored later in section 3.4.3.4. An overview of the educational audiologist as consultant will follow.

3.4.2.3 The educational audiologist as consultant

An educational audiology consultant attempts to provide direct or indirect support to the educational team in order to address a specific child’s unique audiological and educational needs (Johnson, Benson & Seaton, 1997), and as such is functioning as a consultant.

The educational audiologist has the theoretical background and practical skill in managing the child with hearing loss in order to assist the teacher in finding solutions to the child’s educational or audiological challenges (English, 1995).

Teachers of children with hearing loss can benefit from consultation services, because they often require the educational audiologist’s direct or indirect support to address a specific child’s unique audiological and educational needs that may arise in the classroom from time-to-time, such as (Johnson, Benson & Seaton, 1997):

- information on a specific child's hearing sensitivity or auditory processing ability;
- suggested activities for improving a specific child's listening skills;
- assistance with the use of a specific child's amplification devices; and
- problem-solving when a specific child experiences barriers to learning due to his/her hearing loss.

The educational audiologist as consultant on the team, will therefore try to address the needs of teachers as they arise in the classroom.

From practical observation, educational audiologists often fulfil the role of consultants within the child's intervention team. According to Education White Paper no 6 (2001:41), professional support personnel, such as educational audiologists, may be utilised to *"… provide direct intervention programmes to learners in a range of settings, and/or serve as consultant-mentors …"*.

The educational audiologist's role of consultant will continue to exist in the inclusive educational system, and will be critical, because the current transition to an inclusive educational system will surely present challenges to teachers and they may require support from an expert to manage children with hearing loss.

3.4.2.4 The educational audiologist as supervisor

An educational audiologist fulfilling the role of supervisor ensures that audiological activities are performed accurately and that the child receives quality services within the school setting (English, 1995).

Due to the educational audiologist's specialisation in the rendering of audiological activities, it would only be fitting that they oversee personnel performing these duties (English, 1995).

Depending on the particular work description, the educational audiologist may be expected to supervise other support personnel when they render

audiological activities (English, 1995). Currently it seems that educational audiologist in South Africa mainly supervise teachers who perform trouble-shooting of amplification devices and in some cases when teachers or school-nurses perform middle-ear evaluations.

According to Education White Paper no 6 (2001), professional support personnel will be utilised to train other team members to perform new tasks, and to supervise these persons at intervals, to ensure that they are performed adequately. Due to South African challenges mentioned, educational audiologists have large caseloads, which hinder effective service delivery. A possible solution to this challenge would be the utilisation of teachers to perform certain audiological activities under supervision (Johnson, Benson & Seaton, 1997). Hearing-conservation programmes is an example of an activity that can be performed by teachers under the supervision of the educational audiologist (Johnson, Benson & Seaton, 1997). However, the unique situation in South Africa and the ever-increasing challenges that face teachers must not be overlooked. Currently teachers are expected to fulfil many additional duties such as information distribution and counselling of learners on HIV/AIDS; vocational preparation; and the adaptation of curriculum content to reach the aims of outcomes based education (Education White Paper no 6, 2001). The educational audiologist must therefore carefully consider ways in which the teacher can incorporate certain audiological activities within his/her daily classroom activities without causing unnecessary strain on the teacher (English, 1995). The educational audiologist as supervisor has an important role to fulfil in the expansion of educational audiology services by means of the utilisation of teachers as human resources (English, 1995).

The next role presented is that of the educational audiologist as family and community liaison on the team.

3.4.2.5 The educational audiologist as family and community liaison

The family and community liaison agent considers the child as a unique human being within his/her social context, and therefore links the child's significant others to the educational team, in order to ensure the applicability of the child's intervention programme, thereby increasing the success of outcomes (Johnson, Benson & Seaton, 1997).

The educational audiologist is trained to facilitate a network of communication to ensure that all professionals, family members and other community members work together for the benefit of the child with hearing loss (English, 1995).

In South Africa, the educational audiologist is often faced with a lack of parental involvement and caregiver involvement. Due to urbanisation, many parents are forced to work in far-off cities, and therefore, caregivers raise their children, instead of the parents themselves (Van der Westhuizen & Mosoge, 2001). These parents are consequently unable to fully participate in their child's intervention plan and caregivers have to assume this role. Unfortunately, the child's caregivers and community were not involved in the past as part of the intervention team of the child with hearing loss. This lack of family and community involvement can be attributed to, inter alia, professionals who in the past tended to involve parents only, and excluded other caregivers, as this did not comply with their traditional "Western practice" to consider persons other than the child's parents (Reeves, 1994). Furthermore, unfavourable geographical distribution of schools in the past created vast physical distances between schools and caregivers' homes which made contact with professionals too cumbersome (Reeves, 1994). In addition, poor infrastructure and lack of transport aggravates the lack of contact between caregiver and families, and schools (Van der Westhuizen & Mosoge, 2001).

Thus the educational audiologist may have to include individuals within the child's community, which, within a South African context, could include: the

caregivers, immediate family, extended family, traditional healers, social service providers, church fraternity and the Deaf Community. According to a South African study, which correlates with findings elsewhere, persons with hearing loss who mainly communicate by means of Sign Language have an extensive network of social organisations which includes local Deaf clubs, sport associations and theatres for the Deaf (Ram, 1998). Through socialisation, the Deaf community in South Africa forms a cohesive and supportive unit (Ram, 1998). Realising this, the educational audiologist can play an important part in a more comprehensive education of the child with hearing loss.

The educational audiologist as liaison, has the task of establishing channels for communication between the child's caregivers and the relevant community members and the educational team (English, 1995). The child's caregivers as well as the community should be involved in the child's educational well-being through information exchange, training, and support (English, 1995).

In Figure 3.2 below, suggestions are provided regarding the capacity in which the educational audiologist will function in the inclusive educational system.

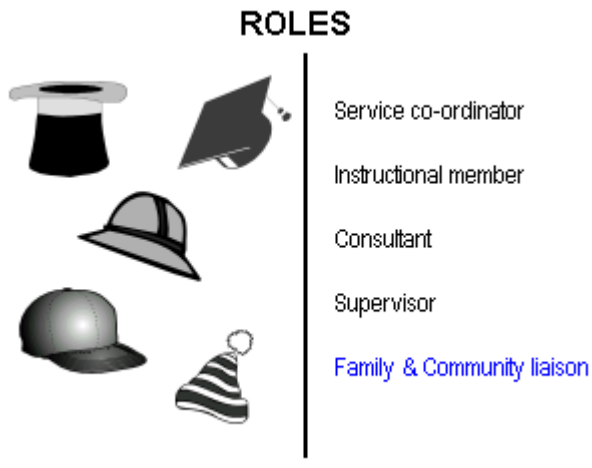

Figure 3.2: Roles of the educational audiologist

In Figure 3.2, an outline of the roles of the educational audiologist in the inclusive educational system is provided.

Two suggestions for the South African context:

(a) The educational audiologist in South Africa should first and foremost fulfil the role of family and community liaison.

This role is inevitable during service delivery in the South African context, because poor and inadequate communication channels existed in the past between the educational audiologist and the child's significant others, and this caused unsatisfactory intervention outcomes and feelings of distrust between professionals and caregivers (Reeves, 1994).

(b) However, different roles should be fulfilled at any given time, because of the great diversity that exists between rural and urban schools, as well as among schools from within the same districts. This results in different schools having different needs related to the level of team member involvement. The availability of team members may also vary among schools.

Whether the educational audiologist in the inclusive educational system functions as a service co-ordinator, instructional team member, consultant, supervisor, or as a family and community liaison, the educational audiologist remains an essential member that brings unique skills and knowledge to the educational team, thus ensuring the optimal development of the child's educational abilities (EAA, 2002b; English, 1995; Johnson, Benson & Seaton, 1997). An outline of the roles of the educational audiologist is presented in Figure 3.2.

The successive discussion of the responsibilities of the educational audiologist will shed more light on the specific duties that the educational audiologist is likely perform within the inclusive educational system.

3.4.3 What duties will the educational audiologist perform?

In order to investigate the duties of the educational audiologist, the *responsibilities* of the educational audiologist within the inclusive educational system should be explored.

The educational audiologist's responsibilities within the South African context were conceptualised from various literature sources. These responsibilities will be discussed in terms of the delivery of services within the inclusive educational system.

The responsibilities of the educational audiologist continues to evolve and mature in response to influences such as technological advancements, changing educational trends and evolving government policy (EAA, 2002c). The most recent guidelines for audiology services in schools as proposed by the American Speech-Language-Hearing Association (ASHA, 1993) was an important resource for identifying some of the responsibilities of the educational audiologist. The responsibilities identified from literature sources were adapted and re-categorised, in order to make clear the responsibilities of the educational audiologist within the inclusive educational system (See Figure 3.3). The seven identified responsibilities of the educational audiologist are prevention and conservation, assessment, habilitation and amplification, education and training, assistance and support, monitoring and follow-up, and evaluation and research (ASHA, 1993; EAA, 2002b; EAA, 2002d; English, 1995; Johnson, Benson & Seaton, 1997). Each responsibility will be discussed in terms of its relevance to the inclusive educational system.

Prevention and conservation forms the foundation of the educational audiologist's responsibilities and will be the first responsibility to be explored.

3.4.3.1 Responsibility #1: Prevention and conservation

The educational audiologist is the most knowledgeable team member to educate teachers and caregivers on the prevention of hearing loss and the conservation of hearing, and consequently have a vital responsibility in the audiological well-being of the child with hearing loss (English, 1995; Johnson, Benson & Seaton, 1997).

Prevention entails three components, namely primary, secondary and tertiary prevention (ASHA, 1991; Gerber, 1990). Primary intervention implies

measures to avoid the occurrence of hearing loss taken in such a way that a reduction in the prevalence of persons with hearing loss becomes noticeable (Gerber, 1990). Secondary prevention involves obstructing the development of hearing disability by means of early identification and treatment of the person with hearing loss (ASHA, 1991). Tertiary prevention entails impeding the progress of an established hearing disability by appropriate treatment (ASHA, 1991).

Hearing conservation refers to any initiative or programme that aims to educate teachers, other team members, school-going children, caregivers and communities about hearing loss and ways to prevent hearing loss (Johnson, Benson & Seaton, 1997). Hearing conservation can be executed across all three components of prevention.

Hearing loss effects approximately 10% of the total South African population (DEAFSA, 1996), yet hearing loss is, in many cases, either preventable or curable through relatively cost-effective methods (DEAFSA, 2002). Worldwide the focus in Health and Health related services falls primarily on the *prevention* of diseases and disabilities (WHO, 1995). In 1997, the South African government adopted the Primary Health Care (PHC) approach and has since been dedicated to the prevention of diseases and disabilities, which inter alia, include the prevention of hearing loss (Health White Paper, 1997).

Surprisingly, a literature search revealed that little mention is made of *primary prevention* of hearing loss in the field of educational audiology. Unquestionably, educational audiologists have a responsibility to contribute to the reduction of the prevalence of hearing loss among school-going children. Educational audiologists are able to and should, contribute to primary prevention of hearing loss, due to their expertise in the etiology of hearing loss and their knowledge of hearing-conservation programmes that target primary prevention.

However, the educational audiologist is mainly involved with school-going children and do not necessarily have contact with parents-to-be, such as the

audiologist who is based within the Health sector. Nevertheless, the educational audiologist may even have a contribution to make in the pre-natal prevention of hearing loss, because the educational audiologist has contact with school personnel, parents and caregivers and caregivers who at some stage in their lives may decide to have children. The educational audiologist can therefore provide information on the pre-natal prevention of hearing loss to school personnel as well as parents at the school.

It may be especially important to target parents at the school during primary prevention, because, as literature indicates, hereditary hearing loss is one of the identified risk factors for hearing loss (Joint Committee on Infant Hearing, 1994). Parents who already have children with hearing loss should be informed of the potential risk of giving birth to another child with hearing loss. In cases where their school-going child's hearing loss could have been avoided through either favourable conditions or by avoiding damaging agents, the educational audiologist too has an important role to educate caregivers in order to avoid similar conditions for other siblings in the family.

The primary prevention of otitis media induced hearing loss will also form part of the educational audiologist's responsibility (Johnson, Benson & Seaton, 1997). Middle ear infection is one of the most prevalent diseases among school-going children and can result in temporary or even permanent hearing loss (English, 1995).

Other agents that may damage hearing and that may be hindered through information exchange and direct intervention by the educational audiologist include noise-induced hearing loss, ototoxic induced hearing loss, physical trauma to the auditory mechanism, and hearing loss caused by childhood diseases (Hall & Mueller, 1997).

The educational audiologist can achieve *secondary prevention* through early identification of hearing loss and appropriate early intervention for the child with a recently acquired hearing loss (ASHA, 1991). Undetected hearing loss can have detrimental consequences for the school-going child (EAA, 2002b).

The child with hearing loss who has not been identified will not receive the appropriate audiological intervention in order to benefit from, inter alia, educational attempts (English, 1995; Johnson, Benson & Seaton, 1997). Minimising the handicapping effects of hearing loss depends upon early identification of the child and upon prompt subsequent intervention (ASHA, 1993). Although the importance and value of early identification of hearing loss among children is emphasised in the literature (Yoshinago-Itano, 2000), universal hearing-screening programmes among infants in South Africa have not been adopted, mainly due to financial constraints within the Health Sector (Swart, 1995; DEAFSA, 2002). Consequently, some children with hearing loss are unidentified and may only be identified once they enter the school system.

Furthermore, a high incidence of conductive hearing loss due to otitis media is also prevalent among school-going children in South Africa (DEAFSA, 1996) and must be identified at an early onset, as it can further damage the residual hearing of the child with hearing loss and can negatively affect his/her academic performance (English, 1995; Johnson, Benson & Seaton, 1997). The early identification and treatment of otitis media induced hearing loss is an ongoing responsibility of the educational audiologist, and the "prevention of hearing loss due to otitis media project" is a programme specifically launched by the South African PHC system (Department of Health, 2002b).

The South African PHC system advocates the *early* identification of hearing loss, which suggests shortly after birth, in the case of a congenital loss, or as soon as possible after the onset of the hearing loss, in the case of an acquired loss (Health White Paper, 1997).

The Education White Paper no 6 (2001) supports the identification of hearing loss at schools in the inclusive educational system. Therefore, the educational audiologist will, as a valued member of the educational team, have the responsibility of detecting hearing loss among school-going children in order to ensure the correct management of the child in terms of medical and audiological intervention, correct educational placement, parent and

caregiver counseling, and training of team members involved with the child (English, 1995; Johnson, Benson & Seaton, 1997). The educational audiologist may provide direct screening services to identify hearing loss together with a supervised hearing-screening programme conducted by the teachers themselves (Johnson, Benson & Seaton, 1997). A hearing-screening programme may consist of checklists completed by teachers for each child, incorporating at-risk registers in order to identify children who may have hearing loss (Johnson, Benson & Seaton, 1997). However, the educational audiologist should bear in mind that a study among South African teachers revealed that teachers were not accurate in identifying children with hearing loss and therefore require more information and training in the use of screening checklists (Chambers & Anderson, 1997). In order to initiate an effective hearing-screening programme, the educational audiologist should develop appropriate channels of communication and referral between learners, teachers, caregivers, families and support personnel (ASHA, 1993). Another task that will most probably face the educational audiologist in the inclusive educational system is the development of a *systematic* hearing-screening programme which will allow for periodic screening and in-place follow-up procedures (ASHA, 1993).

Prompt intervention is required once a child is identified with a hearing loss and the educational audiologist should involve the team in the child's audiological management (Johnson, Benson & Seaton, 1997). The maximal development of the child's residual hearing is an important part of secondary prevention and involves: the provision of appropriate amplification devices and the education and training of teachers, caregivers and family in order to ensure that the child continually optimises his/her auditory abilities (Johnson, Benson & Seaton, 1997).

Literature regards *tertiary prevention* as the main responsibility of the educational audiologist when embarking on the prevention of hearing loss (English, 1995; Johnson, Benson & Seaton, 1997; Kenworthy, 1993). The educational audiologist therefore has the responsibility of ensuring the

protection of the child's residual hearing in order to hinder its deterioration (English, 1995).

A review of literature regarding hearing-conservation programmes for children revealed the sole emphasis on the tertiary prevention of *noise-induced* hearing loss (Anderson, 1991; ASHA, 1993; Benett & English, 1999; Bess & McConnell, 1981; Bunch, 1987; EAA, 2002b; English, 1995; Flexer, 1993; Johnson, Benson & Seaton, 1997). However, it is felt that many other aspects are essential to include in hearing-conservation programmes. Therefore the focus on noise-induced hearing loss, for the purposes of this discussion, seem to be too narrow. The tertiary prevention of hearing loss should, apart from (a) noise-induced hearing loss, surely include aspects such as: (b) appropriate amplification; (c) good ear habits and proper ear hygiene; and the (d) effective management of otitis media. These aspects will therefore be included in the educational audiologist's responsibility toward tertiary prevention of hearing loss.

(a) Noise-induced hearing loss

Information should be provided on what harmful noise exposure is and the prevention thereof (Benett & English, 1999). According to international literature on noise-induced hearing loss among school-going children, noise-induced hearing loss is on the increase, due to more frequent exposure to fire crackers, loud music, loud computer games, and noisy classroom environments (Benett & English, 1999). Vocational training in schools may also provide harmful noise environments to children, such as the noise levels created during woodwork and metalwork lessons (English, 1995). The educational audiologist can evaluate classroom noise levels, especially in technical classes, such as woodwork and metalwork, in order to prevent noise-induced hearing loss (English, 1995).

(b) Appropriate amplification

Appropriate amplification is imperative in the conservation of hearing. Too little amplification can result in the gradual sensory deprivation of hearing abilities and overamplification can result in the damaging of the auditory mechanism

(Bentler, 1993). The educational audiologist should evaluate the appropriateness of amplification by using certain audiometric procedures as well as questionnaires and inventories, that are periodically completed by the child, the teacher and significant others (Bentler, 1993).

(c) Good ear habits and proper ear hygiene

Good ear habits and proper ear hygiene are aspects that are included because they are particularly relevant to the South African context, and some of these aspects are endorsed by the PHC system. Bad ear habits may include the use of ototoxic medications, and the insertion of foreign objects in the ear canal. Improper ear hygiene may include the overcleaning of earcanals with strong chemicals, or the insertion of herbal remedies. Good ear habits and proper ear hygiene should be promoted, because a great percentage of South African school-going children live in poverty (Kamper, 2001) and it can be speculated that conditions associated with poverty such as lack of water, unhealthy environmental conditions and uneducated caregivers may negatively influence the child's approach to good ear habits and proper ear hygiene.

(d) Effective management of otitis media

The prevention and appropriate treatment of otitis media have been discussed in this section. It is important that the educational audiologist educate the child with hearing loss, as well as all other team members, on the prevention and identification of otitis media as well as indicate the appropriate channels for medical referral (Johnson, Benson & Seaton, 1997).

Hearing conservation is a valuable tool for all three components of prevention, namely primary, secondary, and tertiary prevention. Hearing conservation can be achieved by educating the school-going children themselves, and by training teachers, other team members, caregivers, families and communities.

The assessment of school-going children's hearing is the next responsibility that results from identifying children with hearing loss, and will be explored next.

3.4.3.2 Responsibility #2: Assessment

The assessment of hearing loss among school-going children is essential in order to provide information concerning the nature and extent of hearing loss and its effect upon the child's auditory abilities, language skills, speech production skills, communication abilities, literacy skills, academic achievement and the child's psychosocial well-being (ASHA, 1993; English, 1995; Johnson, Benson & Seaton, 1997). Children who fail screening activities and those with known hearing loss should receive comprehensive ongoing audiological assessment in order for appropriate treatment to be planned (EAA, 2002b). According to Education White Paper no 6 (2001), the inclusive educational system will follow a learner-centred approach which recognises that determining learners' barriers to learning involves the assessment of all developmental areas, which include hearing ability. Thus, the assessment of school-going children's hearing in order to determine whether their hearing may be a barrier to learning, and the impact thereof on the ability to be educated, complies with the policy for an inclusive educational system.

The provision of comprehensive audiological assessments, including the evaluation of central auditory functioning, is another responsibility routinely assumed by the educational audiologist (EAA, 2002b). The aim of hearing assessment by the educational audiologist includes determination of the presence of a hearing loss and/or central auditory processing disorder; monitoring of changes in hearing sensitivity; determination of the educational effects of a hearing loss and/or central auditory processing disorder; determination of the need for speech, language, auditory processing, and/or hearing therapy; determination of the need for personal and classroom amplification; and monitoring the benefit from therapy and amplification devices (Johnson, Benson & Seaton, 1997). The educational audiologist in the inclusive educational system should integrate audiological results with the results of other team members, especially the classroom teacher, in order to provide information that will benefit the child's educational growth (Johnson, Benson & Seaton, 1997).

The caregivers, family and community of the child with hearing loss should also be involved during assessment procedures, in order to obtain a complete representation of the child's strengths and weaknesses across all social contexts (English, 1995).

After the child has been assessed, the educational audiologist will embark on the relevant habilitation and amplification strategies as required by the child to benefit from the educational attempts of the teacher.

3.4.3.3 Responsibility #3: Habilitation and amplification

Audiological habilitation services and amplification devices should be provided for all school-going children in need thereof, as part of an attempt to render accountable health and educational services (Crandell & Smaldino, 2000; EAA, 2002b). Information obtained from audiological assessments as well as evaluations conducted by other team members should be incorporated to plan for effective habilitation services and appropriate amplification devices (ASHA, 1993). The provision of habilitation services and amplification devices should be tailored to meet the needs of the child and the caregivers, and should address the educational challenges of the child (EAA, 2002b).

The educational audiologist has a major responsibility in the provision of the school-going child's habilitation services and amplification devices (ASHA, 1993; EAA, 2002b). In literature, the primary purpose of the educational audiologist being involved in habilitation of hearing loss, is to facilitate the maximum use of auditory input during the learning process (Johnson, Benson & Seaton, 1997). In addition, because the educational audiologist in South Africa is dually qualified, the responsibility of addressing speech, language and communication difficulties also forms an important part of the habilitation process. Habilitation should therefore include training the child in the effective use of his/her hearing, which may include auditory therapy and the modification of the child's acoustic environment (EAA, 2002b). Other habilitation services provided by the educational audiologist include instruction in speech-reading, listening skills, communication strategies, self-

management of hearing needs (Johnson, Benson & Seaton, 1997), and the development of speech, language and communication skills. The educational audiologist should also involve other team members, especially teachers, to be aware of the habilitation goals of each child, and to contribute to the child's intervention programme in the classroom wherever possible (English, 1995; Johnson, Benson & Seaton, 1997). The child's caregivers and family should also be enabled to play an active role in taking care of the child's personal amplification devices, and they should be part of executing the goals of the habilitation plan (Johnson, Benson & Seaton, 1997).

According to Education White Paper no 6 (2001), assistive devices, such as amplification devices will be made accessible and available to all school-going children in need thereof. Merely providing a device to a child with hearing loss without having proper knowledge and skills in the provision of paediatric amplification may be harmful to the child's auditory mechanism or may not benefit the child at all (Bentler, 1993). Clearly, the provision of appropriate amplification devices is a highly specialised field and therefore is a responsibility of the educational audiologist (ASHA, 1993; EAA, 2002b). The provision of appropriate amplification devices will include the selection of an appropriate device, training in the effective use thereof, as well as monitoring the functioning of the device itself (EAA, 2002b; Johnson, Benson & Seaton, 1997). Such responsibility will entail for the educational audiologist to keep up-to-date with amplification technology and to obtain knowledge on the most cost-effective amplification devices available for the child with hearing loss (EAA, 2002b). Training of other team members, especially teachers, will help them correctly operate classroom amplification devices, such as FM systems (English, 1995). In addition, teachers should receive training from audiologists in the trouble-shooting of hearing aids, to ensure that the children's hearing aids remain in proper working condition (Johnson, Benson & Seaton, 1997). Cochlear implanted children also require habilitation services in order to maximally benefit from their device, and teachers, school teams and caregivers will require support and assistance (Johnson, Benson & Seaton, 1997).

In South Africa an unequal distribution of resources currently exist between rural and urban schools that provide for children with hearing loss (Penn & Reagan, 1995). In the past, rural schools often lacked funding for amplification devices and materials for auditory training. Consequently, educational audiologists will find varying degrees of availability and sophistication of amplification devices, depending on the placement. Hopefully, these imbalances will be addressed by the funding made available for the inclusive educational system.

According to Johnson, Benson and Seaton (1997), the educational audiologist is one of the most important human resources for facilitating the inclusion of children with hearing loss, through the provision of habilitation services and amplification devices. Therefore, the educational audiologist will have a significant part to play in the success of inclusion of children with hearing loss in the inclusive educational system.

The education and training of team members was frequently mentioned during previous discussions on the roles and responsibilities of the educational audiologist and will now be discussed as a separate responsibility.

3.4.3.4 Responsibility #4: Education and training

Although the education and training of team members, caregivers, families, and communities form an integral part of the majority responsibilities of the educational audiologist, this will receive special attention in this discussion.

The educational audiologist cannot render effective and accountable audiological services to children with hearing loss if he/she does not involve members of the educational team, teachers, the child's caregivers, family and community (ASHA, 1993). The most effective way of involving these team members is by providing education and training in the management of children with hearing loss (Johnson, Benson & Seaton, 1997). Education and training of team members and caregivers is a continuous responsibility of the educational audiologist (English, 1995).

One of the most recurrent themes in Education White Paper no 6 (2001), is the *education* and *training* of members of the educational team in order to help address the school-going child's barriers to learning. Thus, the educational audiologist will have a great responsibility in the education and training of especially teachers in order to minimise the effect of the child's hearing loss on his/her educational development. The education and training of caregivers, family, and communities, are especially required in the South African context, due to ignorance that exists due to poor services rendered in the past to persons of races other than the White race (Reeves, 1994).

The caregivers, family and community of the child with a disability are some of the most important resources when providing intervention services (United Nations, 2002). Participation is a basic human need, and essential for ensuring sustainable and appropriate intervention, and therefore community-based rehabilitation is a strategy to employ when enhancing the quality of life of the person with a disability (United Nations, 2002). For this reason, the educational audiologist should aim at promoting interventions in the general systems of society, including adaptations of the physical and psychological environment that will facilitate the social integration and self-actualisation of children with hearing loss (United Nations, 2002).

The education of team members, caregivers, and family members, should include the interpretation of information relevant to the child's hearing loss. These include the interpretation of audiograms and the clarification of the influence of the hearing loss on the child's development of auditory abilities, language skills, speech production skills, communication skills, literacy skills, academic achievement, and psychosocial well-being (EAA, 2002b). Education will also entail the provision of information to all parties involved about the causes of hearing loss, how to prevent hearing loss, and how to relate to the child with hearing loss (EAA, 2002b). Recognition of the distinctive and unique characteristics of each family and community is central to success (United Nations, 2002). Educational audiologists should respect indigenous beliefs and practices whilst educating and training communities (United Nations, 2002). Advocating educational audiology services, and

making others aware of the value of these services to the child with hearing loss, is also an important part of education (English, 1995). Certain challenges should be overcome in South Africa when educating and training caregivers, family, and communities. These challenges include the multilingual and multicultural nature of communities and the limited literacy skills of caregivers in rural contexts. The education of team members, especially teachers and caregivers, in the value of educational audiology services will be an important responsibility of the educational audiologist in the inclusive educational system, as these roles and responsibilities are not commonly known among South African teachers (Pottas, 1988).

The training of team members and caregivers should consist of easily-executable strategies for identifying hearing loss and managing the child with hearing loss (Johnson, Benson & Seaton, 1997). This may vary from teachers completing checklists to identify children at-risk of hearing loss, to teachers replacing expired batteries of hearing aids (English, 1995; Johnson, Benson & Seaton, 1997). The purpose of training team members and caregivers is firstly to involve these members as stakeholders that are part of the intervention team (Johnson, Benson & Seaton, 1997). The utilisation of these persons will ensure more comprehensive service delivery as each of the persons involved has unique contributions to make towards the child's intervention programme (ASHA, 1993). The second reason for the training of team members and caregivers is to help reduce the educational audiologist's immense caseload thereby creating the opportunity for more effective service delivery for all children in need of these services (Johnson, Benson & Seaton, 1997). The benefit of training teachers will be especially valuable in the South African context, where schools are currently overcrowded and professional support personnel, such as educational audiologist are a rarity (Education White Paper no 6, 2001).

The educational audiologist will greatly contribute to the inclusion of children through the education and training of teachers, other team members, caregivers, and families, in the audiological and educational management of children with hearing loss.

The fifth identified responsibility of the educational audiologist involves the support and assistance of team members and caregivers.

3.4.3.5 Responsibility #5: Support and assistance

When the educational audiologist provides support and assistance to team members and caregivers, he/she functions as a consultative team member who either provides indirect services, such as information exchange or hands-on intervention if the need arises (Johnson, Benson & Seaton, 1997). This service delivery approach corresponds with approaches outlined in the Education White Paper no 6 (2001), namely that teachers should receive support and assistance from other professional team members, in order to overcome children's barriers to learning. Literature available on the roles and responsibilities of the educational audiologist mostly categorise *support* and *assistance* together with *education* and *training*. For the purposes of this study, it was decided to discuss this responsibility separately however. The reason for categorising it separately is that the provision of *support* and *assistance* differs from *education* and *training*, because the latter is a responsibility mainly initiated by the educational audiologist, whereas *support* and *assistance* is mostly team-driven, as needs arise from persons involved with the child (English, 1995; Johnson, Benson & Seaton, 1997). The first step towards support and assistance will be the establishment of fluent communication channels between the educational audiologist and other team members (ASHA, 1993). In many cases, this implies that the educational audiologist should move into the classroom or into the community, in order to render services. Support and assistance by the educational audiologist may include recommendations for the modification and adaptation of classroom instructional methods, curriculum content, and teaching materials (EAA, 2002d). In addition, the educational audiologist can provide advice on problem-solving if a child experiences barriers to learning due to his/her hearing loss (Johnson, Benson & Seaton, 1997). The educational audiologist therefore serves as a "back-up" whenever team members or caregivers require additional intervention of a child with hearing loss, while receiving regular educational audiology services at school (ASHA, 1993; Johnson,

Benson & Seaton, 1997). The educational audiologist has an important task to fulfil when providing support and assistance to caregivers and family members, as these persons often feel helpless to deal with the challenges brought on by the child's hearing loss. Caregivers and family should therefore receive support on an emotional level as well as in other areas where assistance is required (Johnson, Benson & Seaton, 1997).

The educational audiologist within the inclusive educational system has the responsibility of providing support and assistance, especially to teachers and caregivers, in order to ensure that every child with hearing loss benefits from educational efforts (Johnson, Benson & Seaton, 1997).

The monitoring and following-up of children with hearing loss is another important responsibility of the educational audiologist and will succeed this discussion.

3.4.3.6 Responsibility #6: Monitoring and follow-up

Monitoring and follow-up services should be provided by the educational audiologist for each child who has been identified with hearing loss as well as to those who are at risk of developing hearing loss (ASHA, 1993). Without appropriate monitoring and follow-up services, all of the effort invested in prevention, conservation, assessment, habilitation and amplification, education and training, support and assistance, will be futile (Johnson, Benson, & Seaton, 1997). Monitoring and follow-up services include, but are not limited to, teacher consultation; parent, caregiver and family counselling; follow-up of referrals and recommendations; monitoring and reassessment of the child's auditory skills, language skills, speech production, communication skills, literacy skills, academic achievement, and psychosocial development; monitoring of the performance and effectiveness of the child's personal and group amplification devices; and monitoring of the child's educational placement (ASHA, 1993; English, 1995; Johnson, Benson, & Seaton, 1997). The purpose of monitoring and follow-up services is to ensure that the child is receiving an individualised intervention plan, that aims to address the child's

unique audiological and educational needs at various stages of his/her school career (EAA, 2002b; Johnson, Benson, & Seaton, 1997). Monitoring and follow-up services are part of a learner-centred approach which complies with the transition towards an inclusive educational system (Education White Paper no 6, 2001).

The educational audiologist in the inclusive educational system has an important responsibility to ensure that children with hearing loss receive appropriate and adequate audiological and educational intervention through the provision of monitoring and follow-up services (ASHA, 1993).

The final responsibility identified from literature sources is evaluation and research, and will be explored next.

3.4.3.7 Responsibility #7: Evaluation and research

Evaluation and research for the purposes of this study, will deal with the assessment of the educational audiology service delivery system as a whole (ASHA, EAA, 2002b). The evaluation of the service delivery system must be an on-going responsibility of the educational audiologist to ensure the efficacy of services within the educational system (EAA, 2002b). Furthermore, the ongoing research into best practices in audiological and educational management of children with hearing loss is of utmost importance to render accountable services in accordance with current trends (ASHA, 1993). Although it cannot be expected of each educational audiologist to embark upon research, attending continuing education programmes and keeping abreast of current research findings in the field are included in this responsibility (EAA, 2002b).

The South African educational audiologist has a tremendous responsibility in the evaluation of the educational audiology service delivery system in the inclusive educational system, because the inclusive educational system is a new concept with new challenges. The educational audiologist therefore should ensure by means of evaluation and research that the proposed

educational audiology service delivery system is best suited to the South African school-going population, and that it complies with future educational policies.

In Figure 3.3 (below), suggestions are provided as to what the duties of the educational audiologist will be in the inclusive educational system.

Figure 3.3: Responsibilities of the educational audiologist

In Figure 3.3, an outline is provided of what duties the educational audiologist will be in the inclusive educational system.

Suggestion for the inclusive educational system:

(a) The responsibilities of *education and training* and *support and assistance* should be regarded as main priorities in order to comply with policies stipulated in Education White Paper no 6 (2001) and to ensure that all children receive intervention despite the unfavourable ratio of educational audiologist per school-going child.

3.5 A PRELIMINARY MODEL FOR SERVICE DELIVERY BY THE EDUCATIONAL AUDIOLOGIST IN THE INCLUSIVE EDUCATIONAL SYSTEM

In the previous discussions, the educational audiologist's service delivery structure, role, and responsibilities within the South African context was conceptualised from various literature sources. The conceptualised model will be modified and adapted according to the findings from the empirical study. The preliminary educational audiology service delivery model is presented in Figure 3.4.

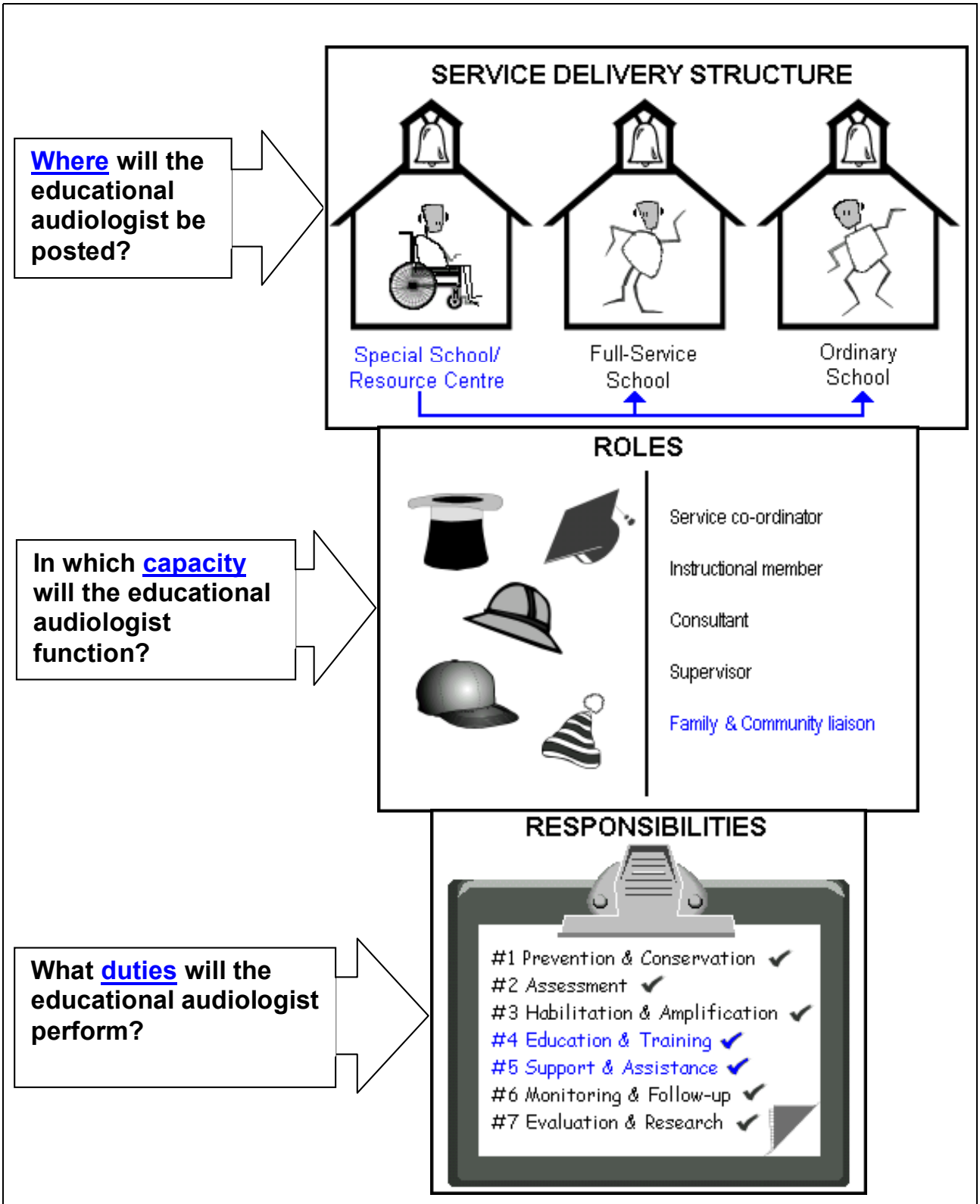

Figure 3.4: A preliminary model for service delivery by the educational audiologist within the inclusive educational system *[conceptualised from: ASHA (1993); EAA (2002b); EAA (2002d); Education White Paper no 6, (2001); English (1995); Johnson, Benson & Seaton (1997)].*

This model aims to provide a framework for the delivery of services that will support teachers of children with hearing loss. Supporting teachers will ultimately benefit children with hearing loss in order to reach their full potential (English, 1995).

3.6 CONCLUSION

An educational audiology service delivery model will aim to provide a framework for the delivery of services that will support the teacher and the caregiver of the child with hearing loss. Addressing teachers' needs as far as possible through the development of an educational audiology service delivery model falls in line with current government policy on teacher support services. Supporting teachers and caregivers will ultimately ensure that children with hearing loss reach their full potential within the school-setting.

After a review of international literature on current practices in educational audiology, it becomes clear that the information is not sufficient to develop an educational audiology service delivery model appropriate for the South African context. Therefore, an empirical study should be undertaken to customise the service delivery model for the unique South African context.

3.7 SUMMARY

In Chapter 3, the evolvement of the field of educational audiology was briefly described. Considering the move toward an inclusive educational system, the following questions arose*: Where will the educational audiologist be posted?* (i.e. service delivery structure); *In which capacity will the educational audiologist function?* (i.e. roles); and *What duties will the educational audiologist perform?* (i.e. responsibilities). Applying guidelines outlined in Education White Paper, the service delivery structure of the educational audiologist within the inclusive educational audiologist was speculated on. Five roles of the educational audiologist were identified from literature and

explored in terms of its relevance to the inclusive educational system. Lastly, seven responsibilities of the educational audiologist were described with applicability to the inclusive educational system. A conclusion and summary were provided at the end of the chapter.