4. CHAPTER 4: METHODOLOGY

4.1 INTRODUCTION

The segregation policies of South Africa have had a great impact on children with disorders and disabilities among the black communities (NCESS, 1997). Aspects such as lack of exposure, limited resources, inflexible curriculum and rigid teaching style have led to the marginalization of children with CAPD (NCESS, 1997). This resulted in either late or even lack of identification of such children. The lack of proper and efficient intervention at an early school going age has led to high rate of school dropouts and it is suggested that children with CAPD may form part of this group. According to the NCESS (1997), it is difficult to give an accurate number of school dropouts, however it can be accepted that many children with disorders did not have access to the formal education system.

The literature review in Chapter one highlighted CAPD as one of the most disabling disorders that can affect a child=s academic, social and communicative life (Rampp, 1980; Keith, 1988; Bellis, 1996; Bench and Maule, 1997). Clinical experience suggests that teachers seem not to understand children with CAPD. These children are often mistakenly considered by teachers as having hearing difficulties, being "naughty" or being learning disabled. The aim of this research is to assess the training and knowledge of primary school teachers in urban black schools regarding CAPD.

As education is considered a fundamental right to everybody in South Africa (NCESS, 1997), the integration process highlights the need for research to determine if teachers in the mainstream schools are adequately qualified or prepared to handle children with disabilities/disorders. In Chapter one it was mentioned that limited research related to CAPD and academic difficulties has been done in South Africa, especially among black communities. This kind of research is very important in order to ensure that future planning and development will take the specific needs of children with disabilities into

account.

The fact that teachers are core team members involved in the identification, referral and remediation of children with CAPD (Willeford Burleigh, 1985; Bellis, 1996) highlights the need for research in this area. Research is an important step in order to ensure the development of teachers' capabilities and preparedness to deal with children with CAPD.

Finally, research is a method of obtaining answers to unresolved problems and the discovery of new facts (Leedy, 1993). The information derived from this research will increase the knowledge of speech-language pathologists and audiologists regarding the training and knowledge of teachers in areas of CAPD and probably increase the exposure of the profession and facilitate collaboration between teachers and speech-language pathologists and audiologists (Fletcher, 1998).

The title of this study indicates that this project aims to investigate the knowledge of urban black teachers regarding CAPD. The results of this study will be analysed and interpreted to gain insight into the knowledge of teachers in the black communities.

In the previous chapters, a review of the literature has been provided and the aim and rationale underlying the study have been presented. According to Leedy (1989) and Mitchell and Jolley (1992), research originates with a question that is divided into manageable sub-aims. The question should have clear goals and requires a specific plan of procedure (Leedy, 1993). This chapter will chronicle this process.

The present chapter aims at describing the research aims and methodology needed to answer the question "What is the training and knowledge of primary school teachers in urban black schools pertaining to auditory processing disorders?". This will be translated into research design, subjects specification, material for data collection and procedures, and finally, data analysis.

(The format used in some of the sections of this chapter is based on the dissertation of Moodley (1999))

4.2 RESEARCH AIMS

The aim of this study is to assess the training and knowledge of primary school teachers in urban black schools regarding CAPD. In order to realize this aim, the following sub-aims were developed:

- **First sub-aim**

To establish whether teachers have received training in respect of CAPD, and if they have, what the level (at which stage training was received) and extent (what this entailed) of this training was.

The information that answers the question posed by this sub-aim is contained in Section D of the questionnaire (Appendix III).

- **Second sub-aim**

To describe teachers' knowledge of the characteristics and causes of CAPD. Section B of the questionnaire was utilized to obtain information in this regard.

- **Third sub-aim**

To determine the teachers' knowledge of the team members involved with children with CAPD. Information obtained by means of Section C of the questionnaire related to this sub-aim.

The ***level*** and ***extent*** of training referred to in sub-aim one refers to the teaching qualification of the teacher as well as the highest qualification or level of study. The second and third sub-aims both were related to the teacher's knowledge of CAPD but were provided as separate sub-aims as sub-aim two focussed on CAPD as a field while sub-aim three focussed on the team and role of the teacher. The terms "knowledge" and "training" are defined under 1.3.

4.3 RESEARCH DESIGN

A descriptive survey was conducted to explore the training background and knowledge of black teachers in mainstream primary schools in Soweto as far as CAPD are concerned. The opinion of the targeted population was determined by using a questionnaire. The descriptive survey method was employed as it is appropriate for data derived from questionnaires (Leedy, 1980; Mitchell and Jolley, 1992).

4.4 SUBJECTS

The subjects or respondents included in the study will be discussed in terms of subject selection criteria, subject selection procedure and a description of the subjects.

4.4.1 Selection criteria

Subjects were selected in terms of the following criteria:

4.4.1.1 Teachers from an urban black community

This study chose to investigate training and knowledge of black teachers in mainstream primary schools in Soweto. Soweto is a conglomeration of townships located south-west of Johannesburg (Turton, 1986; Bonner and Segal, 1998). Like all other black townships it is made up of people of different ethnic groups with differing interests, backgrounds and languages and is thus representative of the urban black population of South Africa.

Previously, under the *Group Areas Act*, people in Soweto were grouped according to the languages they spoke (Bonner and Segal, 1998). In the new dispensation, however, people from different ethnic group with different languages and interests are now living together in the same location/area in mortgaged/rented houses on sites that were allocated to the private sector contractors for development. A middle class of citizens has gradually emerged from Soweto as blacks have become better educated. The adoption by American and other foreign companies operating in South Africa of the

Sullivan Code, that prohibits racial discrimination in the hiring and promotion of workers (Bonner and Segal, 1998), further contributed to the establishment of this multi-ethnical middle class. The results obtained from this study in Soweto should therefore give a true reflection of middle class black mainstream primary schools in South Africa.

Apart from its different ethnic groupings, the Soweto community was targeted for the reason that clinical experience indicated that many of the children who were referred to speech-language pathologists and audiologists with referral letters, that suggest possible hearing losses/deafness, were from schools in Soweto.

4.4.1.2 Primary school teachers

Primary school teachers were targeted since most children with CAPD manifest these disorders during the early years of schooling when early identification and management has the greatest impact (Rampp, 1980; Katz and Wilde, 1994; DeConde Johnson *et al.*, 1997). This is also the scholastic phase during which listening skills and auditory processing are expected from children (Rampp, 1980; Truedale, 1990; Katz and Wilde, 1994). The knowledgeable and skilled teacher will therefore be able to identify any children with a CAPD.

4.4.1.3 Proficiency in English

Subjects were required to be proficient in speaking, reading and writing English since the questionnaire was in English. As all teachers are expected to have passed Grade 12 prior to being trained as teachers, they are expected to be able to read, write and speak English. Because of the multiplicity of languages spoken in Soweto, the researcher decided to use English as the medium of research. It is not only the language that is most likely to be understood by all, but also the medium of instruction used at the schools.

4.4.2 Selection procedure

A process of random selection was used to identify the schools that would participate in the study. Every fourth mainstream school was selected from the list of 279 primary schools in Soweto obtained from Gauteng Department of Education. By means of this selection method 70 primary schools were identified from different areas of Soweto. The selection ensured that a large section of Soweto was covered and that different ethnic groups were included. In cases where co-operation was not forthcoming from a school or the school turned out to be junior primary schools but not lower primary schools, the next lower primary school below the selected one was included in the list of the targeted schools. The researcher ended up with 55 primary schools participating in the research project. These schools could be regarded as having been randomly selected because each school had an equal chance of being included in the sample (Welman and Kruger, 1999). This process ensures that the findings of the study would be truly representative of the entire Soweto, rather than a particular ethnic group in the Soweto population.

The selection procedures were as follows:

- A letter was written to the Gauteng Department of Education requesting permission to conduct research in Soweto mainstream primary schools (see Appendix II). The researcher took the letter personally to the Department of Education in Johannesburg, after which permission was granted verbally by the co-ordinator of Soweto Primary School.

- Thirty school principals were contacted by telephone and another 25 personally to request permission to interview the teachers in their respective school. The two different methods of requesting permission depended on the distance the researcher had to travel. The schools that were far were contacted telephonically and questionnaires were delivered after a telephone conversation with the principals. It was agreed that the questionnaires would be completed during break times and after school in order not to disrupt the teaching programmes.

- The school principals were asked to indicate the number of teachers teaching Grade 1 to Grade 4. Since the number of teachers involved in these grades differed from one school to the next, a specific number of questionnaires were provided for each school according to the number of teachers teaching Grades 1 to 4.

4.4.3 Description of subjects

A total number of 412 teachers, teaching Sub A to Std two (Grade 1 to Grade 4) pupils in the 55 selected primary schools were requested to complete questionnaires. Altogether 319 (77.43%) questionnaires were returned and of them 308 (96.55%) had been completed and could be analysed. Only 11 (3.45%) of the returned questionnaires were regarded as spoiled and subsequently disregarded. They were either not completed fully or the respondents had ticked more than one answer where only one answer was needed. For example, where respondents had to answer *Yes, No* or *Don't Know* by ticking the appropriate box, such respondents ticked all three boxes. According to Maxwell and Satake (1997) a good response rate would be 70% or higher. Since the response rate in this study was 77.43%, it could be considered very good and adequate for analysis and interpretation.

The total process of subject selection is illustrated in Table 4.1 below.

Table 4.1 Number of questionnaires distributed and returned

Number of questionnaires distributed.	Number of questionnaires completed.	Number of questionnaires used.	Number of questionnaire lost (not returned).	Number of questionnaires spoiled.
412	319 (77.43%)	308	93	11

More specific details concerning subjects will be presented in chapter 5.

4.5 MATERIALS AND APPARATUS

4.5.1 Questionnaire (Appendix III)

A questionnaire is a tool used to observe data beyond the physical reach of the observer (Leedy, 1980; Mitchell and Jolley, 1992; Leedy, 1993). In terms of the size of the sample population and restrictions of time, the use of a questionnaire as opposed to interviews was felt to be an appropriate methodological tool for this study. Other reasons for using a questionnaire were the following:

- Questionnaires are simple, cost and time effective.
- Subject contact is easy and a researcher can reach a wide range of persons in a short period of time.
- Questionnaires do not require trained staff to administer but can be self-administered. In self-administered questionnaires there is no room for interviewer bias, as the subjects complete the questionnaires themselves in the absence of the researcher.
- Subjects may have greater confidence in their anonymity and thus feel freer to express views they fear might be unpopular.
- There is uniformity in presentation (Oppenheim, 1966; Leedy, 1980; Ventry and Schiavetti, 1980; Bless and Achola, 1990; Mitchell and Jolley, 1992; Bless and Higson-Smith, 1995; Brink, 1996).

The major disadvantage of using a questionnaire is the low percentage returns (Oppenheim, 1966; Berdie and Anderson, 1977; Leedy, 1980; Ventry and Schiavetti, 1980; Bless and Achola, 1990; Mitchell and Jolley, 1992). In order to guarantee a high response rate, teachers were given only one day between the delivery and collection to complete questionnaires, and the researcher personally delivered and collected the questionnaires. A short covering letter outlining the nature of the study and guaranteeing confidentiality was also attached to the questionnaire in order to motivate teachers to participate.

To try and overcome the problem of poor response rate, the questions were made

simple, direct and well printed on white stationery (Dillman, 1978). Technical jargon was also avoided to facilitate understanding (Bless and Achola, 1990; Mitchell and Jolley, 1992). On the questionnaire the term central auditory processing was defined to facilitate understanding of the respondents. The term auditory processing disorder rather than central auditory processing disorder was used as is it less technical and might be more easily understood by the respondents.

The questionnaire was short and consisted of predominately closed-ended (as opposed to open-ended) questions as these are regarded as simple and easy to record and score. They also allow for easy comparison and quantification of results (Oppenheim, 1966; Bless and Achola, 1990,Mitchell and Jolley, 1992; Brink, 1996). The subjects were given an opportunity to express an opinion in their own words by asking them to clarify and expand on the choice of their responses to certain questions.

The ***questionnaire*** (Appendix III) consisted of twenty (20) questions that were sub-divided into four sections. Although the questionnaire consisted mainly of closed-ended questions, an attempt was made to allow for free expression of opinion by asking the respondents in some questions to support or clarify the choices they made in Section D. The layout followed to present different sections of the questionnaire is according to the developed sub-aims, seeing that this was the format adopted in Chapter 5.

Table 4.2 provides a breakdown of different sections of the questionnaire that were utilized to provide answers to the stated research question of this study in terms of the sub-aims referred to above. The method of presentation of the content of the questionnaire was based on the format used by Moodley (1999) who used a questionnaire compiled for an in-service training programme for community nurses in the identification of at-risk infants and toddlers.

Table 4.2 Content of questions included in the questionnaire based on Moodley (1999)

Section	Questions relating to biographical data	Questions relating to contact, characteristics and etiology	Questions relating to team members and methods of management	Questions relating to the level and nature of training received and further training required
A	1, 2, 3, 4, 5, 6, 7.			
B		8, 9, 10, 11.		
C			12, 13, 14, 15.	
D				16, 17, 18, 19, 20.

- **SECTION A:** This section covered the respondents' biographical data and consisted of seven (7) questions. The questions probed first and highest qualifications of the teachers, institutions where they received their first qualifications, year of qualification, number of years of teaching experience and the present grade they were teaching.

The above-mentioned questions were included in the questionnaire in an attempt to find out if teachers with a particular qualification, from a particular institution and qualified during a particular period did in fact receive training on CAPD.

The question concerning the current teaching grade was included to make sure that only the targeted subjects complete the questionnaires not any other teacher. Information gathered from this section assisted in compiling a profile of the population targeted in the research study.

- **SECTION B:** Section B consisted of four (4) questions probing the knowledge of teachers in terms of the characteristics of children with CAPD and their etiology. The reason for including this section was to find out whether teachers had come into contact with children with CAPD and were able to identify traits of this group. Questions on etiology were asked to find out what teachers associated CAPD with.

Question 8 was divided into three sub-questions probing teachers' exposure to/contact with children with CAPD. Question 9 and 10 required teachers to indicate characteristics of children with CAPD and Question 11 dealt with some of the etiology of CAPD.

The information received from Section B provided answers for the second sub-aim of this research study.

- **SECTION C.** This section consisted of four (4) questions involving treatment of children with CAPD in terms of person and method. The aim of Section C was to find out to which professional teachers would refer a child with a CAPD. The belief regarding the etiology of CAPD held by the teacher will obviously influence treatment in terms of method(s) and person(s). The results of this section provided answers to the third sub-aim.

- **SECTION D:** (*The researcher felt it necessary to discuss Section D before Section B and C as the responses obtained from Section D have an impact on the responses of the other two sections (i.e. Sections B and C)).* Section D had five (5) questions probing the training of teachers regarding CAPD. The data obtained from this section assisted in achieving the objective of the first sub-aim. Section D was included to find out how and where teachers received exposure of CAPD. In these sections, teachers were given an opportunity to express/clarify their answers in their own words. Questions on the need of training were aimed at trying to investigate whether teachers regarded themselves as playing an important role in helping children with CAPD.

An outline of the questions included in the questionnaire and the motivation for inclusion of such questions is provided in Table 4.3. The format used to present an outline of the questions in the questionnaire is based on the format used by Moodley (1999).

Table 4.3: Description of and motivation for questions included in the questionnaire based on the guidelines or format of Moodley (1999)

SECTION	QUALIFICATIONS, TRAINING INSTITUTION AND TEACHING EXPERIENCE	MOTIVATION
A	**Biographical data**	
	1. First teaching qualification	To determine whether exposure to central auditory processing disorders differs on different training levels.
	2. Training institution	To determine whether certain training institutions offer courses/lectures on central auditory processing disorders.
	3. Year of first qualification	To investigate if teachers who qualified during a particular period/era received training on central auditory processing disorders.
	4. Highest teaching qualification	To find out if further education/training in the teaching field expose teachers to central auditory processing disorders.
	5. Year of highest qualification	Same as for the first year of qualification (see above).
	6. Years of teaching experience	To find out if experience influences knowledge of central auditory processing disorders and the management thereof.
	7. Present teaching grade	To ensure that only the targeted subjects complete the questionnaire - not any other teacher
B	**Contact and characteristics of central auditory pro0cessing disorders.**	
	8. (a), (b), (c) contact with children with	To probe teachers' exposure to children with

SECTION	QUALIFICATIONS, TRAINING INSTITUTION AND TEACHING EXPERIENCE	MOTIVATION
	central auditory processing disorders.	central auditory processing disorders.
	9. Characteristics of children with central auditory processing disorders.	To determine if teachers are able to identify children with central auditory processing disorders in terms of their characteristics.
	10. Intelligence	To establish teachers' knowledge of the relationship between intelligence and central auditory processing disorders.
	11. Aetiology	To determine teachers' knowledge of the causes of central auditory processing disorders. To investigate teachers' belief regarding the causes of central auditory processing disorders.
C	**Treatment of children with central auditory processing disorders in terms of person and method.**	
	12. Team members	To find out whether teachers can make appropriate referral of children with central auditory processing disorders.
	13. Treatment of children with central auditory processing disorders.	To investigate teachers' knowledge of the unique needs of children with central auditory processing disorders.
	14. Outgrowing the disorder.	To probe teachers' opinion on the relationship between age and central auditory processing disorders.
	15. Method of management	
D	**Training**	
	16. Level and nature of training.	To find out if teachers know how to manage

SECTION	QUALIFICATIONS, TRAINING INSTITUTION AND TEACHING EXPERIENCE	MOTIVATION
		children with central auditory processing disorders.
	17. Need of training on central auditory processing disorders.	To determine if the training that teachers' receive prepares them for dealing with children with central auditory processing disorders and to establish the extent of their training.
	19. Training on the management of children with auditory processing disorders.	To find out if teachers perceive themselves as playing a role in the management of children with central auditory processing disorders.
	20. Required level of training.	To determine what an appropriate level of training teachers in respect of central auditory processing disorders would be.
	Comments	To allow teachers to express in their own words any other issues not covered in the questionnaire.

4.5.2 Covering letter (Appendix IV)

A covering letter that identified the researcher and the nature of the study was attached to the questionnaire, and central auditory processing disorder was defined to facilitate responses.

Confidentiality was guaranteed and the researcher emphasized how important it was for teachers to participate in the project. Respondents were also promised feedback at the completion of the research project.

4.6 PROCEDURE

4.6.1 Pilot study

A pilot study involving ten Grade 1 to Grade 4 teachers was conducted as the final stage of questionnaire construction (Oppenheim, 1966; Berdie and Anderson, 1977; Ventry and Schiavetti, 1980; Bless and Achola, 1990; Mitchell and Jolley, 1992; Bless and Higson-Smith, 1995). The aim of this was to check whether the questions were clearly formulated and easily understood. The subjects in the pilot study were similar to the sample population utilized in the study (Oppenheim, 1966; Berdie and Anderson, 1977; Mitchell and Jolley, 1992). The pilot study subjects were requested to mark all the questions they did not understand and to give comments so as to help with the alteration of questions. Pilot testing occurred in a group context in a classroom after school at Gazankulu Primary School. The subjects completed the questionnaires in the presence of the researcher.

The pilot study subjects answered all the questions and did not indicate a need for the alteration of any. According to them the questions were clearly worded and easily understood, which indicated that the questionnaire was indeed applicable to the targeted population group. The results obtained by means of the pilot study were not included in the main data for analysis. The motivation for and results of the pilot study are however highlighted in Table 4.4.

Table 4.4 Motivation and results of the pilot study based on the guidelines of Moodley (1999)

AIM	To evaluate the applicability of the questionnaire in terms of questions being concise and easily understood.
SUBJECTS	Ten (10) Grade 1 to Grade 4 teachers.
RESULTS	Questions were clearly worded and easily understood. No need for alterations.

4.6.2 Data collection

Data was collected means of questionnaires. Teachers completed the questionnaires on their own and in their own time. As mentioned previously, teachers were given one day from delivery to collection of questionnaires to complete them. Questionnaires were delivered to the principals, who were asked to hand them to teachers of Grade 1 to Grade 4 for completion. The researcher therefore did not have any direct contact with the respondents.

4.7 DATA ANALYSIS PROCEDURE

An answer to the research question was reached by means of a statistical analysis of the data obtained (Brink, 1996). In this study responses from questionnaires were analysed to determine the teachers' training in and knowledge of CAPD. The following procedures were implemented to facilitate the process of analysis:

4.7.1 Checking of Questionnaires

Questionnaires were numbered and a check was done to ensure that they had been well completed. Questionnaires that were incomplete or completed inappropriately (e.g. having more than one answers where one answer is required) were considered unusable for analysis and therefore not included in the data analysis. Data received from questionnaires were given numerical codes to allow for and facilitate categorization of responses.

4.7.2 Statistical Analysis of the Questionnaire

In this study descriptive and inferential statistics were employed as procedures for organizing, summarizing, manipulating and describing quantitative data (Selitiz, Johada and Deutsch, 1974; Robinson, 1981; Babbie, 1989; McCall, 1990; Bless and Kathuria, 1993; Rosnow and Rosenthal, 1996; Neuman, 1997; Moodley, 1999)). Research has proved that this method is appropriate for analysing data in survey studies (Oppenheim, 1966) and that its procedures facilitate the process of presenting data in a manageable

and meaningful way (Babbie, 1989; Bless and Kathuria, 1993; Neuman, 1997).

Descriptive statistics, which included frequency distribution, percentages and variance, were used to present the data in a coherent and functional way (Robinson, 1981; Babbie, 1989; Bless and Kathuria, 1993; Rosnow and Rosenthal, 1996; Neuman, 1997). Unvaried analysis was employed to determine the relationship of the teachers' knowledge of CAPD and the characteristics thereof.

Inferential statistics was used to make inferences about a larger population from which the sample is drawn. Chi square as one of the parametric tests of significance was utilized at .05 level of significant ($p<.05$).

Where possible, tables were utilized to illustrate patterns of data and exceptions that might be obscured if presented in the text (Sternberg, 1988; Babbie, 1989; Bless and Kathuria, 1993; Neuman, 1997). Numerical codes and descriptions were used to interpret results and determine characteristics for Sections A and D respectively.
The data was analysed in accordance with the developed sub-aims. However, it was considered logical first to analyse the biographical data received from Section A (which contained the background information of the respondents), before following the sub-aim sequence of analysis. Section A was followed by Section D, which involved the actual training of teachers in respect of CAPD. Section B, which contained information on exposure to and the characteristics and etiology of CAPD, was subsequently analysed, followed finally by Section C, which dealt with the management of children with CAPD in terms of person and method.

4.8 SUMMARY OF CHAPTER FOUR

Chapter 4 provides the methodology that was utilized to determine the training and knowledge of teachers regarding CAPD. Aims, research design, subject selection and the development of material used for data collection were described and discussed in depth. Finally data collection and data analysis procedures used in this study were discussed.

5. CHAPTER 5: RESULTS AND DISCUSSION

5.1 INTRODUCTION

In terms of the constitution of South Africa, education is a fundamental right to be enjoyed by all citizens regardless of their colour, sex, race, religion, or any physical and mental challenges they may be facing (NCESS, 1997). In light of the inclusion process and the role that teachers are expected to play to the majority of children in South Africa, adequate and proper training and knowledge regarding children with disabilities and disorders is absolutely crucial. In order for teachers to provide a satisfactory service to all children, they need insight in terms of the abilities, limitations and learning styles of children with special needs. They need to be knowledgeable about these children's unique strengths and weaknesses.

To help children with disorders and/or disabilities to reach their full potential in order that they may contribute meaningfully to and participate in their society, teachers need to provide quality education that is sensitive to the children's needs and learning styles (NCESS, 1997).

Teachers constitute an important link between children and various professionals. Thus, teachers and speech-language pathologists and audiologists should form a collaborative partnership to promote early identification of and intervention for children with CAPD (Fletcher, 1998; Boland *et al,* 1998). A collaborative (or shared) understanding of children with CAPD will facilitate the development, promotion and sustaining of programmes tailored to help children with such disorders.

As mentioned earlier, it is the responsibility of the educational system to empower teachers to provide a quality service to children with CAPD. Teachers need to be aware of CAPD in children and must be able to assist these children. The speech-language pathologist and audiologist have an important role to play in training teachers as highlighted in figure 3.1.

The aim of this chapter is to present and interpret the results of this study in terms of the following sub-aims that have been developed:

(a) To establish whether teachers have received training in respect of CAPD, and if they have, what the level and extent of this training was.

(b) To describe teachers' knowledge of the characteristics and causes of CAPD.

(c) To determine the teachers' knowledge of the team members involved with children with CAPD.

The question:

"What is the training and knowledge of primary school teachers in urban black schools pertaining to CAPD?" was answered according to the three developed sub-aims that were linked to the different sections in the questionnaire.

5.2 DESCRIPTION OF RESULTS

The results of the study are presented according to the formulated sub-aims. By way of introduction to this discussion the biographical data obtained from Section A of the questionnaire (Appendix III) will be presented.

5.2.1 The biographical data of the subjects

This was obtained from Section A of the questionnaire (Appendix III). It is important to bear in mind that not all respondents (N=308) answered all of the questions in the questionnaire. Therefore, the number of respondents (N) differed from one question to the next. Table 5.1. highlights the responses obtained from Section A.

Table 5.1 The biographical data of the respondents. (N = 308)

QUESTION	NUMBER AND PERCENTAGES OF SUBJECTS WHO ANSWERED THE QUESTION	TYPE OF RESPONSES
1. First teacher's qualification	296 = 96.10%	Certificates: 205 Diploma: 91
2. Institution from which first teaching qualification was obtained.	300 = 97.40%	Colleges of Education: 274 Technical Schools: 24 Universities: 2
3. Year in which first teaching qualification was obtained.	301 = 97.73%	1957-1959: 11 1960 - 1969: 23 1970 - 1979: 114 1980 - 1989: 86 1990 - 1999: 67
4. Highest teaching qualification.	261 = 84.74%	Certificate: 55 Diploma: 181 Degree (BA): 25
5. Year in which highest teaching qualification was obtained.	247 = 80.19%	1957 - 1959: 13 1960 - 1969: 6 1970 - 1979: 20 1980 - 1989: 41 1990 - 1999: 167
6. Years of teaching experience.	302 = 98.05%	1 - 10: 63 11 – 20:110 21 – 30:108 >31 21
7. Grade that teacher is teaching currently.	306 = 99.35%	Sub A / Grade 1: 75 Sub B / Grade 2: 72 Std 1 / Grade 3: 75 Std 2 / Grade 4: 84

As seen in Table 5.2. the majority of teachers did not deal with CAPD during their basic training as teachers. Of the 301, (88.37%) respondents indicated a total lack of such training during this period. Although 35 respondents (11.63%) reported to have received training in CAPD, only 17 of them described the nature of lectures/courses that had exposed them to CAPD.

As seen in Table 5.2 the percentage of teachers that have received training (11.63%) is low and highlights the importance of including training regarding CAPD in teachers' formal training. These results emphasize the importance of greater responsibility on the part of the Department of Education as well as training institutions to introduce the condition of CAPD to teachers. This could be done as part of the teaching curriculum, in- service training, continuing education programmes or any other form that would be suitable for both the Education Department and training institutions.

The reasons why teachers perceive they should receive this training - derived from responses to Questions 17 and 19 are provided in Table 5.3.

Table 5.3 Respondents who needed training on central auditory processing disorders

QUESTION		RESPONSES				
17.	Should teachers receive training in central auditory processing disorders?	YES 287 = 96.31% of 298				
Why is the training needed? (N = 298)		- To assist/identify children with a central auditory processing disorders (152). - To know methods of helping these children (11). - To understand these children (33). - To be able to deal with such children (88). - Opportunity to learn Sign Language because (3) special schools are limited in number.				
19.	Should teachers treat children with central auditory process-sing disorders? (N = 289)	YES 272 94.12%	NO 17 5.88%			
20.	The level at which central auditory processing disorders should be introduced to teachers. (N=484).	1st year 153	2nd year 62	3rd year 59	4th year 61	In-service training 97
Note:	**Some respondents gave more than one answer in terms of level of training.**	93.29% of 164	83.78% of 74	85.51% of 69	88.41% of 69	89.81% of 108
Comments: In the open-ended question N=181 = 63.07% indicated the need for training.						

The subjects' responses to questions 17 and 19 as well as the comment section showed that 96.31% of the teachers felt that they required training in CAPD. The reasons provided included that teachers should be able to identify and refer these children as well as assist them in the classroom. With the transformation that is taking place in the Department of Education, it is of vital importance that teacher training on

CAPD be included in order to allow the successful management of all learners.

The respondents felt that this training would be both beneficial as part of their basic training as well as in-service training after graduation. Although the responses to Question 20 do not differ significant, the majority of respondents indicated that they preferred training on CAPD be introduced at first-year level and during in-service training - 153 (93.29%) and 97 (89.81%) respectively.

Responses to Question 18 indicated that approximately half of the teachers, namely 148 out of 269 (55.02%) had not been aware of CAPD prior to this project. The remaining 121 (44.98%) reported however that they had known about condition prior to the study. The method by which this knowledge was obtained is highlighted in Table 5.4.

Table 5.4 Responses of teachers who knew about central auditory processing disorders prior this project. (N = 121)

	NATURE OF EXPOSURE	NUMBER OF RESPONDENTS
(a)	Knowing someone who is deaf	87
(b)	Through a school nurse	4
(c)	Remedial education	18
(d)	Workshops	6
(e)	Through a colleague	3
(f)	Through media (TV), e.g. someone interpreting the reading of the news through sign language.	3

It is evident from Table 5.4 that the majority of the respondents who reported knowledge of CAPD prior to the study did not understand that deafness and CAPD are two separate disorders. While these disorders may occur together in one individual they usually present separately.

From the responses to the issues related to the sub-aim of teachers' formal training on

CAPD, it can be concluded that teachers were not aware of CAPD as a disorder and that they had received very limited, if any training in CAPD. As highlighted in the introduction there are currently no speech-language pathologists and audiologists working in schools in the Soweto area. If such a partnership existed between these professionals, teachers would have been more aware of CAPD and would not have confused the condition with hearing impairment. This confirms the need in the education system to expose teachers to CAPD and the need to empower them to deal with children with such disorders and to provide opportunity for collaboration between teachers and speech-language pathologists and audiologists.

In chapter 1 it was stated that the findings of research into the relationship between CAPD and academic achievement are not recognised and implemented in most educational settings (Katz and Wilde, 1994; Nielsen, 1997). This finding is also relevant to the schools in Soweto serving the black community.

Furthermore, the results of Section D stress the need for a working partnership between speech-language pathologists and audiologists (Boland *et al.,* 1998; Fletcher, 1998), especially during this new dispensation where there are calls for integrating children with disabilities/disorders into mainstream schools (Giliomee, 1995; NCESS, 1997).

Against the background of general consensus about the need for training, it is clear that teachers could benefit from training that focuses on CAPD. Such training will also help teachers to become aware of the important role they play in the management of children with these disorders.

The existence of a working relationship between speech-language pathologists and audiologists and teachers in mainstream primary schools will benefit the needs of children with CAPD as speech-language pathologists and audiologists are capable of providing services in a variety of settings (Boland *et al.,* 1998). Speech-language pathologists and audiologists are equipped with skills regarding CAPD and they can therefore provide a quality service within the professional team that focuses on CAPD

or any other form of speech-language and hearing disorders that may impact on the child's academic performance (Boland *et al.,* 1998; Fletcher, 1998).

To be able to eradicate the distorted or stereotype views held by teachers about children with CAPD, teachers and speech-language pathologists and audiologists need a committed working relationship (Boland *et al.,* 1998; Fletcher, 1998). Teachers can also increase their knowledge of CAPD by drawing from the skills of speech-language pathologists and audiologists, and in this way they can facilitate the development of specific programmes tailored to meet the needs of children with CAPD (Bellis, 1996; Boland *et al.*, 1998; Fletcher, 1998).

A working partnership between the above professionals will assist in making changes to the South African education system which in turn will benefit the child with CAPD. With the different stakeholders working together as a team, transformation could be viewed as a challenge rather than a problem and collectively the team can develop a new service that will benefit children who cannot reach their potential without extra assistance (Boland *et al.,* 1998; Fletcher, 1998).

A CAPD service should be delivered by employing speech-language pathologists and audiologists in schools. However, in view of the shortage of speech-language pathologists and audiologists in South Africa, the training institutions in this field could offer courses to train teachers in the management of children with CAPD.

5.2.3 The Teachers' Knowledge Of Central Auditory Processing Disorders

The second sub-aim of this study was to investigate the teachers= actual knowledge of CAPD. This sub-aim was met by interpreting the data obtained from Section B of the questionnaire. The information obtained in this section related to their experience of children with CAPD in their classes, the symptoms and behaviours with which a child with CAPD presents and finally their understanding of the causes of CAPD.

The question on whether or not teachers had any contact with children with CAPD

(question 8(a)) was compared with their knowledge of some of the common characteristics displayed by children with CAPD (i.e. Question 8(a) and Question 9). The results are clearly contrasted in the cross tabulations. The Chi-square test at P=<0.05 ratio statistical technique was utilized to achieve answers for questions 8(a) and 9 as well as 8(a) and10. Tables 5.5(a) and (b) provide information on the results of Questions 8(a) and 9 as well as question 10.

Table 5.5(a) Teachers' knowledge of the characteristic of children with central auditory processing disorders (Correlated with exposure or no exposure to CAPD)

Exposure to CAPD (Question 8(a))		Yes, have had exposure to children with CAPD in their classrooms.			No exposure to children with CAPD in their classrooms.			Difference between groups – significant or not significant.	
Characteristics of children with central auditory processing disorders (Question 9)		8(a) Yes %			8(a) No %			P value	Results
		Yes	No	Don't know	Yes	No	Don't know		
(a)	Poor concentration	85.43	9.27	5.30	62.61	13.04	24.35	<.0001	Significant
(b)	Hearing problems/-hearing loss.	81.49	5.95	4.46	30.11	5.20	16.67	0.0558	Not significant
(c)	Difficulty following directions	81.46	13.25	5.30	58.77	18.42	22.81	<.0001	Significant
(d)	Slow to answer questions	90.97	7.10	1.94	66.07	16.07	17.86	<.0001	Significant
(e)	Use sign language	31.13	54.30	14.57	40.71	38.05	21.24	0.0311	Significant
(f)	Localize sound	40.00	40.71	19.29	26.67	40.95	32.38	0.0267	Significant
(g)	Have low self-esteem	75.32	14.94	9.74	48.70	21.74	29.7	<.0001	Significant
(h)	Reading and spelling problems	83.33	10.26	6.41	60.53	21.05	18.42	0.0001	Significant
(I)	Memory problems	64.24	23.18	12.58	43.12	25.69	31.19	0.0003	Significant
(j)	Distracted by visual and auditory stimuli	53.42	26.03	20.55	43.52	31.48	25.00	0.2956	Not significant
(k	need repetition.	93.13	4.38	2.50	78.26	7.83	13.91	0.0005	Significant
(l)	Watch speaker's face	85.90	8.33	5.77	64.60	21.24	14.16	0.0002	Significant
(m)	Misunderstand what is said	79.22	14.94	5.84	47.79	31.86	20.35	<.0001	Significant
(n)	Respond sometime to sounds and speech	82.43	10.14	7.43	46.90	23.89	29.20	<.0001	Significant

As can be seen in Table 5.5(a), the teachers with prior experience of children with CAPD in their classrooms were better able to correctly recognise the characteristics of children with CAPD. This included aspects such as poor concentration, difficulty following directions, slow responses to questions, poor sound localization, low self esteem, reading and spelling difficulties, easily distracted, needing repetition, misunderstanding of speech information and difficulty listening in the classroom. It is concerning to note that both teachers with and without experience of children with CAPD in their classrooms incorrectly equate CAPD with a peripheral hearing disorder. Teachers with experience with children with CAPD were however less likely to identify the use of sign language as a characteristic.

The results emphasize the importance of training in the field of CAPD as well as hearing impairment for teachers so that they may be able to correctly identify and refer children with CAPD.

Table 5.5(b) provides a summary of teachers' understanding of the relationship between intelligence and CAPD. This information was derived from question 10 that required the respondents to rate the intelligence of children with CAPD. This was an extension of the issue of the characteristics of this population. The rating of the intelligence of children with CAPD was placed against the information of teachers' exposure to these children, i.e. Question 8(a) of the questionnaire as illustrated in Table 5.5(b).

Table 5.5(b): Teachers' knowledge of the intelligence of children with central auditory processing disorders

STATEMENT	CHARACTE-RISTICS	8(A) YES, HAVE HAD EXPOSURE TO CHILDREN WITH CAPD YES %	8(A) NO EXPOSURE TO CHILDREN WITH CAPD NO %	P VALUE	RESULTS
Children with auditory pro-cesssing dis-orders are	Intelligent	21.77	11.02	0.012	Significant for all three.
	More intelligent	0	4.49		
	Less intelligent	78.23	66.29		

Table 5.5(b) indicated that both groups of teachers (those who had contact with children with CAPD and those who did not) agree that these children are less intelligent compared to other children in the class. This finding contradicts the literature which reports that children with CAPD usually have average to above average intellectual abilities (Campbell, 1994; Bellis, 1996), but their inability to process auditory information adequately result in poor school performance.

Table 5.6 provides a summary of teachers' knowledge of the causes of CAPD. This information was derived from question 11 of the questionnaire.

Table 5.6: Teachers' knowledge of factors associated with the etiology of central auditory processing disorders

ETIOLOGY OF CENTRAL AUDITORY PROCESSING DISORDERS.		N	YES	NO	DON'T KNOW
(a)	Watching TV a lot	288	18.75%	58.68%	22.57%
(b)	Born of deaf parents	288	27.78%	46.88%	25.35%
(c)	Verbal, emotional or sexual abuse	284	43.66%	23.94%	32.39%
(d)	Mental problems/disturbances	289	56.06%	20.07%	23.88%
(e)	Painful and discharging ears	295	67.46%	19.66%	12.88%
(f)	Low socio-economic status	286	33.22%	36.01%	30.77%
(g)	Bed wetting	284	14.79%	48.59%	36.62%
(h)	Heredity	289	57.44%	17.65%	24.91%
(I)	Left handedness	281	12.81%	62.28%	24.91%
(j)	Hearing loss	286	67.48%	10.84%	0.2168
(k)	Problem with the parts of the brain that receive sounds/speech	295	70.17%	3.73%	26.10%
(l)	Slow development	289	52.25%	21.45%	26.30%

The cause of CAPD is not clear but is suspected to be due to difficulty in the Central Auditory Nervous System=s processing of auditory information (AJA, 1996). CAPD is found to have a higher prevalence among children with otitis media (Duane, 1977; Rampp, 1980; Katz and Wilde, 1985; Keith, 1988; Katz and Wilde, 1994; Bellis, 1996;

DeConde Johnson *et al.*, 1997). As mentioned in the previous chapters, CAPD can co-occur with other medical conditions (Kelly *et al.*, (1994) for example, hearing loss, but not being a causative factor.

Although the majority of the teachers were able to identify most of the causes of CAPD, there seemed to be a trend to associate CAPD solely to medical complications, for example, otitis media (Question 11(e) (67.46%)), heredity (Question 11(h) (57.44%)), hearing loss (Question 11(j) (67,48%)), lesion of the auditory cortex (Question 11(k)(70.17%)) and slow development, (Question 11(l) (52.25%)).

According to the literature there is a close association between CAPD and otitis media, (Question 11(e)), and otitis media is indeed one of the causes of CAPD (Katz and Wilde, 1994; DeConde Johnson et a., 1997). Children with CAPD often have a history of otitis media, especially in the early years (1 - 12 years) of their lives (Katz and Wilde, 1994).

Bellis, (1996), as well as Katz and Wilde, (1985) state that it is not uncommon to find that one of the parents of children with CAPD experienced similar difficulties in his/her youth. It could therefore be inferred that some children might have inherited their CAPD (Question 11(h)).

Although Katz and Wilde, (1985) consider auditory processing disorders not as a medical problem but rather as an academic problem, some children presenting with these disorders were reported to have a diseased central auditory nervous systems (Question 11(k)) or delayed maturation (DeConde Johnson *et al.*, 1997). It could be argued that Katz and Wilde=s (1985) view is correct, as the impact of CAPD is manifested in the academic sphere. As mentioned before, the medical histories of the majority of children with CAPD, are excellent, except for few individuals. These children do not present with identifiable organic problems that may be linked to CAPD (Kelly *et al.*, 1984; Campbell, 1994, Katz and Wilde, 1985).

The respondents also indicated hearing loss (64.48%) as a causative factor. This may

be attributed to these children's difficulty to understand what is being said to them, which is normally interpreted by laypersons as hearing difficulty/loss/deafness. As mentioned earlier, hearing loss can co-occur with CAPD (Campbell, 1994; Katz and Wilde, 1994; Bellis, 1996; Deconde Johnson *et al.*, 1997) but does not necessarily cause the disorders.

Factors such as verbal, emotional or sexual abuse (Question 11(c) and mental problems/disturbances (Questions 11(d)) have also been given higher percentages (43.66% and 56.06% respectively) by respondents as being possible causes of CAPD. In the literature, however, no association could be found between these two factors and CAPD. The respondents might have included them due to the behavioural changes displayed by children with such problems. The learning pattern of abused children and those with emotional problems may be affected somehow, which may lead to poor school performance. Another reason why the two factors were included could be the current situation in our country where the number of abused children (in one way or another) is on the increase (NCESS, 1997). This is also the case with mental disturbances.

It is very interesting to note that respondents did not consider being born of deaf parents (Question 11(b) (27.78%)) as a possible causative factor, whereas heredity (Question 11(h) (57.44%) was given a higher percentage on the affirmative side. Teachers gave a relatively high percentage of "no" responses (46.88%) to the factor of being born of deaf parents. A possible explanation could be that most of the children in their schools had parents with "normal" hearing, with the result that they do not associate the problems of their students with that factor.

Another noteworthy factor was the low scores on low socio-economic status as a possible cause of CAPD. The respondents gave 33.22% "yes" responses, 36.01% "no" responses and 30.55% "don't know" responses. The difference among these responses is not at all significant, despite the fact that one would have expected a high response rate on the affirmative side. This would have corresponded with the tendency to associate low socio-economic status with disabilities/disorders, or consider it the

cause of such condition or barrier to many resources (NCESS, 1997). According to Katz and Wilde, (1985; 1994), many children with CAPD have low socio-economic status. Nevertheless, socio-economic status cannot be regarded as a causative factor of CAPD - perhaps rather an aggravating variable.

The remaining factors included in questions 11(a) namely, watching TV a lot, (g) bed wetting and (i) left-handedness which are not related to causes of CAPD obtained high percentages on the "no" and "don't know" responses. This might be attributed to the fact that teachers are not familiar with the children's behaviours at home regarding questions 11 (a) and (g). In the case of (i) (left-handedness), the high percentage of "no" could be related to the fact that many of the children in their schools (or with whom they have come into contact) are right-handed – even those thought to have CAPD. The issue of left-handedness is however, noted in the literature as being common in the families of children with CAPD (Rampp, 1980; Katz and Widle, 1985; Katz and Wilde, 1994).

5.2.4 Team members identified to deal with children with central auditory processing disorders

The third sub-aim involves the referral of children with CAPD and was achieved by analysing and interpreting data obtained from section C of the questionnaire. This section dealt with treatment of children with CAPD in terms of person and method, and relates to Questions 12, 13 and 15, as presented in Tables 5.7 and 5.8.

Table 5.7: Teachers' knowledge about team members involved in remediation children with central auditory processing disorders

	PROFESSIONAL	N	YES	NO	DON'T KNOW
(a)	Doctor	287	94.43%	3.48%	2.09%
(b)	Religious leader	249	33.33%	46.99%	19.68%
(c)	Sangoma	238	15.13%	61.34%	23.53%
(d)	Teacher	271	71.49%	21.40%	7.01%
(e)	Speech Therapist	282	87.94%	7.80%	4.26%
(f	Speech and drama teacher	251	61.75%	20.72%	17.53%
(g)	Remedial teacher	286	82.87%	11.09%	5.24%
(h)	Physiotherapist	250	52.40%	25.60%	22.00%
(I)	Occupational Therapist	245	56.33%	15.92%	27.76%
(j)	Parents	262	66.41%	22.90%	10.69%
(k)	Friends	247	51.42%	35.22%	13.36%
(l)	Psychologist	261	68.97%	17.62%	13.41%
(m)	Dietician	238	18.49%	55.46%	26.05%
(n)	The child him/herself 1	248	53.63%	31.85%	14.52%
(n)	None (nobody) 2	186	0.0269	66.13%	31.18%

The results obtained from the respondents revealed that a team approach is crucial for remediation of children with CAPD. This finding is substantiated by recommendations in the literature (Katz and Wilde, 1985; Bellis, 1996). Except for the speech and drama teacher, the respondents managed to identify most of the team members involved in remediating children with CAPD. The members identified included a doctor, speech-language pathologist and audiologist, remedial teacher, classroom teacher, psychologist, parents, occupational therapist, physiotherapist, and friends. Not all of these individuals are however involved in the management of each child's condition. Every child's unique strengths and weaknesses should be taken into consideration.

Literature as mentioned in Chapter 3, indicates that children with CAPD benefit from the team members mentioned as well as from dieticians, paediatricians, ear, nose and throat specialists (ENTs) and neurologists (Barr, 1972; Katz and Wilde, 1985; Katz and Kuisnierczyk, 1993; Campbell, 1994; Musiek, and Chermak, 1994; Bellis, 1996, Nielsen, 1997). In this research, however, the respondents did not consider dieticians to be part of the team. This is illustrated by the majority of the respondents (55.46%) indicating a "no" response to whether the dieticians play a role in remediating children with CAPD. Although 18.49% and 26.05% answered respectively "yes" and "don't know" to this question.

Throughout the questionnaire, it is clear that teachers regarded CAPD as a medical problem, (hearing loss in particular). This was evident from the fact that the highest percentage of responses was allocated to a medical doctor being part of the team. A doctor is probably the first professional to see a child who has been referred to the clinic/hospital with a referral letter suggesting hearing loss. Although speech-language pathology and audiology are relatively unknown among black communities, the speech-language pathologist and audiologist was the second highest professional team member indicated by the respondents to attend to the child with CAPD. Bearing in mind the unfamiliarity of speech-language pathologist, the prioritization made by the respondents has logic. The position of the speech-language pathologist and audiologist could have been influenced by the label of the researcher set out in the accompanying letter. Thus this response should perhaps be ignored.

The majority of respondents did not consider a religious leader and a sangoma as important team members. It is difficult to explain the reasons behind the high percentages of "no" responses and low percentages of "yes" and "don't know" responses in this regard. The only possible explanation could be the belief that in the urban (educated) situation these persons are not as important anymore. Furthermore, there is no evidence in literature that the above-mentioned professionals (religious leader and sangoma) do in fact play a role.

Teachers have also included the child him/herself and friends as persons who can play a role in the remediation of CAPD. This is true, because a child has to be motivated and committed to the programme in order to benefit from it. As regards to friends, it is according to the literature (Katz and Wilde, 1985; Bellis, 1996; Sloan, 1998) important for such a child to have a note taker during lessons so as to ensure his/her undivided attention.

Teachers strongly believe that children with CAPD can be helped. This was clear from the responses where they denied (66.13%) the statement that no one could help these children.

Figure 5.1 provides a summary of the respondents' knowledge of managing the child with CAPD and the potential that children have to outgrow CAPD. The information was derived question 13 dealt with the actual handling of children with CAPD. A total of 148 (51.57%) out of 287 respondents indicated that these children should be handled differently in the classroom. This is also supported by literature where preferential seating, provision of a note taker and other benefits mentioned in Chapter 3 (Katz and Wilde, 1985; Bellis, 1996; DeConde Johnson *et al.*, 1997; Sloan, 1998) are normally not enjoyed by other children in the class.

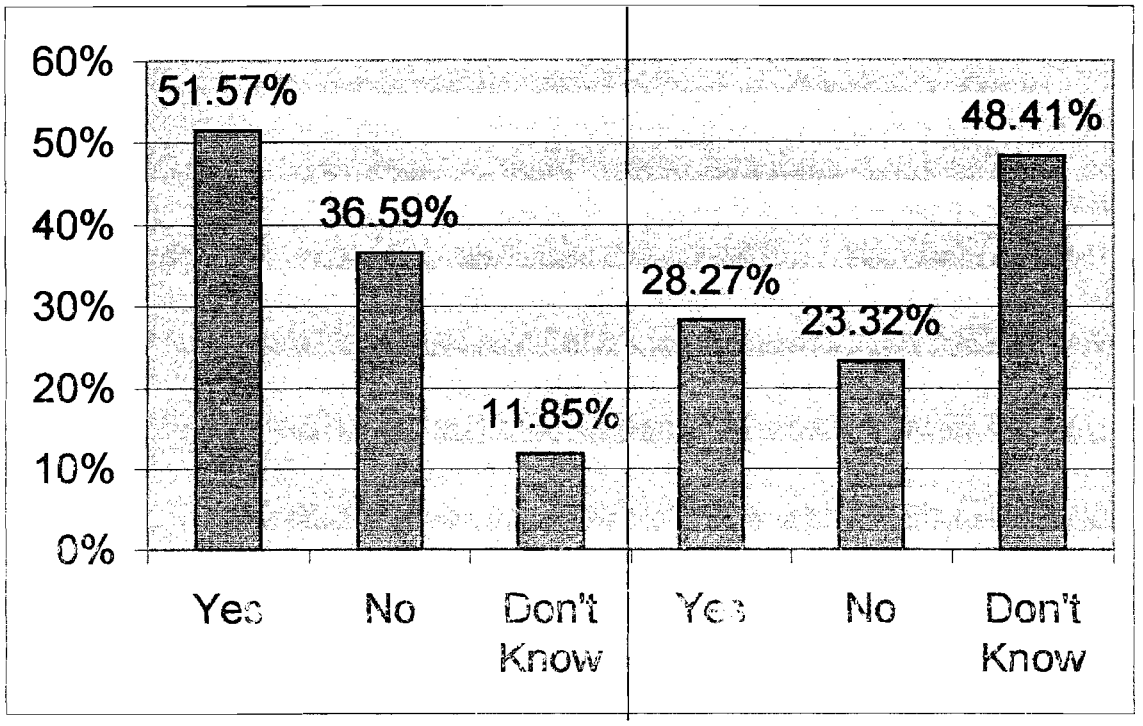

Figure 5.1: The respondents' knowledge regarding the handling of children with central auditory processing disorders and their knowledge on whether central auditory processing disorders can be outgrown or not

Out of the 287 respondents, 105 (36.59%) felt that children with CAPD should be treated the same as other children in the class, while and 34 (11.85%) of the respondents did not know how they should be treated. The view of treating these children differently is in conjunction with literature in this field, as these children are given special attention and their environment has to be modified (Katz and Wilde, 1985; Cline, 1988; Campbell, 1994; Berg *et al.,* 1996; Bellis, 1996; Bench and Maule, 1997; Sloan, 1998) so as to allow them to participate meaningfully and benefit from the learning environment.

Question 14 probed the teachers' knowledge about the possibility of children outgrowing CAPD. Majority of the respondents - 137 out of 283 or (48.41%) - answered that they do not know whether this was possible. Eighty respondent (28.27%) answered "yes" and 66 respondents (23.32%) answered "no". According to literature, however, CAPD cannot be outgrown (Stach and Loiselle, 1993) but children are able to

learn strategies and develop coping mechanisms to try and overcome their auditory processing deficiency.

Table 5.8 provides a summary of the method in which the teacher can assist the child with CAPD in the classroom. The information was obtained from question 15 of the questionnaire that required the respondents to indicate the method they were supposed to use in class to help children with CAPD. The results are highlighted in Table 5.8.

Table 5.8: Teachers' knowledge about strategies of helping children with a central auditory processing disorders

	METHOD	N	YES	NO	DON'T KNOW
(a)	Ignoring the child	246	0.41%	98.57%	1.22%
(b)	Punishment	244	1.64%	97.13%	1.23%
(c)	Special attention	296	92.57%	6.24%	1.01%
(d)	Hearing aids	280	93.57%	3.98%	2.50%
(e)	Seating the child at the front row	283	88.69%	7.07%	4.24%
(f)	Reducing noise in the classroom by using carpets and curtains	250	41.60%	36.00%	22.40%
(g)	Looking straight at the child while speaking.	281	83.99%	11.03%	4.98%
(h)	Repetition of questions and orders	281	88.97%	6.41%	4.63%
(I)	Speaking loudly when talking to the child	264	59.47%	30.66%	0.0985
(j)	Asking someone to take note for the child.	245	9.80%	82.45%	7.76%
(k)	Repeating the information from time to time.	276	80.80%	14.49%	4.71%
(l)	Checking from time to time to see if the child understands.	295	93.90%	5.08%	1.02%

Apart from hearing aids (93.57%) and speaking loudly to a child – the results of Table 5.8. illustrate that the majority of respondents were able to identify some of the useful strategies recorded in the literature for helping children with CAPD. However, the fact that hearing aids and speaking loudly are indicated as important strategies, confirms that teachers often confuse CAPD with hearing loss.

Another striking statement is the negative evaluation of the strategy of providing a note taker to a child (82.45% of 245 respondents). In Table 5.7 the inclusion of friends (Question 12 (k)) (51.42% of 247 respondents) in the remediation team was implied, but it is clear that the specific role of this friend is unsure. It is unfortunate that the respondents were not asked to give reasons for the choice of members included in the remediation team.

It was also interesting to note that the use of noise absorptive materials, for example carpets and curtains, was also considered as a valid remediation strategy. Out of 250 respondents, 41.60% were in favour of this strategy, 36.00% were not in favour and 22.40% "did not know". The use of this strategy is widely supported in the literature as part of modifying the child's listening environment (Katz and Wilde, 1985; Campbell, 1994; Berg *et al.*, 1996; Bellis, 1996). Unfortunately it is also related to the availability of funds, which could be a negative indication for use in black schools.

The majority of respondents did not favour methods such as ignoring and punishing the child. This was evident from the fact that 98.57% of 246 respondents were not in favour of ignoring the child and 97.13% said "no" to punishing the child. The strong feeling against these two methods may be perhaps resulting from the belief held by most of the teachers that is a recognised disorder. They probably felt that it was not fair to practise these methods, as the child did not choose to have hearing problems. Secondly, it could be related to the fact that corporal punishment (which was commonly used by teachers in the past) is no longer allowed in South African schools.

5.3 CONCLUSION

In the realization of the sub-aims, it became apparent that the teachers did not receive training in CAPD and were not aware of CAPD. They confused CAPD with hearing loss. However, teachers were able to correctly identify most of the characteristics of children with CAPD with the exception of hearing loss, which tends to be equated with CAPD. The teachers in the study also believed that a team approach is important for the remediation of children with CAPD. They felt that they themselves were important

team members when it came to dealing with children with CAPD. However, it is clear that they feel it is necessary for teacher to receive training regarding CAPD so that they are able to provide an accountable service to these children.

The positive attitude displayed by teachers towards training in CAPD can facilitate the development of a working relationship between speech-language pathologists and audiologists and other team members involved in remediation of children with CAPD. Speech-language pathologists and audiologists can assist in training teachers regarding identification, referral management of children with CAPD. The collaboration between speech-language pathologists and audiologists is crucial for remediation of CAPD. Therefore the Gauteng Department of Education has a responsibility of employing speech-language pathologists and audiologists in mainstream schools of Soweto (and other black townships as the problem is not only confined to Soweto schools) to facilitate early identification and intervention of children with CAPD and other speech-language and hearing problems that impact on children's performance in the academic sphere.

5.4 SUMMARY OF CHAPTER FIVE

The data in the study were analysed and discussed according to the sub-aims developed. The introduction of this chapter dealt with challenges facing the education system in our country. The results revealed a serious need for training teachers about CAPD, specifically in the new dispensation. From the results of the study, it is evident that a working partnership between speech-language pathologists and audiologists and teachers is very crucial in order to assist children with CAPD.

6. CHAPTER 6: CONCLUSIONS AND IMPLICATIONS

6.1 INTRODUCTION

Teachers have an important role to play in the early identification and referral of children with CAPD as well as managing these children in the classroom setting (Bellis, 1996). Teachers thus require training and knowledge in the field of CAPD. The Apartheid policies in South Africa have produced black teachers that have not necessarily been adequately educated themselves or trained to deal with children with disabilities, including CAPD (NCESS, 1997). The aim of the study was to determine training and knowledge of black mainstream primary school teachers in Soweto.

6.2 SUMMARY OF THE RESULTS

The results of the study show that:

- Only 11,63% of the teachers had received training regarding CAPD. 96,31% of the teachers felt that they should receive training in CAPD and that this training should be part of their basic qualification and also part of in-service training.
- Teachers have a poor knowledge understanding of the causes of CAPD and the behaviour of children with CAPD. Teachers tend to equate CAPD with hearing loss and not as two separate disorders. While these disorders may occur together in one individual they usually present separately.
- The teachers identified medical doctors, teachers, speech-language pathologists and audiologists and remedial teachers as the primary team members for managing CAPD in children. The teachers are however uncertain about their managing children with CAPD.

6.3 FUTURE RESEARCH

This study has revealed new facts about and insights into the training and knowledge of black teachers in mainstream primary schools as far as CAPD are concerned. Based on the results of this study, it is recommended that more research should be conducted on other childhood disorders that impact on the child's learning abilities, in order to assist in early identification of such children and empower teachers to handle them. This will also enhance total team functions within the educational context.

It is furthermore evident from the study that teachers consider themselves among the key parties in the remediation of children with CAPD. Further research is however, needed to determine whether they have a similar attitude towards other disorders that have a negative influence on the child's performance at school.

6.4 EVALUATION OF RESEARCH METHODOLOGY

The research methodology used in this study has the following limitations. *Firstly,* a relatively small number of subjects were used. However, with regard to the number of institutions represented, the range of qualifications covered and the differences regarding years of experience, an inference could be made that the results are a true reflection of black teachers in mainstream primary schools in Soweto. Also, the inclusion of schools from across Soweto ensures that the results are representatives of the township, as it covered schools from different areas and levels of wealth/poverty.

The *second limitation* is that only teachers of a particular township (Soweto) in the country were involved in this study. Although Soweto is one of the largest townships in our country and a true reflection of urban township (Turton, 1986; Bonner and Segal, 1998), it does not necessarily represent the whole of South Africa. In terms of time frame and financial constraints, however, the sample is regarded significant for the purpose of the study. Further research in other parts of the country is recommended.

The *third limitation* is the utilization of a specific population group only. The results

obtained could however be a true reflection of the training institutions attended by the respondents, as they are predominately black and most teachers qualified during the era of a fragmented education system (NCESS. 1997). It will be interesting to examine whether the results obtained in this study are the same for other populations groups in the country, i.e. coloureds, Indians and whites.

6.5 CLINICAL IMPLICATIONS

It is clear from the results of this study that teachers (96,31%) are positive about receiving training in CAPD. This probably stems from the fact that they have encountered such problems in their classrooms and are anxious to know how to handle these children. The learning institutions also have a responsibility to incorporate CAPD in their teaching curriculum.

Changes in the South African education system pose a challenge for the speech-language pathologists and audiologists to make other professionals and the community aware of CAPD and their impact on the child's academic performance. Such an awareness campaign should be launched at national, provincial and local levels (NCESS, 1997) and should involve not only different government departments such as the departments of Health, Education and Welfare, but also non-government organizations (NGOs) and the community. These stakeholders should work together in order to develop comprehensive service delivery programmes (Bellis, 1996; NCESS, 1997; Flecther, 1998; Boland, 1998). Such an initiative will also help to ensure early identification, appropriate referrals and early intervention in the lives of children with CAPD. Early identification and intervention will help to prevent the breakdown of learning that results from CAPD (NCESS, 1997).

Teamwork is very crucial for sharing of skills and facilitation of development and sustaining of programmes that will ensure that the communicative, social and learning skills of children with CAPD are optimized (Bellis, 1996; Flecther, 1998; Boland *et al.*, 1998). Government – in particular the departments of Education and Welfare - as well as professional bodies and NGOs (Bellis, 1996, Fletcher, 1998, Boland *et al.*, 1998)

need to see to it that programmes and centres are financed, developed and equipped to assist children with CAPD.

As speech-language pathologists and audiologists are experts on the area of CAPD (Sloan, 1998), they need to take responsibility for training of other team members (Bellis, 1996). They also need to establish mechanism for the early identification of children with CAPD and successful intervention (NCESS, 1997).

6.6 CONCLUDING REMARKS

Many children and parents have been left frustrated and despondent because of the presence of CAPD. The results of this study show that teachers regard CAPD as equivalent to hearing impairment and that the report of normal hearing after referring a child for a hearing assessment, has been frustrating. Lack of appropriate intervention and support has thus prevented many children from reaching their full potential.

The results of this study have revealed that there is a need for an awareness and special education among teachers regarding CAPD. Teachers need to be trained to identify children with CAPD and to effectively manage such children in the classroom. This will enable the teachers to not only view these children in a positive light, but also reduce their stigmatization (NCESS, 1997). It will also ensure early identification and intervention, which will undoubtedly be of benefit to the children who are directly affected by CAPD.

Numerical codes were given for questions 1, 2, 3, and 4 to assist in categorization of responses. The results revealed 44 different qualifications from 63 different institutions for questions 1 and 2. The year in which the first teaching qualification was obtained ranged from 1957 to 1999. The number of years of teaching experience ranged from one year to 43 years. Information obtained from Section A revealed that the respondents presented a wide spectrum with regard to variables of qualifications, training institutions, years of experience as teachers and the current standards they were teaching. The subjects thus constitute a heterogeneous population.

5.2.2 The level and extent of the teachers' training with regard to central auditory processing disorders

The first sub-aim that investigates the teachers= training on CAPD was answered through the interpretation of data obtained from section D. The latter dealt with training issues. Questions 16, 17, 18, 19, and 20 were used to obtain answers for the first sub-aim.

This sub-aim was accomplished by asking teachers whether they had been exposed to CAPD in their training and if they require additional training in this field.

The nature of the training received the subjects is presented in Table 5.2. and was derived from question 16.

Table 5.2 Responses and extent of training on central auditory processing disorders (N=301).

QUESTION	NUMBER OF RESPONSES		
16. Did teachers receive formal training in central auditory processing disorders?	Yes 35 = 11.63%	No 266 = 88.37%	
If yes: Method of exposure **(Of the 35 subjects, only 17 completed this section).**	Basic training 7 = 20%	Remedial education 3 = 9%	Workshop 7 = 20%