

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

This chapter provides a discussion of the methodology used in the current study. Firstly, the aims and the research design are discussed. Secondly, the different phases of the study, i.e. the preparation of material, translation of the material, school and participant selection are set out. Next, the execution and results of the pilot study are presented and discussed. Finally, the chapter concludes with an account of the data collection procedures and the data analyses that were used in the study.

3.2. Aims of the study

3.2.1. Main aim

The main aim of this study is to describe and compare Afrikaans and Sepedi speaking grade R children's choice of graphic symbols when depicting four basic emotions: happy; sad; afraid; and angry.

3.2.2. Sub-aims

3.2.2.1. *Sub-aim 1:* To describe and compare expected and unexpected choices of graphic symbols to represent the basic emotions across language groups, gender groups and vignettes.

3.2.2.2. *Sub-aim 2:* To describe and compare the intensity ratings of vignettes in relation to each basic emotion across language and gender groups.

3.3. Research design

The mode of inquiry was a non-experimental comparative design (MacMillan & Schumacher, 2001). Ninety participants (44 Afrikaans speaking and 46 Sepedi speaking participants) were individually exposed to twenty-four vignettes representing four emotions (happy, sad, angry and afraid). The participants were asked to rate the intensity of the emotion on a two point scale before selecting the graphic symbol that, according to him/her, represented the specific emotion and intensity. An array of sixteen graphic symbols depicting emotions was used in the study. A comparative mode of inquiry does not involve manipulation of independent variables but goes further than a descriptive mode of inquiry as it does not only describe an

existing phenomenon but also investigates whether differences between groups regarding the phenomena studied exist (McMillan & Schumacher, 2001). The two language groups were compared in their choice of expected and unexpected graphic symbols to represent four basic emotions in response to vignettes. Finally the preferred symbols were analysed with regard to their features to attempt to understand why these symbols were chosen to represent the emotions.

3.4. Definition of terms used in the sub-aims and research design

Expected symbols in this study refer to any of the 4 PCS systematically identified to represent a specific basic emotion. Due to the nature of the task the selection of an expected symbol is not more correct than the selection of an unexpected symbol.

Preferred symbols can be defined as the particular symbols most of the participants selected to represent the emotions. Preferred symbols can be either expected or unexpected symbols.

Unexpected symbols in this study refer to any PCS on the presented overlay which is not one of the expected symbols of the target emotion.

3.5. Phases of the study

The study was divided into two phases. In the first phase, preparations essential for the execution of the main study was done. This phase included development of material, obtaining ethical clearance from The Ethics Committee of the Faculty of Humanities (Appendix A: Letter granting ethical clearance) as well as permission from the Limpopo Department of Health and Social Welfare (Appendix B and Appendix C: Relevant correspondence between the Limpopo Department of Health and Social Welfare and the researcher) in whose area the participants were located. Participating schools were identified and permission to conduct the study from school principals (Appendix D: Letter of permission from school principals) and parents were obtained (Appendix E: Letter of permission from parents).

The second phase was the main study and entailed the selection of participants, the data collection in the form of an individual structured interview with each of the participants. After the collection of data it was captured, statistically analysed and interpreted. Finally, the entire process was critically evaluated.

3.6. Development of the material

3.6.1. Selection of emotions

Most authors studying emotions mention four to six basic emotions, namely: happiness, sadness, surprise, disgust, anger, and fear (Brown & Dunn, 1996; Denham & Couchoud, 1990a; Ekman, et al., 1987; Widen & Russell, 2004). Widen and Russell (2003; 2008b) examined the emergence of emotion labels and their results indicated that by the mean age of 55.6 months participants used the labels for *happy*, *angry*, *sad*, and either *scared* or *surprised*. *Disgust* was found to emerge at a mean age of 70.2 (Widen & Russell, 2008b). Because this study made use of participants between 60 and 72 months, it was decided to remove *disgust* as an emotion in the study, as some of the participants might not know this emotion.

Russell (1990) found that most preschool children at age 4 to 5 are able to specify plausible causes and consequences for basic emotions, with the possible exceptions of the emotions *excitement* and *surprise*. To be sure that the participants in the current study understood all the emotions used, *surprise* was also removed. The target emotions were therefore *happy*, *sad*, *afraid* and *angry*. Another similar South African study by Visser, et al., (2008) also targeted these four emotions.

3.6.2. Selection of symbols to depict emotions

The study by Visser (Visser, 2006; Visser, et al., 2008), used 14 Picture Communication Symbols (PCS), one Makaton symbol and one Picsym symbol to represent the target emotions (the symbols used by Visser (2006) are presented in Appendix F). Visser (2006) noted that the shape of the face as well as the line thickness of the Makaton and the Picsym symbols differed from the PCS.

In an attempt to eliminate possible influence of the visual differences between the various commercially available graphic symbols, only symbols from PCS were selected. PCS is readily available in the South African context and research has indicated this graphic set to be one of the more iconic graphic sets/systems available (Huer, 2000; Mirenda, & Locke, 1989; Mizuko, & Reichle, 1989).

To ensure that all possible symbols which can represent these target emotions were accessible, all synonyms for each of the emotion labels were identified using the Oxford

Thesaurus (Urdang, 1991). All these terms (*happy* and 24 synonyms; *sad* and 23 synonyms; *angry* and 18 synonyms as well as *afraid* and 11 synonyms) were entered into Boardmaker version 6 demo's (© 1981-2007 Mayer-Johnson) symbol finder. Lists of the synonyms as well as the number of symbols per term as identified by Boardmaker version 6 demo (© 1981-2007 Mayer-Johnson) are available in Appendix G.

Each symbol identified was further searched for other labels, as prescribed by the developers of Boardmaker Version 6 demo (© 1981-2007 Mayer-Johnson). Any labels present in Boardmaker but not listed in the Oxford Thesaurus (Urdang, 1991) were also run through the symbol finder (Appendix G). A total number of 21 symbols were identified (Appendix H): All the symbols as well as all possible labels for each symbol as identified by Boardmaker version 6 demo (© 1981-2007 Mayer-Johnson). All the possible symbols for each emotion are presented in Appendices I and J.

From the 21 symbols referred to above, the researcher selected the final 16 symbols comprising of four symbols for each target emotion. In selecting the symbols, symbols representing the formal labels (*happy*, *sad*, *angry* and *afraid*) used in the study were assigned preference, followed by symbols representing the thesaurus synonyms (Oxford Thesaurus, Urdang, 1991) and lastly the Boardmaker Version 6 demo synonyms (© 1981-2007 Mayer-Johnson). The steps taken in this process are described in table form in Appendix K.

The final step was to confirm whether teachers teaching to children similar to the participants thought that children aged 5:00 to 5:11 would be able to identify with the chosen symbols. Eight pre-school teachers (4 Sepedi and 4 Afrikaans speakers) were presented with the 16 symbols as well as the emotion represented by a particular symbol. The teachers were asked to indicate whether they agreed with the researcher that the symbol represented the particular emotions (Appendix L). A cut-off point of four was chosen; thus, if four or more teachers decided that a symbol did not represent the particular emotion, it would be replaced. Only one symbol ([☺]) was not agreed upon and was replaced with [☺]. The panel was further asked to report why they did not agree (Appendix M).

The sixteen PCS are presented in Table 3.1. The numbering used in this table corresponds with the numbering used in the main study and not with the numbering used in selecting the

symbols as reflected Appendix H. Thirteen of these sixteen symbols were also used by Visser (Visser, 2006; Visser, et al., 2008), namely

- happy: symbols 1, 5 and 9
- sad: symbols 2, 6, 10 and 14;
- afraid: symbols 3, 7 and 11 and
- angry: symbols 4 and 8.

Angry symbol 16 was used in Visser's (2006) study to represent afraid. The fourth happy symbol [☺] used by Visser (2006) was disqualified by the 8 teachers asked to verify the 16 PCS chosen to represent the target emotions and replaced by symbol 13 [☺]. The symbols used in the main study are presented in Table 3.1.

Table 3.1. Symbols used to represent the 4 basic emotions in the main study.

Happy	Sad	Afraid	Angry
 1	 2	 3	 4
 5	 6	 7	 8
 9	 10	 11	 12
 13	 14	 15	 16

3.6.3. Selection of vignettes

Each emotion was represented by 6 vignettes. During a literature search within psychology and development research a total of 51 emotion vignettes were identified (Boyatzis, et al., 1993; MacDonald & Kirkpatrick, 1996; Visser, 2006; Widen & Russell, 2004; Wang, 2003).

The 51 vignettes are presented in Appendix N. Some of these 51 vignettes had similar contexts and themes, e.g. the protagonist receiving presents for his/her birthday; playing with friends; having something nice to eat; losing a favourite toy. These vignettes were combined to form the 17 vignettes (Appendix O1).

The 17 vignettes were presented to seven professionals working with children and having a research background. They were instructed to provide each vignette with an emotion label as well as to rate, on a three point scale, the intensity of the emotion experienced. After synonyms were matched, 44 different emotion labels were identified. A total of 40 labels were not 'expected'. A total of 118 intensity choices were made (1 missing data); 12: 'little emotion'; 47: 'emotion' and 59: 'very emotion'.

The same group of professionals were finally asked to propose other vignettes that they thought would elicit emotions, and based on their feedback another 20 vignettes were added to bring the total of vignettes to 37 (Appendix O2). The list of 37 vignettes was presented to six speech therapists (four Afrikaans mother tongue speakers and two Sepedi mother tongue speakers) with the same instructions (Appendix O2: Copy the questionnaire). Results again yielded a large number of labels and confusion regarding the negative emotions, especially *sad* and *angry*. To ensure that participants would use the four target labels it was decided that it would be better if the vignette stated the emotion and the participants were only asked to choose the associated intensity.

The vignettes were amended and presented to four pre-school teachers (two mother tongue speakers of Sepedi and two mother tongue speakers of Afrikaans). The teachers were requested to read the vignettes and rate the intensity of the emotion experienced on a three point scale (Appendix O3: Copy of the questionnaire). Results seemed to indicate that even for adults the rating of the emotions on a three point scale was a difficult task. Therefore, the 3 point intensity scale was changed to a 2 point intensity scale and presented to a group of 8 pre-school teachers (half of the teachers were Afrikaans mother tongue speakers; while the other half were Sepedi mother tongue speakers). These teachers were given the same instructions as before, the only difference being the two point rating scale.

The researcher translated the vignettes from English into Afrikaans. An Afrikaans speaking speech-language therapist checked the appropriateness of the translation (Appendix P: Copy

of questionnaire). The 37 Afrikaans vignettes were piloted on 8 Afrikaans speaking children of the appropriate age to see whether they were able to successfully complete the task. The participants understood the vignettes and were all able to assign intensity to the emotions presented in the vignettes.

As the study only required 24 vignettes the next step was to reduce the thirty seven vignettes to twenty four. Eight teachers (four Afrikaans and four Sepedi speaking) were asked to rate the vignettes from the most familiar to the least familiar situation (using the English vignettes). Teachers were instructed to think, whilst completing the task, of children between the ages 5:00 and 5:11 years speaking their (the teachers') home language (Appendix Q: Copy of questionnaire). Twenty-four vignettes were chosen, choosing the six most familiar vignettes for every emotion (the vignettes are presented in Appendix R).

After the 24 vignettes were chosen it was necessary to establish whether Sepedi speaking children of the appropriate age would be able to complete the task successfully (this had already been established for Afrikaans speaking children).

The 24 vignettes were translated from Afrikaans to Sepedi (Table 3.2.) and piloted with Sepedi speaking children. During the Sepedi pilot study minor changes were suggested. These changes are discussed in Table 3.2.

3.6.4. Strategy for indicating intensity

The process of choosing the values of the rating scale went hand in hand with the choice of vignettes as discussed in section 3.5.2. Because the participants were preliterate their choice of intensity had to be indicated on a visual scale. The clearest way to visually present 'just' emotion and 'very' emotion was in the form of a bar graph. A copy of the intensity scale (bar graph) is presented in Appendix S.

3.6.5. Pre-assessment task

To enable the researcher to interpret the results it was imperative to ensure that the participants knew the four target emotions. Pre-assessment was therefore incorporated into the protocol. Participants had to pass this pre-assessment before being allowed to continue with the actual data collection. To determine participants' knowledge of emotions they are, as recorded in literature, often asked to label pictures of facial expressions of the target emotions (Boyatis, et al., 1993; Denham & Couchoud, 1990b; Holder & Kirkpatrick, 2001;

Widen & Russell, 2004). Because such a visual task would be very similar to the actual data collection method and it's the possible influence on the results was uncertain, a different method was chosen.

The pre-assessment used in a similar study by Visser (Visser, 2006; Visser, et al., 2008) was amended to serve as pre-assessment task for the current study. An explanatory vignette about what an emotion is was added. Appropriate names for the protagonist were selected and the possibility of a choice between two emotions was included. The proposed pre-assessment task was piloted (Table 3.3.) and minor changes were made (Appendix T).

3.6.6. Translation

The vignettes and protocol were translated from the original Afrikaans to Sepedi. A combination of back translation, the committee approach and pre-test procedures (Brislin, 1980; Haupt, 2001; Retief, 1988) were followed (Table 3.2.).

Table 3.2. Steps taken to translate Afrikaans protocol into Sepedi

Step	Process	Outcome
1	The Afrikaans protocol was given to a Sepedi mother tongue speaker (Translator 1) working as the Sepedi teacher at an Afrikaans school. Translator 1 was requested to translate the protocol into Sepedi.	The Sepedi translation was typed and given to Translator 1 for editing.
2	The Sepedi translation was given to a Sepedi speaking individual (Translator 2), working at the Department of African Languages at the University of Pretoria. Translator 2 was instructed to translate the Sepedi into Afrikaans.	Translator 2 translated the Sepedi translation back into Afrikaans.
3	The Afrikaans back translation was edited for language mistakes and sent back to Translator 2 Translator 2 was requested to make sure that any editorial changes did not change the intended meaning.	Translator 2 returned the document indicating that the meaning was not compromised by the editing.

Step	Process	Outcome
4	The two Afrikaans transcripts were presented to an independent rater (a mother tongue Afrikaans speaker and Afrikaans 1 st language teacher). The rater was requested to point out any differences in meaning between the scripts.	Differences picked up by the rater were discussed with Translator 1 and necessary changes were made. These changes are presented in Appendix U.
5	The Sepedi vignettes were presented to Sepedi mother tongue speaking pre-school teachers.	<p>The teachers indicated that the Sepedi vignettes were relevant and familiar.</p> <p>Three of the emotion labels used in the Sepedi translation was said to be archaic and other words were chosen. These changes are presented in Appendix R.</p>

3.7. Pilot study

A pilot study was done to ensure that the test material, test protocol and participant selection would present no problems in the main study. The pilot study was done with both Afrikaans and Sepedi speaking participants. All changes recommended were re-piloted to guarantee that these changes addressed the shortcomings previously identified. The objectives, results and changes of the pilot study are presented in Table 3.3.

Table 3.3. Pilot study objectives, results and changes

Objective	Discussion and results		Changes
	Afrikaans speaking participants	Sepedi speaking participants	
1.1: Test material			
1. Overlay	1. To determine whether participants can easily negotiate a sixteen matrix overlay	1. Afrikaans speaking participants were able to negotiate the sixteen matrix overlay.	1. Sepedi speaking participants were able to negotiate the sixteen matrix overlay.
2. Pre-assessment	2. To determine if participants can identify emotions correctly and pass pre-assessment to continue with main test	2. A number of participants were not able to pass pre-assessment	2. A number of participants were not able to pass pre-assessment. Minor changes were made (See Appendix T for a description of changes).
3. Vignettes	3. To determine if the chosen vignettes are relevant and familiar	3. Afrikaans pre-primary school teachers indicated that the stories chosen would be relevant and familiar. Three of the emotion words used in the Sepedi translation was archaic.	3. Sepedi pre-primary school teachers indicated that the stories chosen would be relevant and familiar. The words were substituted with more modern words (see Appendix U).
			The phrases indicating 'Lebo was happy/sad/angry/scared' were seen as redundant. The equivalent phrase in Afrikaans and Sepedi was removed.

Objective	Discussion and results		Changes
	Afrikaans speaking participants	Sepedi speaking participants	
<u>1.1: Test material</u>			
4. Recording sheet and script	4. To determine if the researcher can keep track of vignettes, read from the script and then record data correctly on the recording sheet	4. The researcher found it difficult to keep track of the vignettes while executing the protocol.	4. The recommended changes were made to the Sepedi protocol prior to its piloting with the Sepedi speaking participants. The researcher was able to keep track with the Sepedi vignettes and recorded the answers correctly. She was however not always sure what the Afrikaans meaning was.
<u>1.2: Test protocol</u>			
1. Instructions	1. To determine whether the instructions are clear	1. Participants understood and followed the instructions.	1. Participants understood and followed the instructions. No changes needed.
2. Seating arrangement	2. To determine the seating arrangement	2. The arrangement where the participant and the researcher sit facing each other worked well. Child sized furniture were used.	2. The arrangement where the participant and the research assistant sat facing each other and the researcher sitting next to the participant worked well. Child sized furniture were used. No changes needed.

Objective	Discussion and results		Changes
	Afrikaans speaking participants	Sepedi speaking participants	
<u>1.2: Test protocol</u>			
3. Research assistant	<p>3.</p> <p>To determine if the research assistant understood training and is able to follow script accurately.</p>	<p>3.</p> <p>The research assistant was able to administer the protocol, but did not follow the script accurately.</p>	<p>3.</p> <p>Importance of following the script was again explained and emphasized.</p>
<u>1.3: Subjects</u>			
1. Selection criteria	<p>1.</p> <ul style="list-style-type: none"> - To determine whether certain selection criteria would not eliminate participants unnecessarily 	<p>1.</p> <ul style="list-style-type: none"> - Some participants were older than 6 years. 	<p>1.</p> <ul style="list-style-type: none"> - Some participants were older than 6 years. <p>1.</p> <ul style="list-style-type: none"> - Participants may speak more than one language as long as one of the languages spoken at home is Sepedi.
2. Sampling	<p>2.</p> <ul style="list-style-type: none"> - To determine how to select participants 	<p>2.</p> <ul style="list-style-type: none"> - All participants whose parents gave consent and who complied with the selection criteria and passed the pre-assessment could take part in the study. 	<p>2.</p> <ul style="list-style-type: none"> - All participants at a school whose parents gave consent and who complied with the selection criteria and passed the pre-assessment could take part in the study. <p>2.</p> <ul style="list-style-type: none"> -No changes needed.

3.8. Main study

3.8.1. Description of participating schools

Ten schools (6 Afrikaans and 4 Sepedi) participated in the main study. Purposeful sampling was used to select participating schools. All schools approached were eager to participate.

3.8.2. Selection and description of participants

Participants were selected to be aged between 5 years and 5 years 11 months and attending Grade R. Grade R is the year before formal schooling is commenced; classrooms are semi-structured. Choosing participants in this age- and grade group ensured that the participants were familiar with some structured activities, but formal schooling which could influence visual perception (Duncan, Gourly, & Hudson, 1973; Martlew, & Connolly, 1996) has not yet started.

In accordance to the main aim of the study, participants had to speak at least either Afrikaans or Sepedi as a home language and be schooled in either of the two languages. To exclude physical problems which could interfere with visual perception the participants had to be typically developing children with no uncorrected sight problems or hearing loss. The above mentioned information of each child was obtained through questionnaires to the children's parents/guardians (this information was obtained through the questionnaire presented in Appendices E1 to E3).

A total of 57 Afrikaans speaking participants complied with the selection criteria; of these participants 77.19% (n=44) passed the pre-assessment and continued with the main study. 22.81% (n=13) of the Afrikaans speaking participants did not pass the pre-assessment and therefore did not complete the data collection section.

Regarding the Sepedi speaking participants 142 complied with the selection criteria. 32.39% (n=46) of these passed the pre-assessment and continued with the main study, whilst the remaining 67.61% (n=109) did not pass the pre-assessment and did not participate in the main study. 67.61% of the Sepedi speaking participants not passing the pre-assessment were unexpected as the Sepedi speaking participants, during the

pilot, were able to pass the pre-assessment. . The possible reason for the failure of the pre-assessment may be that the participants might have been unfamiliar with the task of assigning emotion to another individual as contained in the vignettes. In addition, main study participants' teachers mentioned that they only work on emotions later in the school year. The criteria was also very stringent, if participants were not able to name one of the four emotions they did not pass the pre-assessment. These stringent criteria were deemed necessary to ensure that lack of knowledge of the emotions did not influence the main study results.

The 90 participants in the current study were typically developing 5:00 to 5:11 year-old Sepedi speaking and Afrikaans speaking children living in the Waterberg District in the Limpopo Province of the Republic of South Africa. The Limpopo Province is the fourth largest in the Republic of South Africa with a population of 5 273 642, the fourth largest population per province (Census 2001, 2003). Sepedi is the home language spoken by most (52.1%) of the Limpopo population as well as the home language spoken fourth most throughout the country. Afrikaans is spoken by a small portion (2.3%) of the Limpopo population, but is the home language spoken 3rd most throughout the Republic of South Africa (Census 2001, 2003).

In the current study there were 44 Afrikaans speaking participants, 22 boys and 22 girls and 46 Sepedi speaking participants, 23 boys and 23 girls. All participants were between 60 months (5:00 [yrs:months]) and 71 months (5:11 [yrs:months]) of age. Statistically there are no differences between the two language groups with regard to gender ($p = 0.1669$) but a statistical difference between the mean age of the two groups was seen ($p = 0.0003^*$) with the mean age of the Sepedi participants at 64.4 months and the mean age of the Afrikaans participants at 67 months. Results are presented in Tables 3.4.

Table 3.4. Equivalence of language groups in terms of gender and age

	Afrikaans	Sepedi	p-value	
Number of males	50% (n = 22)	50% (n = 23)	>0,9999	Chi square p value
Number of females	50% (n = 22)	50% (n = 23)		
Mean age	67	64.457	0.0003*	Satterthwaite T-test p-value

*if p<0.01, then significant at a 1% level

Despite the statistical difference between the mean ages of the two language groups, all participants were between 60 months (5:00 [years:months]) and 71 months (5:11 [years:months]) of age. Participants were all grade R learners.

3.9. Research assistant

A research assistant was employed for the Sepedi data collection. The assistant was a mother tongue Sepedi speaking lady. She completed high school and previously worked with children as a Love Life HIV/AIDS counsellor at schools.

3.10. Material and equipment

The following material was used:

- a. Letters to the principals of the schools requesting consent (Appendix D)
- b. Letters requesting informed consent from parents and parent questionnaires (English, Afrikaans and Sepedi copies of these letters and of the parent questionnaires are included in Appendices E1 to E3).
- c. Overlays (symbols used): 24 sixteen-matrix emotion overlays with the sixteen symbols previously discussed (Section 3.5.1). The order in which the symbols were arranged was random on each overlay. The randomizing was done with the randomizing feature of the Microsoft Excel 2007 computer program (Appendix V presents minimized versions of the randomized overlays).
- d. Intensity scale: a two-point intensity scale was presented on a landscape A4 page (Appendix S).
- e. Protocol: pre-assessment consisting of 4 emotion vignettes previously discussed in see section 3.5.4 (Appendices W1 to W3 contains the English, Afrikaans and Sepedi test protocols).

- f. Protocol: 24 vignettes previously discussed in Section 3.5.2 (Appendices W1 to W3: English, Afrikaans and Sepedi test protocols).
- g. Recording sheet: A recording sheet was developed to record the participant's answers (Appendix V).
- h. Tape recorder and audio tapes: All data collecting sessions were tape-recorded using a battery operated tape recorder, blank new tapes and batteries.
- i. Tokens: Each participant (whether they passed the pre-assessment or not) received a sticker as a 'thank you' token for participating in the study.

3.11. Procedures

This section presents a discussion of the general procedures (3.11.1.) and procedures for the collection of data (3.11.2.). Data collection took place within a period of one year, from October 2008 to October 2009. Each school was visited as many times as necessary in order to collect data from all the participants. Participants whose parents gave consent and who met the selection criteria were included in the study.

3.11.1. General procedures

In this section the general procedures are presented, including ethical issues, permissions from schools, the set-up of the venue and the final administrative procedures.

Ethical clearance was obtained from the Limpopo Department of Health and Social Development and the Ethics Committee of the Faculty of Humanities, University of Pretoria (Appendices A and B). The selected schools were subsequently either contacted telephonically or visited (where contacting schools telephonically was difficult) in order to set up an initial meeting. These initial meetings were held at the respective schools. At these meetings the intended study was briefly explained and the selection criteria presented. The schools were provided with a copy of the letter of permission received from the Limpopo Department of Health and Social Development and it was made clear that no one was under any obligation to participate in the study.

All of the schools that were contacted elected to take part in the study. The principal received a letter explaining the study, a form requesting consent (Appendix D) to

complete, as well as the letters and forms requesting consent to be distributed to the parents/guardians (Appendix E1 to E3). The venue and the furniture needed were discussed. An appointment date for the data collection was made.

On the day of data collection the researcher obtained the participants' returned consent forms and questionnaires from the class teacher. The questionnaires were checked to select the participants who complied with the selection criteria. These participants were seen for the data collection procedures. Each participant was seen individually in a separate, designated room. The researcher collected Afrikaans speaking participants from their classrooms, while the research assistant collected Sepedi speaking participants from theirs. The researcher, research assistant (with Sepedi speaking participants) and the participant went into the designated room and sat down. The questionnaire was separated from the form granting permission and was numbered with the participant's number. This was done to make sure that the participant's results could not be traced back to him/her, but that the correct biographical information could still be linked to the participant's results. The participant's number, gender, birth date and age was written on the pre-assessment answer form. If the participant passed the pre-assessment the pre-assessment answer form and questionnaire was stapled to the score sheet, but if the participant did not pass the pre-assessment, the pre-assessment answer form was stapled to the questionnaire and stored separately.

3.11.2. Data collection procedures

In this section the data collection procedures are presented. The process took between 5 (for participants who did not pass the pre-assessment) and 30 minutes (for participants who passed the pre-assessment and continued with the interview).

After the researcher, research assistant (in the case of the Sepedi speaking participants) and the participant took their seats, the participant was asked his/her name and the tape recorder was switched on, whereupon the researcher introduced herself to the Afrikaans participants, while the research assistant introduced herself and the researcher to the Sepedi participants. All sessions were recorded. The participant was asked his/her age and told that the tape recorder was switched on to check whether the researcher wrote down everything correctly.

The pre-assessment procedure followed. The introduction and four pre-assessment stories (Appendices W1 to W3) were told to the participant. If the participant was unable to indicate the emotion portrayed he/she was given a choice (Appendices W1 to W3). All four stories were told to the participant even if he/she did not answer the question on the previous story correctly. If the participant was unable to indicate any of the four emotions (happy, sad, afraid and angry), he/she was excluded from the study, thanked for helping the researcher, given a sticker and sent back to class.

Participants continuing with the procedure were informed that he/she would be listening to more stories and then be given the opportunity to match each story with a picture he/she thought went with the story. The overlay file (the file consisted of twenty four intensity scales and twenty four emotion overlays) was opened at the first intensity scale and the scale was explained to the participant. The participant was instructed that the small block meant 'just' and the big block meant 'very' (Appendices W1 to W3).

The protagonist was introduced to the participant as Sarie/Johan (Afrikaans speaking participants; Sarie is a girl and Johan a boy) or Lebo (Sepedi: speaking participants; Lebo can be either a girl or a boy). It was explained that the participant would hear about the protagonist and things that happened to him /her (Appendices W1 to W3).

The vignettes were read according to the protocol (Appendices W1 to W3). Whilst the researcher indicated on the intensity scale the researcher or research assistant asked the participant the equivalent of *If you were Sarie/Johan/Lebo, would feel 'emotion' or 'very emotion'?*, in which 'emotion' refers to either happy or sad or angry or afraid, depending on the vignette (Appendices W1 to W3). The participant had to indicate (point to) on the intensity scale if he/she thought Sarie/Johan/Lebo would feel 'emotion' or very 'emotion'. Participants who answered verbally were instructed again to indicate the intensity. The researcher indicated the participant's choice by circling the chosen intensity with a coloured pen on the score sheet (Appendix V).

The page was turned over and the participant was asked to indicate which symbol showed 'emotion'/'very emotion' (depending on the chosen intensity). The researcher facilitated scanning by pointing to each symbol on the overlay. The participant

pointed to the symbol he/she perceived to represent the 'emotion'/'very emotion' (depending on the intensity chosen). The researcher indicated the participant's choice with a cross on the miniature overlay on the score sheet. The researcher paged the overlay file to the next page (the next intensity scale) and the researcher or research assistant read the next vignette (Appendices W1 to W3). The researcher did all the recording of data on the score sheet and the previously described procedure was followed with all 24 vignettes for each participant.

After the completion of the above task the participant was thanked for taking part, received a sticker and was sent back to class. The tape recorder was switched off.

3.12. Reliability

3.12.1. Procedural integrity

In order to ensure that the data of the two language groups could be compared, it was extremely important to establish equivalence between the two processes. This was done, firstly, through the methodical translation of the protocol from Afrikaans to Sepedi as recorded in Table 3.2. Secondly, care was taken in the choice and training of the research assistant. The aims of and the reasoning for the study were discussed with her and the protocol was explained. The research assistant was given the opportunity to read through the protocol and ask clarifying questions. The research assistant took the protocol and overlays home and practised on neighbourhood children. The researcher and research assistant visited the school attended by Sepedi participants. This school assisted in the developing of material and also tested learners as practise. The procedures were further piloted in Afrikaans and Sepedi and necessary changes made (Table 3.3.).

To establish whether the above steps were adequate, the procedural integrity was tested. Forty percent of the audio recordings were rated for reliability by an Afrikaans and a Sepedi rater. The Afrikaans rater was a qualified occupational therapist with a PhD and an Afrikaans home language speaker, while the Sepedi rater was a qualified speech-language therapist and audiologist with a Masters Degree and a Sepedi home language speaker.

The raters each received a rating form and on it had to indicate whether the researcher/research assistant followed the protocol (Appendix X). A score out of 80 was given for each participant and an average for each language group was calculated using the following formula:

$$\text{procedural integrity scores for participants} = \frac{\text{sum of scores}}{\text{no. of participants}} \times \frac{100}{1}$$

The procedural integrity scores were 99% for both the Sepedi and Afrikaans data, indicating that both the researcher and research assistant followed the protocol, making it possible for the two groups to be compared.

3.12.2. Integrity of data collection

Each overlay and intensity scale was numbered to ensure accurate recording of data. During the data collection sessions the researcher recorded each participant's responses on an individual score sheet (Appendix V). Responses were subsequently transferred from each individual's score sheet to a collective sheet. These rewritten scores were double-checked by the researcher and a second person. The researcher captured the data from the collective sheet to a Microsoft Excel 2000 book. The data captured was compared to the collective sheet by the researcher and a second person. This procedure was necessary to make sure that no errors occurred during the data capturing process. Any transfer errors were corrected and the process was repeated until no more transfer errors were found.

3.13. Analysis of data

The data was analysed with the help of a statistician from the Department of Statistics, University of Pretoria. The statistical packages used were SAS and BMDP. Table 3.5. gives a brief overview of the data and the procedures used to analyze it.

Table 3.5. Procedures used to analyze data.

Description of data	Statistical procedure that was used
Comparison between the Afrikaans and Sepedi language groups with regard to ages	t-test
Comparison between language and gender	Chi-Square
Statistical comparison between Afrikaans and Sepedi speaking participants with regard to symbols selected to represent emotions.	t-test
Comparison of expected and unexpected choices of graphic symbols to represent the basic emotions per vignettes across language groups.	Chi-square
Comparison of intensity ratings of vignettes in relation to basic emotions across language and gender groups.	t-test

3.14. Summary

The current chapter presents the main aim as well as the four sub-aims of the study. The material used in the study as well as the development of this material is discussed in depth. The pilot study is presented in table form, indicating the objectives of the pilot study as well as necessary changes made. The participants, schools as well as the selection criteria are discussed. In the final sections the procedure and the data analysis are presented.