

CHAPTER 5

RESULTS AND DISCUSSION

“...audiologists, and educators, by virtue of their respective and mutual roles, share a responsibility toward the hearing impaired child, namely, that of preparing him for a responsible and fruitful life” (Brooks, 1981:19).

5.1 INTRODUCTION

The move towards an inclusive educational system in South Africa will create new challenges for teachers when educating children with hearing loss (Keith & Ross, 1998). An urgent need exists therefore, for the acquisition of information on the needs of teachers of children with hearing loss, and the subsequent development of an educational audiology service delivery model, in an attempt to support these teachers when addressing these new challenges. In order to obtain information on teachers' needs, research in this realm is crucial.

Different types of research in the field of educational audiology can contribute to knowledge of the needs of teachers of children with hearing loss in the inclusive educational system. In this study, primarily qualitative research methods were utilised that were descriptive and contextual in nature (Leedy & Ormrod, 2001; Mouton & Marais, 1996; Schurink, 1998). A descriptive questionnaire survey (Mouton & Marais, 1996) was employed in order to obtain the needs of teachers of children with hearing loss, and findings were supported by means of results obtained from focus group interviews (Stewart & Shamdasani, 1990).

The findings of this study will assist in the development of an educational audiology service delivery model for use within the inclusive educational

system. It is envisaged that this educational audiology service delivery model will ultimately attempt to address the needs of teachers of children with hearing loss in the inclusive educational system.

The presentation of results will include the origin of the results, graphic representation of the results in the form of figures or tables, as well as the discussion and interpretation of the results. A flow diagram depicting a presentation of results is provided in Figure 5.1.

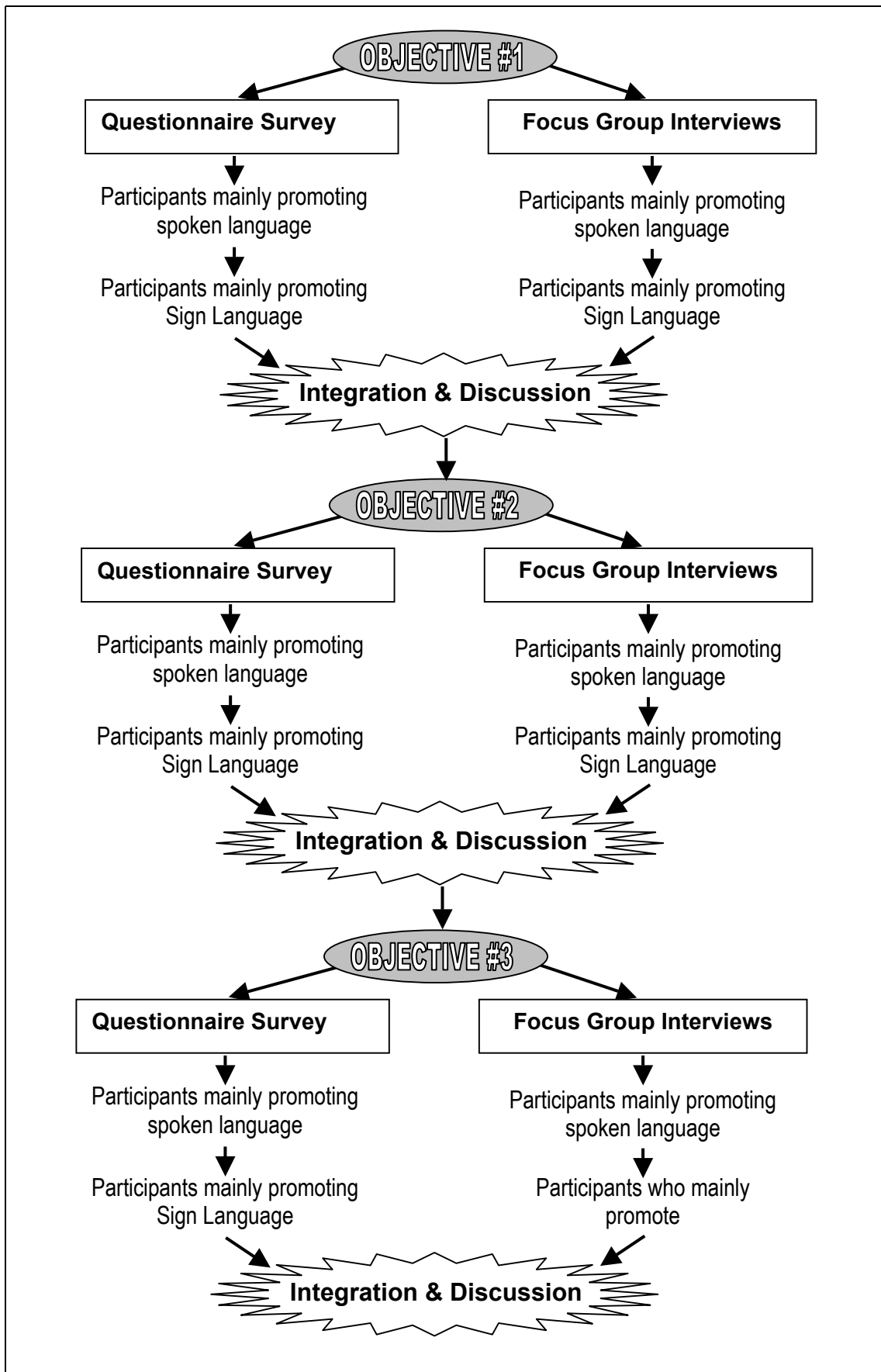


Figure 5.1: Flow diagram of the presentation of results

In addition to the above-mentioned graphic representation, the following should be considered in order to ease the interpretation of this chapter:

- * Although the main aim of the study was to determine the *needs* of teachers of children with hearing loss, additional information was also obtained that serves to illustrate or clarify these needs. For instance, during the questionnaire survey, participants had to recommend not only areas of **support** needed, but also the areas that teachers had to have **knowledge** in and the various **intervention steps** that teachers had to carry out. Information on the aforementioned was deemed necessary, because the need for support can best be understood if areas of importance to the participants were identified. However, the results and discussion focused mainly on the *needs* of teachers and additional information was solely utilised to clarify the identified needs of teachers.
- * The results of each of the respective sub-groups of participants, namely the group of participants who mainly promote *spoken language* and the group of participants who mainly promote *Sign Language*, was discussed separately. (See chapter 4 for clarification and justification of the categorisation of each sub-group of participants).
- * Dependency tests were utilised in order to demonstrate the influence of variables, such as qualifications, specialised training, teaching experience, teacher/learner ratio, and in-service training, on the needs of teachers of children with hearing loss. Only dependency tests that rendered statistically significant results during the interpretation of findings were included in the text of this chapter. However, results from *all* dependency tests are presented in Tables I1 to I10 in Appendix I.
- * During the presentation of results, all decimals were rounded off to the nearest integer.
- * Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items and that clarified the needs of teachers of children with hearing loss. Since a combination of structured and less structured interview techniques were used during the focus group interviews (Morgan, 1997), responses were not elicited to

all themes. Thus, not all themes were necessarily present in all of the focus group discussions.

- * All excerpts from focus group interviews were translated from Afrikaans into English. Underlined words indicated that the participant spoke them with emphasis. Words in brackets were added to clarify the context of what the participant said. Non-verbal cues, such as gestures and facial expressions, were also added by means of brackets. Appendix H contains the unedited focus group transcriptions.
- * An interpretation and discussion of both the questionnaire survey and focus group interviews is provided at the end of each objective.

The aim of this chapter is to describe the needs of teachers of children with hearing loss in the inclusive educational system. The needs of participants who were probed by this study were determined by the objectives of the study, and these findings are presented according to these respective objectives.

5.2 RESULTS AND DISCUSSION OF OBJECTIVE #1: PARTICIPANTS' NEED FOR SUPPORT IN THE ACQUISITION OF KNOWLEDGE OF EDUCATIONAL AUDIOLOGY

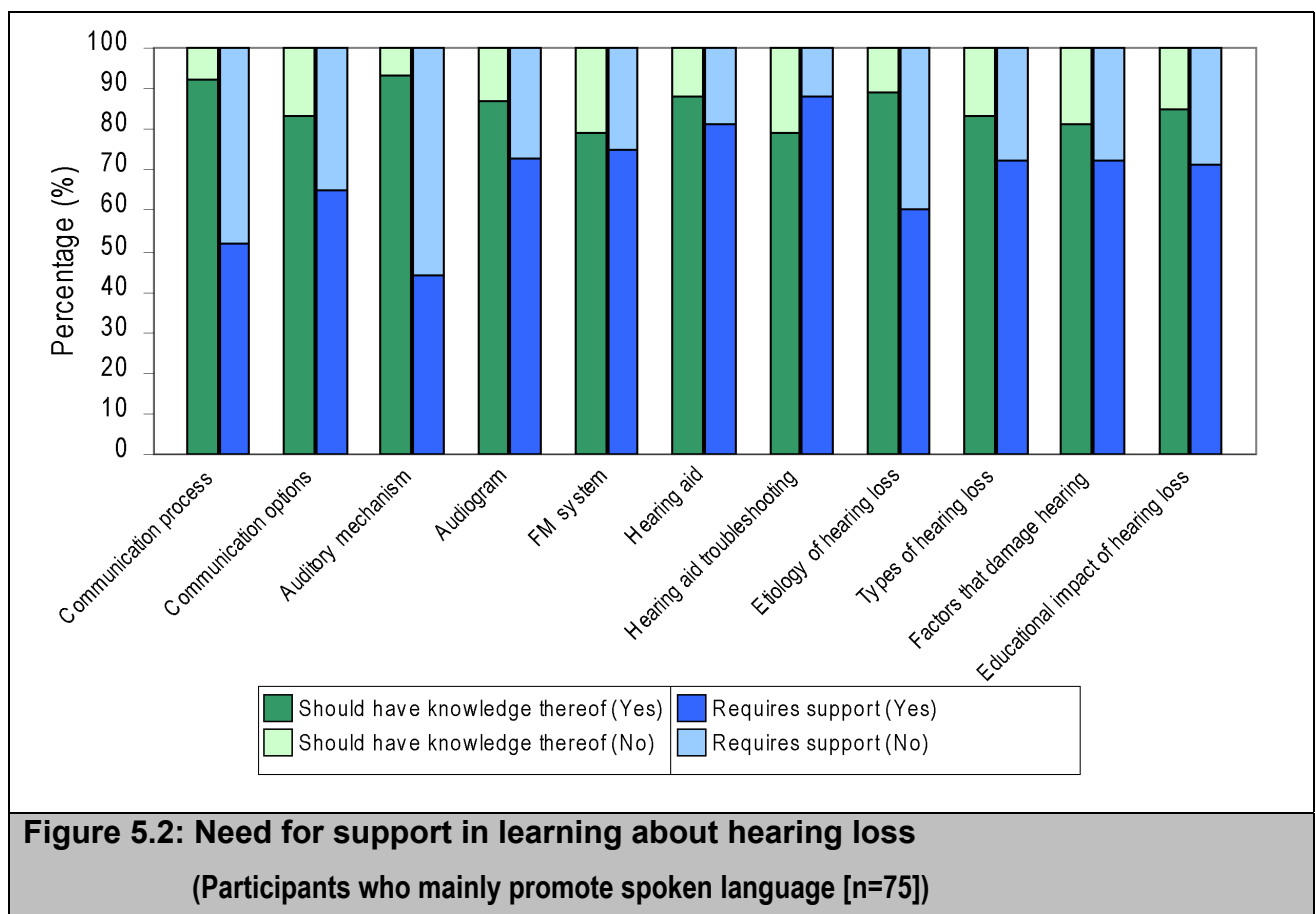
The first objective of the study was to determine and describe teachers' need for support in the **acquisition of knowledge of educational audiology**. The responses obtained from the questionnaire survey of both sub-groups of participants are presented in the following order: **Firstly**, the support required; **secondly**, knowledge versus the support required; **thirdly**, the influence of variables; and **finally**, a comparison between the findings of the two sub-groups of participants. An interpretation and discussion of the general trend of this objective will conclude this section.

5.2.1 The need for support in learning about hearing loss

The areas that the participants recommended that teachers in the inclusive educational system have knowledge in were identified, as well as the areas in which teachers will require support in order to learn about hearing loss.

These results consist of responses obtained from the items in Question 13 of the questionnaire survey (See Appendix D). Supporting themes from the focus group interviews are included (Appendix E). The findings of the two sub-groups of participants are presented separately.

The results of **participants who mainly promote spoken language**, are illustrated in Figure 5.2.



The above results clearly indicate participants' recommendations for teacher support regarding knowledge of hearing loss. Prominent findings are:

Firstly, Figure 5.2 illustrates that a large number of participants (88%) recommended that teachers receive support in order to acquire knowledge in the *trouble-shooting* of hearing aids. Furthermore, only a small number of participants (44%) recommended professional support in order to acquire knowledge about the *auditory mechanism*.

Secondly, on the whole, knowledge in the various aspects of hearing loss was recommended by a large number of participants (79%–93%). A large number of participants regarded knowledge of the anatomy and physiology of the *auditory mechanism* (93% of participants) as essential, and also knowledge of the *process of communication* interaction (92% of participants). However, as mentioned formerly, results reveal that only a few participants (44%) recommended professional support in order to acquire knowledge about the auditory mechanism, and 52% of participants recommended professional support in order to acquire knowledge about the communication process.

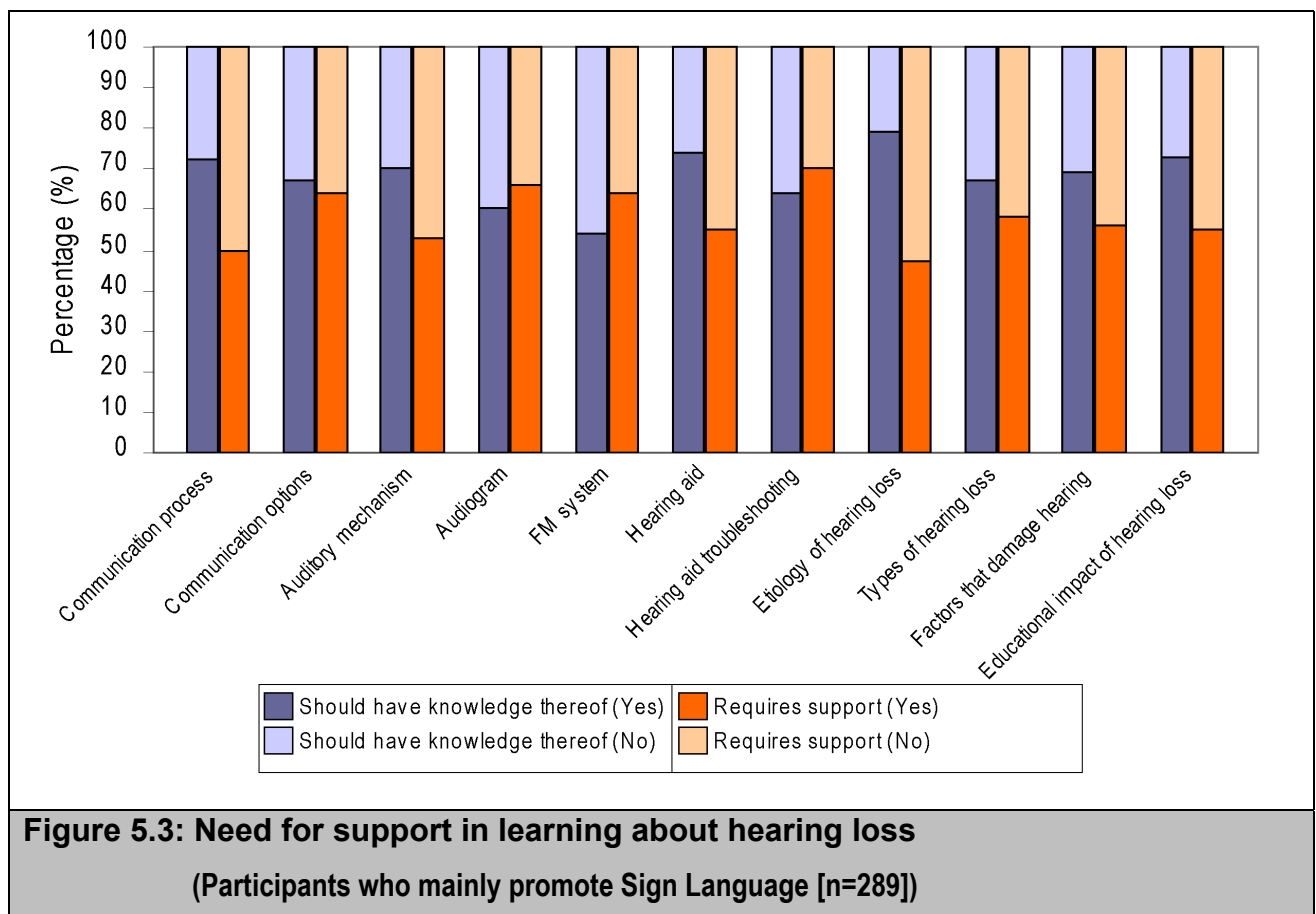
Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in learning about hearing loss, and are clarified in the following discussion.

Participants with no *specialised training* in hearing loss indicated a greater need for support in learning about the classification of the types of hearing loss than participants who had received specialised training (See Appendix I, Table I3). Participants with more than ten *learners* in their classrooms indicated a greater need for support in learning about the classification of the types of hearing loss, as well as a greater need for support in learning about factors that can further damage the hearing of the child with hearing loss (See Appendix I, Table I7). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in

learning about the interpretation of an audiogram (See Appendix I, Table I9). Similarly, participants who have received *in-service training* less frequently than once per month, also indicated a greater need for support in learning about the purpose and functioning of an FM system (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are presented in Figure 5.3.



The above results indicate participants' recommendations for teacher support regarding knowledge about hearing loss. Prominent findings are:

Firstly, results from Figure 5.3 reveal that a large number of participants (70%) recommended that teachers receive professional support in order to acquire knowledge about the *trouble-shooting* of hearing aids. Furthermore, only less than half of the participants (47%) recommended support in order to acquire knowledge about the *etiology of hearing loss*.

Secondly, a high number of participants (79%) regarded knowledge about the *etiology of hearing loss* as fundamental for teachers in the inclusive educational system. However, as mentioned formerly, only less than half of the participants (47%) recommended support in order to acquire knowledge about the etiology of hearing loss.

Thirdly, further statistical analysis of these results reveal that only one of the variables rendered a chi-squared (X^2) value greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). A chi-squared (X^2) value greater than the critical value indicated that the respective variable had demonstrated a significant influence on the participants' need for support in learning about hearing loss, and a clarification thereof follows.

Participants with more than 20 *learners* in their classrooms indicated a greater need for support in learning about the trouble-shooting of a hearing aid (See Appendix I, Table I8).

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the majority of both sub-groups of participants recommended that teachers receive professional support in order to acquire knowledge about the *trouble-shooting* of hearing aids.

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #1, namely participants' need for support in the

acquisition of knowledge regarding educational audiology. The findings of the two sub-groups of participants are presented separately.

The relevant themes extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10) are depicted in Table 5.1.

Table 5.1: Need for support in learning about hearing loss (Participants who mainly promote spoken language)
<p>Audiogram</p> <p>“...we are taught (by the educational audiologists) how to read an audiogram, we know exactly where the child is missing out, how we should manage him...”</p>
<p>FM system</p> <p>“...the audiologist is essential, she...continuously gives her input with...the handling of FM systems...”</p>
<p>Hearing aid</p> <p>“...hearing aids are of the <u>utmost</u> importance, a child cannot afford to be sitting in class without an aid for even <u>one single day</u>...”</p> <p>“...they (the educational audiologists) give you the support...she does the fitting of hearing aids..the moulds...”</p>
<p>Hearing aid trouble-shooting</p> <p>“...we have this routine...when he comes to class in the mornings you test the battery, you check if the aids are switched on, when he comes back from break-time we quickly run through this routine again...”</p> <p>“...the audiologist ...is also responsible for...the hearing aid, if something goes wrong, to check the aid regularly...”</p>
<p>Educational impact of hearing loss</p> <p>“...he must be able to cope on a social level, emotional level, ‘n physical level and <u>then</u> only on an academic level, you (the teacher) have a much more global outlook with this child...”</p>

Table 5.1 consists of five themes that corresponded to the aforementioned objective, and excerpts supporting these themes are provided. From the

excerpts, it becomes clear that participants realised the importance of being knowledgeable on these five themes, and they emphasised the importance of receiving support from an educational audiologist.

In Table 5.2, the relevant themes extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9) are shown below.

Table 5.2: Need for support in learning about hearing loss (Participants who mainly promote Sign Language)
<p>Communication options</p> <p>“...they (the educational audiologists)...should be more aware of the different types of choices (of communication options) that are available...”</p> <p>“...in my experience they (the educational audiologists) are strictly opposed to any type of Sign Language, which I feel is not fair to the child...”</p>
<p>Audiogram</p> <p>“...we would have liked to know more about it (annual audiograms of pupils)..we do know how the audiogram works, but if we could compare it with the results of the previous year...”</p>
<p>Hearing aid</p> <p>“...we would have liked to know more about the latest technology, because some of our kids have these new hearing aids...”</p>
<p>Hearing aid trouble-shooting</p> <p>“...the children themselves are responsible for looking after their hearing aids and it’s just not happening...the earmoulds are blocked with wax and no sound is going through...”</p> <p>“...you just don’t have the time in class to take out all their hearing aids...this is really a <u>big</u> problem...”</p>
<p>Educational impact of hearing loss</p> <p>“...they don’t have general knowledge...the other children (hearing children) are continuously gathering information by listening to the television and radio...our children can’t...”</p> <p>“...you have to start at the very beginning...you can’t expect him to write and learn like the department expects him to, you first have to learn him the basics...”</p>

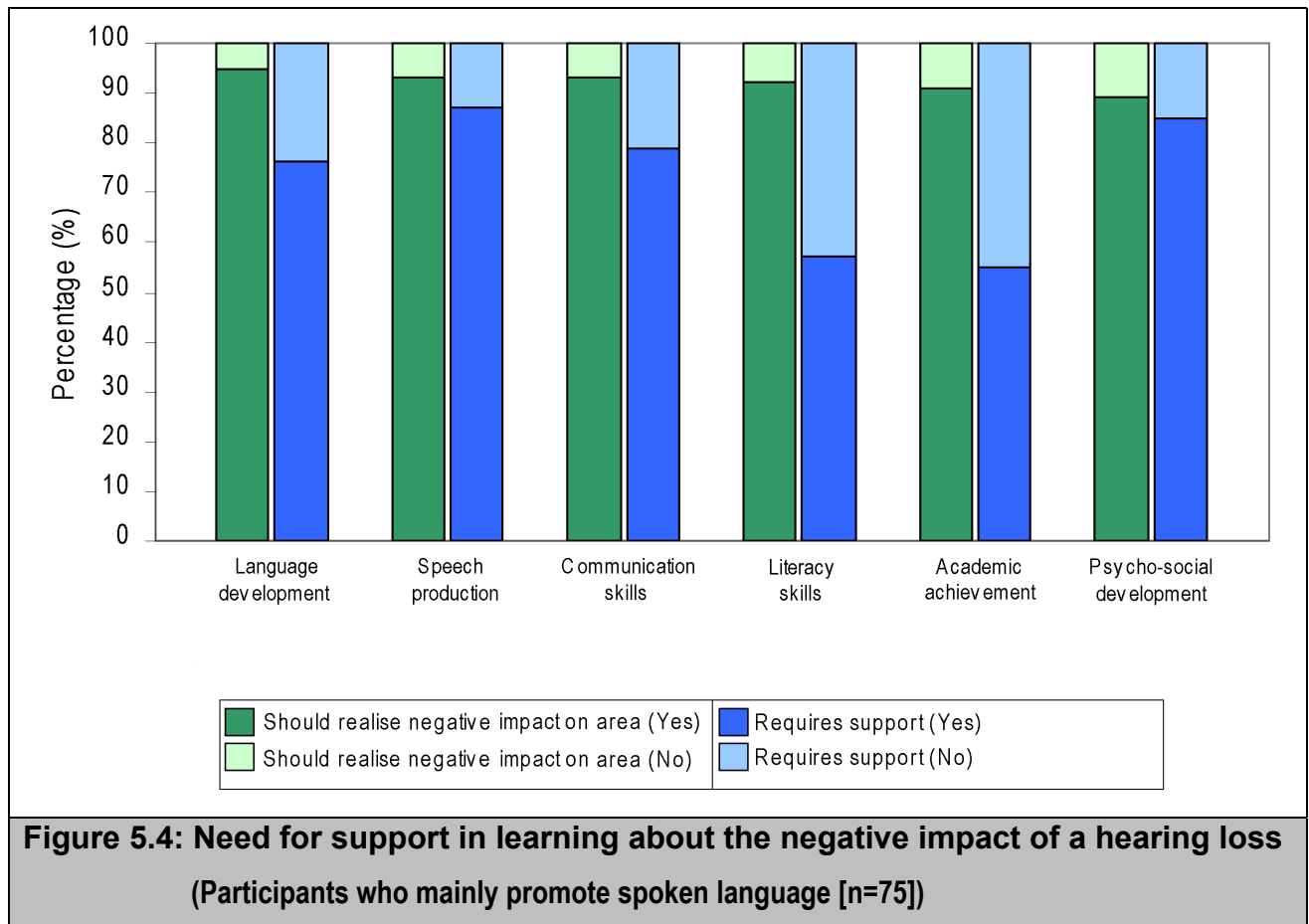
Table 5.2 reveals that, similar to the previous focus group interviews of participants who mainly promote spoken language, the need for support in learning about hearing loss was not specifically probed during the interviews, and therefore it did not represent a large part of the focus group interview. Five themes corresponded to objective #1 and excerpts supporting these themes are provided. From the excerpts, it became clear that participants realised the importance of being knowledgeable on these five themes. Although they valued the support from an educational audiologist in these areas, they perceived a lack of support from their educational audiologists, especially in relation to the use of *Sign Language* as a communication option. In addition, participants experienced a lack of support from their educational audiologist with regard to information-sharing of the results of annual *audiograms* of their learners, as well as the latest *hearing aid* technology.

5.2.2 The need for support in learning about the negative impact of a hearing loss

The areas for which participants indicated the negative impact of a hearing loss and consequently recommended that teachers be knowledgeable of these areas of impact, were elicited. In addition, the areas for which the participants recommended teachers receive support, in order to learn how to address the negative impact of a hearing loss, were identified.

These results include responses to the items in Question 14 of the questionnaire survey (Appendix D), and supporting themes from the focus group interviews (Appendix E) are added. The findings of the two sub-groups of participants are discussed separately.

The findings of **participants who mainly promote spoken language**, are presented in Figure 5.4.



The above results indicate participants’ recommendations for teacher support regarding knowledge about the negative impact of a hearing loss. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support in order to acquire knowledge about the negative impact of a hearing loss was recommended by a high number of participants (55%–87%). A large number of participants (87%) recommended that teachers receive support in order to learn how to address the negative impact of a hearing loss on *speech production* skills. Furthermore, only slightly more than half of the participants (57%) suggested support in order to learn how to address the negative impact of hearing loss on *literacy skills*.

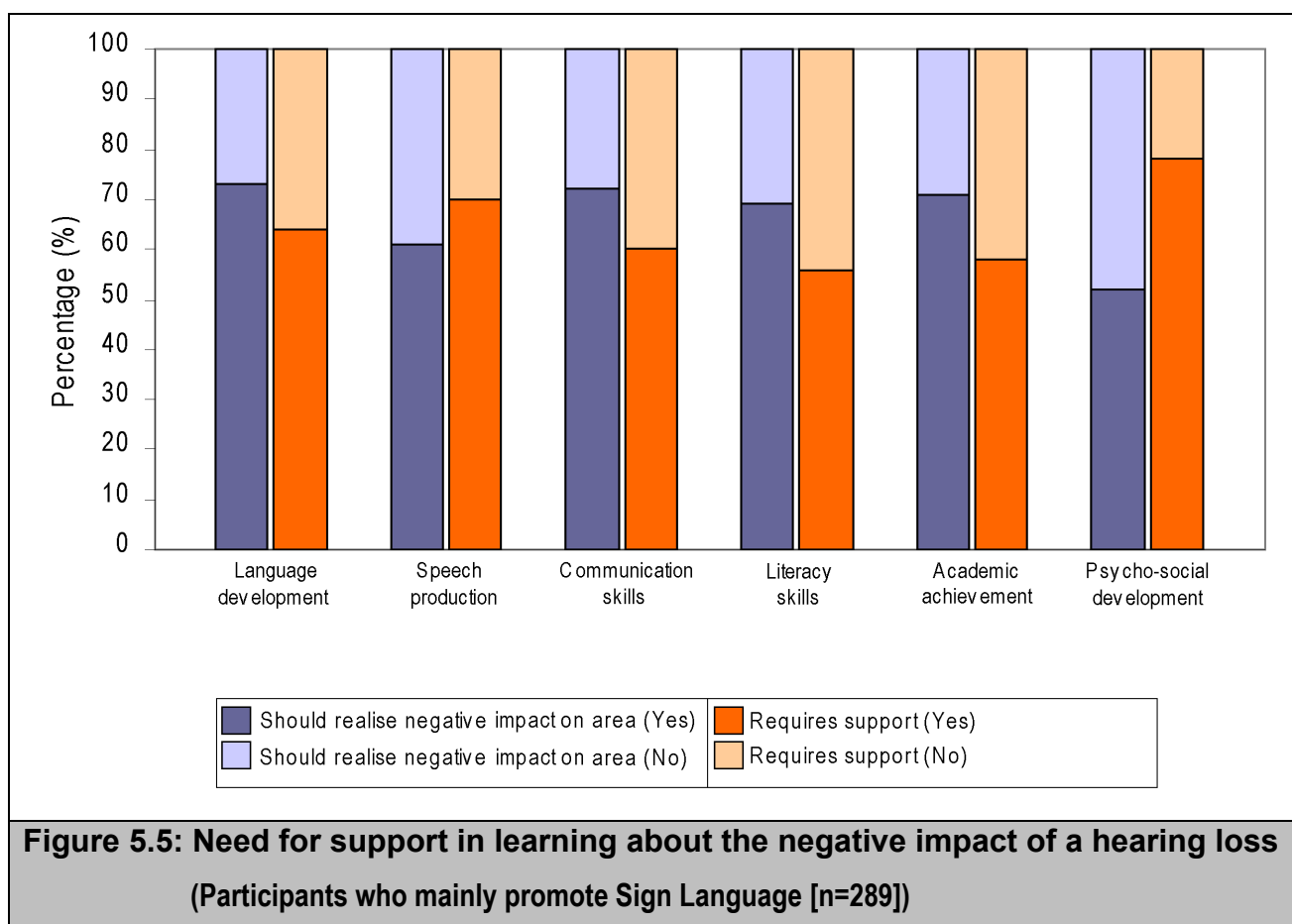
Secondly, on the whole, it was recommended by a high number of participants (89%–95%) that teachers realise the negative impact of hearing loss on various areas of development. A large number of participants (95%)

realised the negative impact of a hearing loss on *language development*, and therefore recommended that teachers in the inclusive educational system should have knowledge thereof. In addition, findings reveal that a large number of participants (76%) recommended professional support in order to learn how to address the negative impact of hearing loss on language development.

Thirdly, further statistical analysis of these results reveal that none of the variables rendered chi-squared (X^2) values greater than the critical value (See Appendix I, Tables I1 to I10). This meant that none of the variables had demonstrated a significant influence on the participants' need for support in learning how to address the areas of negative impact on hearing loss.

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are illustrated in Figure 5.5.



The above results indicate participants' recommendations for teacher support regarding knowledge about the negative impact of a hearing loss. Prominent findings are:

Firstly, the above figure indicates that a large number of participants (78%) recommended support in order to learn how to address the impact of a hearing loss on *psychosocial development*. Furthermore, only slightly more than half of the participants (56%) suggested support in order to learn how to address the negative impact of hearing loss on *literacy skills*.

Secondly, a high number of participants (73%) realised the negative impact of a hearing loss on *language development*, and thus recommended that teachers in the inclusive educational system should have knowledge thereof. In addition, results indicated that a fairly large number of participants (64%) recommended professional support in order to learn how to address the negative impact of hearing loss on language development.

Thirdly, further statistical analysis of these results reveal that none of the variables rendered chi-squared (X^2) values greater than the critical value (See Appendix I, Tables I1 to I10). This meant that none of the variables had demonstrated a significant influence on the participants' need for support in learning how to address the areas of negative impact.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the minority of both sub-groups of participants suggested support in learning how to address the negative impact of hearing loss on *literacy skills*. In addition, the majority of both sub-groups of participants realised the negative impact of a hearing loss on *language development* and therefore recommended that teachers in the inclusive educational system should have knowledge thereof. Comparisons of the results of dependency tests of both sub-groups revealed that none of the variables had demonstrated a significant influence on the participants' need for support in learning how to address the areas of negative impact (See Appendix I, Tables I1 to I10).

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #1, namely participants' need for support in learning about the negative impact of a hearing loss. The findings of the two sub-groups of participants are presented separately.

Table 5.3 indicates the relevant themes extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

Table 5.3: Need for support in learning about the negative impact of a hearing loss (Participants who mainly promote spoken language)
<p>Language</p> <p>“...with a hearing impaired child, <u>language</u> is an issue, it feels like you are working with a ball and chain attached to your leg, you struggle to get ahead...to make him understand, to teach him vocabulary and then to get it out of him...”</p>
<p>Speech production</p> <p>“...I had a child who I just couldn’t teach to say the [□] sound...I then sent the child to her (the educational audiologist)...the problem was solved...”</p>
<p>Communication skills</p> <p>“...during group-sessions (in class) we all talk simultaneously to each other, a hearing impaired child can’t work like this, the more people talk, the more he gets confused...this is a problem for him...”</p>
<p>Academic achievement</p> <p>“...our children have a big problem with abstract thinking...with Maths...they experience many difficulties...they don’t have insight, they are extremely bound by their concrete world...”</p>
<p>Psychosocial development</p> <p>“...when he works in a group he has to concentrate a lot, which can lead to tiredness...and it becomes too much for him and he expresses this as anger...he rebels...”</p> <p>“...emotion plays an important role...a child I know...her emotional hang-ups were so big, that she withdrew in the end and no learning could take place...”</p>

In the above table, five themes are provided that correspond to the objective and to excerpts supporting these themes. The excerpts reveal that the participants realised the negative impact of a hearing loss on language development, speech production skills, communication skills, academic achievement, and psychosocial development, and therefore recommended that teachers in the inclusive educational system be knowledgeable in these areas of impact. Participants also indicated a need for support by an educational audiologist to address these areas of impact. The participants did

not seem to encounter such a negative impact on their children’s acquisition of literacy skills and did not elaborate on this topic during the interviews.

Table 5.4 depicts the relevant themes extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9).

Table 5.4: Need for support in learning about the negative impact of a hearing loss (Participants who mainly promote Sign Language)
<p>Language</p> <p>“...language is so delayed that you can’t even discuss topics with them in grade 4, oral work can’t be done...it creates a big problem...”</p>
<p>Speech production</p> <p>“...it might take a <u>year</u> before the child is able to say []...and <u>this</u> is a problem for me...”</p> <p>“...many times the children of Deaf parents <u>only</u> have Sign Language and no speech and this is also not right, because then you are confronted with the next problem: the child in the workplace can’t cope or one day he has hearing kids of his own...”</p>
<p>Communication skills</p> <p>“...he may get discouraged, because of his communication – it is an obstacle between him and the other (hearing) children...”</p>
<p>Literacy skills</p> <p>“...we are trying to put out so many fires (teacher laughs)...the children don’t know the sounds, they can’t read and I’m talking about <u>three lettered words</u>...then they are already ten, twelve years old...”</p>
<p>Academic achievement</p> <p>“...he doesn’t know anything about geography or history or anything about his country...it is too abstract...”</p>
<p>Psychosocial development</p> <p>“...ever so often he is embarrassed, because he didn’t do his work or know what is going on, because he didn’t hear...”</p> <p>“...even if he is in a regular school, he will feel left out from the Deaf Community...”</p>

In Table 5.4, six themes corresponded to the objective, and excerpts that support these themes are provided. From the excerpts, it was clear that the participants realised the negative impact of a hearing loss on language development, speech production skills, communication skills, literacy skills, academic achievement, and psychosocial development. The participants therefore suggested that teachers in the inclusive educational system should have knowledge of these areas of impact. The impact of hearing loss on *literacy skills* was a theme that enjoyed a large amount of attention, as opposed to the participants who mainly promote spoken language.

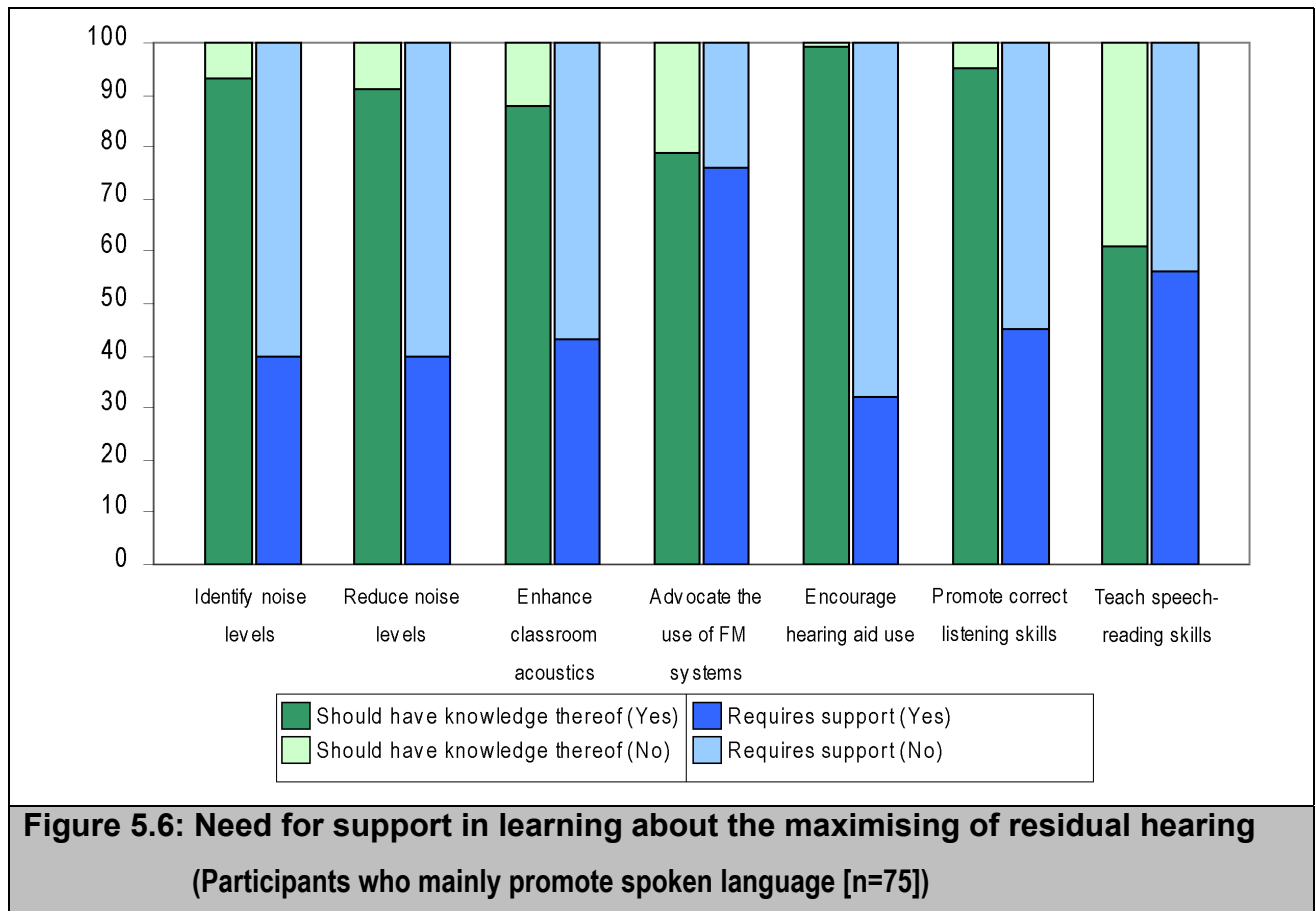
5.2.3 The need for support in learning about the maximising of residual hearing

The areas which the participants recommended teachers in the inclusive educational system know about in order to maximise the residual hearing of a child with hearing loss, were identified. In addition, the areas were elicited which the participants recommended that teachers require support in order to learn how to maximise residual hearing.

These results include responses to the items in Question 15 of the questionnaire survey (Appendix D) and supporting themes from the focus group interviews (Appendix E) are incorporated.

The results of the two sub-groups of participants are presented separately.

Results of **participants who mainly promote spoken language**, can be viewed in Figure 5.6.



The above results indicate participants' recommendations for teacher support regarding knowledge about the maximising of residual hearing. Prominent findings are:

Firstly, the above figure indicates that a large number of participants (76%) recommended that teachers receive support in order to learn how to advocate for an *FM system* in class. On the other hand, support required to learn about the encouragement of continuous *hearing aid use* among children, was selected only by a small number of participants (32%).

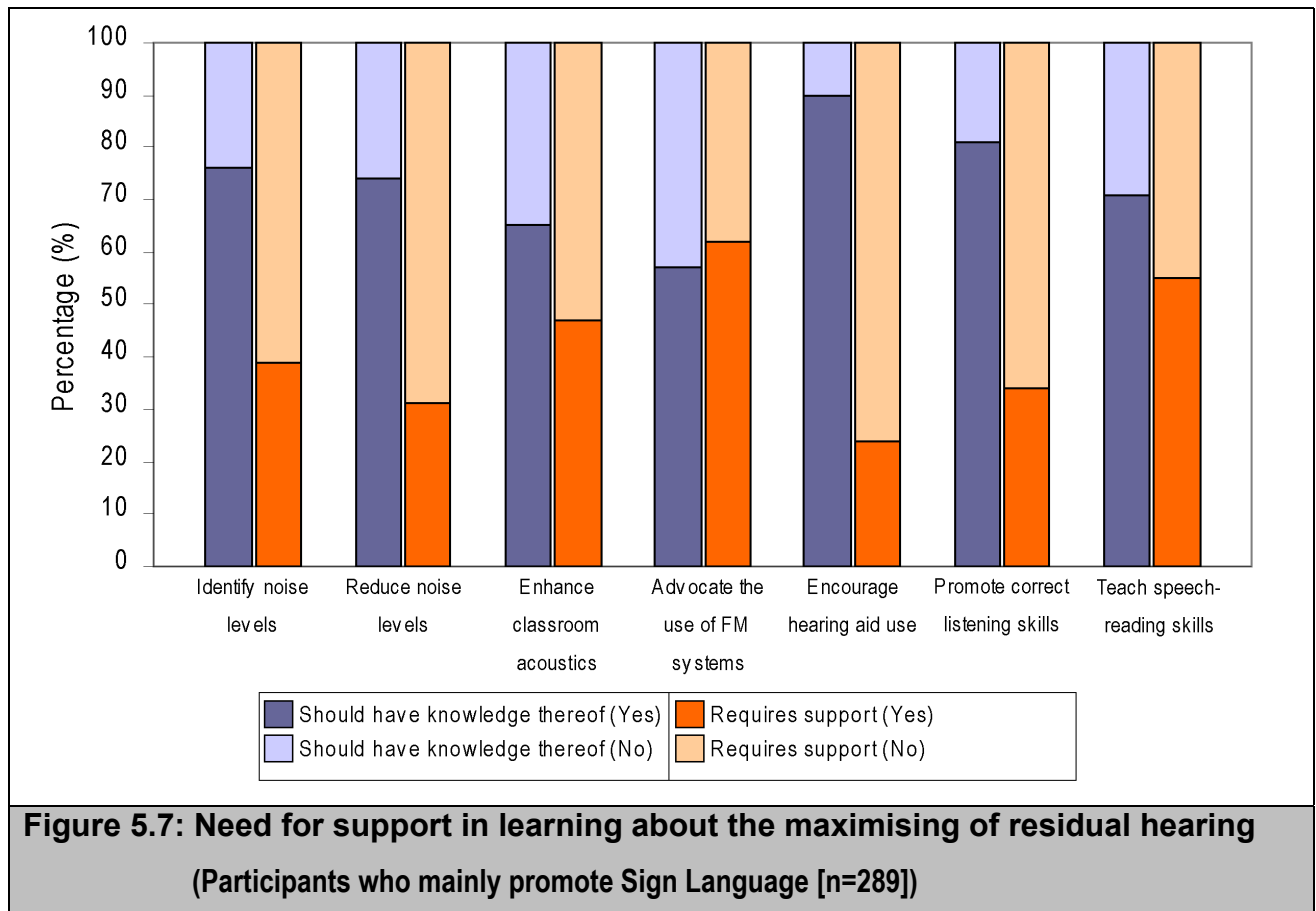
Secondly, nearly all of the participants (99%) recommended that teachers know how to encourage continuous *hearing aid use* among the children in order to maximise residual hearing. However, as mentioned formerly, support required in order to learn how to encourage continuous hearing aid use among children, was selected by only a few participants (32%).

Thirdly, statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p = 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in learning how to maximise residual hearing and are clarified in the following discussion.

Participants who had diplomas indicated a greater need for support in learning about the advocacy of FM systems in the school setting, than participants with higher *qualifications* (See Appendix I, Table I1). Participants with no *specialised training* in hearing loss indicated a greater need for support in learning about the instruction of speech-reading skills to children with hearing loss than participants with specialised training (See Appendix I, Table I3). Participants with more than ten *learners* in their classrooms indicated a greater need for support in learning about the enhancement of classroom acoustics (See Appendix I, Table I7). Similarly, participants with more than ten *learners* in their classrooms also indicated a greater need for support in learning about the instruction of speech-reading skills to children with hearing loss (See Appendix I, Table I7). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in learning about the identification of noise levels, as well as learning about the instruction of speech-reading skills (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are depicted in Figure 5.7.



The above results indicate participants' recommendations for teacher support regarding knowledge about the maximising of residual hearing. Prominent findings are:

Firstly, the above figure reveals that a fairly large number of participants (62%) recommended that teachers receive support in order to learn how to advocate for an *FM system* in class. On the other hand, only a small number of participants (24%) recommended support in order to learn how to encourage continuous *hearing aid use* among children.

Secondly, a high number of participants (90%) recommended that teachers know how to encourage continuous *hearing aid use* among the children in order to maximise their residual hearing. However, as mentioned formerly, support required in order to learn how to encourage continuous hearing aid use among children was selected only by a few participants (24%).

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in learning how to maximise residual hearing and are clarified in the following discussion.

Participants who had diplomas and no higher *qualifications* indicated a greater need for support in the acquisition of knowledge of the following: how to advocate the use of FM systems in the school setting, the enhancement of correct listening skills, as well as knowledge in the instruction of speech-reading skills (See Appendix I, Table I2). Participants with more than 20 *learners* in their classrooms indicated a greater need for support in learning about the instruction of speech-reading skills (See Appendix I, Table I8). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in learning about the identification of noise levels, as well as learning about the encouragement of continual hearing aid use (See Appendix I, Table I10).

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the minority of both sub-groups of participants recommended support to obtain knowledge on how to encourage continuous hearing aid use among children. In addition, the majority of both sub-groups of participants recommended that teachers know how to encourage continuous *hearing aid use* among the children, in order to maximise residual hearing. Furthermore, comparative findings indicate that the majority of both sub-groups of participants recommended that teachers receive support in order obtain knowledge on how to advocate for an *FM system* in class. Comparisons of dependency tests revealed that both sub-groups of participants who had diplomas and no higher *qualifications* indicated a greater need for support in learning about the advocacy for FM systems in the school

setting (See Appendix I, Tables I1 and I2). Also, participants of both sub-groups that have received *in-service training* less frequently than once per month, indicated a greater need for support in learning about the identification of noise levels (See Appendix I, Tables I9 and I10).

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Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #1, namely participants' need for support in learning about the maximising of residual hearing. The findings of the two sub-groups of participants are presented separately.

Table 5.5 (below) depicts relevant themes extracted from the two focus group interviews conducted with **the participants who mainly promote spoken language** (n=10).

Table 5.5: Need for support in learning about the maximising of residual hearing (Participants who mainly promote spoken language)
<p>Identify and reduce noise levels</p> <p>“...she (the educational audiologist) should...advise on how the children should be seated in class...”</p>
<p>Enhance classroom acoustics</p> <p>“...she (the educational audiologist) should...address the noise levels...”</p> <p>“...the physical environment of the child should provide for his hearing impairment...”</p>
<p>Advocate the use of FM systems</p> <p>“...there should be resources...an FM system we can't do without...”</p>
<p>Encourage hearing aid use</p> <p>“...I have a child in my class, when I asked him: “Does your aid work?” he said: “Yes”...when I opened it there was no battery!...you have to physically check each aid yourself...”</p>
<p>Teach speech-reading skills</p> <p>“...a lot of <u>individual</u> help is needed to teach them speech-reading...”</p>

The need for support in learning how to maximise residual hearing was not specifically probed during the interviews, and therefore it did not represent a large part of the focus group interview. In Table 5.5, six themes are provided that correspond to the aforementioned objective, and to the excerpts. These excerpts reveal that the participants regarded knowledge as essential for teachers in order to maximise residual hearing in the inclusive educational system, and that they valued the support from an educational audiologist in this matter.

Table 5.6 depicts a relevant theme extracted from the two focus group interviews that were conducted with **the participants who mainly promote Sign Language** (n=9).

**Table 5.6: Need for support in learning about the maximising of residual hearing
(Participants who mainly promote Sign Language)**

Encourage hearing aid use

“...then you first have to send him back to the hostel to get his hearing aids...many of the older children have that don't-care attitude about their hearing aids...”

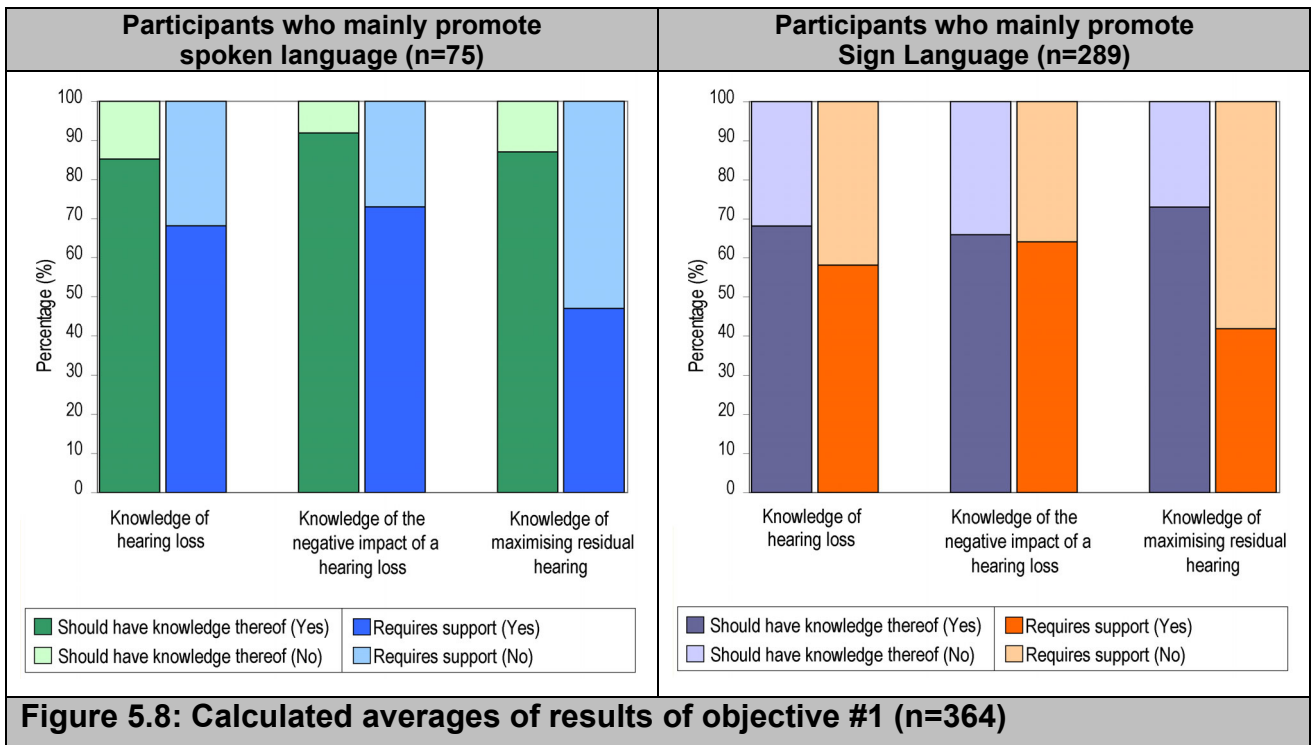
The need for support in learning how to maximise residual hearing was not specifically probed during interviews, and therefore it did not represent a large part of the focus group interview. In Table 5.6, only one theme corresponded to the aforementioned objective, and the excerpt supporting this theme is provided. The lack of excerpts on this theme may reveal that the participants did not consider the maximising of residual hearing a priority among their learners.

An interpretation and discussion follows, to conclude the findings of this section.

5.2.4 Interpretation and discussion of findings of objective #1

Participants’ knowledge of educational audiology, as well as their need for support in the acquisition of this knowledge, is crucial in addressing the specific needs that may arise from the sensory impairment of children with hearing loss (Easterbrooks & Radaszewski-Byrne, 1995; Flexer, 1993). The differences in findings among the two sub-groups of participants should be clarified, as this has direct implications for the development of an educational audiology service delivery model, that aims to support both sub-groups of teachers in the acquisition of knowledge of educational audiology.

Averages of the results were calculated, in order to obtain a broad overview of findings of **both sub-groups of participants** obtained from the questionnaire survey. Averages were calculated for Figures 5.2 to 5.7 and are revealed in Figure 5.8 below:



A detailed interpretation and discussion of the various sub-sections of objective #1 follows. Findings from both sub-groups of participants are

presented in the following order. An overview of the broad findings is provided, followed by more detailed results, that are presented as follows: **Firstly**, the support required; **secondly**, knowledge versus the support required; **thirdly**, the influence of variables; and **finally**, findings of focus group interviews are discussed.

5.2.4.1 Interpretation and discussion of findings of objective #1: Support in learning about hearing loss

All participants (n=364) strongly recommended that teachers have knowledge of the various aspects of hearing loss, but, in contrast, only a small number of participants felt that teachers required support in the acquisition of this knowledge. This may indicate that participants generally did not realise the advantages of receiving support from a professional such as an educational audiologist (English, 1995; Johnson, Benson, & Seaton, 1997).

Therefore, an educational audiology service delivery model should continuously promote the benefits of receiving support from an educational audiologist when acquiring knowledge in the various aspects of hearing loss.

Furthermore, on the whole, participants who mainly promote Sign Language indicated less need for the acquisition of knowledge and support in the various aspects of hearing loss. Literature substantiates these findings, and can be explained by the differences in the communication instructional approaches followed by the two sub-groups (Lynas, 1994; Moores, 1996). Participants who mainly promote Sign Language were less interested in acquiring knowledge in the various aspects of hearing loss, such as the anatomy and functioning of the auditory mechanism, the aim and interpretation of an audiogram, the purpose and functioning of an FM system and hearing aid, et cetera. Reasons for their disinterest can be found in literature which indicates that participants who mainly promote Sign Language often view knowledge in the aforementioned areas as the approaching of hearing loss as a *pathology*, whereas they tend to regard hearing loss as a social identity and

sub-culture that does not necessarily have to be corrected (DEAFSA, 2001c; Lynas, 1994; Moores, 1996).

These issues remain a sensitive point of discussion, and the educational audiologist should take cognisance of the influence of various communication instructional approaches. The educational audiologist should continue to render accountable services within the framework of an educational audiology service delivery model that will assist each child with hearing loss to develop his/her full potential.

Prominent findings about the need for support in the acquisition of knowledge regarding hearing loss, are discussed forthwith.

Firstly, results revealed that the majority of participants of both sub-groups recommended that teachers receive support in order to learn about the trouble-shooting of hearing aids.

Findings in research confirm the importance of receiving support in order to learn about the trouble-shooting of hearing aids (Bentler, 1993; Berg, Blair & Benson, 1996; Crandell & Smaldino, 2000). The trouble-shooting of the hearing aid ensures that the child's hearing aid is in optimal working condition in order for the child to benefit from all auditory input received in the classroom (Bentler, 1993). Only then can the hearing aid fulfil its purpose, namely to help the child to optimally utilise his/her residual learning, and consequently to benefit from educational efforts by the teacher (Crandell & Smaldino, 2000).

It is clear that educational audiologists should provide support and assistance to teachers in order to acquire knowledge in the trouble-shooting of hearing aids, to ultimately benefit the child with hearing loss. An educational audiology service delivery model should include teacher training that will encourage the expansion of teachers' knowledge about the trouble-shooting of hearing aids.

Secondly, findings relating to knowledge versus support required, indicated that participants of the two sub-groups had different views on the importance of knowledge and support in various aspects of hearing loss. The majority of participants who mainly promote spoken language, regarded knowledge in the anatomy and physiology of the auditory mechanism as essential, as well as knowledge of the process of communication interaction, as necessary. On the other hand, the majority of participants who mainly promote Sign Language considered knowledge in the etiology of hearing loss as essential for teachers in the inclusive educational system. These specific differences in participants' views on the importance of knowledge in various aspects of hearing loss cannot readily be clarified by literature or by differences in communication instructional approaches followed. However, the importance of acquiring knowledge in these aspects of hearing loss is confirmed by the literature-based discussion that follows.

Knowledge of the anatomy and physiology of the auditory mechanism (Tweedie, 1987), as well as knowledge of the process of communication interaction (Northern & Downs, 1984), is indispensable to the teacher of the child with hearing loss. Knowledge in the anatomy and physiology of the auditory mechanism is fundamental in order for teachers to gain insight into auditory disorders and malfunctioning, so as to identify and address any concerns that may arise from the child's auditory mechanism (Tweedie, 1987). Similarly, knowledge of the process of communication interaction is essential, because it enables the teacher to use the normal model of communication to evaluate the child's communication skills and shortcomings in order to plan for more appropriate strategies to enhance the child's communication skills and to prevent future communication breakdowns (Northern & Downs, 1984).

However, results reveal that less than half of the participants who mainly promote spoken language, recommended support in order to learn about the auditory mechanism and only approximately half of the participants who mainly promote spoken language recommended support to learn about the process of communication interaction. These findings may indicate that participants felt that teachers had sufficient knowledge in these areas and

therefore did not require support to acquire knowledge in these areas. However, findings from a South African study (Pottas, 1998), indicates that teachers had varying degrees of knowledge of the anatomy and physiology of the auditory mechanism, as well as the process of communication interaction that were mostly deemed insufficient to appropriately manage the child with hearing loss.

Furthermore, literature indicates that knowledge in the etiology of hearing loss is important for teachers to differentiate between the various strategies and outcomes of intervention when managing the child with hearing loss (Kenworthy, 1993). In addition, knowledge in the etiology of hearing loss enables teachers to be aware of the factors that can further damage residual hearing, and to subsequently minimise further damage to the child's hearing mechanism (Tweedie, 1987).

However, very few participants who mainly promote Sign Language recommended support in order to acquire knowledge in the etiology of hearing loss. This may indicate that participants felt that teachers had sufficient knowledge in the etiology of hearing loss and therefore did not require support to acquire knowledge in this area. Evidence to the contrary is found in a study among South African teachers that indicated that teachers had insufficient knowledge with regard to the etiology of hearing loss (Pottas, 1998).

An educational audiology service delivery model should include teacher training that will encourage the expansion of teachers' knowledge about the anatomy and physiology of the auditory mechanism, the process of communication interaction, as well as knowledge about the etiology of hearing loss.

Thirdly, dependency tests revealed that the following variables increased participants' need for support in the acquisition of knowledge in the various aspects of hearing loss, namely absence of specialised training in hearing loss, unfavourable teacher/learner ratio, and infrequent in-service training. Unfortunately, these unfavourable scenarios are often found among teachers

of children with hearing loss in South Africa (Pottas, 1998). Furthermore, results indicated that teachers who mainly promote Sign Language tended to have an even more unfavourable teacher/learner ratio in their classrooms than teachers who mainly promote spoken language, which would no doubt increase their need for support.

It is clear that educational audiologists should offer added support and assistance to teachers with these unfavourable attributes or circumstances. An educational audiology service delivery model should provide teacher training that will encourage the expansion of teachers' knowledge about the various areas of hearing loss, in order to appropriately manage the child with hearing loss. Teachers and educational authorities should also be informed on the importance of obtaining specialised training in hearing loss, as well as the benefits of receiving more frequent in-service training. Information sessions should also be tailored in order to address the challenges of managing the child with hearing loss in a classroom with an unfavourable teacher/learner ratio.

Finally, discussions in focus group interviews confirm the above-mentioned findings (See Tables 5.1 and 5.2). The foremost difference between discussions of the two sub-groups was their perceptions of the current educational audiology support services rendered. Although both sub-groups of participants valued the support from educational audiologists to obtain knowledge in the aforementioned areas, participants who mainly promote Sign Language perceived a lack of support from their school-based educational audiologists. Areas in which participants who mainly promote Sign Language specifically experienced a lack of support, were information-sharing about Sign Language as a communication option, results of learners' annual audiograms, and the latest hearing aid technology. Moores (1996) states that educational audiologists sometimes fail to address areas that teachers value as important, because they tend to enter the school setting with a pre-set agenda that leaves little room for addressing teachers' individual needs. It is essential therefore, to provide support in areas that teachers value as important, because teachers play a fundamental role on the

child's educational team (English, 1995). It becomes clear that an educational audiology service delivery model should be flexible in order to adapt certain roles and responsibilities of the educational audiologist, in order to fulfil in the unique needs of teachers.

5.2.4.2 Interpretation and discussion of findings of objective #1: Support in learning about the negative impact of a hearing loss

All participants (n=364) recommended that teachers have knowledge about the negative impact of a hearing loss on the various areas of development. In contrast, very few of the participants felt that teachers required support in the acquisition of this knowledge. This may indicate that participants generally did not realise the importance of receiving support from a professional such as an educational audiologist (English, 1995; Johnson, Benson, & Seaton, 1997). Therefore, an educational audiology service delivery model should continuously increase teachers' awareness of the importance of receiving support from an educational audiologist when acquiring knowledge about the negative impact of a hearing loss on the various areas of development.

An overview of results indicated that participants who mainly promote Sign Language indicated less need for the acquisition of knowledge and support in the various areas of impact relating to hearing loss. Literature substantiates these findings, and the aforementioned can be explained by the differences in the communication instructional approaches followed by the two sub-groups. Teachers who mainly promote Sign Language, as mentioned formerly, generally do not regard hearing loss as a condition that needs to be habilitated or which negatively influences all areas of development (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). Furthermore, the acquisition of Sign Language is not negatively affected by the presence of a hearing loss (Moores, 1996). It therefore becomes clear why participants who mainly promote Sign Language indicated less need for the acquisition of knowledge and support in the various areas of impact relating to hearing loss.

Prominent findings on the need for support in learning about the negative impact of a hearing loss will be discussed.

Firstly, results revealed that participants of the two sub-groups had different views on the need for support relating to the negative impact of a hearing loss on the various areas of development. In addition, results indicated that the majority of participants who mainly promote spoken language, recommended that teachers receive support in learning about how to address the negative impact of a hearing loss on speech production skills. On the other hand, the majority of participants who mainly promote Sign Language recommended support in order to learn how to address the negative impact of a hearing loss on the psychosocial well-being of the child with hearing loss. These differences in participants' opinions can be attributed to the different communication instructional approaches they adhere to. Literature clarifies these findings as it is well-known that teachers who mainly promote spoken language are primarily concerned with the child's development of receptive language and speech production skills in inclusive settings (Jamieson, 1994; Paul & Quigley, 1994; Sanders, 1988). Therefore, it becomes apparent why they would indicate a greater need for support in learning how to address the negative impact of a hearing loss on speech production skills. Similarly, findings in research indicate that teachers who mainly promote Sign Language are very concerned about the psychosocial impact of inclusion on the child with Sign Language among his/her hearing peers (Lynas, 1994; Moores, 1996). Children who mainly use Sign Language are sometimes excluded or teased by their hearing peers, because they use signing as a method of communication (Lynas, 1994; Moores, 1996). This clearly testifies why participants who mainly promote Sign Language would indicate a greater need for support in order to address the negative impact of a hearing loss on the psychosocial well-being of the child with hearing loss within the inclusive setting.

Literature substantiates participants' views on the importance of receiving support in the acquisition of knowledge on how to address the negative impact of a hearing loss on speech production skills as well as the psychosocial well-

being of the child with hearing loss (Cappelli, Daniels, Durieux-Smith, McGrath & Neuss, 1995; Sanders, 1988; Stinson & Lang, 1994) and is discussed forthwith.

The leading consequence of deficits in speech production is that the child in an inclusive classroom is not clearly understood by the teacher and hearing classmates, causing communication breakdown, which in turn negatively influences the child's ability to be educated (Sanders, 1988). Therefore, knowledge on how to address the negative impact of a hearing loss on speech production skills is imperative for successful educational outcomes for teachers who mainly promote spoken language (Sanders, 1988).

Findings in research have found that the psychosocial development of children with hearing loss in inclusive educational settings is more troublesome than children with hearing loss in special schools due to unfavourable social ratings of peers and teachers in inclusive settings (Cappelli, Daniels, Durieux-Smith, McGrath & Neuss, 1995; Stinson & Lang, 1994). The main consequence of troublesome psychosocial development is that the child is less likely to benefit from educational attempts than children who have confidence, good self-esteem, and who are socially integrated (Froehlinger & Bryant, 1981; Northern & Downs, 1984). Therefore, knowledge on how to address the negative impact of a hearing loss on psychosocial development is imperative for successful educational outcomes (Sanders, 1988).

Educational audiologists should therefore provide support and assistance to teachers, in order to acquire knowledge about the negative impact of a hearing loss on a child's development of speech production skills and psychosocial well-being, in order to ultimately benefit the child with hearing loss. An educational audiology service delivery model should include teacher training that will encourage the expansion of teachers' knowledge in these areas of development.

Furthermore, findings revealed that only a small number of both sub-groups of participants suggested support, in order to obtain knowledge on how to

address the negative impact of a hearing loss on literacy skills. This may imply that participants did not realise the full consequences of diminished hearing and its effect on the development of literacy skills. In addition, the fact that only a small number of participants recommended support in the acquisition of knowledge in this area, may be attributed to the fact that participants felt that teachers already possessed sufficient knowledge about this topic. In the case of teachers who mainly promote spoken language, this can be ascribed to the fact that conventional approaches to literacy instruction (that utilise the child's auditory skills) generally tend to favour children who mainly use spoken language (Moores, 1996). Despite these explanations, numerous studies have indicated a need for support and have found that the literacy skills of children with hearing loss are generally poor and often plateau with age, which directly influences their mastery of all other written academic content (English, 1995; Johnson, Benson, & Seaton, 1997; Paul & Quigley, 1994; Sanders, 1988). The greatest consequence of poor literacy skills is that the child does not successfully master one of the critical foundations of education, namely to read and write, and this can negatively impact on the child's ability to be educated further (Paul & Quigley, 1994; Sanders, 1988).

It is clear that, in the inclusive educational system, teachers of children with hearing loss simply have to receive continued support in learning how to address the negative impact of a hearing loss on literacy skills. Such support should be provided by educational audiologists, so that the child with hearing loss will benefit in the end. An educational audiology service delivery model should include the opportunity for teacher training that will encourage the expansion of teachers' knowledge about the negative impact of a hearing loss on the development of literacy skills.

Secondly, findings relating to knowledge versus support required, indicated that the majority of both sub-groups of participants realised the negative impact of a hearing loss on language development and recommended that teachers in the inclusive educational system should have knowledge thereof. In addition, a large number of participants recommended support in order to

learn how to address the negative impact of a hearing loss on language development.

Literature attests to the importance of receiving support in order to learn how to address the negative impact of a hearing loss on language development and is subsequently discussed.

Deprivation of the sense of hearing forms a barrier to the normal development of language, which in turn is reflected as a barrier to learning in school (Bess & McConnell, 1981). The main educational consequence of delayed language skills is that the child has diminished comprehension and means of expression during lessons, which negatively influences the child's ability to master academic content (McAnally, Rose & Quigley, 1987). Therefore, knowledge of the negative impact of a hearing loss on language development is crucial for the teacher when planning appropriate language intervention strategies in class (Sanders, 1988).

It is clear that educational audiologists should provide support and assistance to teachers in order to acquire knowledge about the negative impact of a hearing loss on a child's language development, in order to ultimately benefit the child with hearing loss. An educational audiology service delivery model should include teacher training that will encourage the expansion of teachers' knowledge about the negative impact of a hearing loss on a child's language development.

Thirdly, dependency tests revealed that none of the variables had demonstrated a significant influence on participants' need for support in learning about the negative impact of a hearing loss on various areas of development. This applies to both sub-groups, and these results cannot readily be explained by findings in literature.

Finally, discussions in focus group interviews attest to these findings (See Tables 5.3 and 5.4). The main difference between discussions of the two sub-groups was that the impact of hearing loss on literacy skills was a theme that

enjoyed more attention from participants who mainly promote Sign Language. Literature confirms the aforementioned, and teachers' frustration in the education of literacy skills is explained by the numerous challenges that prevent children who mainly use Sign Language from easily acquiring literacy skills. Of these challenges are: traditional literacy instructional approaches generally tend to favour hearing children, a discrepancy exists between the grammatical structures of written language and Sign Language, and less emphasis on the utilisation of hearing aids causes diminished auditory feedback, which in turn negatively influences the acquisition of literacy skills (Lynas, 1994; McAnally, Rose & Quigley, 1987; Moores, 1996).

For these reasons, educational audiologists should provide assistance to teachers in order for teachers to acquire knowledge about the negative impact of a hearing loss on the development of a child's literacy skills in order to ultimately benefit the child with hearing loss. An educational audiology service delivery model should include the opportunity for teacher training that will encourage the expansion of teachers' knowledge about this area of development.

5.2.4.3 Interpretation and discussion of findings of objective #1: Support in learning about the maximising of residual hearing

All participants (n=364) recommended that teachers have knowledge about the maximising of residual hearing, however, very few participants felt that teachers required support in the acquisition of this knowledge. This may imply that participants generally did not realise the importance of receiving support from a professional such as an educational audiologist (English, 1995; Johnson, Benson, & Seaton, 1997). Therefore, an educational audiology service delivery model should continuously promote the advantages of receiving support from an educational audiologist when learning how to maximise residual hearing.

Furthermore, results revealed in general, that participants who mainly promote Sign Language indicated less need for the acquisition of knowledge and

support relating to the maximising of residual hearing. Literature confirms these findings, and this can be clarified by the differences in the communication instructional approaches of the two sub-groups (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). Participants who mainly promote Sign Language were less motivated to learn about the various aspects relating to the maximising of residual hearing such as identification and reduction of noise levels, enhancement of classroom acoustics, advocating the use of FM systems, et cetera. Participants who mainly promote Sign Language were less motivated in acquiring this knowledge, because they primarily rely on signing (a visual modality) in order to educate children with hearing loss (Lynas, 1994). Children who mainly use Sign Language generally do not utilise their residual hearing for educational purposes, and this explains why teachers who mainly promote Sign Language are less motivated to acquire knowledge and support in the maximising of residual hearing (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). Educational audiologists therefore should respect differences in teaching practices due to the differences in communication instructional approaches. Educational audiologists should continue to render accountable services within the framework of an educational audiology service delivery model that will assist each child with hearing loss to develop his/her full potential.

The prominent findings regarding the need for support in learning how to maximise residual hearing, are discussed.

Firstly, results reveal that the majority of both sub-groups of participants recommended that teachers receive support in order to learn how to advocate for an FM system in class. Literature has stressed the importance of receiving support in this aspect, in order to maximise the residual hearing of the child with hearing loss in the inclusive setting. In the inclusive classroom, information is primarily conveyed from the teacher to the child through soundwaves. If these soundwaves are diminished or stifled due to poor classroom acoustics, the child will be unable to receive auditory information in the class in order to learn and achieve academically (Berg, Blair & Benson, 1996). Assistive listening devices, such as an FM system enables the child to

optimally utilise his/her residual learning and consequently to benefit from educational efforts by the teacher (Crandell & Smaldino, 2000). Children with hearing loss who do not have access to these devices are denied their basic right to hearing, and consequently their opportunities for learning in an inclusive classroom (Crandell & Smaldino, 2000). Unfortunately, an unfavourable scenario exists within the South African context where many schools do not have the financial resources to afford assistive devices (Penn & Reagan, 1995). This can, however, not be accepted as a reason for not advocating for FM systems, and it is the shared responsibility of the teacher and the educational audiologist to advocate for the use of these assistive devices in inclusive classrooms, in order to benefit the child with hearing loss.

Educational audiologists therefore should support and assist teachers in obtaining knowledge in order to advocate the use of FM systems in classrooms. An educational audiology service delivery model should provide opportunity for teacher training that would assist teachers to learn how to advocate for FM systems in the classroom.

Secondly, findings relating to knowledge versus support required, indicated that the majority of participants of both sub-groups recommended that teachers know how to encourage continuous use of hearing aids among the children in order to maximise residual hearing. Literature often highlights the importance of continuous use of hearing aids among children with hearing loss, and subsequently confirms that teachers should know how to encourage continuous use of hearing aids in order to maximise residual hearing. Children with hearing loss who do not continually utilise their hearing aids diminish their opportunities for learning through their auditory pathways in the classroom (Bentler, 1993). Children with hearing loss need encouragement to wear their hearing aids, because like most children they are not always aware of what is beneficial to them, and they often rebel against the wearing of hearing aids that are not visually “attractive” to their hearing peers (Brooks, 1981).

However, results indicated that only a minority of participants of both sub-groups recommended support in order to learn how to encourage continuous use of hearing aids among the children in order to maximise residual hearing. This may indicate that participants are of the opinion that teachers had sufficient knowledge on how to encourage continuous use of hearing aids among the children with hearing loss. However, findings in research reveal that children with hearing loss often discard their hearing aids or seldomly use them when among their hearing peers (English, 1995; Moores, 1996). The educational audiologist can provide additional information to teachers about the encouragement of the use of hearing aids in an inclusive setting and provide support with the trouble-shooting of hearing aids, and with training in listening skills. An educational audiology service delivery model should provide teacher training that will encourage the expansion of teachers' knowledge on the maximising of residual hearing of the child with hearing loss.

Thirdly, dependency tests revealed that the following variables increased participants' need for support in learning how to maximise residual hearing, namely: absence of higher qualifications, absence of specialised training in hearing loss, unfavourable teacher/learner ratios, and infrequent in-service training. Unfortunately, these unfavourable scenarios are often found among teachers of children with hearing loss in South Africa (Pottas, 1998).

Educational audiologists should offer added support and assistance to teachers with these unfavourable attributes or circumstances. An educational audiology service delivery model should provide teacher training that will encourage the expansion of teachers' knowledge of how to maximise residual hearing in order to appropriately manage the child with hearing loss. Teachers should also be informed of the advantages of obtaining higher qualifications with respect to their management of children with hearing loss. Furthermore, the importance of obtaining specialised training in hearing loss, and the benefits of receiving more frequent in-service training, should be stressed to teachers as well as educational authorities. Information sessions should also be tailored in order to address the challenges of developing the

residual hearing of the child with hearing loss in a classroom with an unfavourable teacher/learner ratio.

Finally, discussions in focus group interviews confirm these findings (See Tables 5.5 and 5.6). The main difference between the excerpts of participants of the sub-groups was that participants who mainly promote Sign Language did not excessively discuss the topic of maximising residual hearing. As mentioned above, the lack of interest in this theme may reveal that participants did not regard the maximising of residual hearing a priority among their learners who mainly use Sign Language as a mode of communication. Children who mainly use Sign Language are generally not required to utilise their residual hearing when lessons are presented by means of Sign Language (Moores, 1997).

The above findings illustrate that educational audiologists should be cautioned against identifying issues of importance that teachers do not regard as equally important (Moores, 1996). Educational audiologists should be sensitive to the unique needs of teachers with regard to maximising residual hearing. Thus, an educational audiology service delivery model should take note of the varying needs of teachers with regard to support, and teacher training should not blindly include topics, but should include topics most relevant to teachers that follow different communication instructional approaches.

5.3 RESULTS AND DISCUSSION OF OBJECTIVE #2: PARTICIPANTS' NEED FOR SUPPORT IN THE AUDIOLOGICAL AND EDUCATIONAL MANAGEMENT OF THE CHILD WITH HEARING LOSS

The second objective of the study was to determine and describe teachers' need for support in the **audiological and educational management of the child with hearing loss**. This objective is further divided into five categories, namely the development of language skills, speech production skills, communication skills, literacy skills and academic achievement, and

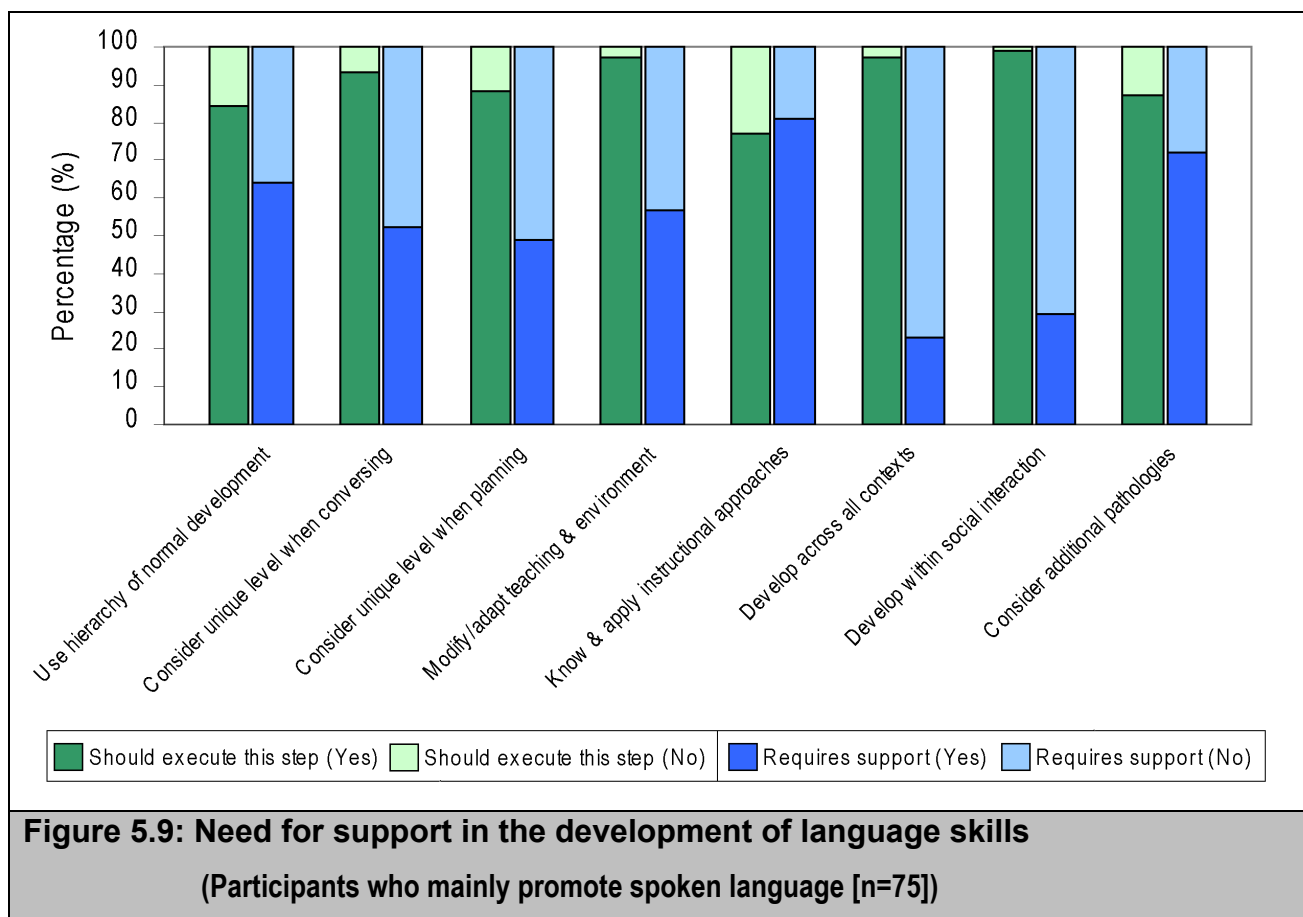
psychosocial well-being. Data obtained for these categories are discussed in sections 5.3.1 to 5.3.5. The responses obtained from the questionnaire survey of both sub-groups of participants are presented in the following order. **Firstly**, the support required; **secondly**, intervention steps versus the support required; **thirdly**, the influence of variables; and **finally**, the correspondence between the two sub-groups of participants. An interpretation and discussion of the general trend of this objective will conclude this section.

5.3.1 The need for support in the development of language skills

The intervention steps were identified that the participants recommended for teachers in the inclusive educational system to carry out in order to develop the language skills of a child with hearing loss. In addition, it was established whether the participants suggested professional support for teachers in order to carry out these steps.

These results include responses to the items in Question 16 of the questionnaire survey (Appendix D), and supporting themes from the focus group interviews (Appendix E) are presented. The findings of the two sub-groups of participants are presented separately.

Findings of participants **who mainly promote spoken language**, are revealed in Figure 5.9.



The above results indicate participants' recommendations for teacher support in the development of language skills. Prominent findings are:

Firstly, the above figure indicates that a high number of participants (81%) recommended professional support in order to acquire knowledge about various language *instructional approaches* and to subsequently apply the best-suited approach. Furthermore, only a small number of participants (23%) recommended support in order to develop language *across all school contexts*.

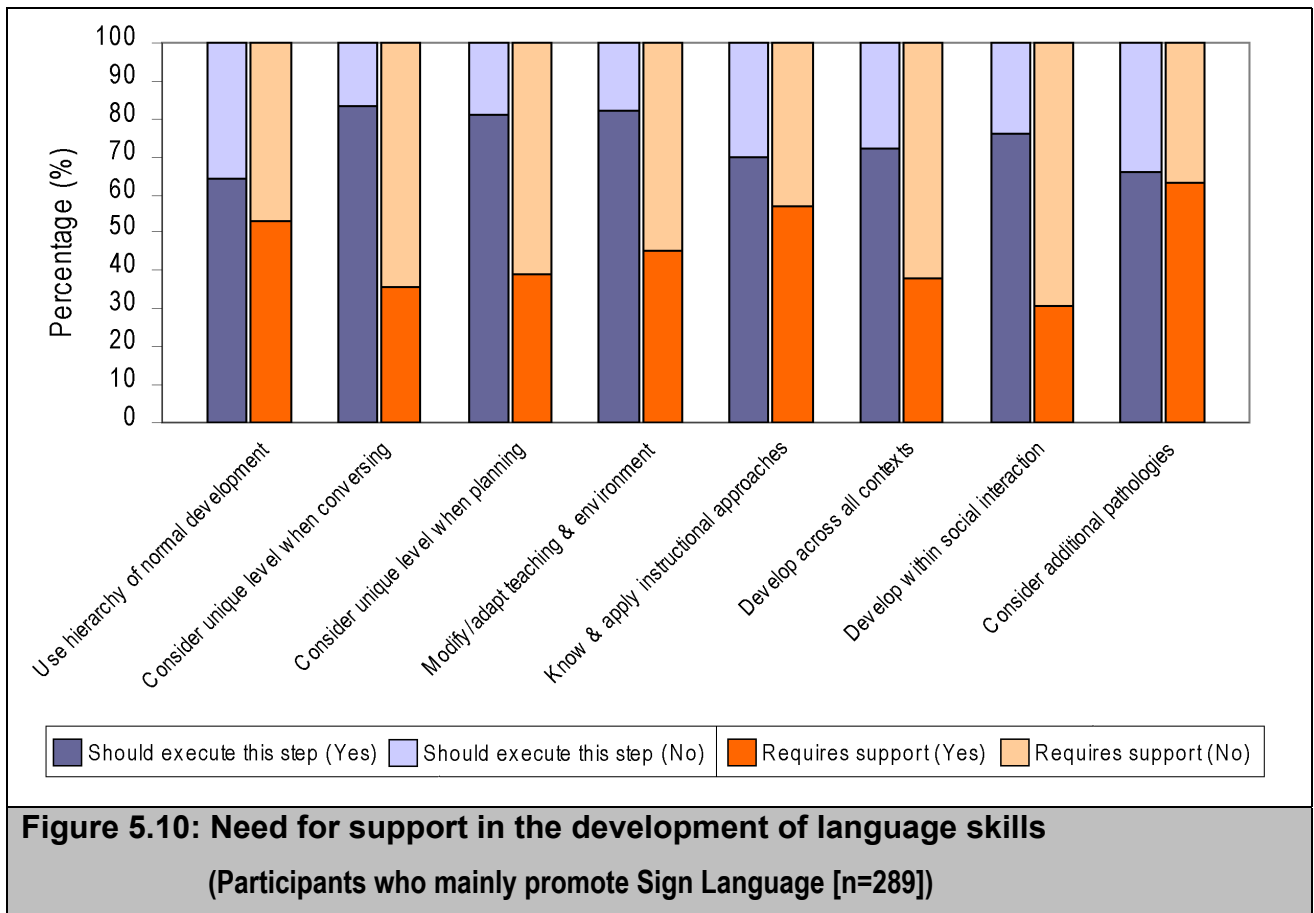
Secondly, on the whole, intervention steps were recommended by a large number of participants (77%–99%). Almost all of the participants (99%) recommended that teachers develop language skills within activities of *social interaction*. In contrast, results reveal that only a few participants (29%) recommended professional support in order to develop language skills within activities of social interaction.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of language skills, and are clarified in the following discussion.

Participants who had diplomas indicated a greater need for support in the development of language within activities of social interaction than participants with higher *qualifications* (See Appendix I, Table I1). Participants with no *specialised training* in hearing loss indicated a greater need for support in the use of the hierarchy of normal language development as well as support regarding the awareness of additional language pathologies (See Appendix I, Table I3). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the planning of teaching content by considering the child's unique language level (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of participants **who mainly promote Sign Language** is presented in Figure 5.10.



The above results indicate participants' recommendations for teacher support in the development of language skills. Prominent findings are:

Firstly, the above figure indicates that a fairly large number of participants (63%) recommended professional support in order to consider the possibility of *additional language pathologies*. Furthermore, only a small number of participants (31%) recommended support in order to develop language within activities of *social interaction*.

Secondly, a large number of participants (83%) recommended that teachers consider the child's *unique level* of language functioning when conversing with the child. In contrast, results reveal that only a few participants (36%) recommended professional support in order to consider the child's *unique level* of language functioning.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of language skills and are clarified in the following discussion.

Participants who had diplomas and no higher *qualifications* indicated a greater need for support in the development of language across all contexts as well as the development of language within activities of social interaction (See Appendix I, Table I2). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the following areas of language development: considering the child's unique language level when conversing with the child, the modification and/or adaptation of teaching materials, techniques, and the environment to meet the language needs of the child, knowledge and application of language instructional approaches, the development of language skills across all contexts, and the development of language within activities of social interaction (See Appendix I, Table I10)

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist, however, findings reveal that both sub-groups of participants who had diplomas indicated a greater need for support in the development of language within activities of social interaction, than participants with higher *qualifications* (See Appendix I, Tables I1 and I2).

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #2, namely participants' need for support in the

development of language skills. The findings of the two sub-groups of participants are presented separately.

Table 5.7 (below) depicts some of the relevant excerpts extracted from the two focus group interviews conducted with **the participants who mainly promote spoken language** (n=10).

Table 5.7: Need for support in the development of language skills

(Participants who mainly promote spoken language)

“...we are specifically trained to know where language starts, in other words, we know a small little thing such as eye contact...is a form of language...”[1]

“...in our case everything is presented through (teacher shows with hands that are interwoven) language, for instance our playtime, our art...when we eat...”[2]

“...it is not always their home language...this is another incoming factor...is this his second language?...or third language that he is learning?...is he receiving stimulation throughout?...at home, at church, in the community?, or does he only get it at school?...”[3]

Table 5.7 depicts excerpts that corresponded to the theme of language development and reveal that the participants were especially aware of the *hierarchy of normal language development* [1], the development of language *across all contexts* [2], as well as taking into account that some children may have *additional language problems*, such as second language confusion [3]. Throughout the focus group interviews, the participants emphasised the benefits of receiving support from an educational audiologist, and it can thus be deduced that they recommended support by an educational audiologist to develop the language skills of a child with hearing loss.

Table 5.8 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with **the participants who mainly promote Sign Language** (n=9).

Table 5.8: Need for support in the development of language skills

(Participants who mainly promote Sign Language)

“...she (the educational audiologist) and I decide: pronouns, we divided them, pronouns for grade four we do this, for grade five we do this, grade six we do this...then we build the syntax and reading comprehension and vocabulary further upon this...”[1]

“...definitely in the area of language they (the educational audiologists)...can make more contributions in terms of planning the language lessons...”[2]

“...then she (the educational audiologist) is trying to tell the teacher about language structures that must be taught to the children (teacher looks upset), such as grammar...instead of functional language that the children want...”[3]

The above table contains excerpts that corresponded to the theme of language development. These excerpts reveal that one of the participants in the focus group interview was especially aware of *adapting teaching* techniques to meet the language needs of the child with hearing loss [1]. One of the participants was also concerned that they are not receiving adequate support from the educational audiologist in terms of planning in order to *adapt and modify teaching* materials [2] as well as support to develop functional language across activities of *social interaction* [3].

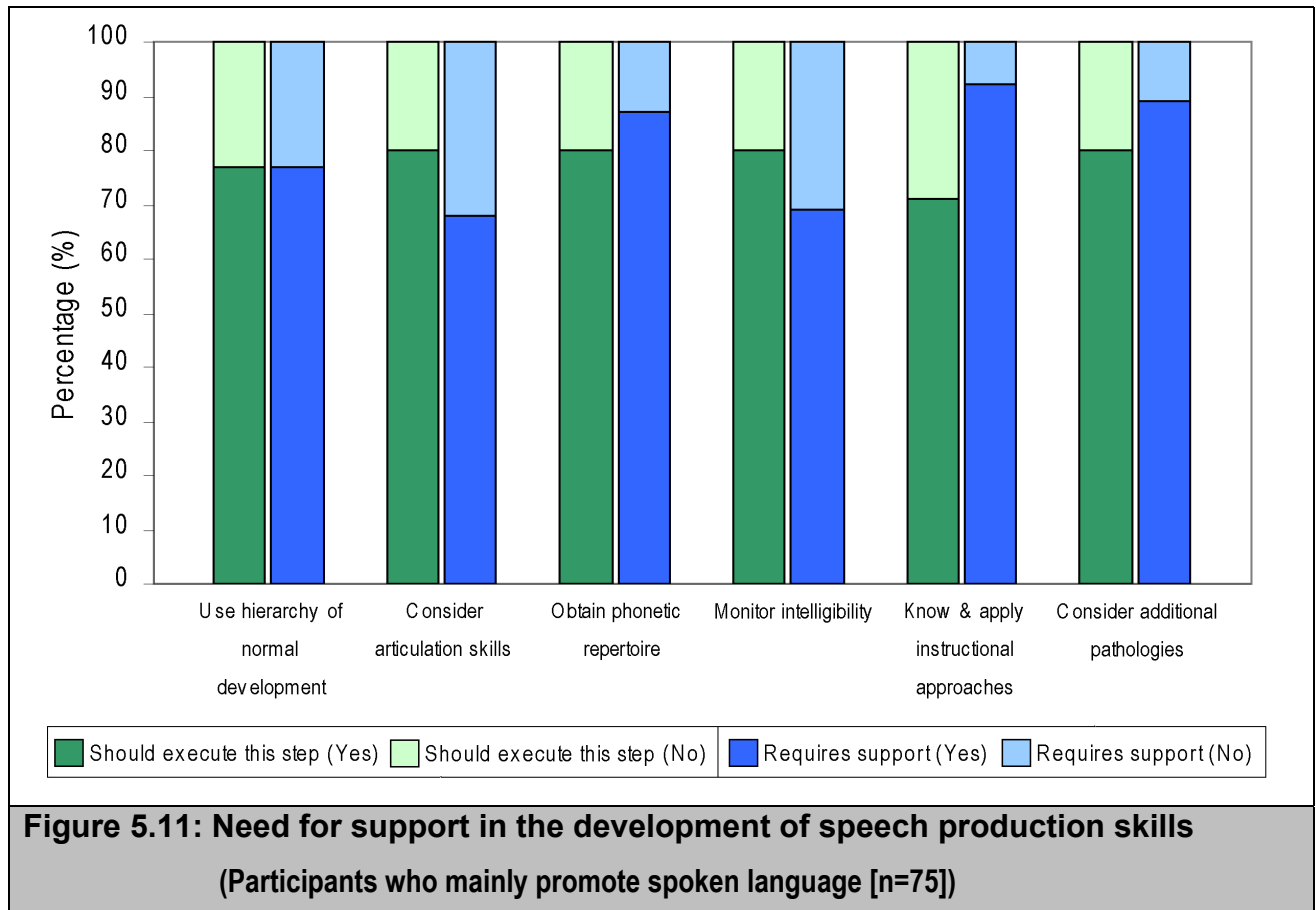
5.3.2 The need for support in the development of speech production skills

The intervention steps were identified that the participants recommended for teachers in the inclusive educational system to take, in order to develop the speech production skills of a child with hearing loss. In addition, it was established whether the participants suggested professional support for teachers in order to carry out these steps.

These results include responses to the items in Question 17 of the questionnaire survey (Appendix D) and supporting themes from the focus group interviews (Appendix E) are added.

The results of the two sub-groups of participants are presented separately.

The results of **participants who mainly promote spoken language**, are illustrated in Figure 5.11.



The results indicate participants' recommendations for teacher support in the development of speech production skills. Prominent findings are:

Firstly, the aforementioned figure indicates that, on the whole, support was recommended by a high number of participants (68%–92%). A large number of participants (92%) recommended professional support in order to acquire knowledge about various speech *instructional approaches* and to apply the best-suited approach. Furthermore, a fairly large number of participants (68%) recommended support in order to consider the child's *articulation skills*.

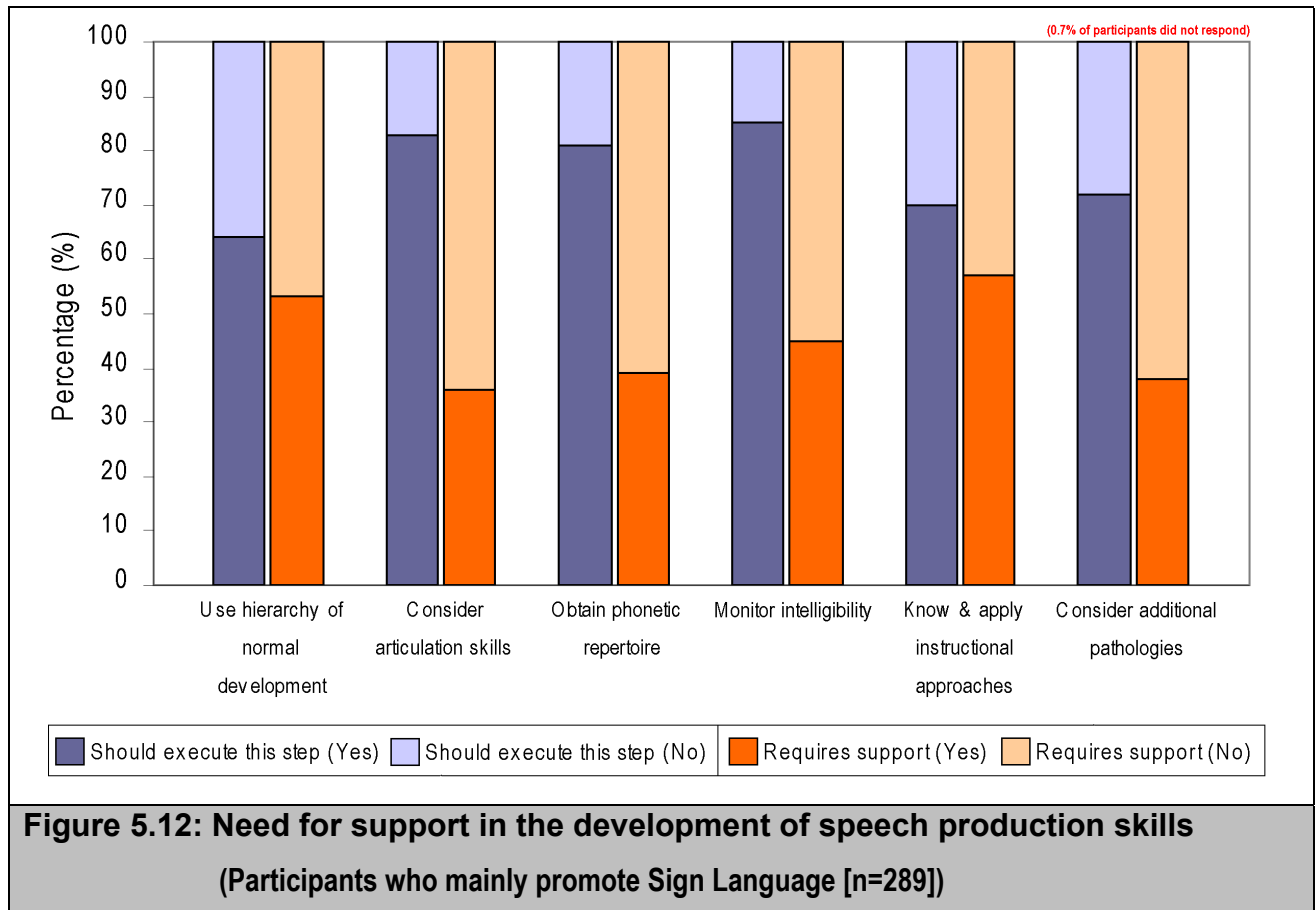
Secondly, on the whole, various intervention steps were recommended by a large number of participants (71%-80%). A large number of participants (80%) selected the first, second, third, fourth and sixth item concurrently. The results indicate, therefore, that a large number of participants (80%) recommended the following: teachers should use the *hierarchy of normal speech development* to plan speech production activities, consider the child's *articulation skills*, obtain the child's *phonetic repertoire*, monitor changes in *speech intelligibility*, and take into account *additional speech pathologies* such as voice problems. In addition, results reveal that more than half of the participants, with percentages respectively ranging from 68 % up to 89%, recommended professional support in order to carry out the above-mentioned steps.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \neq 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of speech production skills, and are clarified in the following discussion.

Participants who had diplomas indicated a greater need for support in the acquisition of the child's phonetic repertoire than participants with higher *qualifications* (See Appendix I, Table I1). Participants with no *specialised training* in hearing loss indicated a greater need for support in the monitoring of speech intelligibility (See Appendix I, Table I3). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the consideration of the child's articulation skills when planning speech production activities as well as the monitoring of speech intelligibility (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are presented in Figure 5.12. Two of the participants (0,7%) did not respond to this question.



The above results indicate participants' recommendations for teacher support in the development of speech production skills. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support was recommended by only a small number of participants (36%–58%). Slightly more than half of the participants (58%) recommended professional support in order to know and apply various *instructional approaches* for speech development. Furthermore, only a small number of participants (36%)

recommended professional support in order to consider the child's *articulation skills*.

Secondly, a large number of participants (85%) recommended that teachers monitor changes in the child's *speech intelligibility*. In contrast, results reveal that only a small number of participants (45%) recommended professional support in order to monitor changes in the child's speech intelligibility.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \neq 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of speech production skills and are clarified in the following discussion.

Participants who had diplomas indicated a greater need for support in the consideration of the child's articulation skills when planning activities for speech production than participants with higher *qualifications* (See Appendix I, Table I2). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the consideration of the child's articulation skills when planning speech production activities, as well as for taking into account additional speech pathologies (See Appendix I, Table I10).

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the majority of both sub-groups of participants recommended professional support in order to know and apply various *instructional approaches* for speech development. Furthermore, only the minority of both sub-groups of participants recommended support in order to consider the child's *articulation skills*. Comparisons between the results of dependency tests indicated that both sub-groups of participants who have

received *in-service training* less frequently than once per month, indicated a greater need for support in the consideration of the child's articulation skills when planning speech production activities (See Appendix I, Tables I9 and I10).

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These items corresponded to objective #2, namely participants' need for support in the development of speech production skills. The findings of the two sub-groups of participants are presented separately.

Table 5.9 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

Table 5.9: Need for support in the development of speech production skills
(Participants who mainly promote spoken language)

“...I'll ask her (the educational audiologist)...am I going too fast?, am I going too slow?...otherwise you don't know where you're heading and if you're making any progress...”[1]

“...we want them (the educational audiologists) to...motivate the children to speak, it will be a great help if there is someone to make sure each child gets his turn...”[2]

The above table reveals excerpts that corresponded to the theme of the development of speech production skills and reveal that one of the participants was especially aware of the child's unique level of *articulation skills* when planning activities for improvement of speech intelligibility [1]. The participant in the focus group interview also revealed a need for support regarding the *motivation* of children to develop their speech production skills [2]. Throughout the focus group interviews the participants emphasised the benefits of receiving support from an educational audiologist and it can

therefore be deduced that they recommended support by an educational audiologist to develop the speech production skills of a child with hearing loss.

Table 5.10 contains some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9).

**Table 5.10: Need for support in the development of speech production skills
(Participants who mainly promote Sign Language)**

“...people feel children should receive speech training and then they mix it with gestures...the children aren't learning one of the two properly and this is definitely not a natural (teacher raises eyebrows) language...”[1]

“...speech should be taught with gestures from an early age...”[2]

“...they (the educational audiologists) could help...with the pronunciation and forming of words in subjects, where they have to know big words...”[3]

Table 5.10 contains excerpts that corresponded to the theme of the development of speech production skills. These excerpts reveal that there was discrepancy among the participants in focus group interviews with relation to the simultaneous *instruction* of speech and Sign Language [1,2]. One participant claimed that simultaneous instruction caused confusion and that gestures should be taught separately from speech [1]. Another participant felt that simultaneous instruction from an early age was the most effective strategy to follow [2]. One of the participants suggested support from an educational audiologist in order to improve the pronunciation of subject vocabulary by children with hearing loss [3].

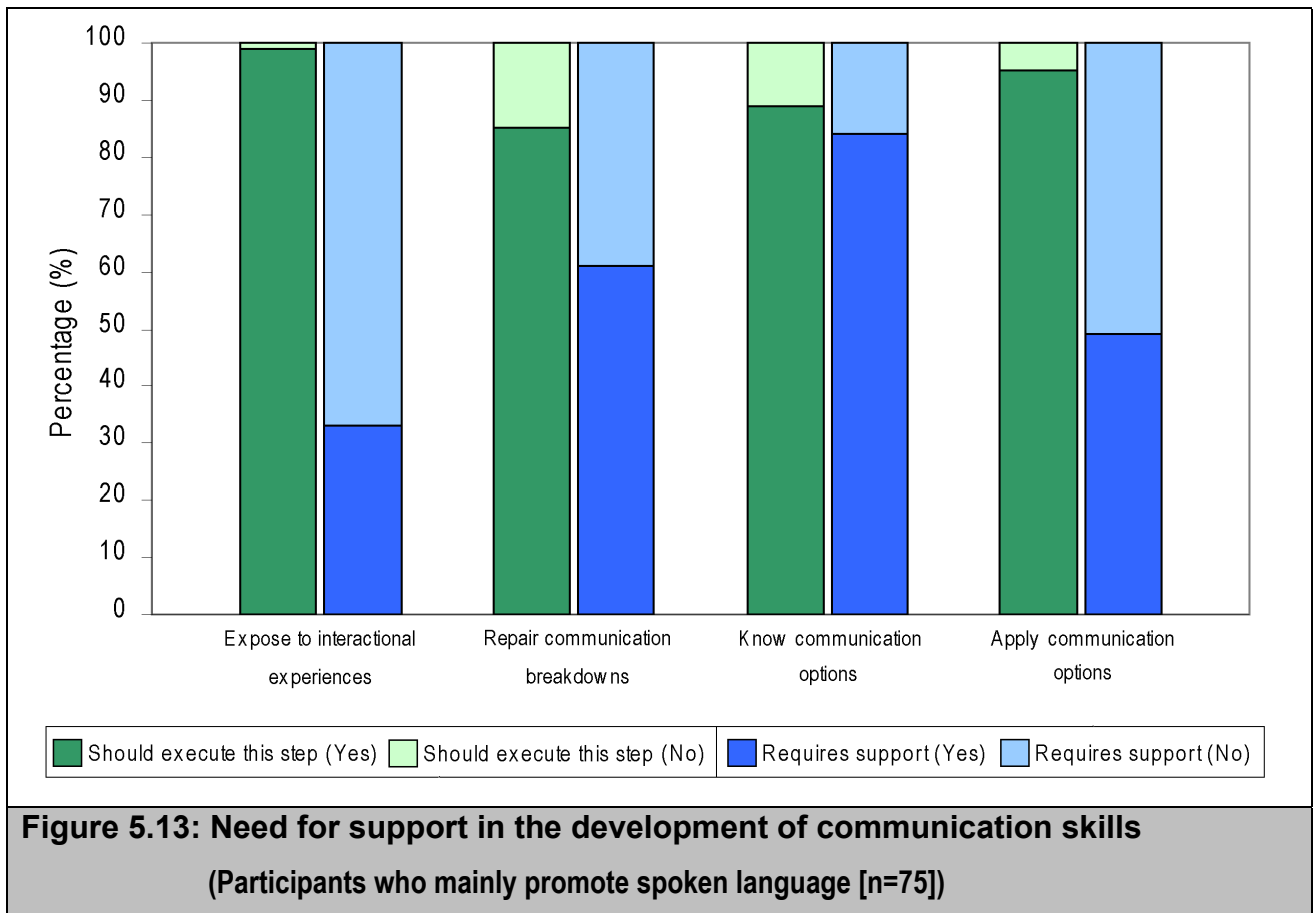
5.3.3 The need for support in the development of communication skills

The intervention steps were identified that participants recommended for teachers in the inclusive educational system to take in order to develop the communication skills of a child with hearing loss. In addition, it was

established whether the participants suggested professional support for teachers in order to carry out these steps.

These results include responses to the items in Question 18 of the questionnaire survey (Appendix D) and supporting themes from the focus group interviews (Appendix E) are presented. The findings of the two sub-groups of participants are presented separately.

The results of **participants who mainly promote spoken language**, are presented in Figure 5.13.



The above results indicate participants' recommendations for teacher support in the development of communication skills. Prominent findings are:

Firstly, the above figure indicates that, on the whole, varying degrees of support was recommended in order to develop communication skills

(33%-84%). A large number of participants (84%) recommended professional support in order to acquire knowledge about the different *communication options* available. Furthermore, only a small number of participants (33%) recommended professional support in order to expose children to *interactional experiences*.

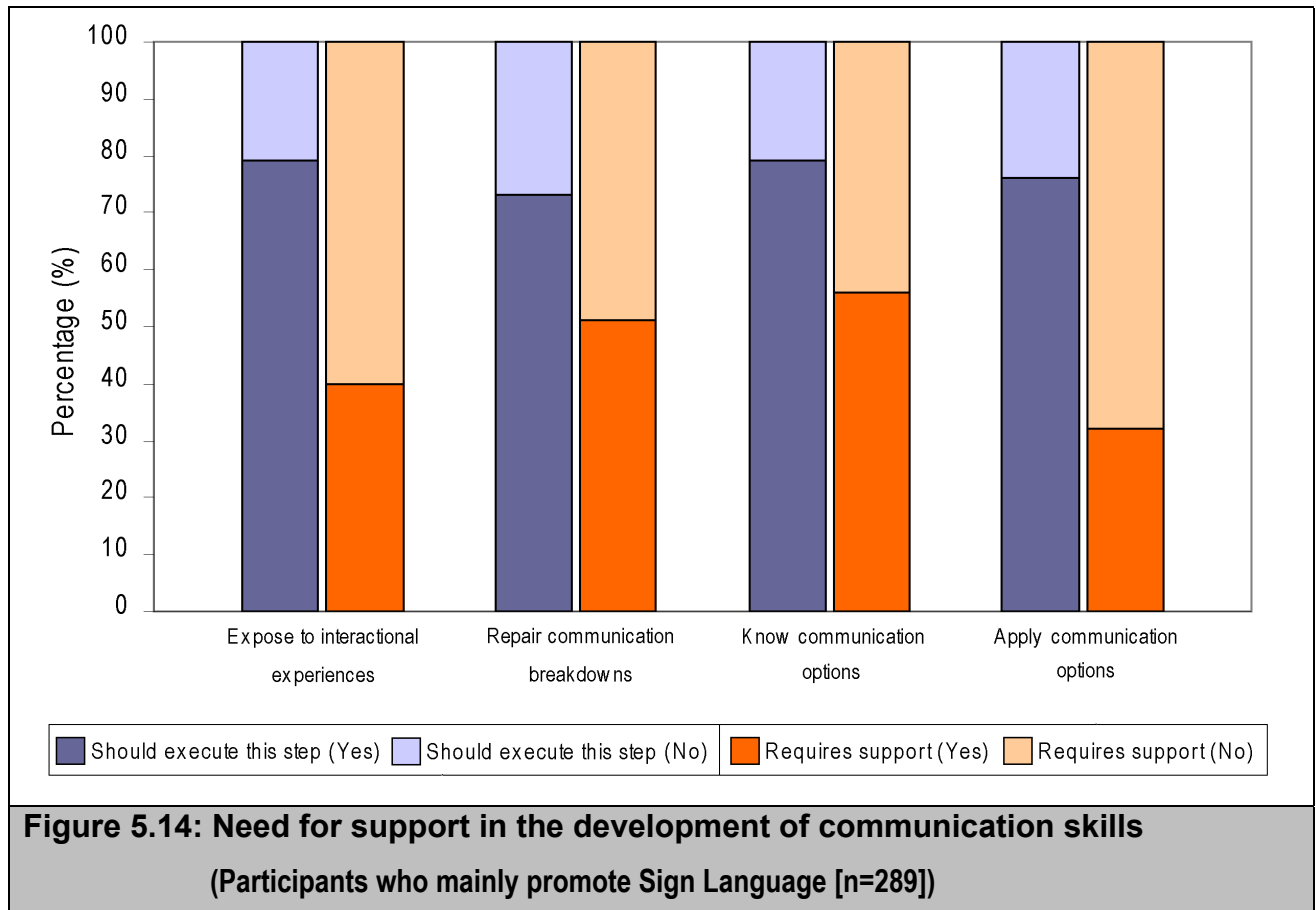
Secondly, on the whole, intervention steps were recommended by a large number of participants (85%–99%). Almost all of the participants (99%) recommended that teachers expose children to *interactional experiences* in order to motivate and develop communication skills. In contrast, as mentioned formerly, results reveal that only a few participants (33%) recommended professional support in order to expose children to *interactional experiences*.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \neq 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of communication skills and are clarified in the following discussion.

Participants who had diplomas indicated a greater need for support regarding the exposure of the child to interactional experiences than participants who had higher *qualifications* (See Appendix I, Table I1). Participants with less than 5½ years of *experience* in teaching indicated a greater need for support in the application of a suitable communication option (See Appendix I, Table I5). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support regarding the exposure of the child to interactional experiences as well as the repair of communication breakdowns in the classroom (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are illustrated in Figure 5.14.



The above results indicate participants' recommendations for teacher support in the development of communication skills. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support was recommended by only a small number of participants (32%–56%). More than half of the participants (56%) recommended professional support in order to acquire *knowledge* about the different *communication options* available. Furthermore, only a small number of participants (32%) recommended support in order to *apply* one of the *communication options*.

Secondly, a large number of participants (79%) selected the first and third item concurrently. Thus, results reveal that 79% of participants recommended that teachers expose children to *interactional experiences* in order to motivate and develop communication skills and that teachers should be knowledgeable on the various *communication options* available. Findings reveal that 40% and 56% of participants respectively recommended professional support in order to carry out the above-mentioned.

Thirdly, further statistical analysis of these results reveal that only one of the variables rendered a chi-squared (X^2) value greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). A chi-squared (X^2) value greater than the critical value meant that the respective variable had demonstrated a significant influence on the participants' need for support in the development of communication skills, and a clarification thereof follows.

Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support regarding knowledge of various communication options available (See Appendix I, Table I10).

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that a large number of both sub-groups of participants recommended professional support in order to acquire *knowledge* about the various *communication options* available. In addition, a large number of both sub-groups of participants recommended that teachers expose children to *interactional experiences* in order to motivate and develop communication skills.

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes

corresponded to objective #2, namely participants' need for support in the development of communication skills. The findings of the two sub-groups of participants are presented separately.

Table 5.11 depicts one of the relevant excerpts extracted from the two focus group interviews conducted with **the participants who mainly promote spoken language** (n=10).

Table 5.11: Need for support in the development of communication skills
(Participants who mainly promote spoken language)

“...the continuous stimulation of (spoken) language all around him causes the child to speak sooner, because there is no signing...the child has to cope, he must be able to read the situation ...”

The above table contains an excerpt that corresponded to the theme of the development of communication skills and reveals that the participant favoured spoken language as a *communication option* and included Sign Language during strategies of communication development. Throughout the focus group interviews, the participants emphasised the benefits of receiving support from an educational audiologist, and it can therefore be deduced that they recommended support by an educational audiologist to develop the communication skills of a child with hearing loss.

Table 5.12 contains some of the relevant excerpts extracted from the two focus group interviews conducted with **the participants who mainly promote Sign Language** (n=9).

Table 5.12: Need for support in the development of communication skills
(Participants who mainly promote Sign Language)

“...most of the teachers working in the foundation phase aren't fluent in Sign Language, until this hasn't been sorted out all is a joke, I mean it's a waste of precious money and time...”[1]

“...every audiologist/speech therapist I have ever spoken to says “no” (teacher shakes

head) to gestures...”[2]

“...if teachers at schools for the Deaf are making use of Sign Language interpreters why can't the speech therapist also make use of them?...”[3]

Table 5.12 contains excerpts that corresponded to the theme of the development of communication skills. The first excerpt reveals that the participant in the focus group interview felt that colleagues should receive better training in the *communication option* used at their school, namely Sign Language [1]. Some of the participants felt that their educational audiologists were not supportive of Sign Language [2] and suggested they utilise Sign Language interpreters in order to further promote this *communication option* at their school [3].

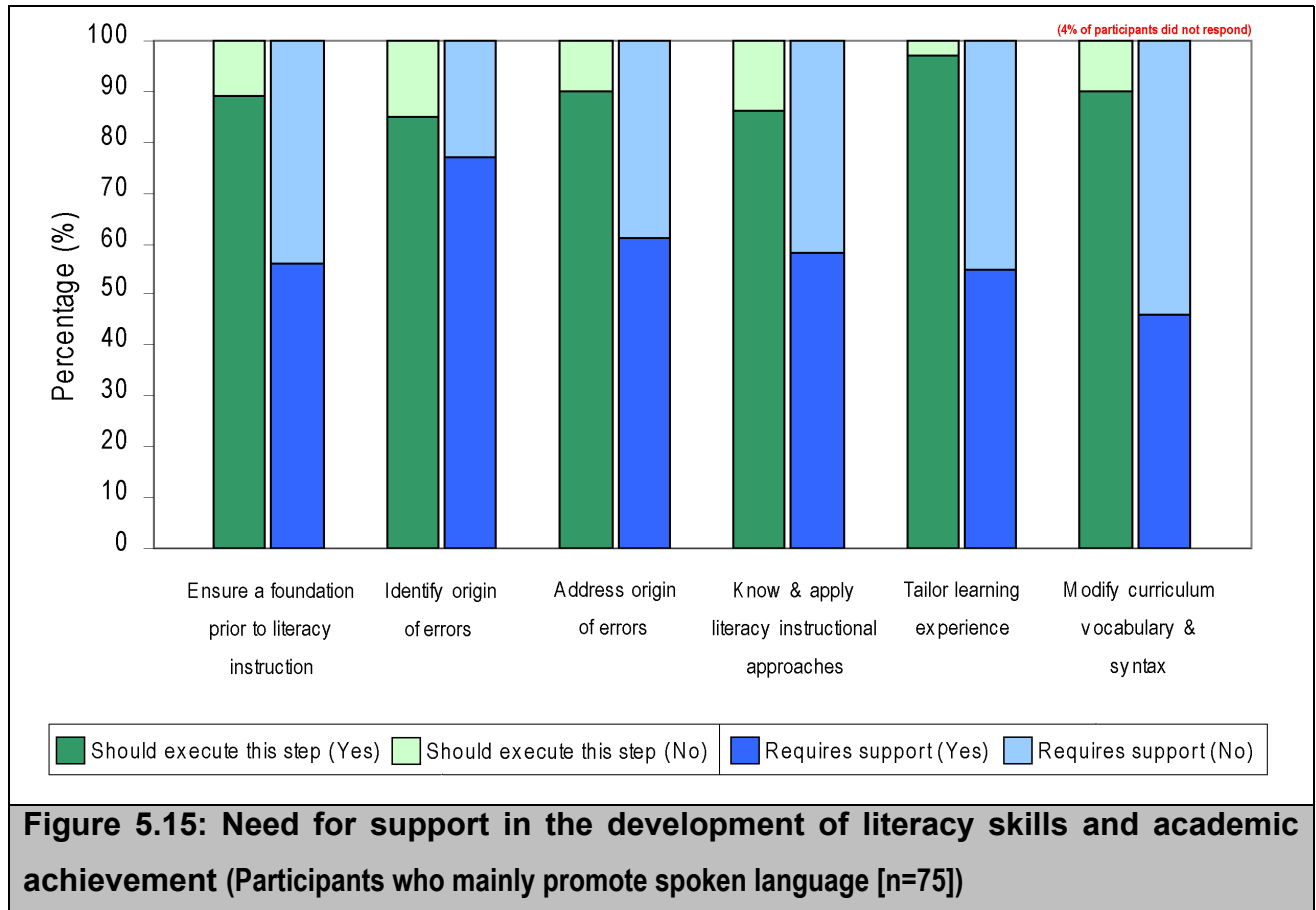
5.3.4 The need for support in the development of literacy skills and academic achievement

The intervention steps were identified that the participants recommended for teachers in the inclusive educational system to take in order to develop the literacy skills and academic achievement of a child with hearing loss. In addition, it was established whether the participants suggested professional support for teachers in order to carry out these steps.

The findings of questions on literacy skills and questions on academic achievement are combined in order to ease the representation as well as the discussion thereof. The results therefore include responses to the items in Question 19 and Question 20 of the questionnaire survey (Appendix D) and supporting themes from the focus group interviews (Appendix E) are presented.

The results of the two sub-groups of participants are discussed separately.

Findings of **participants who mainly promote spoken language**, are presented in Figure 5.15 below. Three of the participants (4%) did not respond to this question.



The above results indicate participants' recommendations for teacher support in the development of literacy skills and academic achievement. Prominent findings are:

Firstly, the above figure indicates that a large number of participants (77%) recommended professional support in order to *identify the origin of literacy errors*. Furthermore, only a small number of participants (46%) recommended that teachers receive support in order to *modify the curriculum vocabulary and syntax*.

Secondly, on the whole, intervention steps were recommended by a high number of participants (85%–97%). A large number of participants (97%)

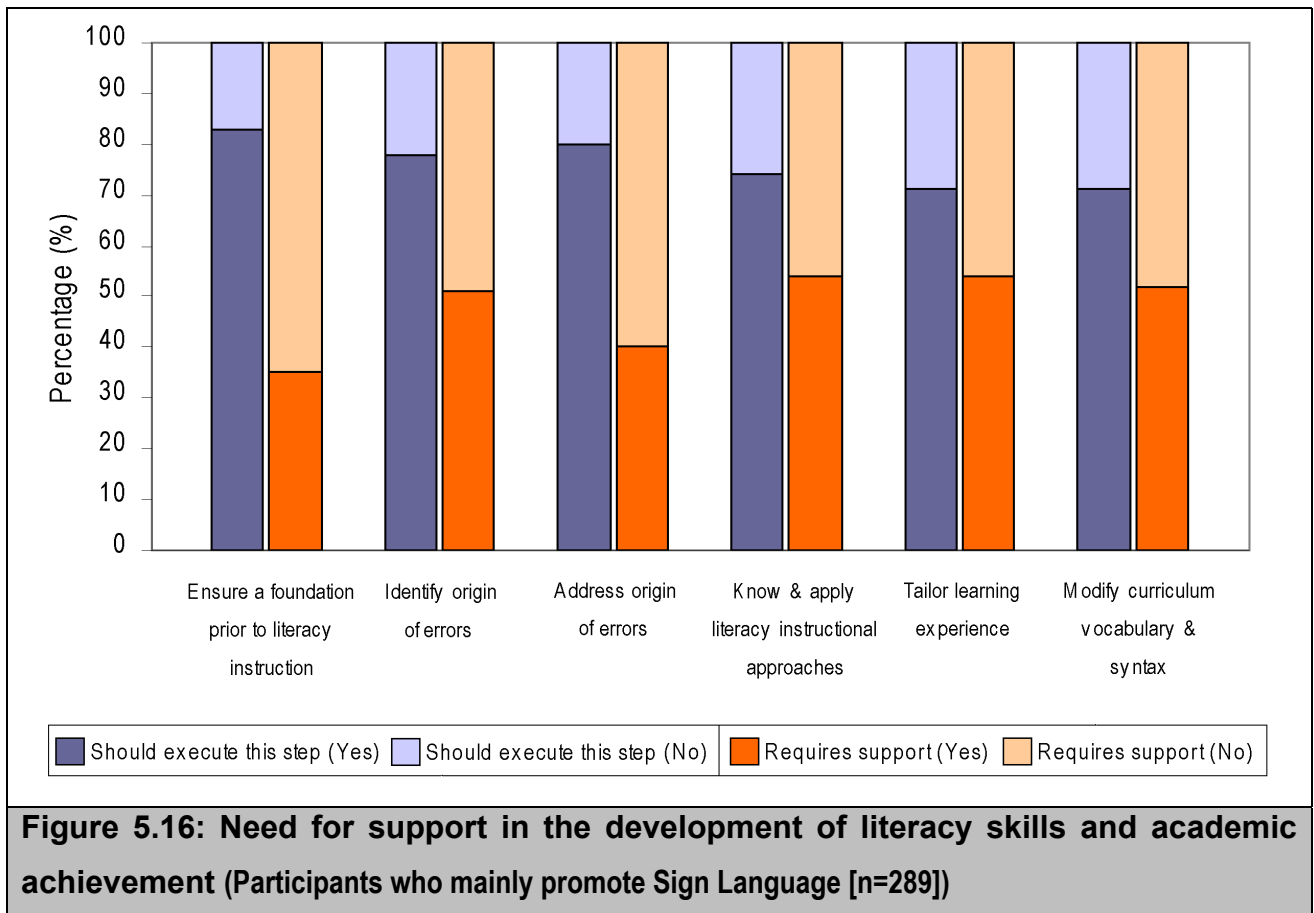
recommended that teachers *tailor the learning experience* of the child with hearing loss in order to match the child's cognitive, physical, socio-emotional, and cultural level. Findings reveal that 55% of the participants recommended professional support in order to *tailor the learning experience* of the child with hearing loss.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of literacy skills and academic achievement. These variables are clarified in the following discussion.

Participants with no *specialised training* in hearing loss indicated a greater need for support in the following: ensuring a basic language foundation prior to literacy instruction, addressing the origin of literacy errors, and knowing and applying literacy instructional approaches (See Appendix I, Table I3). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the modification of vocabulary and syntax of the curriculum (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are indicated in Figure 5.16.



The above results indicate participants' recommendations for teacher support in the development of literacy skills and academic achievement. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support was recommended by only a small number of participants (35%–54%). More than half of the participants (54%) recommended professional support in order to know and apply the various *instructional approaches* in literacy and to *tailor the learning experience*. Furthermore, only a small number of participants (35%) recommended support in order to ensure a good *foundation of language prior to literacy instruction*.

Secondly, a large number of participants (83%) recommended that teachers ensure a good *foundation of language prior to literacy instruction*. In contrast, as mentioned above, only a few participants (35%) recommended support in order to ensure a good foundation of language prior to literacy instruction.

Thirdly, further statistical analysis of these results reveal that only one of the variables rendered a chi-squared (X^2) value greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). A chi-squared (X^2) value greater than the critical value meant that the respective variable had demonstrated a significant influence on the participants' need for support in the development of literacy skills and academic achievement. A clarification of this variable follows.

Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the following: identifying the origin of literacy errors, knowing and applying literacy instructional approaches, as well as tailoring of the child's learning experience to his/her cognitive, physical, socio-emotional, and cultural level (See Appendix I, Table I10).

Finally, differences and similarities between the two sub-groups of participants were evaluated. A wide range of differences exist, and none of the results of the sub-groups corresponded on the need for support in the development of literacy skills and academic achievement.

* * *

Themes for focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #2, namely participants' need for support in the development of literacy skills and academic achievement. The findings of the two sub-groups of participants are presented separately.

Table 5.13 reveals some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

Table 5.13: Need for support in the development of literacy skills and academic achievement (Participants who mainly promote spoken language)

“...parents who don’t share the same culture as us...OBE (outcomes-based education) is a problem for them...parents of our culture can use the internet, they can help with projects...they will see how they can help the child...the other parents don’t...”[1]

“...with subjects you must zoom-in individually, you must explain the terminology...because their vocabulary is poor, their world experiences are poor...”[2]

The above table contains excerpts that corresponded to the theme of the development of literacy skills and academic achievement. The first excerpt reveals that one of the participants in the focus group interview was aware that the *learning experience* of a child with hearing loss should, inter alia, be *tailored* according to his/her cultural environment [1]. The second excerpt shows that the participant knew that the vocabulary of the subject *curriculum needs to be modified* for the child with hearing loss [2]. Throughout the focus group interviews, the participants emphasised the benefits of receiving support from an educational audiologist, and it can therefore be deduced that they recommended support by an educational audiologist to develop the literacy skills and academic achievement of a child with hearing loss.

Table 5.14 contains some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9).

Table 5.14: Need for support in the development of literacy skills and academic achievement (Participants who mainly promote Sign Language)

“...if they (the educational audiologists)...can overcome that bridge between Sign Language and written language, they will be worth their weight in gold...”[1]

“...my problem is this: they can’t read, in other words I can’t give them a project to do, the moment he sits at his bench...then he once again doesn’t know what has been written down...”[2]

“...it would be ideal if the audiologists/speech therapists could help the children with these projects, because they have the know-how...”[3]

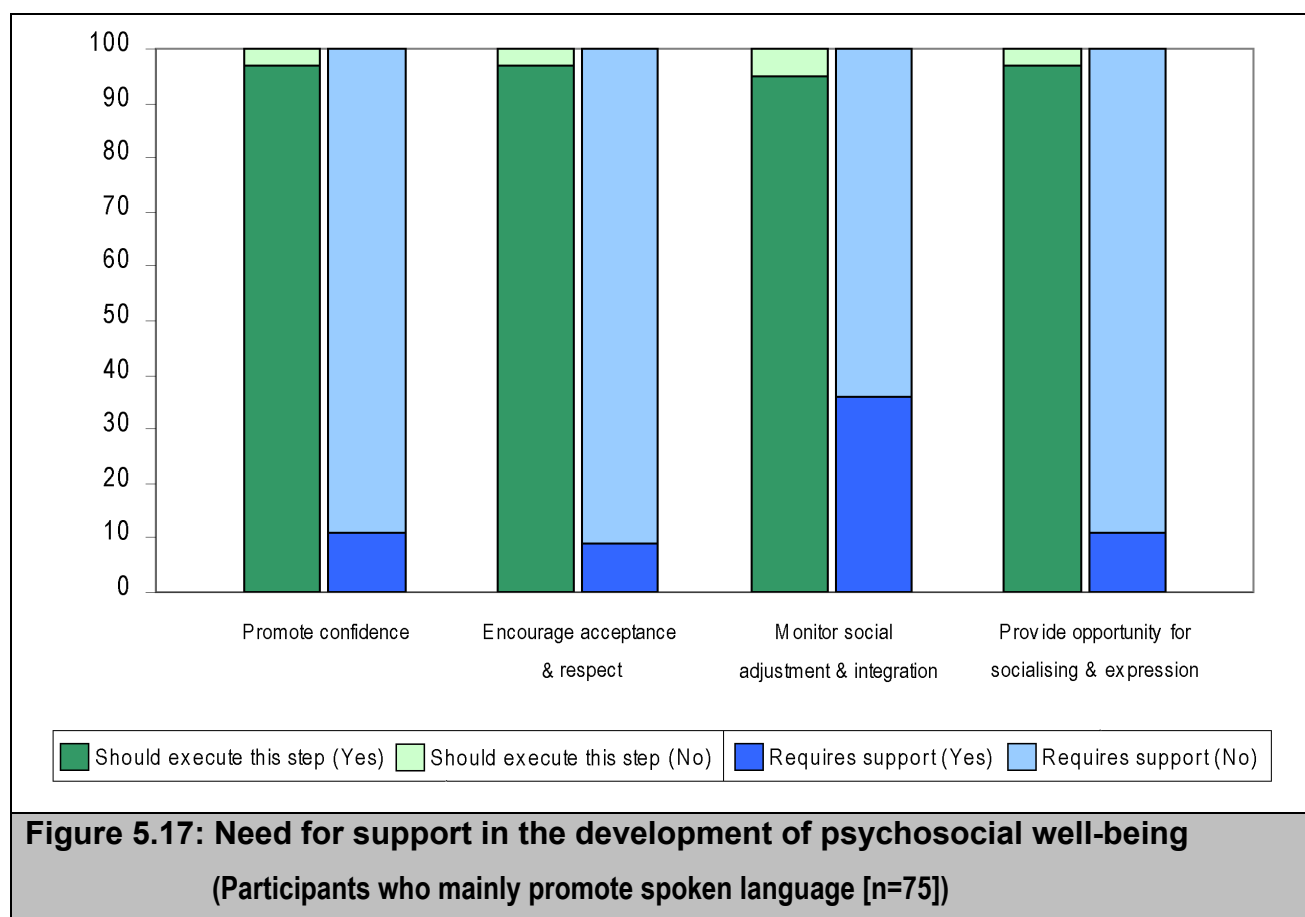
Table 5.14 depicts excerpts that correspond to the theme of the development of literacy skills and academic achievement. The first excerpt reveals that the participant in the focus group interview would have liked to receive the support of the educational audiologist in order to aid *literacy instruction* when teaching children who mainly use Sign Language [1]. The second excerpt indicates that the participant realised that the *subject curriculum should be modified* by controlling the vocabulary [2]. The last excerpt reveals that another participant would have liked support from the audiologist/speech therapist in order to help the children complete their projects, seeing that they have the specialised knowledge [3].

5.3.5 The need for support in the development of psychosocial well-being

The intervention steps were identified that the participants recommended for teachers in the inclusive educational system to take in order to develop the psychosocial well-being of a child with hearing loss. In addition, it was established whether the participants suggested professional support in order to carry out these steps.

These results include responses to the items in Question 21 of the questionnaire survey (Appendix D) and supporting themes from the focus group interviews (Appendix E) are presented. The findings of the two sub-groups of participants are presented separately.

The results of **participants who mainly promote spoken language**, are indicated in Figure 5.17.



The above results indicate participants' recommendations for teacher support in the development of psychosocial well-being. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support was recommended only by a small number of participants (9%–36%). A small number of participants (36%) recommended professional support in order to *monitor the social adjustment and integration* of the child with hearing loss. Furthermore, even fewer participants (9%) recommended that teachers receive support in order to encourage hearing peers to *accept and respect* the child with hearing loss.

Secondly, on the whole, intervention steps were recommended by a high number of participants (95%–97%). A large number of participants (97%) concurrently selected the first, second and fourth items. This reveals that a large number of participants (97%) recommended that teachers *promote the child's confidence* in class, encourage hearing peers to *accept and respect*

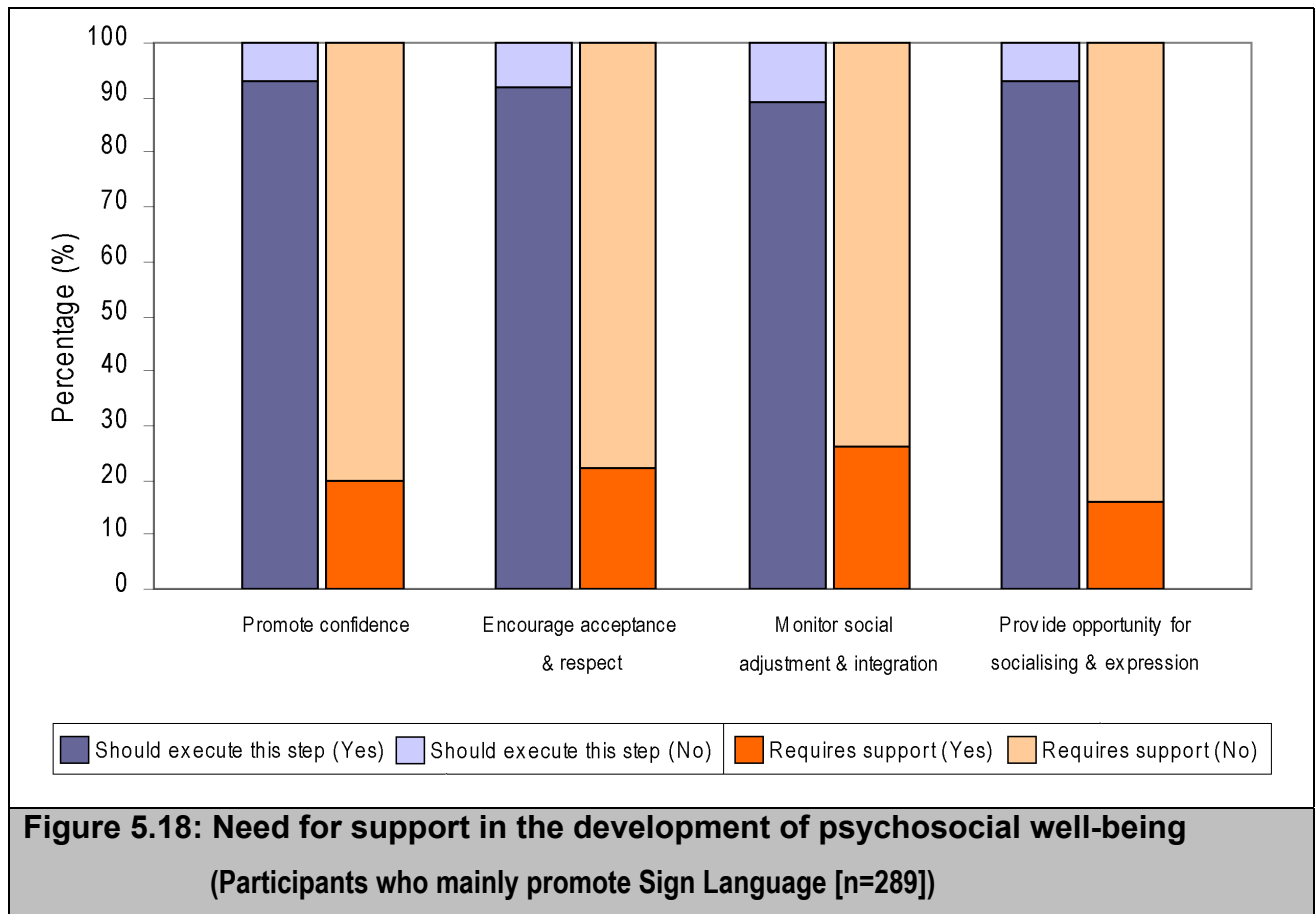
the child, and provide *opportunities for socialising and expression* in class. In contrast, only 11%, 9%, and 11% of the participants respectively recommended professional support in order to carry out the above.

Thirdly, further statistical analysis of these results reveal that some of the variables rendered chi-squared (X^2) values greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). Chi-squared (X^2) values greater than the critical value meant that the variables had demonstrated a significant influence on the participants' need for support in the development of psychosocial well-being, and are clarified in the following discussion.

Participants who had diplomas and no higher *qualifications* indicated a greater need for support in the following: promoting the child's confidence in the classroom, encouraging acceptance and respect from hearing peers, as well as providing opportunity for socialising and expression in the classroom (See Appendix I, Table I1). Participants with no *specialised training* in hearing loss indicated a greater need for support in the monitoring of social adjustment and interaction in the classroom, and intervening where necessary (See Appendix I, Table I3). Participants with more than ten *learners* in their classrooms indicated a greater need for support in promoting the child's confidence in the classroom, encouraging acceptance and respect from hearing peers, as well as the monitoring of social adjustment and interaction and intervening where necessary (See Appendix I, Table I7). Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in providing opportunity for socialising and expression in the classroom (See Appendix I, Table I9).

Finally, a comparison between findings of both sub-groups of participants will be provided after the presentation of findings of participants who mainly promote Sign Language.

The results of **participants who mainly promote Sign Language** are indicated in Figure 5.18.



The above results indicate participants' recommendations for teacher support in the development of psychosocial well-being. Prominent findings are:

Firstly, the above figure indicates that, on the whole, support was recommended by only a small number of participants (16%–26%). A small number of participants (26%) recommended professional support in order to *monitor the social adjustment and integration* of the child with hearing loss in class. Furthermore, even fewer participants (16%) recommended support in order to provide *opportunities for socialising and expression* in class.

Secondly, on the whole, intervention steps were recommended by a high number of participants (89%–93%). A large number of participants (93%) recommended that teachers *promote the child's confidence* in class and provide *opportunities for socialising and expression* in class. However, only

20% and 16% of the participants respectively recommended professional support in order to carry out the above.

Thirdly, further statistical analysis of these results reveal that only one of the variables rendered a chi-squared (X^2) value greater than the critical value based on $p \# 0,05$ (See Appendix I, Tables I1 to I10). A chi-squared (X^2) value greater than the critical value meant that the respective variable had demonstrated a significant influence on the participants' need for support in the development of psychosocial well-being, and a clarification thereof follows.

Participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in the following: promoting the child's confidence in class, encouraging acceptance and respect from the child's hearing peers, and providing opportunity for socialising and expression in the classroom (See Appendix I, Table I10).

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the majority of both sub-groups of participants recommended professional support in order to *monitor the social adjustment and integration* of the child with hearing loss in class. In addition, the majority of both sub-groups of participants recommended that teachers *promote the child's confidence* in class as well as provide *opportunities for socialising and expression* in class. Comparisons of results of dependency tests indicated that both sub-groups of participants who have received *in-service training* less frequently than once per month, indicated a greater need for support in providing opportunity for socialising and expression in the classroom (See Appendix I, Tables I9 and I10).

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #2, namely participants' need for support in the

development of psychosocial well-being. The findings of the two sub-groups of participants are presented separately.

Table 5.15 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

**Table 5.15: Need for support in the development of psychosocial well-being
(Participants who mainly promote spoken language)**

“...he needs to have a solid foundation, because if he’s not emotionally strong, he’ll drop out...”[1]

“...do you know what hearing impaired children do if they are among...hearing pupils in a group socially, in the outside world?, many take out their hearing aids, because they are embarrassed by it, it’s just not sexy (teacher smiles emphatically)...”[2]

“...the child (with hearing loss) may have negative experiences in a regular school...they can’t partake in sport...he can’t sing...and sports and cultural activities are important for a child’s emotional development...”[3]

Table 5.15 contains excerpts that corresponded to the theme of the development of psychosocial well-being. The first excerpt reveals that the participant in the focus group interview was aware of *promoting the child’s confidence* in class, in order for the child to benefit from educational efforts [1]. The second excerpt indicates that the participant realised that the child is in need of *acceptance and respect from his/her hearing peers* [2]. The last excerpt shows that the participant realised that the *social adjustment and integration* of a child with hearing loss should be *monitored* in a regular school to ensure that the child with hearing loss equally participates in sports and other cultural activities [3]. Throughout the focus group interviews, the participants emphasised the benefits of receiving support from an educational audiologist, and it can therefore be deduced that they recommended support by an educational audiologist to develop the psychosocial well-being of a child with hearing loss.

Table 5.16 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9).

**Table 5.16: Need for support in the development of psychosocial well-being
(Participants who mainly promote Sign Language)**

“...I don't like the idea of saying: we are going to shove this little group of Deaf kids into a group of hearing children, because then they will immediately be different...”[1]

“...not many of our children are disciplined at home...so we tend to have difficulties at school...”[2]

“...I think there will be much more understanding of the Deaf in regular schools...other (hearing) children will be exposed to find a way to communicate with them and interact with them...”[3]

Table 5.16 contains excerpts that corresponded to the theme of the development of psychosocial well-being. The first two excerpts reveal that some of the participants felt it was important to monitor the *social adjustment and integration* of a child with hearing loss [1,2]. The last excerpt shows that the participant realised that children with hearing loss should be given *opportunities for socialising and expression*, and, in this case, especially with their hearing peers, to create a better understanding of each others way of communication [3].

An interpretation and discussion follows to conclude the findings of this section.

5.3.6 Interpretation and discussion of findings of objective #2

Providing support to participants in the audiological and educational management of the child with hearing loss is essential in order to ensure that all facets of the child with hearing loss are developed (Sanders, 1988). Teachers should develop all the relevant areas in order to ensure that the child reaches his/her full potential as a scholar and a human being (Sanders, 1988). Information about the differences between the two sub-

groups' need for support in the audiological and educational management of the child with hearing loss is crucial, in order to plan for appropriate support structures in the inclusive educational system.

Averages of the results were calculated in order to obtain a broad overview of findings of **both sub-groups of participants** as obtained from the questionnaire survey. Averages were calculated for Figures 5.9 to 5.18, and are presented in Figure 5.19 below:

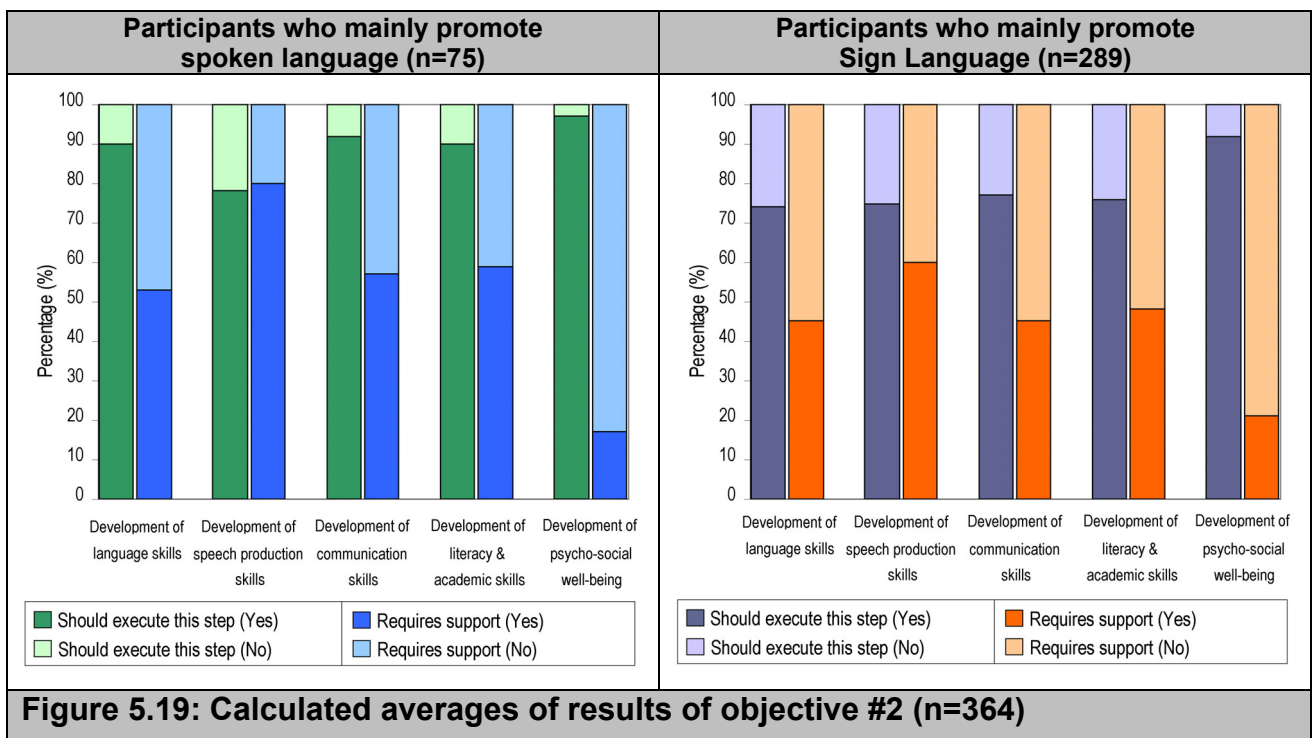


Figure 5.19: Calculated averages of results of objective #2 (n=364)

A vast number of results were obtained under the various sub-sections of objective #2, namely development of language skills, speech production skills, communication skills, literacy skills and academic achievement, and the development of psychosocial well-being. The averages of these results (See Figure 5.19) were therefore utilised in order to interpret and discuss findings of objective #2. Findings from both sub-groups of participants are presented in the following order: **Firstly**, the support required versus intervention steps; **secondly**, the influence of variables; and **finally**, findings of focus group interviews.

**5.3.6.1 Interpretation and discussion of findings of objective #2:
Support in the audiological and educational management of
the child with hearing loss**

Firstly, the majority of participants of both sub-groups recommended that teachers receive professional support in order to develop the speech production skills of the child with hearing loss. All participants (n=364) recommended strongly (>75%) that teachers take various intervention steps in order to develop the speech production skills of the child with hearing loss. Results revealed on the whole that participants who mainly promote spoken language generally indicated a greater need for support in this area than participants who mainly promote Sign Language did.

Literature substantiates these findings (Jamieson, 1994; Lynas, 1994; Moores, 1996; Paul & Quigley, 1994; Sanders, 1988) and this relates to the differences in the communication instructional approaches followed by the two sub-groups. It is well-known that teachers who mainly promote spoken language are primarily concerned with, inter alia, the child's development of speech production skills in an oral environment or in inclusive settings as this is often a prerequisite for educational success (Jamieson, 1994; Paul & Quigley, 1994; Sanders, 1988). On the other hand, teachers who mainly promote Sign Language tend to focus on the development of Sign Language skills, and the development of speech production skills is usually not a priority (Lynas, 1994; Moores, 1996). Therefore, it becomes apparent why participants who mainly promote spoken language would indicate a greater need for support in the development of speech production skills.

More specifically, results revealed that participants of both sub-groups strongly recommended professional support in order to acquire knowledge about various speech instructional approaches and suggested support to subsequently apply the best-suited approach. These findings are confirmed

by a recent study among South African teachers of children with hearing loss. This study revealed that the majority of teachers experienced speech instruction as a difficult task and that they themselves felt incompetent in their abilities to address deficits in speech production (Isaacson, 2000).

Various methods used for teaching correct speech production skills are available, such as analytical versus whole, formal versus informal, and unisensory versus multisensory (Moores, 1996). Being knowledgeable in these, will ensure that each child's unique speech production deficits are addressed by the best-suited approach (Moores, 1996).

In addition, both sub-groups of participants recommended that teachers monitor changes in speech intelligibility. Changes in speech intelligibility should be monitored, in order to target the appropriate sounds that the child with hearing loss is learning to pronounce correctly (Froehlinger & Bryant, 1981). However, results indicate that only a small number of participants recommended professional support in order to monitor changes in the child's speech intelligibility. These findings may indicate that participants were of the opinion that teachers had sufficient skills in this area. A study among South African teachers found, however, that teachers often neglected to monitor the individual changes of each child's speech intelligibility (Isaacson, 2000). The fact that participants did not feel a need for support in this area can therefore not be taken as indicative of sufficient skills.

For these reasons, educational audiologists should address teachers' needs in the development of speech production skills. Educational audiologists, together with speech-language therapists, are the most suitable professionals to offer the teacher support in areas of speech assessment and intervention (English, 1995; Johnson, Benson & Seaton, 1997; Sanders, 1988). In order to address speech deficits in children with hearing loss, the teacher will need essential information on the child's phonological repertoire, as well as audiological information such as the type and degree of hearing loss, response with amplification, speech discrimination performance, listening skills, and the child's speech-reading skills (Johnson, Benson & Seaton,

1997). The educational audiologist can provide support and training in these areas. An educational audiology service delivery model should provide varying degrees of support in the development of speech production skills that will depend on the communication instructional approach followed by the teacher.

Furthermore, results indicated that participants of both sub-groups recommended only an average amount of support in the development of language skills, communication skills, literacy skills, and academic achievement. However, all participants (n=364) strongly recommended (>74%) that teachers should take various intervention steps in order to develop these areas. On the whole, participants who mainly promote spoken language generally indicated a greater need for support in these areas than participants who mainly promote Sign Language did.

Participants' failure to recommend support proportionally to the intervention steps suggested in these various developmental areas, may indicate that participants generally did not realise the importance of receiving support from a professional such as an educational audiologist in order to develop the language skills, communication skills, literacy skills, and academic achievement of the child with hearing loss (English, 1995; Johnson, Benson, & Seaton, 1997). Therefore, an educational audiology service delivery model should continuously promote the benefits of receiving support from an educational audiologist in order to develop these skills of the child with hearing loss.

Results revealed that, on the whole, participants who mainly promote Sign Language indicated less need for the application of various intervention steps to develop the child's language skills, communication skills, literacy skills, and academic achievement. This could not be readily clarified by literature. These findings cannot be explained by the differences in the communication instructional approaches followed by the two sub-groups, because, although teachers who mainly promote Sign Language follow approaches to language instruction that differ from those of teachers who mainly promote spoken

language, intervention steps such as: considering the child's unique level of language functioning when conversing, modifying and adapting teaching materials, techniques and the classroom environment to suit the child's needs, developing language across all school contexts, developing language within activities of social interaction, et cetera, are principles that are also applicable when providing instruction in Sign Language (Lynas, 1994; Moores, 1996). This also applies to the recommendation of intervention steps for the development of communications skills. No indication could be found in literature as to why participants who mainly promote Sign Language did not recommend this area of development as strongly as participants who mainly promote spoken language. Although teachers who mainly promote Sign Language follow approaches to communication instruction that differ from those of teachers who mainly promote spoken language, intervention steps such as: exposing the child to interactional experiences, repairing communication breakdowns, having knowledge of different communication options, and applying various communication instructional approaches, are principles that should also be adhered to when providing instruction in Sign Language (Lynas, 1994; Moores, 1996). Similarly, although teachers who mainly promote Sign Language may follow different approaches to literacy and academic instruction than teachers who mainly promote spoken language, intervention steps such as: ensuring a sound language foundation prior to literacy instruction, identifying and addressing the origin of literacy errors, knowing and applying various literacy instructional approaches, et cetera, are fundamental principles that should also be applied when providing instruction to children who mainly use Sign Language (Lynas, 1994; Moores, 1996).

However, literature does provide some explanations for why participants who mainly promote Sign Language indicate less need for *support* in the development of language skills, communication skills, literacy skills, and academic achievement (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). Teachers who mainly promote Sign Language often feel that educational audiologists approach hearing loss within the framework of a *pathology* that should be habilitated (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). It may

therefore be that they can be hesitant to involve professionals that may want to change their philosophies or ways of instruction in the development of language, communication, literacy, and academic skills. However, the questionnaire did not explicitly mention the *educational audiologist* as the professional who provides support in these areas. Participants could therefore have still indicated a need for support without assuming it to be from an educational audiologist.

It is clear that educational audiologists should take cognisance of these perceptions and thus assure teachers of their unbiased approach towards the various instructional approaches. The educational audiologist is trained to consider the child with hearing loss within his/her unique context (Johnson, Benson, & Seaton, 1997) and should therefore be able to render quality services that will assist both teacher and child with hearing loss to develop his/her full potential, regardless of his/her communication instructional approach. An educational audiology service delivery model should attempt to clearly demonstrate that the services of educational audiologists are for all teachers and children with hearing loss, and that one communication instructional approach is not favoured above the other.

Prominent findings of the need for support in the development of the child's (a) language skills, (b) communication skills, (c) literacy skills and academic achievement, will be discussed.

a) Results reveal that participants of the two sub-groups had different opinions on the need for support in the development of language skills. Results indicate that the majority of participants who mainly promote spoken language recommended professional support in order to acquire knowledge about the various language instructional approaches and to subsequently apply the best-suited approach. On the other hand, the majority of participants who mainly promote Sign Language recommended professional support in order to consider the possibility of additional language pathologies. These differences in participants' views cannot be attributed to the differences in the communication instructional approach they follow and are not explained by

literature. Literature does however confirm the importance of these intervention steps in order to successfully develop the language skills of the child with hearing loss (Bunch, 1987; Froehlinger & Bryant, 1981; Johnson, Benson, & Seaton, 1997). For instance, it has been stated that teachers should be knowledgeable about the various language instructional approaches in order to make appropriate decisions on the best-suited approach for each child with hearing loss. Furthermore, teachers must be trained to apply the most suitable language instructional approach for the child with hearing loss (Bunch, 1987; Froehlinger & Bryant, 1981). This will ensure that each child's unique barrier to learning language is addressed by the most suitable approach (Bunch, 1987).

In addition, teachers of children with hearing loss should consider the possibility of additional language pathologies. Language confusion, phonological processes, and aphasia are some of the language pathologies that can be found in association with hearing loss (McAnally, Rose & Quigley, 1987). If these language pathologies are left unidentified, the child will not receive appropriate intervention, and his/her already delayed language skills will be further impeded by the additional pathology (McAnally, Rose & Quigley, 1987).

Educational audiologists should therefore support and assist teachers in order to obtain knowledge about various language instructional approaches, provide assistance in the application of these approaches in accordance with each child's individual needs, and support teachers in identifying and addressing additional language pathologies, in an attempt to develop the language skills of the child with hearing loss. Teachers and educational audiologists should work closely to develop the language skills of the child with hearing loss. When the teacher and educational audiologist work in isolation and they do not integrate their approaches with regard to language development, the child will not maximally benefit from these intervention attempts. An educational audiology service delivery model should include teacher training which will encourage the expansion of teachers' knowledge and skills in the aforementioned areas of language development.

b) Results reveal that the majority of participants of both sub-groups recommended professional support in order to acquire knowledge about the various communication options available. Literature confirms the importance of receiving support in order to acquire knowledge about the various communication options available (Lynas, 1994; Moores, 1996) and will be discussed.

Teachers should be knowledgeable about the various communication options available, in order to make appropriate decisions on the best-suited approach for each child with hearing loss (Moores, 1996). This will ultimately ensure that each child's barrier to communication is addressed appropriately within the inclusive educational system (Moores, 1996).

Educational audiologists should support teachers in order to obtain knowledge about the various communication options available. An educational audiology service delivery model should include the opportunity for teacher training that will encourage the expansion of teachers' knowledge of communication instruction.

c) Results reveal that participants of the two sub-groups had different views on the need for support in the development of literacy skills and academic achievement. The results indicated that the majority of participants who mainly promote spoken language recommended professional support in order to identify the origin of literacy errors. On the other hand, the majority of participants who mainly promote Sign Language recommended professional support in order to know and apply the various instructional approaches in literacy and to tailor the child's learning experience. These differences in participants' views are not clarified by literature, and cannot readily be attributed to the different communication instructional approaches they adhere to. However, literature does confirm the importance of receiving support in these areas in order to successfully develop the child's literacy skills and academic achievement and is discussed below (Froehlinger & Bryant, 1981; Johnson, Benson, & Seaton, 1997).

It is vital that the teacher receives support in order to identify the origin of literacy errors. Literacy errors may occur due to a number of causes such as auditory discrimination problems, language deficits, dyslexia, et cetera. (Froehlinger & Bryant, 1981). Teachers can only address literacy errors by addressing the underlying causes of the literacy errors.

In addition, it is important that the teacher receives support in order to know and apply the various instructional approaches in literacy, as well as to tailor the child's learning experience. Various approaches to literacy instruction exist, such as the top-down or bottom-up approaches (Moore, 1996). Teachers should be knowledgeable on these approaches, and should have the skill to apply these approaches, in order to ensure that each child's barrier to acquiring literacy skills, is addressed (Sanders, 1988). Tailoring the child's learning experience is an important intervention step when developing the child's literacy skills and academic achievement. The foremost consequence of poor literacy skills is the child's inability to successfully complete his/her academic career, which will negatively influence the child's vocational opportunities (Sanders, 1988). Teachers should therefore adapt the curriculum, teaching materials, and teaching methods to suit the child's unique cognitive, physical, socio-emotional, and cultural needs (Johnson, Benson, & Seaton, 1997; Tucker & Nolan, 1984).

Educational audiologists (together with remedial teachers) should help teachers to identify the origin of literacy errors and to address these barriers, in order to help the child develop his/her literacy skills (Sanders, 1988). Furthermore, these professionals should support teachers in order to obtain knowledge about the various literacy instructional approaches and to provide assistance in the application of these approaches in accordance with each child's individual needs. An educational audiology service delivery model should include teacher training that will encourage the expansion of teachers' knowledge and skill in these areas of development.

Regarding the above-mentioned, the following question arises: if teachers of children with hearing loss, who will serve as important resources in the inclusive educational system (Education White Paper no 6, 2001), have indicated only an average need for support in the development of language skills, communication skills, literacy skills, and academic achievement, how will this affect the educational audiologist's task to utilise these teachers to appropriately manage the child with hearing loss?

Furthermore, results revealed that participants of both sub-groups to a much lesser degree (<21%) felt that teachers required support in order to develop the psychosocial well-being of the child with hearing loss. However, all participants (n=364) recommended very strongly (>82%) that teachers should take various intervention steps in order to develop the psychosocial well-being of the child with hearing loss in the inclusive setting.

These findings may indicate that participants generally did not realise the importance of receiving support from professionals such as educational audiologists, social workers, and/or psychologists in order to develop the psychosocial well-being of the child with hearing loss (English, 1995; Johnson, Benson, & Seaton, 1997). Therefore, an educational audiology service delivery model should continuously promote the importance of receiving support from professionals such as an educational audiologist in order to develop the of the psychosocial well-being of the child with hearing loss.

The importance of receiving support in the development of psychosocial skills of the child with hearing loss is confirmed by literature (Anderson, 1991; Brooks, 1981; English, 1995; Heimgartner, 1982; Sanders, 1988). The child's social adjustment and integration in the inclusive setting can be negatively affected by various factors (Anderson, 1991; Brooks, 1981; English, 1995; Heimgartner, 1982; Sanders, 1988), such as: they may be unaware of subtle conversational clues, and therefore appear socially inappropriate, they use amplification devices, which cause them to be viewed as "different" by hearing peers, and they tend to have communication difficulties, therefore these children become irritated and exhibit challenging behaviour during

communication breakdowns. In order to appropriately manage the child with hearing loss in the inclusive setting, teachers should promote the child's confidence in the classroom. The main consequence of poor confidence is that the child is less likely to participate in educational and social activities in the classroom, which in turn affects the child's academic progress and social integration (Northern & Downs, 1984; Sanders, 1988). Therefore, teachers must promote the child's confidence in order to benefit the child's educational development as a whole (Sanders, 1988). Literature also indicates that children with hearing loss in inclusive educational settings have less favourable social ratings by their peers, and these children are more likely to be rejected by their hearing peers than their peers with hearing loss (Cappelli, Daniels, Durieux-Smith, McGrath & Neuss, 1995; Stinson & Lang, 1994). Therefore, teachers should encourage the hearing peers to accept and respect the child with hearing loss (Northern & Downs, 1984).

These findings illustrate that educational audiologists (together with support personnel such as psychologists) should continue to support teachers to promote the child's psychosocial well-being. The educational audiologist, with his/her specialist knowledge in the area of the school-going child with hearing loss, can, in collaboration with the psychologist and/or social worker, provide information on psychosocial development to the teacher, parents and child (English, 1995). In addition, the educational audiologist can facilitate group discussion among children with hearing loss about social appropriateness and other pragmatic skills (English, 1995). The educational audiologist can also indirectly help reduce troublesome psychosocial development by offering guidelines to the child, teacher, and the child's family for effective communication and strategies for repairing communication breakdowns (English, 1995; Johnson, Benson & Seaton, 1997; Kricos, 1993).

Secondly, dependency tests revealed that the following variables increased participants' need for support in the development of language skills, speech production skills, communication skills, literacy skills and academic achievement, and psychosocial well-being of the child with hearing loss, namely absence of higher qualifications, absence of specialised training in

hearing loss, and infrequent in-service training. Unfortunately, these unfavourable conditions are often found among teachers of children with hearing loss in South Africa (Pottas, 1998).

For these reasons, educational audiologists should offer added support and assistance to teachers with these unfavourable attributes or circumstances. The educational audiologist should form the link between the teacher and the various methods of teacher training. An educational audiology service delivery model should provide teacher training that will encourage the expansion of teachers' knowledge and skills regarding the development of language skills, in order to appropriately manage the child with hearing loss. Teachers should also be informed about the advantages of obtaining higher qualifications with respect to their management of children with hearing loss. Furthermore, the importance of obtaining specialised training in hearing loss and the benefits of receiving more frequent in-service training should be emphasised to teachers and educational authorities.

Finally, excerpts from focus group interviews verified the above findings. Discussions of focus group interviews that correspond to the need for support in the development of speech production skills, are presented first, followed by focus group discussions on the need for support in the development of language skills, communication skills, literacy skills, and academic achievement. Lastly, focus group discussions on the need for support in the development of psychosocial well-being, will be presented.

Development of speech production skills: discussions in focus group interviews verify the findings of the need for support in the development of speech production skills (See Tables 5.9 and 5.10). The most prominent feature of the focus group interviews was that participants who mainly promote Sign Language revealed a discrepancy among themselves regarding their opinions on the simultaneous instruction of speech and Sign Language. Some of the participants did not want to include speech when instructing children in Sign Language, whereas some of the participants recommended simultaneous instruction of speech and Sign Language. Teachers of children

with hearing loss often differ on instructional approaches of speech and Sign Language (Lynas, 1994). It is important to consider each child's unique situation, which includes his home language and the child's own preference for instruction in speech and/or signing (Lynas, 1994; Moores, 1996).

Educational audiologists should therefore be aware of differences in speech instructional approaches, even among teachers of the same school, and should respect their views and provide support and assistance where needed. An educational audiology service delivery model should embrace differences in speech instructional approaches and should continue to provide support in the development of speech production skills of the child with hearing loss.

Development of language skills, communication skills, literacy skills, and academic achievement: discussions in focus group interviews confirm the findings of the need for support in the development of language skills, communication skills, literacy skills and academic achievement (See Tables 5.7, 5.8, and Tables 5.11 to 5.14). The most prominent difference between the discussions of the two sub-groups was that participants who mainly promote Sign Language perceived a lack of support from their school-based educational audiologists in terms of planning of the adaptation and modification of teaching materials, as well as a lack of support in the development of functional language across activities of social interaction. Teachers should have skills in these areas of language development in order to provide quality intervention to the child with hearing loss (Johnson, Benson, & Seaton, 1997).

With respect to the need for support in the development of communication skills, the most prominent feature of the focus group interviews was that participants who mainly promote Sign Language felt that their educational audiologists were not supportive of Sign Language.

The most prominent feature of the focus group interview discussions on the development of literacy skills and academic achievement, was that both sub-groups of participants emphasised the benefits of receiving support from an

educational audiologist and they recommended continued support by an educational audiologist to develop the literacy skills and academic achievement of a child with hearing loss.

The above findings indicate that educational audiologists should be aware of the emotional issues surrounding Sign Language instruction and should offer support and assistance to teachers in the development of the child's Sign Language if requested. Findings of the focus group interviews may also suggest that participants did not receive adequate support from the educational audiologists based at their school. It would seem that the educational audiologists were not always aware of the specific needs of the participants. The graduate training of educational audiologists should accentuate the importance of determining teachers' unique needs before rendering services at the school. An educational audiology service delivery model should provide ongoing teacher support, to ensure that teachers are aware of the various communication options available to the child with hearing loss in the inclusive educational system. Furthermore, an educational audiology service delivery model should support teachers in the development of the child's language skills, communication skills, literacy skills, and academic achievement.

Development of psychosocial well-being: discussions in focus group interviews resonate the findings of the need for support in the development of psychosocial well-being (See Tables 5.17 and 5.18). The most prominent feature of the focus group interviews was that both sub-groups of participants emphasised that the inclusion of children with hearing loss will bring about challenges in the child's psychosocial well-being.

Educational audiologists should consequently continue to support teachers in acquiring skills in the development of literacy skills and academic achievement. An educational audiology service delivery model should provide ongoing support in these areas of development.

5.4 RESULTS AND DISCUSSION OF OBJECTIVE #3: PARTICIPANTS' NEED FOR SUPPORT REGARDING THE STRUCTURE OF SERVICE DELIVERY TO CHILDREN WITH HEARING LOSS

The third objective of the study was to determine and describe teachers' need for support regarding **the structure of service delivery to children with hearing loss within the inclusive educational system**. This objective includes ten sub-items of service delivery to the child with hearing loss, namely members of the team, team co-ordinator, in-service training as a method of support, methods of in-service training, service delivery system, roles and responsibilities of the educational audiologist, necessity of educational audiology services, greatest challenges of inclusion, possible solutions to anticipated challenges, and the advantages and disadvantages of inclusion practices. The responses obtained from both sub-groups of participants are presented quantitatively and qualitatively. All responses to open-ended questions were summarised into the main ideas expressed by the participants. An interpretation and discussion of the general trend of this objective follows at the end of this section.

5.4.1 The need for support regarding the structure of service delivery to children with hearing loss

The questionnaire consisted of ten different questionnaire probes to elicit information from the participants in order to determine their need for support regarding the structure of service delivery to children with hearing loss within the inclusive educational system. The discussion of these sub-items follows below.

5.4.1.1 Members of the service delivery team

All team members were identified who should be involved in order to plan the educational programme of the child with hearing loss. In addition, participants

were asked to specify members who had not been mentioned and whom they regarded as essential to serve on the team.

These results included responses to items in Question 22 of the questionnaire survey (Appendix D). Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1. The findings of the two sub-groups of participants are discussed separately.

The results of **participants who mainly promote spoken language**, are presented in Figure 5.20.

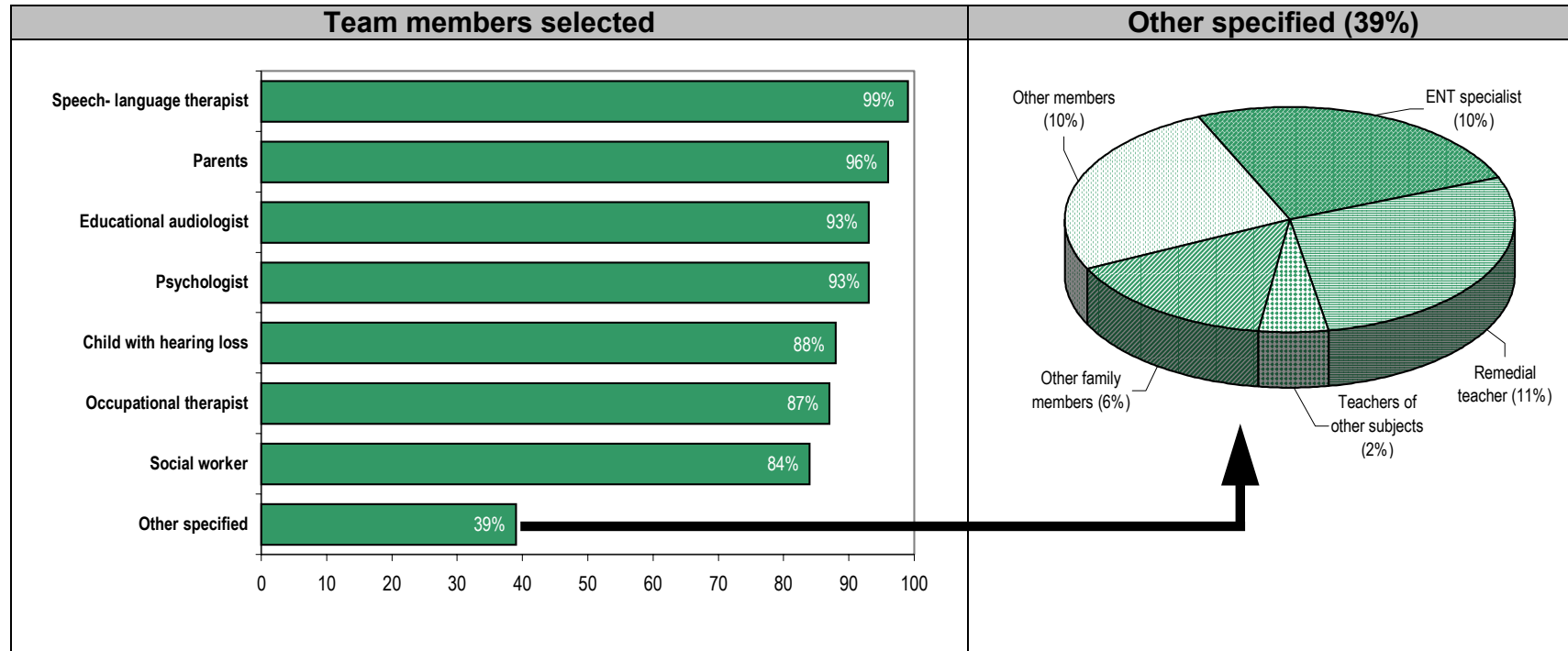


Figure 5.20: Members of the service delivery team (Participants who mainly promote spoken language [n=75])

Figure 5.20 represents, on the left-side, the various team members selected by the participants and on the right-side it depicts additional team members who were specified by the participants.

This figure indicates that almost all the participants (99%) recommended a speech-language therapist on the team. A large number of participants (96%) selected the parents of the child with hearing loss. An educational audiologist was recommended by 93% of participants. A social worker was the least selected person (84%), however, it remains a large percentage. A large number of participants selected all the items, which indicates that all these persons were valued as team members and were therefore recommended to serve on the team. Furthermore, the figure illustrates additional members that were specified by 39% of the participants. Of these participants, 11% revealed a need for a Remedial Teacher on the educational team of the child with hearing loss. Only 6% of the participants recommended the involvement of family members (other than parents) on the team. Additional members who were specified by the remaining 10% of subjects included a physiotherapist, hearing aid technician, and a representative of the department of Education.

The results of **participants who mainly promote Sign Language** are indicated in Figure 5.21. One of the participants (0,3%) did not respond to this question.

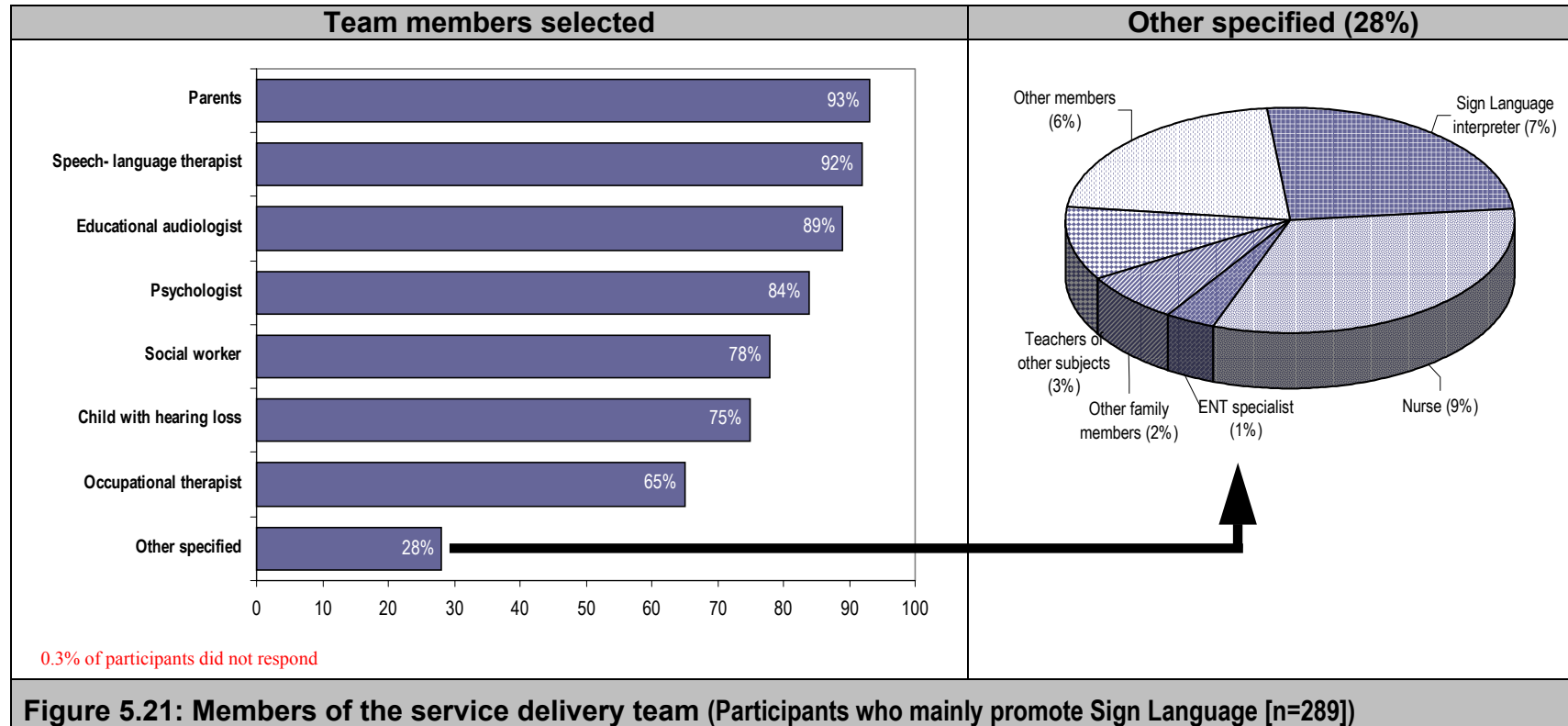


Figure 5.21 represents, on the left-side, the various team members selected by the participants and on the right-side it depicts additional team members that were specified by the participants.

This figure indicates that a large number of participants (93%) recommended that the parents of the child with hearing loss serve on the team. An educational audiologist was recommended by 89% of the participants. An occupational therapist was the least selected person (65%), although it remains a fairly large percentage. All the items were selected by a large number of participants, which indicates that all these persons were valued and were therefore selected to serve on the team. Furthermore, the figure illustrates additional members that were specified by 28% of the participants. Of these participants, 9% revealed a need for a school nurse on the educational team of the child with hearing loss. Only 2% of the participants recommended the involvement of family members (other than the parents) on the team. Other members that were specified by the remaining 6% of subjects included other teachers with experience in teaching children with hearing loss, caregivers in the hostel, a music therapist, and teaching assistants.

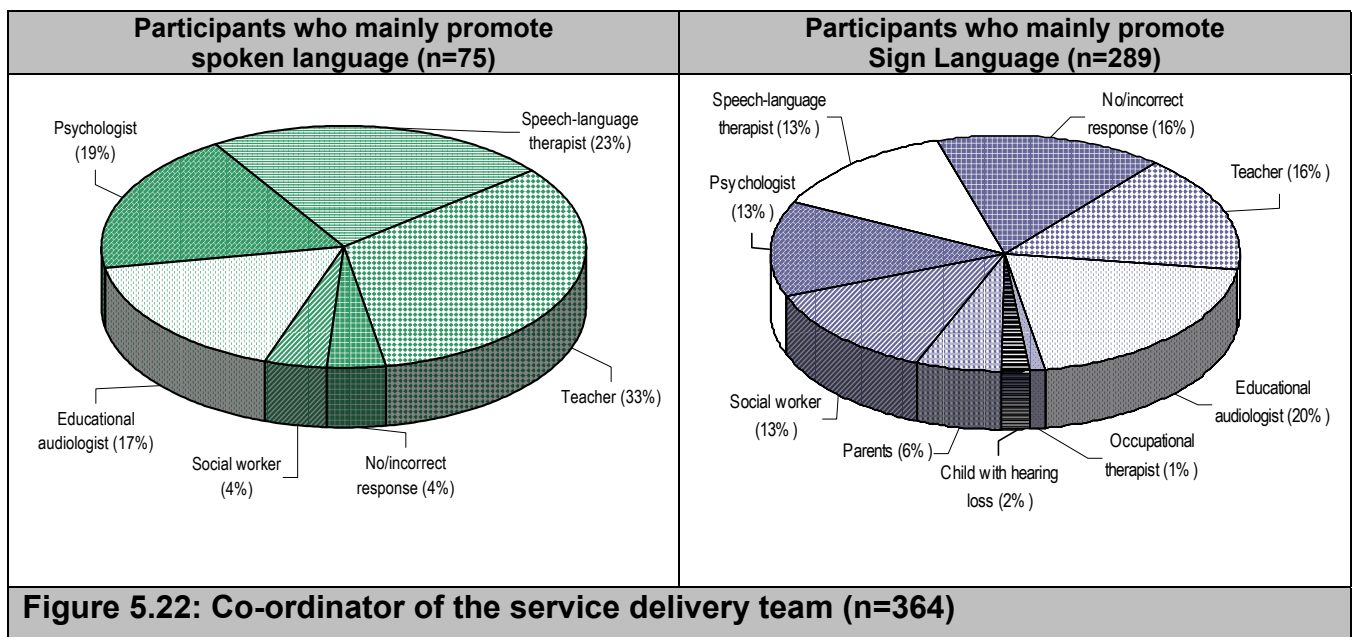
Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal the following similarities between the two sub-groups of participants. A large number of participants recommended that the parents of the child with hearing loss serve on the team of the child with hearing loss. All seven team members were selected by fairly large percentages to serve on the team. Furthermore, only a very small percentage of the participants recommended the involvement of family members (other than the parents) on the team.

5.4.1.2 Co-ordinator of the service delivery team

The team member was identified who had been recommended as a co-ordinator of the educational team of the child with hearing loss.

These results included responses to the items in Question 23 of the questionnaire survey (Appendix D). Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.22.



The left-side of Figure 5.22 represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language. Three of the participants (4%) who mainly promote spoken language selected more than one item, and 46 of the participants (16%) who mainly promote Sign Language selected more than one item, and therefore these responses were disregarded.

The above figure illustrates that the teacher was selected the most (33%) by participants who mainly promote spoken language, to co-ordinate the team. An educational audiologist as team co-ordinator was only recommended by 17% of the participants who mainly promote spoken language. Furthermore, this figure reveals that the educational audiologist was selected the

most (20%) by participants who mainly promote Sign Language to co-ordinate the team.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Findings reveal that participants of the two sub-groups differed on all aspects relating to the selection of a team co-ordinator.

5.4.1.3 In-service training as a method of teacher support

It was determined whether participants valued in-service training as a method of support. In addition, the main benefits of in-service training were identified as described by the participants.

These results included responses to the items in Question 12 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. In the presentation of results, some of the responses of the two sub-groups appear closely related, all responses are however not identical. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.23.

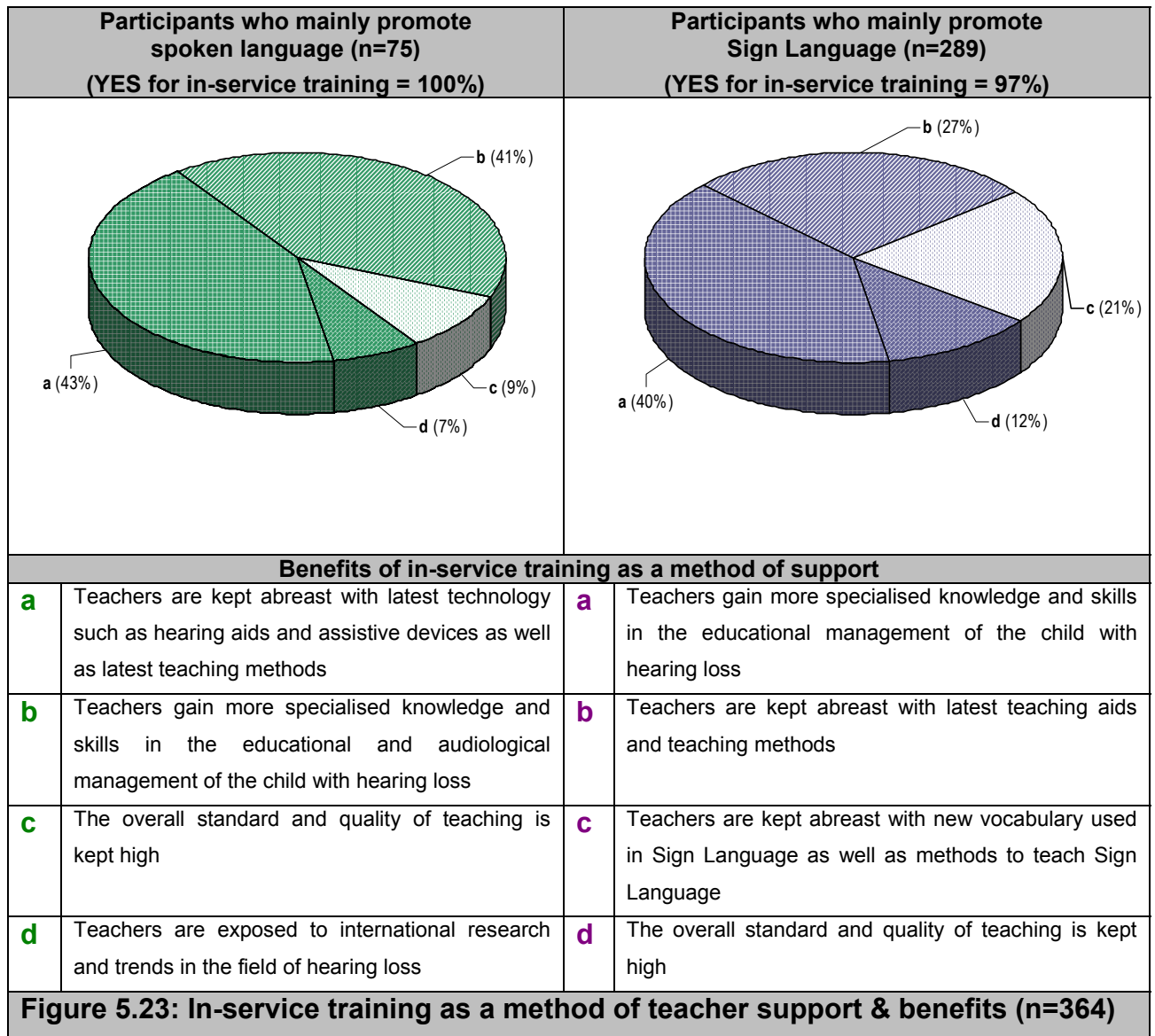


Figure 5.23: In-service training as a method of teacher support & benefits (n=364)

The left-side of Figure 5.23 represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language.

The above figure indicates that all participants (100%) who mainly promote spoken language felt that teachers could benefit from in-service training. The greatest benefit (43%) of in-service training, as described by participants who mainly promote spoken language, was that teachers are kept abreast with latest technology such as hearing aids and assistive devices, as well as with the latest teaching methods. Furthermore, 97% of the participants who mainly promote Sign Language felt that teachers could benefit from in-service

training. The main benefit (40%) of in-service training, as defined by participants who mainly promote Sign Language, was that teachers gain more specialised knowledge and skills in the educational management of the child with hearing loss.

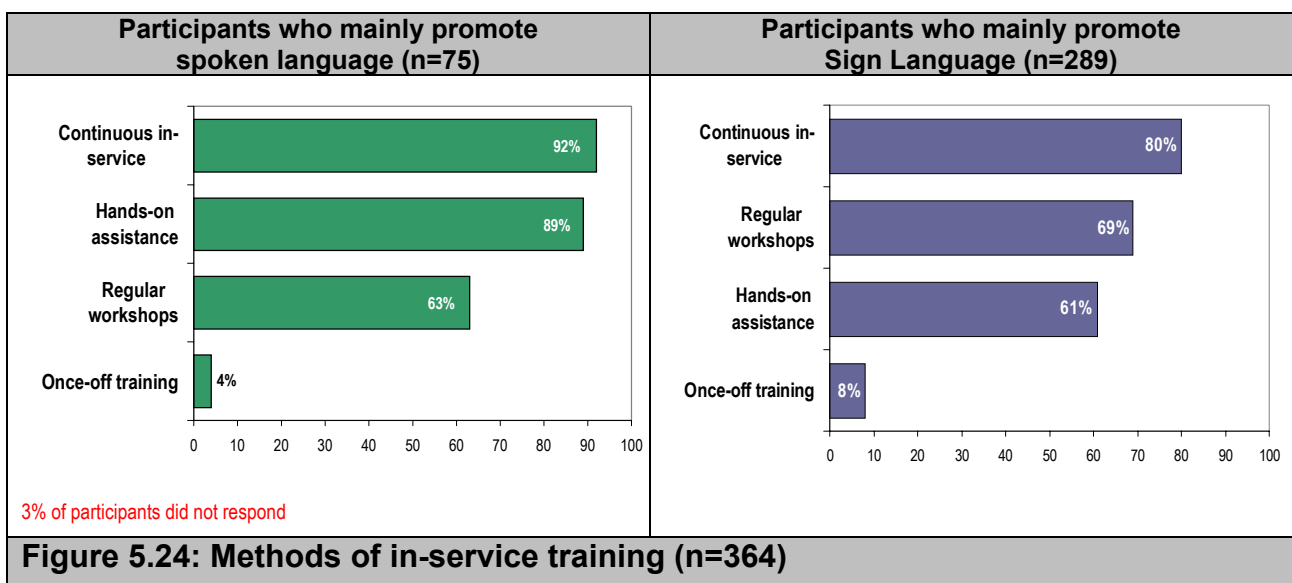
Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Differences exist, however, findings reveal that a very large percentage of the participants of both sub-groups indicated that teachers could benefit from in-service training as a method of teacher support.

5.4.1.4 Methods of in-service training

The most appropriate methods were identified for in-service training for teachers in the inclusive educational system.

These results included responses to the items in Question 24 of the questionnaire survey (Appendix D). Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.24.



The left-side of Figure 5.24 represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language. Two of the participants (3%) who mainly promote spoken language, did not respond to the question.

This figure illustrates that a large number of participants (92%) who mainly promote spoken language recommended that the teacher would benefit from continuous in-service training. A once-off training session was selected the least (4%) by participants who mainly promote spoken language. Furthermore, a large number of participants (80%) who mainly promote Sign Language were of the opinion that teachers would benefit from *continuous* in-service training. Similarly, a once-off training session was selected the least (8%) by participants who mainly promote Sign Language.

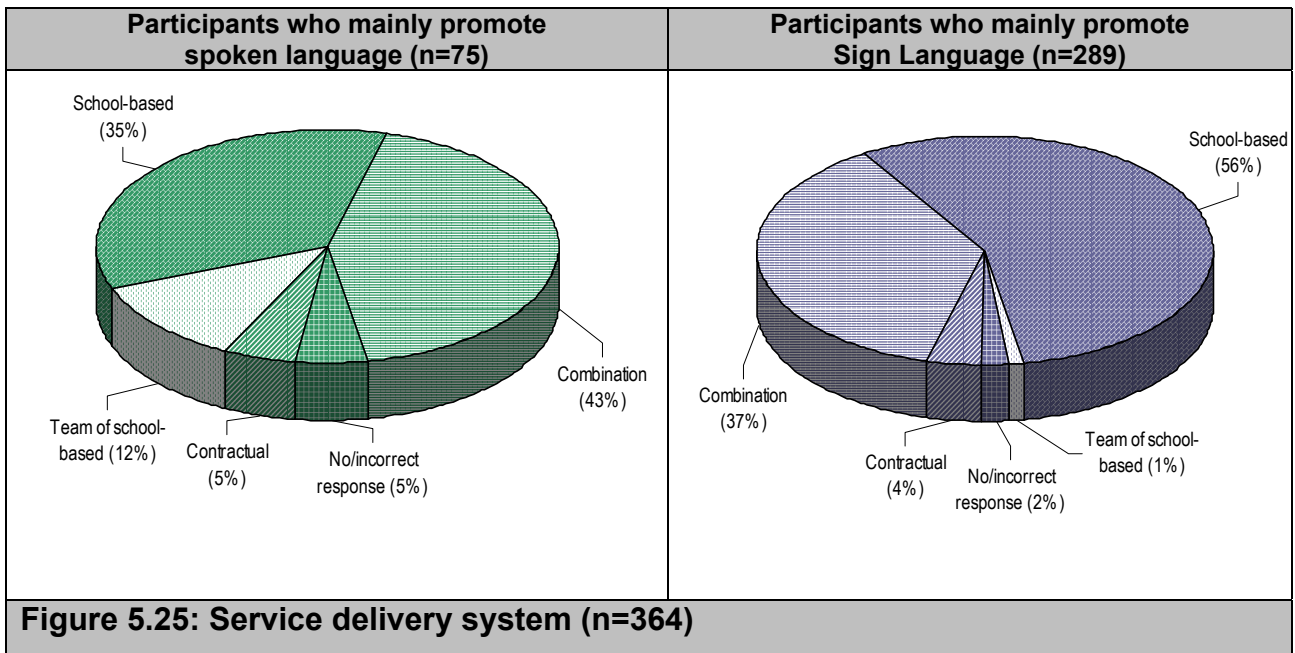
Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Findings reveal that participants of both sub-groups agreed that teachers would benefit most from continuous in-service training, and that they would benefit least from a once-off training session as a method of support.

5.4.1.5 Service delivery system

The educational audiology service delivery system that participants recommended for the inclusive educational system, was identified.

These results included responses to the items in Question 25 of the questionnaire survey (Appendix D). Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.25.



The left-side of Figure 5.25 represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language. Four of the participants (5%) who mainly promote spoken language selected more than one item, and seven of the participants (2%) who mainly promote Sign Language selected more than one item and therefore these responses were disregarded.

The above figure illustrates that the majority of participants (43%) who mainly promote spoken language recommended a combination system (school-based system and contractual system). The contractual system was selected the least (5%) by participants who mainly promote spoken language. Furthermore, the figure illustrates that the majority of participants (56%) who mainly promote Sign Language recommended the school-based service delivery system. A very small number of participants (1%) who mainly promote Sign Language, specified their own suggestion, namely a school-based system that incorporates a large team of professionals.

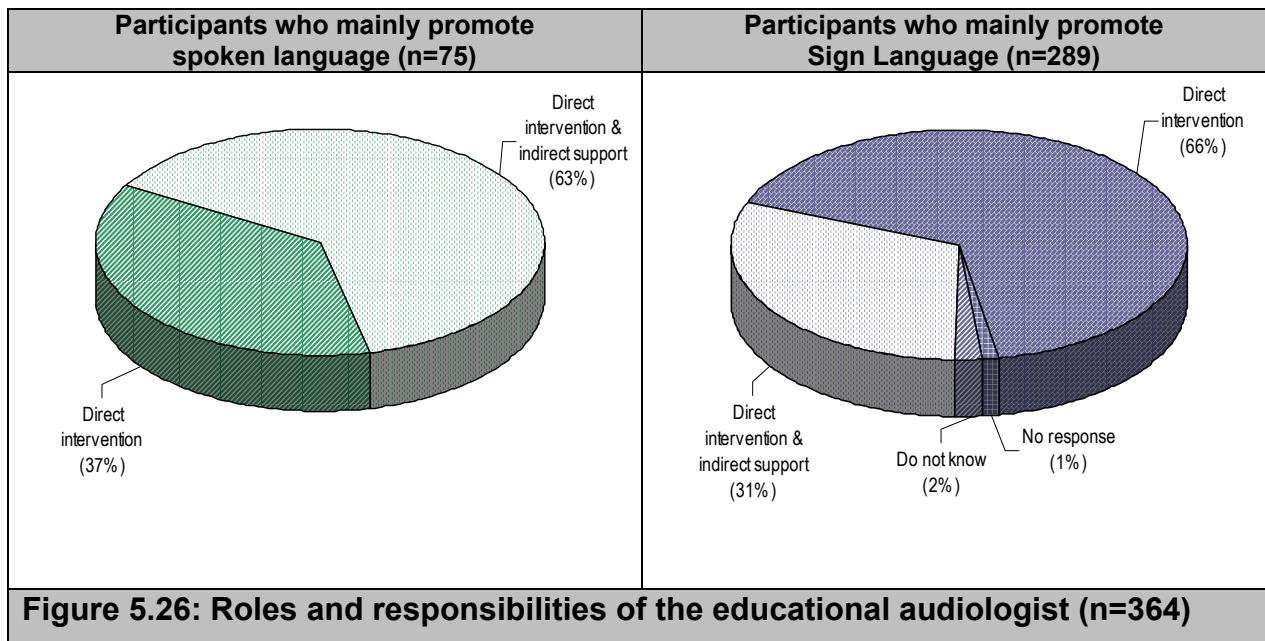
Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Findings reveal that both sub-groups of participants mainly selected the school-based system and the combination system as possible educational audiology systems.

5.4.1.6 Roles and responsibilities of the educational audiologist

The main roles and responsibilities of an educational audiologist, as defined by the participants, were identified.

These results included responses to Question 26 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.26.



The left-side of Figure 5.26 represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language. Three of the participants (1%) who mainly promote Sign Language did not respond to this question.

Figure 5.26 reveals that the majority of participants (63%) who mainly promote spoken language recommended that an educational audiologist be involved with *direct* intervention activities with a child with hearing loss and provide *indirect* support and assistance to the teacher. Participants who mainly promote spoken language specified, inter alia, the following activities of direct intervention: the evaluation of hearing and middle ear functioning, hearing aid selection and fitting, trouble-shooting of hearing aids, language development, and speech development. The following forms of indirect support to the teacher were, inter alia, recommended by participants who mainly promote spoken language, namely: information-sharing of audiograms and latest technology, as well as the provision of in-service training. All of the participants who mainly promote spoken language had an idea as to what the roles and responsibilities of an educational audiologist should be. Furthermore, the figure reveals that a fairly large number of participants (66%) who mainly promote Sign Language recommended that an educational audiologist mainly be involved with *direct* intervention activities with a child with hearing loss. Participants who mainly promote Sign Language specified, inter alia, the activities of direct intervention such as, the evaluation of hearing in order to provide hearing aids, trouble-shooting of hearing aids, and language development. The following forms of indirect support to the teacher were, inter alia, recommended by participants who mainly promote Sign Language, namely assistance with the interpretation of an audiogram, assistance with the placement of children with hearing loss in the inclusive educational system, and the provision of in-service training. Only 2% of the participants who mainly promote Sign Language did not know about any of the roles and responsibilities of an educational audiologist.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that a very large percentage of the participants of both sub-groups knew about some of the roles and responsibilities of an educational audiologist.

5.4.1.7 Necessity of educational audiology services

It was determined whether participants were of the opinion that teachers in the inclusive educational system required the support of an educational audiologist and the subsequent benefits of receiving this support, were identified.

These results included responses to the items in Question 27 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. In the presentation of results, some of the responses of the two sub-groups appear similar, all responses are, however, not identical. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.1. The findings of the two sub-groups of participants are presented separately.

The results of **participants who mainly promote spoken language**, are indicated in Figure 5.27.

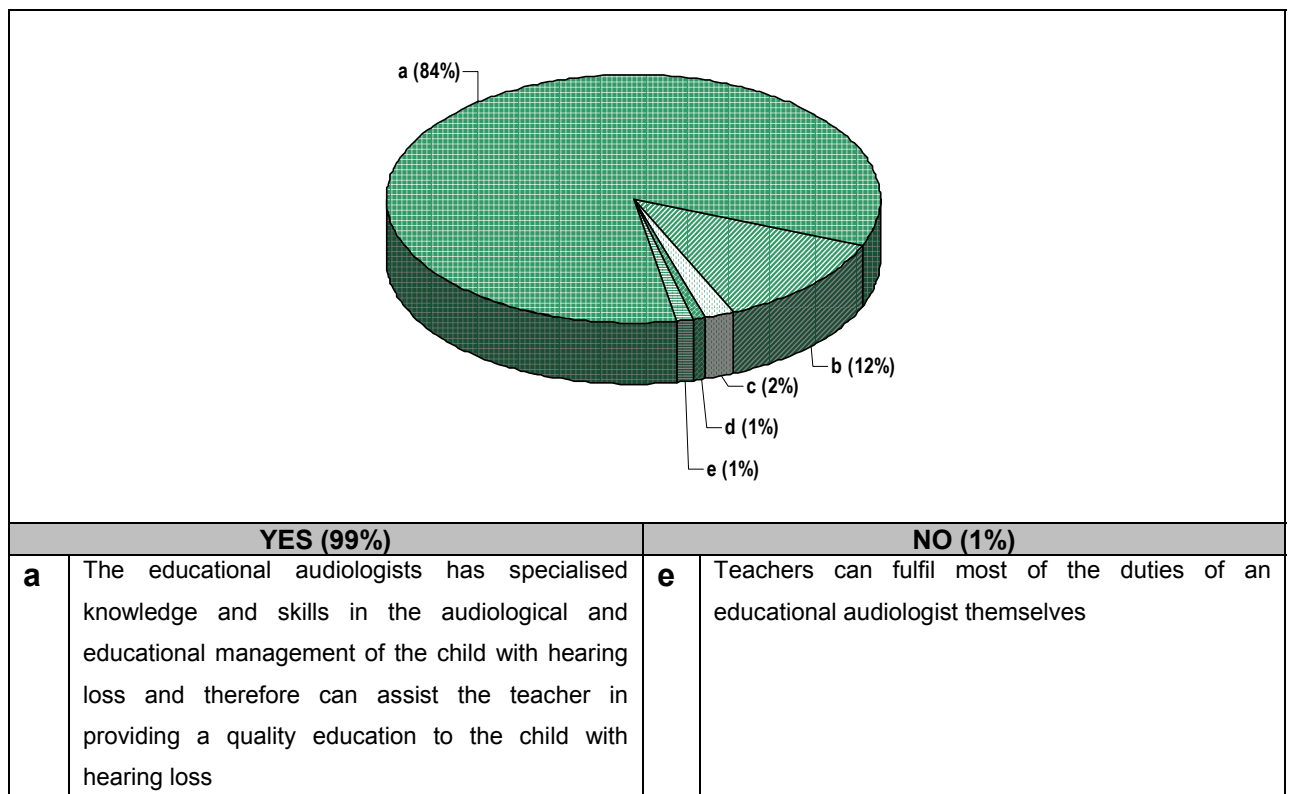


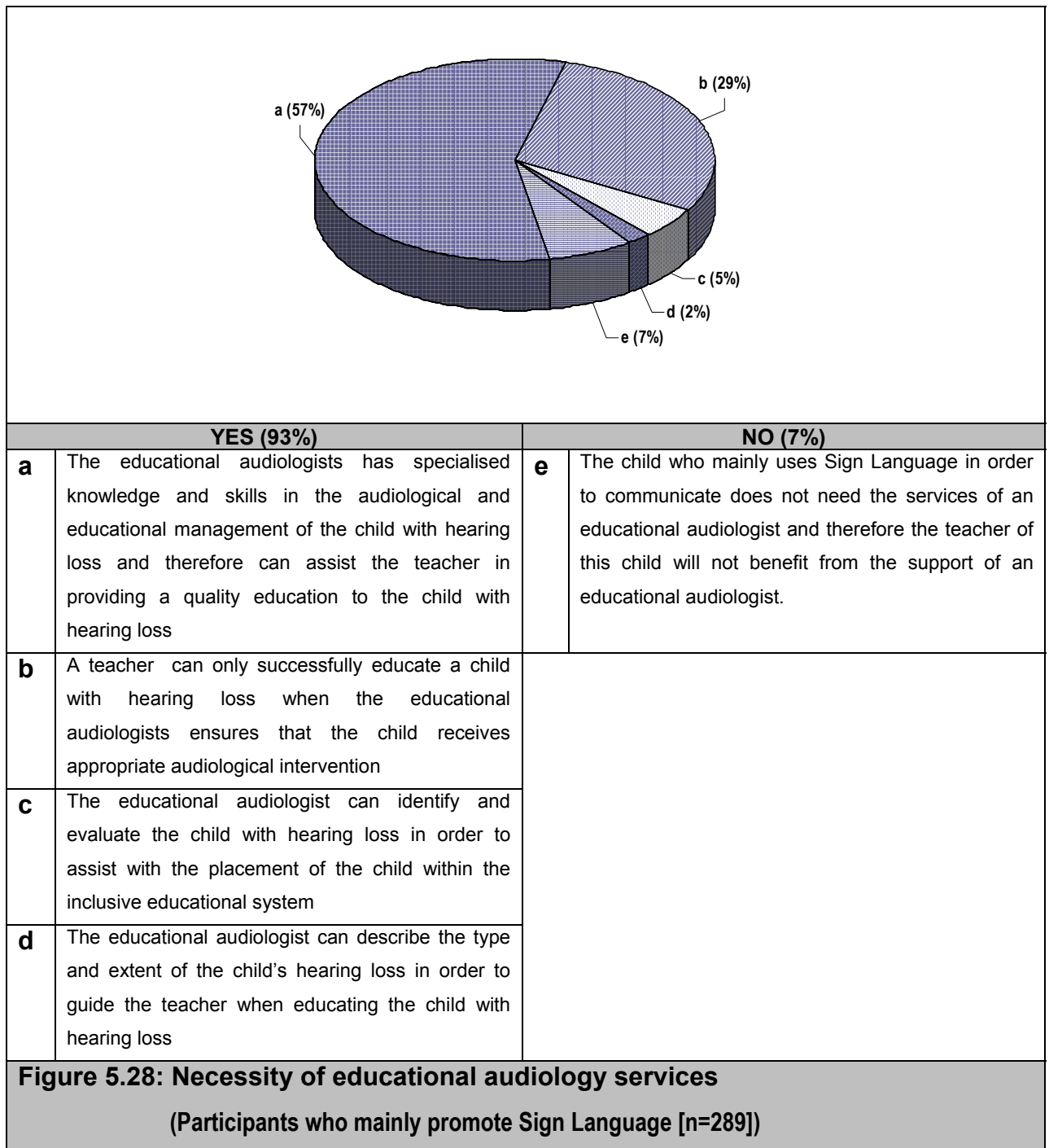
Figure 5.27 continued

b	A teacher can only successfully educate a child with hearing loss when the educational audiologists ensures that the child receives appropriate audiological intervention	
c	The educational audiologist can describe the type and extent of the child's hearing loss in order to guide the teacher when educating the child with hearing loss	
d	The educational audiologist can identify and evaluate the child with hearing loss in order to assist with the placement of the child within the inclusive educational system	
<p>Figure 5.27: Necessity of educational audiology services (Participants who mainly promote spoken language [n=75])</p>		

Figure 5.27 represents participants who responded positively as well as negatively to the question. Justifications are provided for their responses and depicted in the figure. The left-side provides justifications of the participants who responded positively to the question, and the right-side provides justifications of the participant who responded negatively to the question. Letter-symbols are used in the pie-chart to represent the various qualitative responses of participants.

This figure reveals that a large number of participants (84%) who mainly promote spoken language indicated that the teacher in the inclusive educational system could benefit from the support of an educational audiologist, because the educational audiologist has specialised knowledge and skills in the audiological and educational management of the child with hearing loss, and therefore can assist the teacher in providing a quality education to the child with hearing loss. The participant (1%) who did not feel that a teacher could benefit from the services of an educational audiologist was of the opinion that teachers could fulfil most of the duties of an educational audiologist themselves.

The results of **participants who mainly promote Sign Language** are presented in Figure 5.28.



The above figure represents participants who responded positively as well as negatively to the question. Justifications are provided for their responses and depicted in the figure. The left-side provides justifications of the participants who responded positively to the question and the right-side provides justifications of the participants who responded negatively to the question. Letter-symbols are used in the pie-chart to represent the various qualitative responses of participants.

Figure 5.28 reveals that the majority of participants (57%) who mainly promote Sign Language indicated that the teacher in the inclusive educational system could benefit from the support of an educational audiologist, because the educational audiologist has specialised knowledge and skills in the audiological and educational management of the child with hearing loss, and therefore can assist the teacher in providing a quality education to the child with hearing loss. Seven percent of the participants were of the opinion that children who mainly use Sign Language did not require educational audiology services, and therefore participants who mainly promote Sign Language could not benefit from the support of an educational audiologist.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the majority of participants of both sub-groups recommended that the teacher in the inclusive educational system could benefit from the support of an educational audiologist, because the educational audiologists had specialised knowledge and skills in the audiological and educational management of the child with hearing loss, and therefore could assist the teacher in providing a quality education to the child with hearing loss.

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #3, namely participants' need for support regarding the structure of service delivery to the child with hearing loss. Excerpts represented the eight above-mentioned sub-items, namely: team members, team co-ordinator, in-service training as method of support, methods of in-service training, service delivery system, roles and responsibilities of the educational audiologist, and the necessity of educational audiology services. Excerpts representing these sub-items form a synopsis of *the need for support regarding the structure of service delivery by the educational*

audiologist. The findings of the two sub-groups of participants are presented separately.

Table 5.17 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

Table 5.17: Need for support regarding service delivery by the educational audiologist (Participants who mainly promote spoken language)

“...here at our school, an audiologist has a broad spectrum of duties to fulfil...they do parent guidance...teacher training...for instance, once every two weeks...we (the teachers) record each other on video camera and then we sit together with them (the educational audiologists) and we exchange ideas and they give us guidance, there’s a constant flow of communication between us...”[1]

“...we do an individual session a day...where the audiologist assists in class...so you are able to reach all ten (children) a day...”[2]

“...one of our audiologists has been absent for a while and already we can feel the effect on the school...you can’t do without their expertise...”[3]

The first excerpt in Table 5.17, reveals that the participant in the focus group interview valued the role of the educational audiologist in terms of parent guidance and teacher training [1]. The second excerpt indicates that the participant benefitted from the direct intervention activities of the educational audiologist in order to reach every child individually [2]. The last excerpt shows that the participant realised that an audiologist is essential to have on the educational team of the child with hearing loss [3].

Table 5.18 (below) depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote Sign Language** (n=9).

Table 5.18: Need for support regarding service delivery by the educational audiologist (Participants who mainly promote Sign Language)

“...why can't they share their input?, they have so much knowledge in (the development of) reading, speech...why don't they share more of this with the teachers?...”[1]

“...the guidance parents receive (when their child has been diagnosed with a hearing loss) is just not appropriate, because it is provided in a one-sided fashion by the audiologists/speech therapists and the ear specialists...they only say: “speech!”...parents don't know the choices and there isn't exactly time to waste...”[2]

“...although we are involved with the teaching of the hearing impaired, we're not always sure what duties the audiologists/speech therapists perform...I don't always know what they (the educational audiologists) are able to do for our children...”[3]

In Table 5.18, the first excerpt reveals that the participant in the focus group interview required more support from the educational audiologist in terms of information exchange, specifically in the development of literacy skills and speech production skills [1]. The second excerpt indicates that the participant was concerned about the support which parents receive from the educational audiologist [2]. This participant suggests that audiologists involved with the diagnosis of the child with hearing loss tend to favour spoken language, and therefore they do not inform the parents about the other communication options available. The last excerpt shows that the participant was not sure what the benefits are of an audiologist on the educational team of the child with hearing loss [3].

5.4.1.8 Greatest challenges of inclusion

The greatest challenges faced by a teacher when including a child with hearing loss, was identified by the participants.

These results included responses to Question 28 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. In the

presentation of results, some of the responses of the two sub-groups appear closely related, all responses are, however, not identical. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.2.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.29.

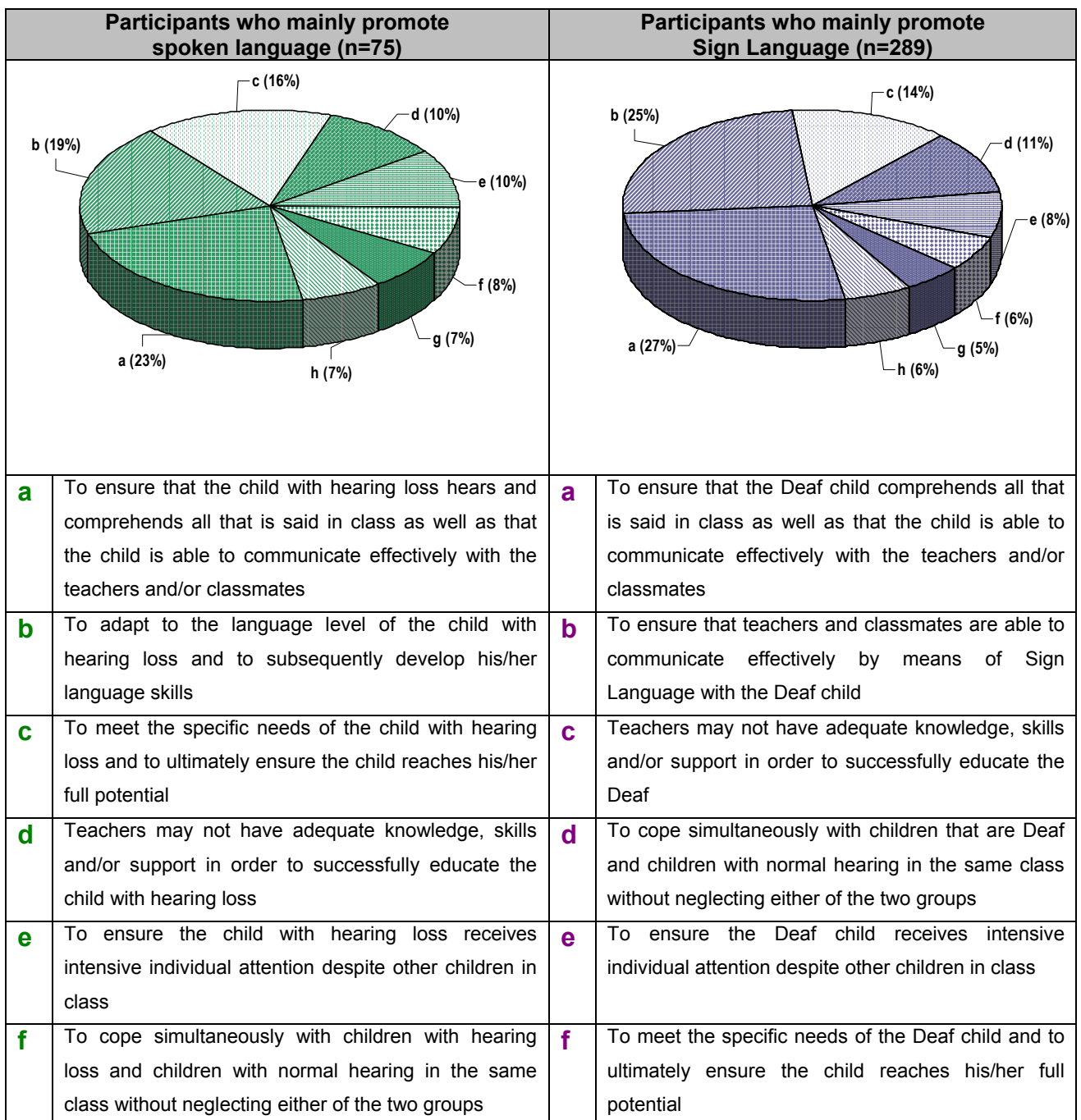


Figure 5.29 continued

g	To ensure the child with hearing loss is integrated and accepted within the school and the child is able to assert himself/herself when necessary	g	To cope simultaneously with children with hearing loss and children who are Deaf in the same class without neglecting either of the two groups
h	Too many learners, too much noise and poor acoustics in the classroom	h	Other challenges include: the negative attitudes of teachers with regard to inclusion, the fast pace of regular schools, and the small amount of parental involvement.

Figure 5.29: Greatest challenges of inclusion (n=364)

In Figure 5.29 (above), the left-side represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language.

This figure reveals that the largest number of participants (23%) who mainly promote spoken language indicated that the greatest challenge would be to ensure that the child with hearing loss hears and comprehends all that is being said, as well as that the child is able to communicate effectively with teachers and classmates. Similarly, the right-sided figure illustrates that the largest number of participants (27%) who mainly promote Sign Language indicated that the greatest challenge would be to ensure that the child with hearing loss hears and comprehends all that is being said, and that the child is able to communicate effectively with teachers and classmates.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Findings reveal a few differences, but indicate that the majority of participants of both sub-groups stated that the greatest challenges of inclusion would be to ensure that the child with hearing loss will hear and comprehend all that is being said, and to ensure that the child will be able to communicate effectively with teachers and classmates.

5.4.1.9 Possible solutions to anticipated challenges of inclusion

Possible solutions were identified to the previously mentioned challenges of inclusion.

These results included responses to Question 29 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. In the presentation of results, some of the responses of the two sub-groups appear closely related, they are, however, not identical. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.2.

The results of the two sub-groups of participants are discussed separately, although findings of **both sub-groups of participants** are depicted in Figure 5.30.

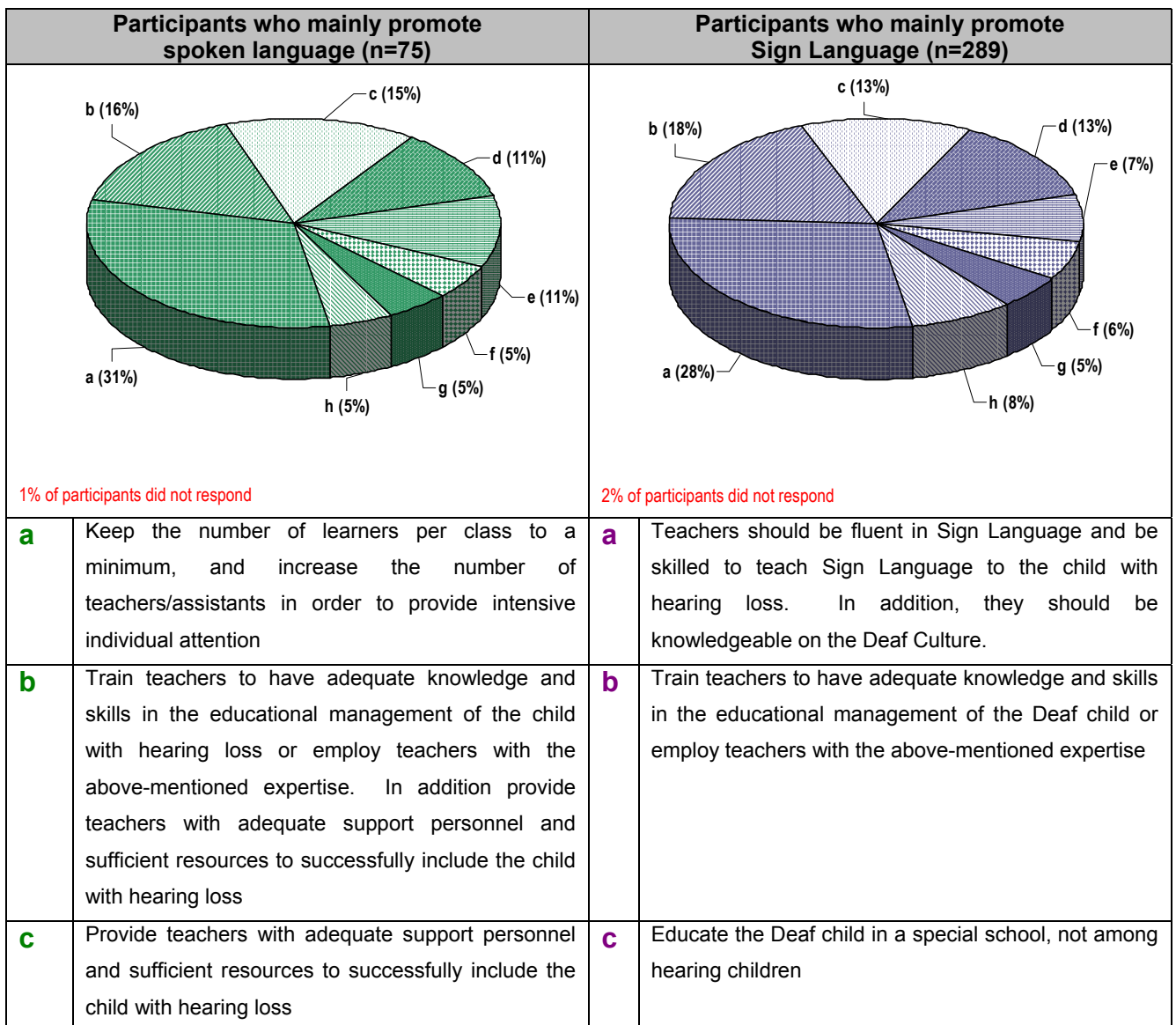


Figure 5.30 continued

d	Educate the child with hearing loss in a special school, not among hearing children	d	Provide teachers with adequate support personnel and sufficient resources to successfully include the Deaf child
e	The educational audiologist should provide support and assistance in the audiological and educational management of the child with hearing loss	e	Provide sufficient Sign Language interpreters at these schools
f	Educate the child with hearing loss in an inclusive school, but separate the child from normal hearing children during tuition	f	Educate the Deaf child in an inclusive school, but separate the child from normal hearing children during tuition
g	Ensure adequate involvement from the child's parents, family and significant others	g	Keep the number of learners per class to a minimum, and increase the number of teachers/assistants in order to provide intensive individual attention
h	Other solutions include: provide teachers with separate school periods in which to give the child with hearing loss exclusive attention, early intervention strategies, and positive teacher attitudes	h	Other solutions include: ensure adequate involvement from the child's parents, family and significant others, conduct a pilot study to determine if the Deaf child benefits from inclusion, and educate the normal hearing

Figure 5.30: Possible solutions to anticipated challenges of inclusion (n=364)

In Figure 5.30 (above), the left-side represents the participants who mainly promote spoken language and the right-side depicts the participants who mainly promote Sign Language.

This figure reveals that the largest number of participants (31%) who mainly promote spoken language indicated that a possible solution would be to ensure that the number of learners per class are kept to a minimum, and to increase the number of teachers/assistants, in order to provide intensive individual attention. In contrast, the largest number of participants (28%) who mainly promote Sign Language indicated that a possible solution would be to ensure that teachers are fluent in Sign Language and possess the skills to teach Sign Language to children with hearing loss. In addition, participants who mainly promote Sign Language suggested that teachers should be knowledgeable in the Deaf Culture.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. Findings revealed that participants of both sub-groups had similar suggestions for possible solutions, but that these

suggestions differed in the frequency in which they were selected by participants of the two sub-groups.

5.4.1.10 Advantages and disadvantages of inclusion practices

It was determined whether participants contemplated whether the child with hearing loss would be either advantaged or disadvantaged by inclusion practices.

These results included responses to the items in Question 30 of the questionnaire survey (Appendix D). All responses to this **open-ended** question were categorised into the main ideas expressed by the participants of each sub-group. In the presentation of results, some of the responses of the two sub-groups appear similar, they are, however, not identical. Supporting themes from the focus group interviews (Appendix E) are provided at the end of section 5.4.2.

The results of the two sub-groups of participants are discussed separately.

The results of **participants who mainly promote spoken language** are presented in Figure 5.31.

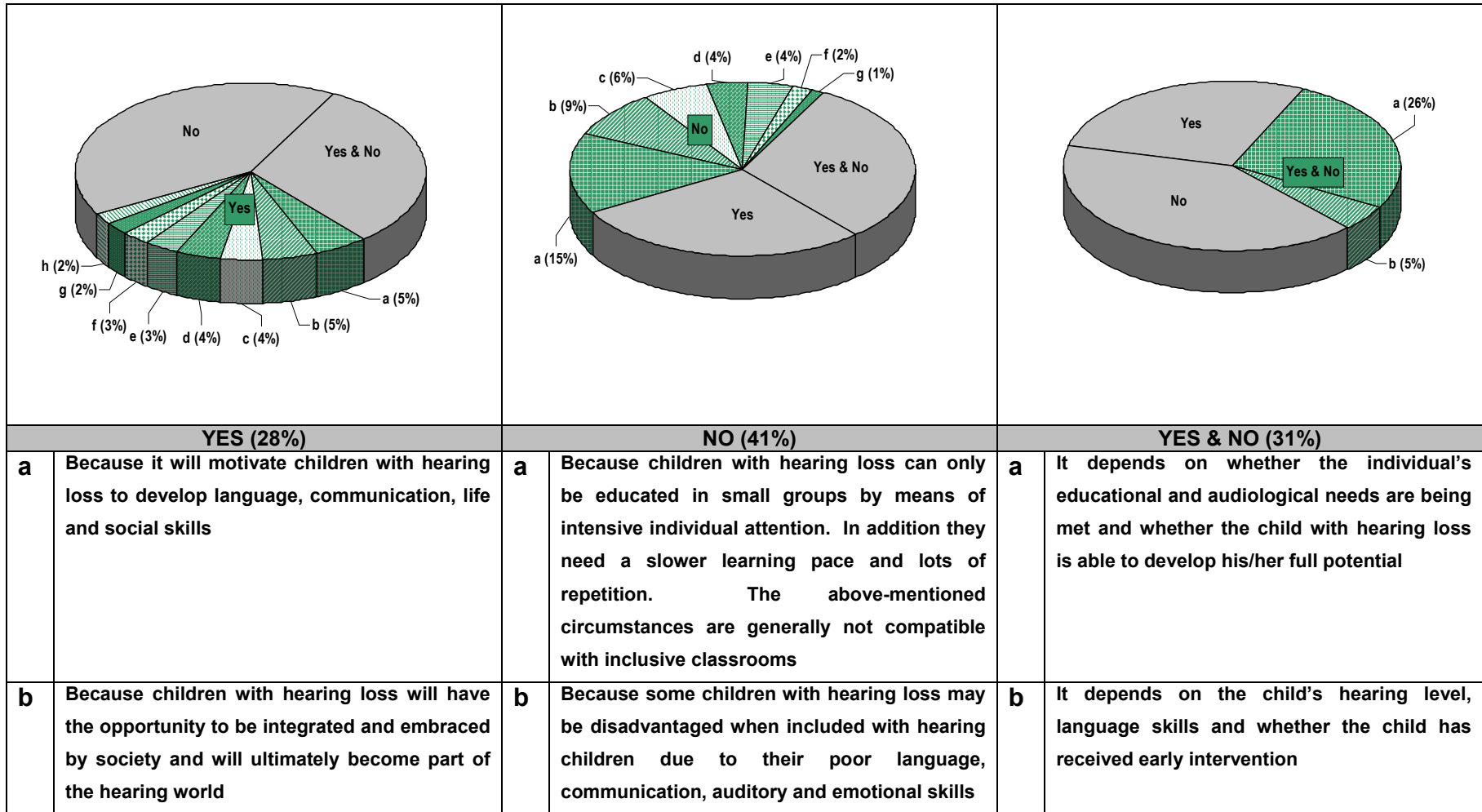


Figure 5.31 continued

c	Only if the child has the hearing and educational ability to be included and it benefits the child with hearing loss as a whole	c	Because some children with hearing loss may be disadvantaged emotionally when included with hearing children and may experience vulnerability, failure, isolation and teasing.
d	Only if teachers have adequate knowledge and skills in the management of the child with hearing loss	d	Because there are not adequate support personnel and resources available to successfully include the child with hearing loss
e	Only if children with hearing loss receive a quality education, proper audiological intervention and are continuously monitored	e	Because some children with hearing loss may be disadvantaged when included with hearing children due to their language deficits
f	Only if parents and families are actively involved in the education of the child with hearing loss	f	Because some children with hearing loss may be disadvantaged due to high noise levels and poor acoustics in inclusive classrooms
g	Only if there are adequate support personnel, sufficient resources and teacher training	g	Because teachers will not be able to cope simultaneously with hearing children and children with hearing loss in the same classroom without neglecting either of the two groups
h	Because children with hearing loss have been placed in inclusive classrooms in some cases with great success		

Figure 5.31: Advantages and disadvantages of inclusion practices (Participants who mainly promote spoken language [n= 75])

Figure 5.31 indicates three columns: **YES**, **NO** and **YES & NO**. These columns are discussed separately:

YES: The second largest percentage of participants (28%) indicated that children with hearing loss would benefit from inclusion. Of these participants, 5% stated that inclusion would motivate children with hearing loss to develop language, communication, life and social skills.

NO: The largest number of participants (41%) did not think that children with hearing loss would benefit from inclusion practices. Of these participants, 15% indicated that children with hearing loss could only be educated in small groups by means of intensive individual attention. Participants added that children with hearing loss needed a slower learning pace and lots of repetition, and participants felt that the above-mentioned circumstances were mostly not compatible with inclusive classrooms.

YES & NO: The remainder of participants (31%) selected yes and no to this question. These participants stated that the benefits of inclusion depended on whether the individual's educational and audiological needs were being met and whether the child with hearing loss was able to develop his/her full potential.

The results of **participants who mainly promote Sign Language** are illustrated in Figure 5.32.

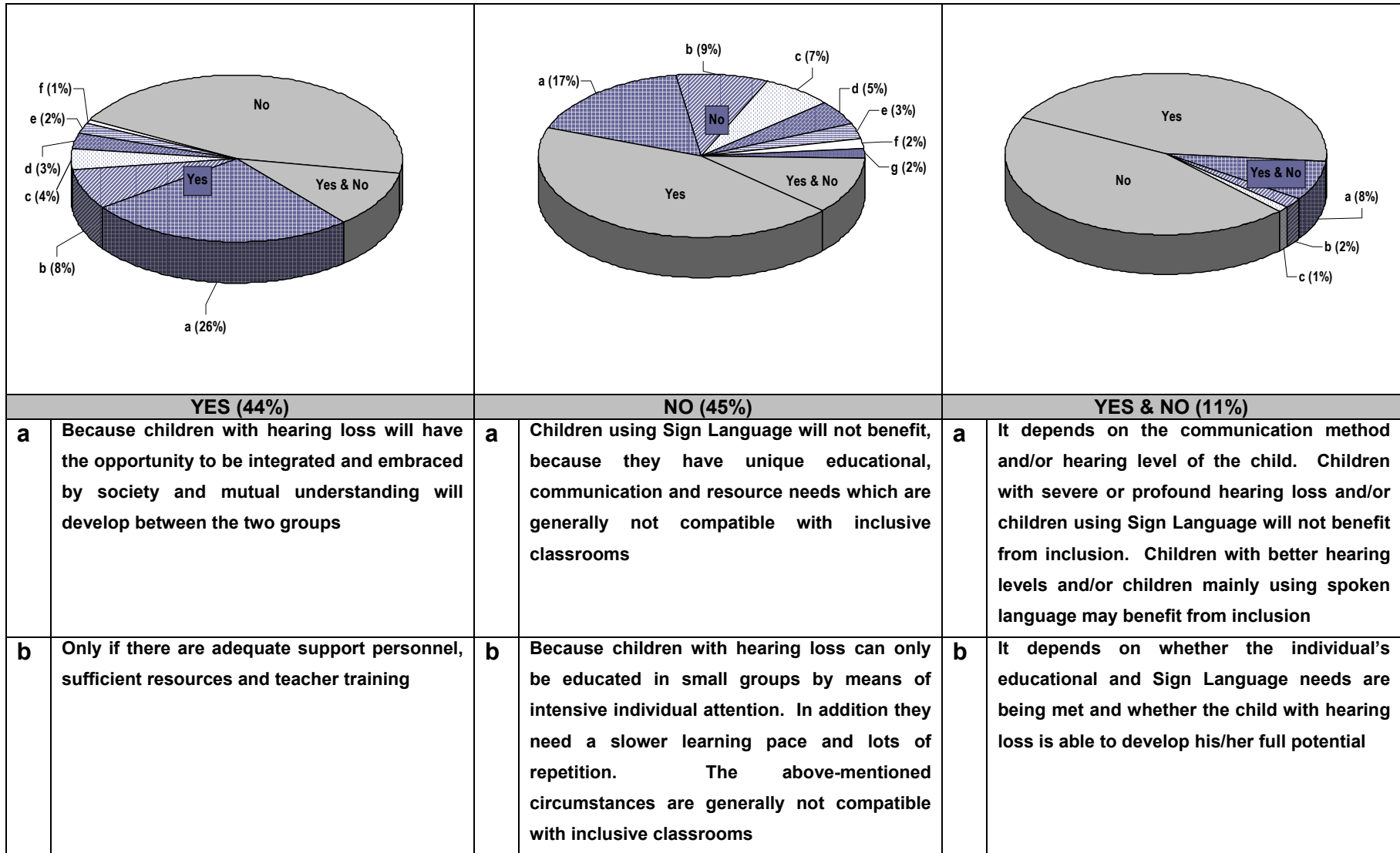


Figure 5.32 continued

c	Because it will motivate children with hearing loss to develop their language, life and social skills	c	Because some children with hearing loss may be disadvantaged when included with hearing children due to their language deficits and their use of Sign Language	c	It depends on the language, communication, auditory and emotional skills of the child with hearing loss
d	Only if the child has the hearing and educational ability to be included and it benefits the child with hearing loss as a whole	d	Because teachers will not be able to cope simultaneously with hearing children and children with hearing loss in the same classroom without neglecting either of the two groups		
e	Only if educational provisions are made for the child who uses Sign Language	e	Because some children with hearing loss may be disadvantaged emotionally when included with hearing children and may experience vulnerability, failure, isolation and teasing.		
f	Only if the number of learners per class are at a minimum, if there are adequate support personnel and if intensive individual attention can be provided to the child with hearing loss	f	Because there are not adequate support personnel and resources available to successfully include the child with hearing loss		
		g	Because children using Sign Language cannot effectively communicate with teachers and other learners who do not use Sign Language		

Figure 5.32: Advantages and disadvantages of inclusion practices (Teachers who mainly promote Sign Language [n=289])

Figure 5.32 depicts three columns: **YES**, **NO** and **YES & NO**. These columns are discussed separately:

YES: The second largest number of participants (44%) indicated that children with hearing loss would benefit from inclusion. Of these participants, 26% stated that inclusion would provide children with hearing loss the opportunity to be integrated and embraced by society and mutual understanding would develop between the two groups.

NO: The largest number of participants (45%) indicated that children with hearing loss would not benefit from inclusion. Participants indicated that children using Sign Language would not benefit, because they had unique educational, communication, and resource needs which were mostly not compatible with inclusive classrooms.

YES & NO: The remainder of participants (11%) selected yes and no to this question. These participants stated that children with severe or profound hearing loss and/or children using Sign Language would not benefit from inclusion. The participants added that children with better hearing levels and/or children who mainly use spoken language would be in a position to benefit from inclusion.

Finally, differences and similarities between the results of the two sub-groups of participants were evaluated. A wide range of differences exist. However, findings reveal that the largest number of participants of both sub-groups indicated that children with hearing loss would not benefit from inclusion practices.

* * *

Themes of focus group interviews were identified by selecting themes that corresponded to those of the questionnaire items. These themes corresponded to objective #3, namely participants' need for support regarding the structure of service delivery to the child with hearing loss. Excerpts

represented the three sub-items above, namely: greatest challenges of inclusion, possible solutions to anticipated challenges, and advantages and disadvantages of inclusion practices. Excerpts representing these sub-items form a synopsis of *the need for support regarding the inclusion of children with hearing loss*. The findings of the two sub-groups of participants are presented separately.

Table 5.19 depicts some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=10).

Table 5.19: Need for support regarding the inclusion of children with hearing loss (Participants who mainly promote spoken language)

“...in the early stages...there is no way of including the little ones if you don’t have input from the specialists (such as educational audiologists)...”[1]

“...you will have to give attention to everyone (in an inclusive classroom), you will have to divide yourself...is this fair in the end?, because every child has the right to individual attention and tuition...”[2]

“...there should be enough parental support...because the child has a backlog as it is...the pace of mainstream, the parent should help the child to keep up with the others...”[3]

In Table 5.19, the first excerpt reveals that the participant in the focus group interview recommended professional support personnel, such as the educational audiologist, in order to overcome challenges of inclusion in the early stages [1]. The second excerpt indicates that the participant predicted a challenge with regard to coping simultaneously with children with hearing loss and children with normal hearing in the same class without neglecting either of the two groups [2]. The last excerpt shows that the participant suggested adequate parental support in order to overcome the barrier of the fast pace in inclusive classrooms [3].

Table 5.20 presents some of the relevant excerpts extracted from the two focus group interviews conducted with the **participants who mainly promote spoken language** (n=9).

Table 5.20: Need for support regarding the inclusion of children with hearing loss (Participants who mainly promote Sign Language)

“...it’s their democratic right...it is the child’s first language and they have the right to receive their education in Sign Language...”

“...if they want inclusion to work they will have to give serious attention to the training of those working with children in the early language acquisition stages...this includes the teachers and audiologists and other support personnel....”

“...there should be support systems such as plenty of interpreters...more teachers that can fluently use Sign Language...he (the child) can only partake if...there are things like these to ensure equal participation...”

In Table 5.20, the first excerpt reveals that the participant in the focus group interview recommended that children who mainly use Sign Language should continue to receive their tuition in Sign Language in the inclusive educational system **[1]**. The second excerpt indicates that the participant suggested training of all personnel involved with the child with hearing loss in order to ensure the success of inclusion **[2]**. The last excerpt shows that the participant recommended equal participation for the child who mainly uses Sign Language by providing sufficient resources in the inclusive educational system **[3]**.

An interpretation and discussion follows to conclude the findings of this section.

5.4.2 Interpretation and discussion of findings of objective #3:

Support regarding the structure of service delivery to children with hearing loss

It is essential that the structure of service delivery to children with hearing loss attempt to address the various needs and concerns of teachers of children with hearing loss. Addressing these needs will ensure effective service delivery practices that will benefit the teacher as well as the child with hearing loss in the inclusive educational system (Johnson, Benson & Seaton, 1997). In addition, clarifying the differences in need for support regarding the structure of service delivery among the sub-groups of participants is essential in order to plan for both sub-groups during the development of an educational audiology service delivery model.

Although findings must be interpreted against the background of guidelines provided for the implementation of the South African inclusive educational system, documents to date provide conceptual clarity, but lack specific detail regarding the practical implications of inclusion (Department of Education, 2002; Education White Paper no 6, 2001). Findings will, however, be broadly posed against these guidelines.

A detailed interpretation and discussion of the various sub-sections of objective #3 follows, namely: members of the team, team co-ordinator, in-service training as a method of support, service delivery system, roles and responsibilities of the educational audiologist, necessity of educational audiology services, greatest challenges of inclusion, possible solutions to anticipated challenges, and advantages and disadvantages of inclusion practices. Findings from both sub-groups of participants are presented in the following discussion.

**5.4.2.1 Interpretation and discussion of findings of objective #3:
Members of the service delivery team**

Findings reveal that differences and similarities are prevalent among both sub-groups of participants relating to the need for support regarding members of the service delivery team. A speech-language therapist was recommended most frequently by participants who mainly promote spoken language to serve on the team of the child with hearing loss. On the other hand, the parents of the child with hearing loss was selected the most by participants who mainly promote Sign Language. Participants who mainly promote spoken language, however, also strongly suggested that the parents of the child with hearing loss serve on the team. It is probable that differences in these findings can be clarified by the differences in the communication instructional approaches they follow, and this is confirmed by the literature-based discussion that follows.

It is well-known that teachers who mainly promote spoken language are primarily concerned with, *inter alia*, the child's development of receptive language skills and speech production skills in inclusive settings (Jamieson, 1994; Paul & Quigley, 1994; Sanders, 1988). Competency in these areas of development is often a prerequisite for successful educational outcomes of the child who mainly uses spoken language (Sanders, 1988). Speech-language therapists are specialists in the development of language and speech skills. It therefore becomes apparent why participants who mainly promote spoken language would indicate a greater need for a speech-language therapist on the team of the child with hearing loss. An educational audiology service delivery model should value resources such as the speech-language therapist when managing the child with hearing loss. Fortunately, to date, speech-language therapy and audiology is a dual qualification and thus the educational audiologist in South Africa is fortunate to fulfil both professional roles.

An explanation can be found in literature as to why the parents of the child with hearing loss were selected most frequently by participants who mainly promote Sign Language as well as by a large number of participants who

mainly promote spoken language. The importance of involving the parents of the child with hearing loss has been stressed by numerous authors (Anderson, 2002; English, 1995; Johnson, Benson & Seaton, 1997). According to Anderson (2002), parental involvement is the “magic” ingredient for obtaining successful educational outcomes in children with hearing loss. Furthermore, traditionally, caregivers (and other family members) of children with hearing loss in South Africa were not involved as part of the child’s intervention team (Reeves, 1994) and therefore participants may have highlighted this need.

The draft guidelines for the implementation of inclusive education in South Africa (Department of Education, 2002:140), supports parental recognition and involvement and states that: *“The active involvement of parents and the broader community in the teaching and learning process is central to effective learning and development.”*

For these reasons, an educational audiology service delivery model should overcome the lack of caregiver involvement by acting as a liaison between the community and school, which may include activities such as home visits, parent training, and community-outreach programmes.

Furthermore, a large number of participants of both sub-groups recommended the involvement of all seven team members, namely the educational audiologist, speech-language therapist, psychologist, social worker, occupational therapist, and the parents of the child with hearing loss. Children with hearing loss have a variety of needs stemming either directly or indirectly from their sensory impairment, and therefore the involvement of these various team members will greatly contribute to the success of addressing barriers to learning experienced by the child with hearing loss (English, 1995; Johnson, Benson & Seaton, 1997). An educational audiology service delivery model should involve all the relevant team members and should create an awareness of the importance of serving the child with hearing loss within a team.

However, when participants were requested to indicate other team members who had not been specified on the questionnaire, only a very small percentage (6%;2%) of participants of both sub-groups indicated the involvement of family members (other than the parents) on the team. These findings can be clarified by South African literature which indicates that the family members of school-going children are often not involved, because urbanisation, poverty, and poor infrastructure prevents families from visiting the child's school (Paterson & Kruss, 1998; Penn & Reagan, 1995; Van der Westhuizen & Mosoge, 2001). Furthermore, intervention practices 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). As mentioned formerly, an educational audiology service delivery model should overcome a lack of caregiver and family involvement by providing home visits and community-outreach programmes.

A large percentage (93%;89%) of participants of both sub-groups strongly recommended that an educational audiologist serve on the team of the child with hearing loss. Literature confirms the importance of having an educational audiologist on the service delivery team, as the educational audiologist possess unique knowledge and skills in the management of the school-going child's audiological and educational needs (English, 1995; Johnson, Benson & Seaton, 1997). However, according to Pottas and Hugo (2001) and findings from the present study, many schools in South Africa do not have the services of an educational audiologist and services delivered are not always adequate.

According to the draft guidelines for the implementation of inclusive education in South Africa (Department of Education, 2002), team members of the various districts will have key functions that will include, inter alia:

- * supporting learners, educators and the educational system as a whole;
- * assisting educators to create flexibility in their assessment and teaching methods;
- * providing direct intervention programmes to learners; and
- * serving as consultant-mentors to teachers and other support personnel.

An educational audiology service delivery model should therefore provide training to personnel such as teachers to perform of the duties of an educational audiologist where a shortage of educational audiologists exist, and should continue to provide services on a consultative basis.

**5.4.2.2 Interpretation and discussion of findings of objective #3:
Co-ordinator of the service delivery team**

Findings reveal differences among the results of both sub-groups of participants relating to the need for support regarding a co-ordinator for the service delivery team of the child with hearing loss. The majority of participants who mainly promote spoken language recommended that the teacher must co-ordinate the team himself/herself, whereas the majority of participants who mainly promote Sign Language suggested that the educational audiologist co-ordinate the team.

These differences between results of the participants of the two sub-groups are not readily clarified by the differences in the instructional approaches they adhere to. However, literature confirms the advantages of having an educational audiologist as a team co-ordinator. An educational audiologist is uniquely skilled in managing the audiological and educational aspects of the child with hearing loss, as well as co-ordinating various team members to appropriately address the child's barriers to learning (English, 1995; Johnson, Benson & Seaton, 1997). However, considering the unique South African situation where resources such as educational audiologists are limited (Pottas, 1998), it may be necessary in some instances for the teacher to fulfil the role of the team co-ordinator. Literature supports this, and indicates that there is a shortage of educational audiologists in most countries, and that the caseloads of children with hearing loss far exceed the recommended educational audiologist/child ratio of 1:12000 (Johnson, 1999). Literature recommends that the shortage of educational audiologists be overcome by multi-skilling. Multi-skilling implies the training of other personnel to perform some of the roles of the educational audiologist (Johnson, 1999). An educational audiologist can therefore train and assist team co-ordinators to

fulfil all the tasks necessary to appropriately manage personnel who are involved with children with hearing loss.

According to the draft guidelines for the implementation of inclusive education in South Africa (Department of Education, 2002), within each district, the district director will act as the co-ordinator of the district-based support team, which includes responsibilities such as the management of the team and collaboration to ensure holistic and integrated support provision to learners in schools. These co-ordinators will be selected from currently employed educational support personnel which include psychologists, therapists, and remedial teachers (Department of Education, 2002). Therefore, any of these professionals may serve on the educational team of the child with hearing loss.

An educational audiology service delivery model should provide support to teachers serving as team co-ordinators, in order to equip them with the relevant knowledge and skills to successfully manage the team of the child with hearing loss.

5.4.2.3 Interpretation and discussion of findings of objective #3: In-service training as a method of teacher support

Findings reveal that a large number of participants of both sub-groups felt that teachers could benefit from in-service training. Literature corroborates the importance of in-service training for teachers of children with hearing loss (Johnson, Benson & Seaton, 1997; Power & Elliott, 1990). In-service training is fundamental for teachers of children with hearing loss, because it provides opportunities for developing knowledge, skills and attitudes prerequisite to the effective inclusion of children with disabilities (Power & Elliott, 1990).

A South African study however, indicated that the in-service training of teachers of children with hearing loss was mostly inadequate (Pottas & Hugo, 2001). An educational audiology service delivery model should address these inadequacies and utilise in-service training to equip teachers

with appropriate knowledge and skills to successfully manage the child with hearing loss in the inclusive educational system.

Furthermore, findings reveal that participants of both sub-groups agreed that teachers would benefit most from *continuous* in-service training and that they would benefit least from a once-off training session as a method of support. Literature attests to the importance of receiving on-going continuous in-service training. According to Power and Elliott (1990) teachers' needs regarding support continuously vary as they encounter new challenges. Therefore, continuous in-service training will ensure that teachers are kept abreast with the latest research in the field of educational audiology, teaching techniques and teaching materials.

According to the draft guidelines for the implementation of inclusive education in South Africa (Department of Education, 2002), all teachers will need new knowledge and skills in order to successfully include children with disabilities. Training of teachers will take place continuously outside and on-site in classrooms (Department of Education, 2002).

5.4.2.4 Interpretation and discussion of findings of objective #3: Service delivery system

Findings reveal differences among the results of both sub-groups of participants relating to the need for support regarding an educational audiology service delivery system. The majority of participants who mainly promote spoken language recommended a combination of the school-based system and the contractual system, whereas the majority of participants who mainly promote Sign Language suggested a school-based service delivery system. These responses must be carefully interpreted, however. In South Africa, teachers of children with hearing loss to date have had little exposure to any other service delivery system than the school-based educational audiology service delivery system, and, in some cases, schools have never had exposure to any educational audiology services (Pottas, 1988). Literature

does clarify the benefits and disadvantages of these service delivery systems and are discussed forthwith.

A combination of the school-based and contractual agreement system implies that 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). A combination of the school-based system and the contractual-agreement system may result in varying degrees of comprehensiveness and cost-effectiveness that depend on the unique variations within the system (Johnson, Benson & Seaton, 1997). When evaluating the comprehensiveness and cost effectiveness of service delivery systems, it becomes clear that the more comprehensive a system is, the less cost effective it tends to be.

In an exclusively school-based system, the school employs a full-time educational audiologist (or more than one) to render services at the school. 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, and 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 purchasing and maintenance of audiological equipment and materials (ASHA, 1993).

Considering that the South African educational system is presented with many financial constraints (Education White Paper no 6, 2001) and the presence of an unfavourable ratio of educational audiologist per child with hearing loss (Pottas, 1998), it would appear that the combination of the school-based and contractual agreement system can best be utilised for the inclusive educational system in South Africa. An educational service delivery model should build partnerships with resources in the community, such as private audiologists, in order to render quality services to children with hearing loss.

**5.4.2.5 Interpretation and discussion of findings of objective #3:
Roles and responsibilities of the educational audiologist**

Findings reveal differences among the results of both sub-groups of participants relating to the need for support regarding the roles and responsibilities of the educational audiologist. A very large percentage of participants of both sub-groups knew some of the roles and responsibilities of an educational audiologist. The majority of participants who mainly promote spoken language recommended that an educational audiologist be involved with direct intervention activities, with a child with hearing loss, as well as provide indirect support and assistance to teachers. On the other hand, a fairly large number of participants who mainly promote Sign Language suggested that an educational audiologist be involved exclusively with direct intervention activities with a child with hearing loss. The differences in these findings are clarified by literature and relate to the differences in the communication instructional approaches they adhere to. Literature indicates that teachers who mainly promote Sign Language often feel that educational audiologists approach the child with hearing loss within the framework of the medical model, that attempts to habilitate the child's hearing loss (DEAFSA, 2001c; Lynas, 1994; Moores, 1996). Teachers who mainly promote Sign Language therefore prefer that the educational audiologist intervene with the child directly, whilst they are hesitant to involve educational audiologists in indirect intervention activities that target the teacher, such as teacher training which may provide an opportunity for the educational audiologist to change their ways of managing the child with hearing loss.

For these reasons, educational audiologists should view the child within the whole context of development, and therefore should assure teachers of their unbiased attitude towards teachers with different communication instructional approaches. An educational audiology service delivery model should attempt to clearly demonstrate that the services of educational audiologists are for all teachers and children with hearing loss and that teachers that follow one communication instructional approach are not favoured above the other.

The aforementioned results of participants who mainly promote spoken language correlates with literature. A study among teachers in South Africa revealed that the majority of the teachers believed that audiologists/speech-language therapists should provide direct intervention to the child with hearing loss, as well as indirect support to the teacher (Keith & Ross, 1998).

In addition, results indicated that a large percentage of participants of both sub-groups knew some of the roles and responsibilities of an educational audiologist. The specific details of these roles and responsibilities were however unclear to a large number of participants. Literature indicates the importance of teachers having knowledge of the roles and responsibilities of an educational audiologist, in order to rely on this specialist to appropriately manage the child with hearing loss in the inclusive educational system (English, 1995; Johnson, Benson & Seaton, 1997).

An educational audiology service delivery model should provide education to all team members on *all* the various roles and responsibilities of the educational audiologist.

5.4.2.6 Interpretation and discussion of findings of objective #3: Necessity of educational audiology services

Findings reveal a wide range of differences regarding the necessity of educational audiology services. However, findings indicate that the majority of participants of both sub-groups recommended that teachers in the inclusive educational system could benefit from the support of an educational audiologist, because educational audiologists had specialised knowledge and skills in the audiological and educational management of the child with hearing loss and therefore could assist the teacher in providing a quality education to the child with hearing loss.

Literature confirms the importance of receiving support from an educational audiologist when including the child with hearing loss, because educational audiologists are specialists in the field of hearing loss and have expertise in

hearing loss and the impact thereof on a child's ability to be educated among hearing peers (English, 1995; Johnson, Benson & Seaton, 1997). In addition, a South African study revealed that a large percentage of teachers agreed that, with the help of audiologists/speech-language therapists, they were confident that they could teach a child with hearing loss in an inclusive educational system (Keith & Ross, 1998).

Therefore, an educational audiology service delivery model should promote the benefits and importance of receiving support from an educational audiologist to successfully include the child with hearing loss.

Discussions in focus group interviews (See Tables 5.17 and 5.18) corresponded to the six aforementioned questionnaire probes, namely members of the team, team co-ordinator, in-service training as a method of support, service delivery system, roles and responsibilities of the educational audiologist, and necessity of educational audiology services. The main difference between discussions of participants of the two sub-groups was that participants who mainly promote spoken language generally valued the support from an educational audiologist. In contrast, participants who mainly promote Sign Language were concerned that they were not receiving adequate support from their educational audiologists and were not always clear on what their roles and responsibilities at their specific school were. These findings may indicate a need for better graduate training of educational audiologists to identify and address teachers' needs regarding educational audiology services. Therefore, an educational audiology service delivery model should be sensitive to teachers' individual needs for support and should advocate the services of educational audiologists to all teachers of children with hearing loss.

5.4.2.7 Interpretation and discussion of findings of objective #3: Greatest challenges of inclusion

Findings reveal only a few differences relating to the greatest challenges identified by participants when including children with hearing loss. It was

found that participants of both sub-groups indicated that the greatest challenges would be to ensure that the child with hearing loss hears and comprehends all that is being said, as well as that the child is able to communicate effectively with teachers and classmates. Literature confirms the importance of ensuring that the child with hearing loss hears and comprehends all that is being said, as well as that the child is able to communicate effectively with all (English, 1995; Johnson, Benson & Seaton, 1997). However, when considering the differences in their communication instructional approach, it can be speculated that, although participants of the two sub-groups established identical challenges, they had different reasons for indicating these challenges. Participants who mainly promote spoken language were concerned that the child would not hear and comprehend all that was being said most probably due to the unfavourable acoustic environment found in inclusive classrooms (Berg, Blair & Benson, 1996). Children who mainly use spoken language heavily rely on hearing aids to communicate and will therefore be negatively affected by noise and poor acoustics in the classroom (Johnson, Benson & Seaton, 1997). In contrast, participants who mainly promote Sign Language were concerned that children who mainly use Sign Language would not be able to hear or comprehend *spoken* language in the inclusive classroom, because they mainly use Sign Language and will therefore be unable to effectively communicate with their hearing teachers and classmates (Moore, 1996).

With regard to challenges foreseen by teachers in the inclusive educational system, international literature indicated the following. Teachers in regular schools anticipated the following challenges regarding learners with disabilities in an inclusive educational system (Idol, 1997; Salend, 2001): negative attitudes of other teachers towards inclusion, insufficient support and training of teachers, too many learners in classrooms, difficulties in meeting the psychosocial needs of learners, and uncertainty about the designing and implementation of appropriate instructional programmes. These concerns correspond to the challenges foreseen by participants in the current study.

**5.4.2.8 Interpretation and discussion of findings of objective #3:
Possible solutions to anticipated challenges of inclusion**

Results indicate differences among participants of the two sub-groups regarding the possible solutions to anticipated challenges when including children with hearing loss.

Findings reveal that the largest number of participants who mainly promote spoken language indicated that a possible solution would be to ensure that the number of learners per class are kept to a minimum, and to increase the number of teachers/assistants in order to provide intensive individual attention. On the other hand, the largest number of participants who mainly promote Sign Language indicated that a possible solution would be to ensure that teachers are fluent in Sign Language and are skilled to teach Sign Language to the child with hearing loss. In addition, participants who mainly promote Sign Language suggested that teachers should be knowledgeable on the Deaf Culture.

The difference between the views of participants of the two sub-groups can be explained by literature and relates to the differences in the communication instructional approach they follow. Teachers who mainly promote spoken language are more focused on providing individual education to the child with hearing loss in an acoustically ideal environment, whereas teachers who mainly promote Sign Language are more concerned with development of the child's Sign Language and cultural identity as a Sign Language user (Moore, 1996).

**5.4.2.9 Interpretation and discussion of findings of objective #3:
Advantages and disadvantages of inclusion practices**

Findings reveal differences and similarities among participants of the two sub-groups regarding the possible solutions to anticipated challenges when including children with hearing loss. Results indicated that the majority of both sub-groups of participants indicated that children with hearing loss would *not*

benefit from the inclusive educational system. The reasons given by the two sub-groups differed. Participants who mainly promote spoken language stated that inclusion would fail mainly, because children with hearing loss could only be educated in small groups by means of intensive individual attention, and that these circumstances were mostly not compatible with an inclusive classroom. On the other hand, participants who mainly promote Sign Language stated that inclusion would mainly not be successful, because children with hearing loss have unique educational, communication, and resource needs which are generally not provided by an inclusive classroom. Resistance to inclusion is often voiced by teachers of children with disabilities, but once they are provided with the necessary training, support personnel and resources they often change their negative perceptions of inclusion (Salend, 2001). Therefore, an educational audiology service delivery model should address teachers' negative perceptions and their fears of change and provide support to ease the inclusion of children with hearing loss.

Discussions in focus group interviews (See Tables 5.19 and 5.20) corresponded to the three above-mentioned questionnaire probes, namely: greatest challenges of inclusion, possible solutions to the anticipated challenges, and the advantages and disadvantages of inclusion. The main feature of the focus group discussions was that participants expressed many fears and they recommended human resources such as parents, Sign Language interpreters, educational audiologists, and other support personnel to aid the inclusion of the child with hearing loss. An educational audiology service delivery model should provide opportunity for teachers to voice their concerns and subsequently attempt to address these concerns.

5.5 CONCLUSION

The current study determined the needs of teachers of children with hearing loss, in order to develop an educational audiology service delivery model for use within the inclusive educational system.

Addressing teachers' needs through the development of an educational audiology service delivery model is in line with current government policy on teacher support services. The educational audiologist, who renders services within the framework of an educational audiology service delivery model, is uniquely skilled in managing the effects of hearing loss on the child's audiological and educational development (English, 1995; Johnson, Benson & Seaton, 1997).

The results obtained in the empirical study indicated various needs of teachers with hearing loss. Results indicated differences between the two sub-groups of participants' need for support in: the acquisition of knowledge of educational audiology, the audiological and educational management of the child with hearing loss, and regarding the structure of services rendered to children with hearing loss. Determining these differences is crucial in order to plan for an appropriate educational audiology service delivery model that will benefit teachers of both sub-groups and ultimately ensure that the child with hearing loss develops his/her full potential.

5.6 SUMMARY

In this chapter, the results were presented of the empirical study which include the questionnaire survey and the focus group interviews. These results were organised into the three objectives of the study and the two sub-groups of participants were discussed separately. Each objective was concluded with an interpretation and discussion of responses of the two sub-groups of participants. These results will form the basis upon which the educational audiology service delivery model will be formulated in Chapter Six. The chapter ends with a conclusion and a summary.