

CHAPTER THREE METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research methodology of the study. Firstly, the aims and sub-aims of the study are presented followed by a discussion of the research design. The pilot study is then presented in terms of the results and recommendations. A description of the subjects, materials and equipment used in the study are provided. Finally, the data collection procedure and data analysis are described and discussed.

3.2 AIMS OF THE STUDY

3.2.1 Main research aim

The aim of the study is to determine and compare teachers' attitudes towards children with LNFS using a communication board and an Alpha Talker 9. This will be achieved through three sub-aims.

3.2.2 Sub-aims

- To determine teachers' attitudes towards a child with LNFS using a communication board.
- To determine teachers' attitudes towards a child with LNFS using an Alpha Talker 9.
- To compare teachers' attitudes towards a child with LNFS using a Communication Board versus an Alpha Talker 9.

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3.3 THE RESEARCH DESIGN

3.3.1 The research design

A comparative survey with a classic crossover design was utilized for the purpose of this study. The researcher chose the survey instrument because surveys have been identified as suitable for determining attitudes and used as the standard method of obtaining data in attitudinal studies (Table 2.1). The study involved teachers completing an attitudinal scale based on a video recording of students with LNFS using AAC devices. The teachers were randomly assigned to two groups. This was necessary in order to ensure that the sequence in which the videos was presented did not influence attitudes. Each group of teachers watched a video of a student with LNFS using an AAC device, and then completed a survey instrument. Thereafter, teachers watched a video of another child using a second AAC device, and again completed a survey instrument. In this way, teachers' attitudes towards the two AAC devices were discerned. With the data obtained it was possible to determine teachers' attitudes towards each device, as well as compare teachers' attitudes towards the different devices. Teachers' attitudes towards the devices were compared as the crossover design enabled a within group comparison (Jones & Kenward, 1989).

3.3.2 The research phase

The research consisted of the following phases, which followed a linear course.

- Development of a survey instrument which comprised a questionnaire and TAS. See Section 3.6 for a discussion and description of the development of the survey instrument.
- Identification of all the special schools for children with mental disabilities in the Northern Province. Personal contact with the schools was established and an explanation of the aims of the study was provided. Dates and times for fieldwork were arranged.

- Conducting a pilot study to pretest the survey instrument. The information obtained from the pilot study necessitated certain changes to the survey instrument. See Section 3.4 for a discussion of the pilot study.
- Conducting the fieldwork. The data collection procedures employed are discussed in Section 3.8.
- Data capture and analysis. The researcher coded the raw data in the pre-designed blocks on the survey instrument in order to facilitate data capturing by computer. After the results had been computerized, statistical analysis was conducted. An interpretation and discussion of the data, highlighting the relevance of the study, followed this.

3.4 PILOT STUDY

3.4.1 Objectives

The objectives of the pilot study were to refine and pretest the quality of the survey instrument (Appendix A and B) in terms of:

- Understandability of terminology;
- Ease with which the survey instrument was understood;
- Presence of ambiguous or misleading statements or questions;
- Complexity of instructions;
- Ease of coding;
- Time required to complete the data collection;
- Strategies intended regarding the analysis of data, and
- Feasibility of the procedures utilized (Katzennelenbogen, Yach & Joubert, 1991)

3.4.2 Schools selected for the pilot study

One school for children with mental disabilities in the Northern Province was selected as it met the criteria specified for the schools utilised in the main study (see Section 3.5.1). The school was registered with the Department of Education and classified as

a school for children with mental disabilities.

3.4.3 Procedure

The same procedure outlined for the main study was followed (See Section 3.8). However, teachers were required to provide feedback regarding the survey instrument. Their comments were considered and the necessary modifications to the survey were made.

3.4.4 Objectives, results and recommendations

The objectives, results and recommendations made after the pilot study, are provided in Table 3.2.

Table 3.1: Objectives, Results and Recommendations following the Pilot Study

| Objectives | Materials and Equipment | Procedures | Results | Recommendations |
|--|-------------------------|---|--|--|
| 1. To evaluate the understandability of the terminology used in the survey instrument. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion. | During discussions, teachers commented on difficult terminology | The difficult to understand words were replaced with more appropriate words. See Appendix C for changes made after the pilot study. |
| 2. To evaluate the ease with which the survey instrument was understood. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion. | During discussions, teachers commented that the level of English in the Survey instrument was appropriate except for certain terminology (discussed above). | The relevant changes to the terminology were made. |
| 3. To test for ambiguous and misleading questions and statements. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion. | Questions and statements identified as ambiguous were primarily related to difficulties in understanding of terminology used. | More appropriate words were used. See Appendix C. |
| 4. To determine if instructions were clear. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion. | Instructions were clear. However, teachers found statements with 5-point scale difficult to complete. No problems were found with marking more than one option when required. No questions or statements were left unanswered. | Instructions were not altered. However, an example was provided for statements to give teachers an opportunity to practise completing statements with a 5-point scale. See Appendix C. |
| 5. To evaluate the coding of the questionnaire and TAS. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion. | The results of both the questionnaire and TAS were coded. | No difficulties in coding were experienced. |
| 6. To test the time required to complete the questionnaire and TAS. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion | Teachers needed approximately 5 minutes to complete the questionnaire and 20 minutes to complete the TAS the first time. On the second time they needed 15 minutes. | With clearer terminology the time needed to complete the TAS was reduced. |
| 7. To determined the feasibility of the procedures used in the project. | Questionnaire and TAS | Teachers completed the questionnaire and TAS independently. Discussion | Teachers completed the questionnaire and TAS without any difficulties. However, difficulties arose in pairing the questionnaire and TAS to a video, as no identifying information was provided on the TAS. | The respondent number and video number were added to each TAS. The questionnaire and two copies of the TAS were collated, and provided to the teacher once. |

3.4.5 Summary

The results of the pilot study necessitated minor modifications to the survey instrument (questionnaire and TAS). The procedure was found to be suitable for obtaining the data required.

3.5 MAIN STUDY

Criteria that were set for inclusion in the study will be discussed.

3.5.1 Selection criteria for schools

3.5.1.1 Geographical area

The research was conducted in the Northern Province, Central Region, as it was accessible to the researcher. Hence, convenience sampling was used (Dooley, 1995). The schools were all within an hour and a half from Pietersburg and were, therefore, termed peri-urban.

3.5.1.2 Registered school

All schools registered with the Department of Education, Northern Province, as schools for children with mental disabilities were considered. These schools were considered as the candidacy for AAC in these schools are very high (Matas, Mathy-Laikko, Beukelman & Legresely, 1985).

3.5.1.3 Description of schools

All the schools were considered to be previously disadvantaged and lacked services in terms of speech therapy, occupational therapy and physiotherapy services (Table 3.3).

Table 3.2: Description of Schools included in the Study

| No. | Number of Teachers | Number of Speech Therapists | Number of Occupational Therapists | Number of Physiotherapists | Number of Nurses | Number of Psychologists | Predominant Language of Instruction |
|-----|--------------------|-----------------------------|-----------------------------------|----------------------------|------------------|-------------------------|-------------------------------------|
| 1. | 16 | 0 | 0 | 0 | 0 | 0 | Northern Sotho |
| 2. | 16 | 0 | 0 | 0 | 1 | 0 | Northern Sotho |
| 3. | 8 | 0 | 0 | 0 | 0 | 0 | Northern Sotho |

3.5.1.4 Schools for children with mental disabilities

Seven schools for children with mental disabilities were identified in the Northern Province. Of these, four schools were excluded from the main study as:

- One school was used for the pilot study; and
- Two schools were in another region and were, therefore, not in close geographic proximity to the researcher.

3.5.2 Description of the teachers

The teacher sample comprised all teachers employed at the schools. A total of 43 teachers participated in this study. 81.4% of the teachers were female and 16.6% were male. The teachers were randomly assigned to two groups with Group 1 and 2 comprising 21 and 22 teachers respectively.

3.5.2.1 Qualifications

Figure 3.1 describes the highest educational qualifications of the teachers. These results refer to qualifications already obtained and do not include studies in which teachers were currently enrolled.

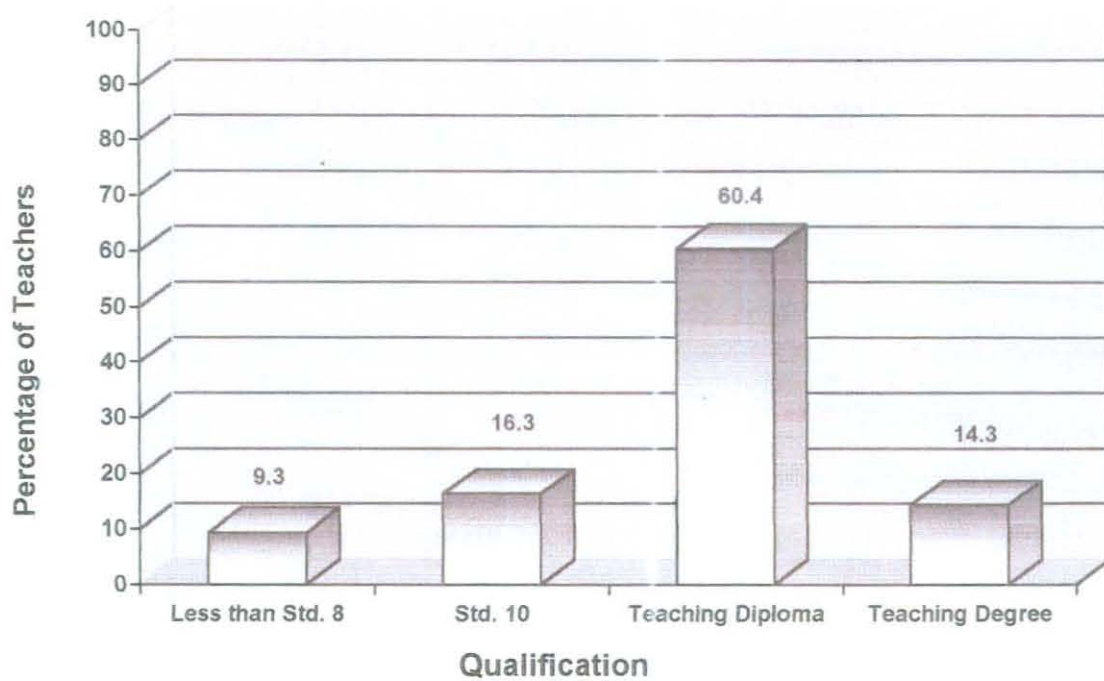


Figure 3.1: Qualifications of Teachers

Figure 3.1 indicates that the majority of the teachers had obtained a teaching diploma. 74.3% of the teachers held the qualification of either a teaching diploma or degree. The remaining 9.3% and 16.3% had obtained a Std 8 qualification and a matric certificate respectively. This finding is supported by other studies conducted in the South African context. Alant & Emmett (1995) and Borman (1995) found that between 80 and 84% of teachers, at schools for children with mental disabilities in the Pretoria area, had between 2 and 4 years of post matric qualifications. Furthermore, approximately 6% and 4 and 10% had a Std 8 qualification and a matric certificate respectively. Together, these data suggest that students with LNFS tend to be taught by teachers with the least qualifications, which may be attributed to the intervention philosophy focussing on “care giving” rather than the education of students (Alant, 1999, p.88).

Figure 3.2 describes the special training teachers received in working with students with disabilities.

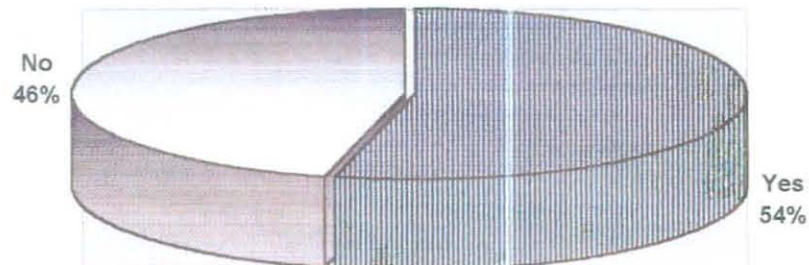


Figure 3.2: Specialised Training

Figure 3.2 indicates that 54% of teachers received special training in working with students with disabilities. The majority of the teachers had obtained diplomas in special or remedial education. However, 46% of the teachers had no additional training in working with disabilities. This finding is supported by literature that indicates that teachers do not have sufficient training in working with children with disabilities (Baker, 1993). This absence of training has negative implications for teachers' sense of self-efficacy.

3.5.2.2 Years of experience with disabled children

Figure 3.3 depicts the total number of years of experience that the teachers have in working with such children.

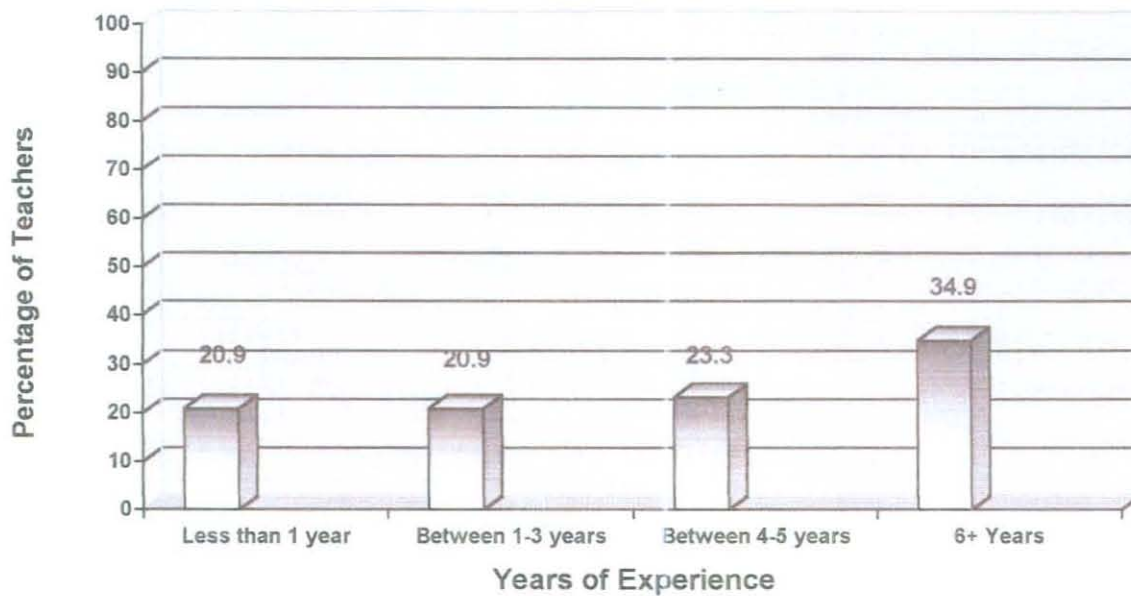


Figure 3.3: Years of Experience

Figure 3.3 indicates that the majority of teachers had more than 6 years' experience (34.9%) followed by 4 and 5 years' experience (23.3%). There was no difference between teachers who had less than one year (20.9%) and those who had between 2 and 3 years' experience (20.9%). Hence, a total of 41.8% of the teachers had less than 3 years experience in working with students with disabilities.

3.5.2.3 Age of teachers

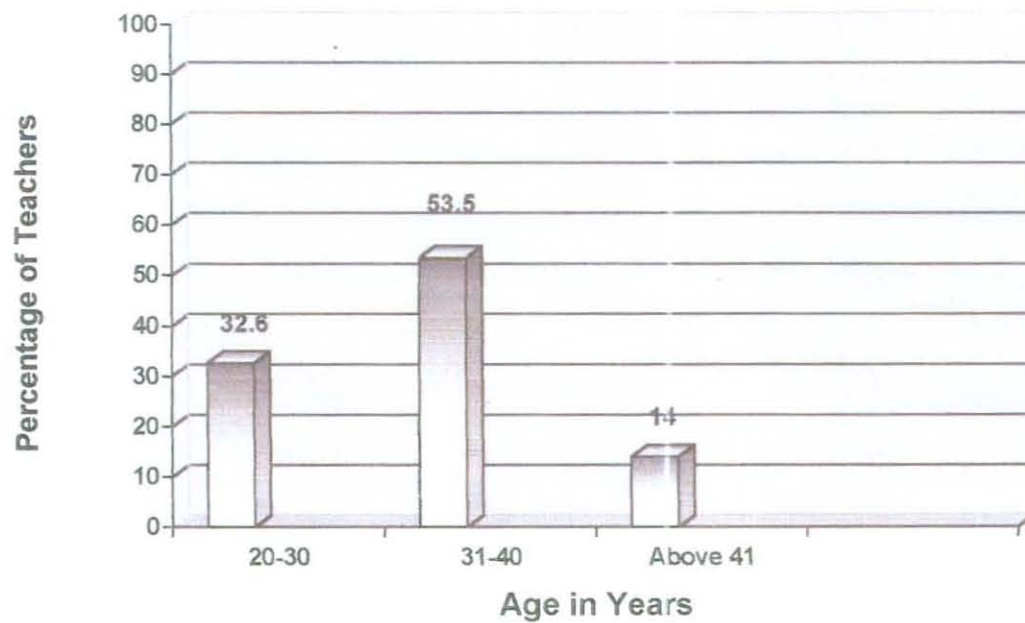


Figure 3.4: Age of Teachers

Figure 3.4 indicates that the majority of teachers (53.5%) were between 31 and 40 years. The remaining 32.6% and 14% were between the ages of 20 and 30 and above 41 years respectively.

3.5.2.4 Experience with children with LNFS

Figure 3.5. describes the number of students with LNFS that teachers had worked with. This includes all experience obtained, and not only experience obtained at a specific school.

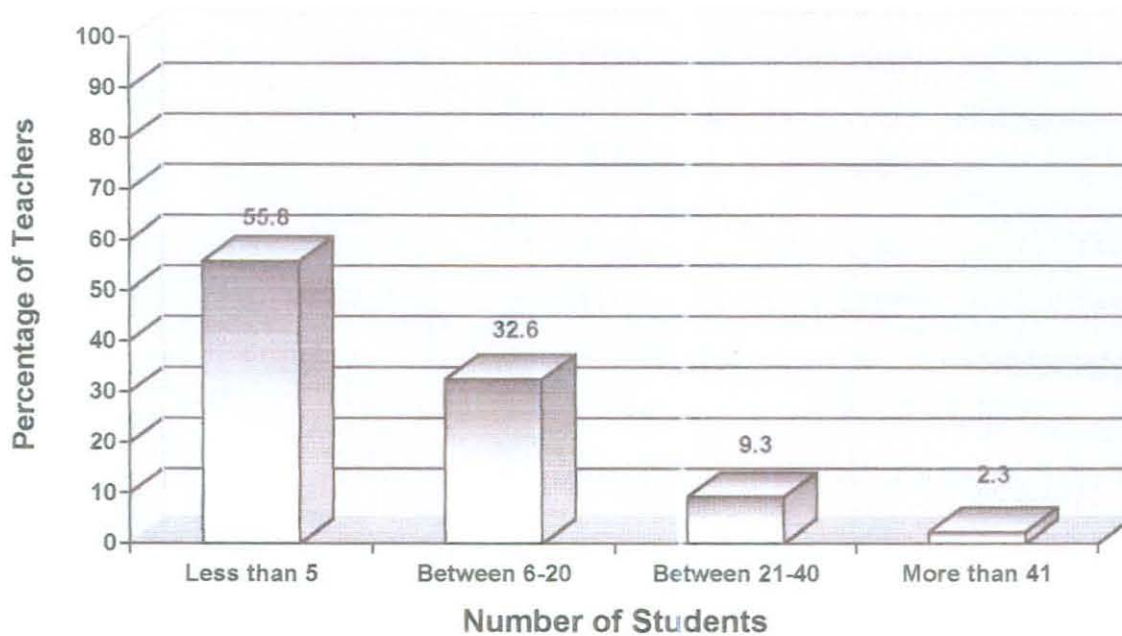


Figure 3.5: Experience with Children with LNFS

Figure 3.5 indicates that the majority of teachers (55.8%) had contact with less than 5 students, 32.6% had contact with between 6 and 20 students, 9.3% had contact with 21 and 40, and 2.3% had contact with more than 41 students. Teachers' rich experience with students with LNFS is important, as research indicates that practical experience with these students results in teachers feeling confident about assuming more responsibilities when educating these students.

In summary, the majority of the teachers was female, had obtained post matric qualifications and had experienced working with students with disabilities. However, 25.6% of the teachers had no post matric qualification, while 55.8% had limited experience teaching students with LNFS. This was supported by Alant and Emmetts' (1995) finding that teachers of students with LNFS were the least experienced and least qualified teachers in schools. This tendency might reflect a situation in special education where the focus is primarily on "care" and not "education" (Calculator & Bedrosian, 1988) reflecting an underlying assumption that these children have little educational potential. Teachers are, therefore, required to be caring rather than educationally orientated. As highlighted in Chapter 2 this orientation has negative

implications for teachers' sense of self-efficacy as well as for their expectations of students.

3.5.3 Materials used in the study

As part of the study two video recordings had to be made of children with LNFS using two AAC devices. Videos had to be clear in demonstrating the communication devices whilst not providing information that could bias the impressions of the teachers in favor of either device.

3.5.3.1 Videotapes

Four videotapes were prepared and depicted cerebral palsied children with LNFS, interacting with a speaking adult female. Research trends indicate that video recordings of AAC users can be successfully utilized in investigations of attitudes (Table 3.1). The conversational samples were video recorded using a Sony Handicam LLD F355E with quality Sony videocassette tapes. The setting was the Occupational Therapy Room and was the same for all four samples.

The adult female voice was an occupational therapist from the school, who was familiar with both the children and two AAC techniques used in the video. The adult female was not visible, but her voice was heard.

The videotapes depicted a child communicating in two conditions viz. aided electronic (Alpha Talker 9) and an aided non-electronic (communication board) communication system. Each videotape began with a focus on communication symbols, which was gradually zoomed out to focus on the entire communication device. In each condition, the child was seated in his/her wheelchair at a table; the angle used in the video focussed primarily on the device and only the back of the child was visible.

The conversational sample comprised an interaction between the adult female and the child. The interaction comprised the adult female asking the child questions regarding school activities. Each recording was approximately 5 minutes long.

Table 3.3: Table showing the videotapes

| No. | Child | Aid | Video Number |
|-----|-------|---------------------|--------------|
| 1 | One | Communication board | 1 |
| 2 | One | Alpha Talker 9 | 3 |
| 3 | Two | Communication board | 2 |
| 4 | Two | Alpha Talker 9 | 4 |

3.5.3.2 Children

The children used in the video were two athetoid cerebral palsy children with LNFS, attending the same school in Kwa-Zulu Natal. One of the children was a 7-year-old athetoid cerebral palsied boy, the other was an 11-year-old girl. Both children were from the same racial group as the teachers and both had limited use of their limbs and therefore made use of a head pointer for direct selection. They were judged, by their school speech therapist and occupational therapist, to be equally proficient in utilizing the communication board and an Alpha Talker 9.

3.5.3.3. Communication Board

A low technology communication board was utilised. The overlay used comprised black line drawing and graphic symbols (PCS) which were arranged on paperboard and covered in transparent plastic (Appendix D).

3.5.3.4 Alpha Talker 9

The Alpha Talker 9, a voice output communication aid, using digitized-recorded speech, was utilised. The voice of a male Occupational Therapy student was recorded, in English, in the designated area of the VOCA. The same overlay used for the communication board was used on the Alpha Talker 9.

Table 3.4: Criteria for developing video material

| No. | Criteria | Motivation | Control |
|-----|---|--|--|
| 1. | Proficiency in using the device | The proficiency exhibited by a novice and experienced AAC user may influence teachers' attitudes towards the AAC device. | The speech and occupational therapist rated the students as equally proficient in using both the devices. |
| 2. | Race | Research indicates that teachers' attitudes towards students are influenced by the racial grouping that a student belongs to. (Marwik, Marwik & Walker, 1978). | Children from the same racial grouping were selected. |
| 3. | Angle of the video focussed on the device | Research indicates that teachers' attitudes are influenced by students' attractiveness. (Marwik, Marwik & Walker, 1978). | The angle of the video focused on the device and the back of the student in order to ensure that the variable of students' physical appearance did not influence teachers' attitude. |
| 4. | Number of children | The monotony of watching the same child using two devices may have influenced attitudes | Two children with LNFS, each using both the AAC devices, were recorded. Hence, teachers were able to watch two different children using two different devices. |
| 5. | Constant overlay | The overlay was kept constant, in order to control for the possible influence of differences in the characteristics of the graphic symbols on attitudes. | The overlays were kept constant for both children using both devices. The dimensions of the overlay were 27cm X 47cm, and comprised 38 PCS, and each symbol was 3.8cm x 3.8cm. |

3.5.4 Equipment used in the study

The following equipment was employed in the making of the video recording and in showing the videos to the teachers.

Table 3.5: The equipment used in the study

| No. | Equipment | Model |
|-----|--------------------------|-------------------------------|
| 1 | A video recording camera | Sony Handicam LLD F355E |
| 2 | Television | Blaupunkt |
| 3 | VCR | Sharp High Quality H80 HQ VAS |
| 4 | Tape Recorder | Sony |
| 5 | Video Cassette VCR | Sony Audio Tape Recorder |
| 6 | Audio Tape | Sony High Quality HEB |

3.6 DEVELOPMENT AND DESCRIPTION OF SURVEY INSTRUMENTS

A survey instrument, comprising two parts, was developed for the purpose of this study. The survey comprised a questionnaire (Appendix A) and a Teacher Attitudinal Scale (TAS) (Appendix B). The survey aimed at determining attitudes towards children with LNFS using two AAC devices. A survey was the chosen instrument as it “provides a lot of information fairly speedily and allows speed of analysis (can be coded and edited quickly)” (Edwards & Talbot (1994, p. 25). Surveys have the added advantage of being suitable for use with a small sample and have been found to be appropriate in determining attitudes and have been employed as the standard method in obtaining data in all attitudinal studies (Table 2.1). In addition, the data were qualitative in nature and required statistical analysis to extract their meaning, allowing for the possible identification of relationships between data (Groenewald, 1986). An attitude is a personal opinion, and testing attitudes may arouse sensitive feelings. Surveys foster great co-operation and frankness with regard to sensitive studies (Huysmen, 1994). Thus, the final rationale for making use of a survey was its usefulness in relation to sensitive studies, such as this one.

3.6.1 The questionnaire

This was a short one-page questionnaire that had to be completed by the teacher, prior to watching the video. The eight-item questionnaire was based on the questionnaire utilised in Bormans' (1995) study. The questionnaire comprised close-ended questions with a number of options in order to reduce the length of time needed to complete the questionnaire. The focus of the question was on obtaining relevant biographical information regarding the teacher. For further details on the motivation for the specific areas included in the questionnaire see Table 3.7.

3.6.2 The TAS

A scale was developed to assess teachers' attitudes towards children with LNFS. The Teacher Attitudinal Scale towards AAC, developed by Soto (1997) served as a framework for developing the TAS. A summated scale or Likert type scale was used for this attitudinal survey, due to the multidimensional nature of the attitudes being measured (Katzenellenbogen *et al.*, 1991). A five point Likert scale of attitude measurement was employed as it allows the researcher to study possible patterns of attitudes that may exist (Oppenheim, 1973).

The TAS comprised 63 close-ended statements. Close-ended questions were used in the scale as this facilitates ease of completion and fosters greater co-operation from subjects (Rosenberg & Daly, 1993). Statements were positively and negatively worded in order to counteract acquiesce type of responses, thereby enhancing the construct validity of the TAS, and also reducing the bias of the scale (Oppenheim, 1994). The statements were randomly ordered, in each section, as suggested by Oppenheim (1973). These statements were grouped under 5 areas viz.:

- Teachers' perceptions on their own abilities;
- Teachers' perceptions of the child,
- Teachers' perception of classroom interaction;
- Teachers' perceptions on the AAC device;
- Teachers' perceptions on the communication interaction.

Statements were grouped into sets under the respective headings to facilitate ease of completion, increase reliability and provide consistency of results (Oppenheim, 1994). See Table 3.8 for further details on the development of the TAS.

Table 3.6: The Development of the Questionnaire

| No. | Area | Reason for Inclusion of Question | Additional Information |
|-----|---|---|---|
| 1 | Identifying Data Name of school, Gender of teacher, and Age | Age seems to be an important variable in influencing values or attitudes towards disability (Richardson, 1970). | It was decided to start the questionnaire by asking impersonal questions. The questions on the identifying data were close-ended questions with different categories. |
| 2 | Qualifications Highest educational qualification obtained | This variable was included to determine if teachers had special training in working with disabilities. | This was a close-ended question with different categories. |
| 3 | Experience with children with LNFS disability | Experience tends to result in a more stable sense of self-efficacy (Ross, 1994) in teachers. In addition, the relationship between teachers' characteristics i.e. gender, years of teaching experience, prior training and sense of self-efficacy, needs to be investigated (Gibson and Dembo, 1984, Prieto & Almauer, 1994). | A close-ended question with different categories was used. |
| 4 | Special Training | This variable was included to determine the nature of teachers' training, and the type of training. | A filter question was used as special training may not be applicable to all teachers. |

Table 3.7: The Development of the TAS

| No. | Area | Reasons for Inclusion | Examples |
|-----|--|--|-----------------------|
| 1 | Teachers' perceptions of their own abilities. | Teachers' sense of self-efficacy has been found to be related to student achievement as well as teachers' willingness to implement novel instructional approaches (Ashton & Webb, 1986) | Appendix B, Section A |
| 2 | Teachers' expectations of the child. | Teachers' expectations influence teacher-student interactions, as well as subsequent student achievement (Brophy & Good, 1970). | Appendix B, Section B |
| 3 | Teachers' perceptions of classroom interactions. | Teachers play an important role in facilitating students' participation in classroom interactions (Beukelman & Mirenda, 1992). | Appendix B, Section C |
| 4 | Teachers' perceptions of the device. | Attitudes toward the device may influence interactions with a student and willingness to implement a device. In addition, it is important to determine teachers' attitudes towards devices in order to gain insight into the possible constraints of a device (Beukelman & Mirenda, 1992). | Appendix B, Section D |
| 5 | Teachers' perceptions on communication interactions. | Light (1988) highlighted the importance of the communications functions of an AAC device. Teachers' perceptions of the students' ability to meet the communication interaction needs with an AAC device are important to facilitating classroom interaction and subsequently students' learning. | Appendix B, Section E |

3.7 DATA COLLECTION PROCEDURE

A classic crossover design was employed, for the purpose of this study. The teachers were randomly assigned to the two groups. Group one and two comprised 21 and 22 teachers respectively. In order to ensure that teachers' attitudes were not influenced by the sequence of the presentation of the videos, the videos were presented in a manner characteristic of the classic crossover design, as evident in Table 3.8.

| Group | Sequence | Videos |
|--------------|--|---|
| Group One | Communication board followed by Alpha Talker 9 | Video 1: Child one using the communication board, followed by Video 4: Child two using the Alpha Talker 9. |
| Group Two | Alpha Talker 9 followed by communication board | Video 3 : Child two using the Alpha Talker 9, followed by Video 2: Child one using the communication board. |

3.7.1 Preparation for fieldwork

Step 1: A principal at a school that has AAC users was contacted, in order to obtain information on AAC users who could be used in the video recordings (Appendix E).

Step 2: The permission of the parents of the children who would be used in the video recordings was obtained (Appendix F).

Step 3: The video recordings of two children using two AAC devices was made.

Step 4: Telephone contact with the principals of schools for the mentally disabled was made in order to make an appointment to meet the principal. At the meeting the principal was informed of the nature and importance of the study. In addition, the consent of the principal and teachers was obtained (Appendices G & H).

Step 5: A formal letter was sent to the schools to confirm the date and time for the data collection.

Step 6. The pilot study was conducted in order to determine the feasibility of the study.

3.7.2 Fieldwork

Step 1: Arrived at the school and organized the venue and seating arrangements. Ensured that the equipment was working properly.

Step 2: Teachers were randomly assigned to two groups.

Group 1 proceeded to the video room.

Group 2 remained in the staff room.

Step 3: The Research Phase

- Teachers were seated and provided with respondent numbers based on the alphabetically arranged register.
- The questionnaire and TAS were distributed. Teachers completed the questionnaire.
- The instructions, had been audio taped to ensure consistency. The instructions were: “You are going to watch a video of a student using a communication device called a communication board. After viewing the video you will be required to complete the TAS”.
- Teachers’ then watched the 5 minute video recording of child one using the communications board (Video 1). Thereafter they completed the TAS which took approximately 20 minutes.
- Teachers received their second instructions. “You are going to watch a second video of a student using a communication device called an Alpha Talker 9. After viewing the video you will be required to complete the TAS again”.
- Teachers watched the video of child two using an Alpha Talker 9 (Video 4). Thereafter, they completed the TAS.

- The questionnaires and TAS were collected.
- Teachers returned to the staff room.
- The same procedure was followed for group one and two. In order to account for the sequence effect, however, a crossover in the presentations of videos was implemented. Therefore Group 2 viewed child one with the Alpha Talker 9 first (Video 3) followed by child two with the communications board (Video 2).
- The researcher coded the questionnaire and TAS. The encoded data was keyed into the computer for statistical analysis.

3.8 DATA ANALYSIS AND STATISTICAL PROCEDURES

All the data were coded on the questionnaire and TAS, in the predesigned column, marked "For Official Use". This researcher encoded the data, which were subsequently computerized for statistical analysis with the SAS program. The data were then analyzed using a variety of statistical procedures.

| No. | Statistical Procedure | Motivation |
|-----|----------------------------------|--|
| 1. | Descriptive Statistics | In order to describe the data, frequency distribution counts were calculated for all the variables on the questionnaire and TAS, percentages were determined and presented in tables and, mean scores and standard deviations were calculated and presented graphically. |
| 2. | Carry-over Effect | This was investigated to determine whether teachers' attitudes towards the first viewing sequence were influenced by their attitudes towards the second viewing sequence. |
| 3. | Non-parametric Wilcoxon Rank Sum | This was used to determine whether there was a difference in teachers' attitudes towards the two AAC devices, when the carry-over effect was present. |
| 4. | Treatment Effect | This was used to determine whether teachers' attitudes differed as a function of the AAC device, when the carry-over effect was absent. |