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Chemistry in Sepedi: Translation strategies for success

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CHAPTER 3: Research design and methodology

3.1 Setting of the study

This study involves two sets of data: qualitative data and the comparative analysis of texts. The qualitative data is based on the investigations into language attitudes conducted at four non-randomly selected secondary schools in the Limpopo province. The participants in this study were educators who are teaching Chemistry at grade 12 level and the learners who are doing Chemistry. Since the focus is on attitudes towards examination papers, which were translated from English into Sepedi, selected schools were those that have English, Chemistry and Sepedi in their curriculum. The study involves both urban and semi-urban areas for representivity. The data gathering process took place from 26 July 2004 to 03 August 2004 in the sampled secondary schools. This was one week after the reopening of schools after the Winter recess. The researcher collected data at four secondary schools, two of them were public schools and the other two were private schools in the Limpopo province. As the interviewees were learners and their educators, the appointments for conducting interviews were made through the school principals.

The comparative analysis focuses on the comparison of the translated text and its original so as to point out the translation strategies utilised by the translators, and the investigation of the effects of these translation strategies on the target text and its function. The extraction method was used in extracting terms for analysis, in discovering the translation strategies used in the translation of *Matric Physical Science: Questions and Answers*.

3.2. Definition of concepts

3.2.1. Learners

The word ‘learner’ refers to any person who receives or who must receive education. These people are mostly between the ages of 13 to 18. In this research the concept learner will be used to refer to those who are pursuing education at secondary or high school level (to be discussed below). According to Duminy and Dreyer (1983: 48), learners at secondary school level are in a transitional stage, semi-child, semi-adult.

3.2.2. Secondary school

The term ‘secondary school’ refers to a post-general education and training band of schooling. It is a formal schooling providing learners with secondary education (Leshuti, 1988: 8). According to Bengu (1997: 3) learners in secondary schools are not supposed to be of specific age. Secondary schools usually cater for classes from grade eight (previously Standard six) to grade twelve (previously Standard ten). In most cases, a learner will spend five years in secondary education.

Bengu (1997: 8) continues to argue that secondary school is a comprehensive institution, which prepares a learner for college, university, technikon and trade and industry. The instruction in secondary schools is usually based on developing the learners’ skills, critical thinking, attitudes and understanding.

3.2.3. Language attitudes

There are two schools of thought, which have been advanced about the nature of attitudes; the behaviorist and the mentalist.

The behaviorist school of thought, on the one hand, argues that attitudes are found in the responses people make to social situations. For the behaviorists one can observe, tabulate and analyse overt behavior. For example, what people say and how they respond to questionnaires and interviews. These are the methodological approaches that were used in this research study.

On the other hand, the mentalist theory believes that attitudes are a state of readiness, an intervening variable between stimulus affecting a person and his/her response (Fasold, 1984: 147). In addition to this, Williams (1974: 12) describes attitude as "an internal state aroused by stimulation of some type which may mediate the organism's subsequent response". For the mentalists, the focal point is how individuals respond to various stimuli.

Dyers (1997: 24) describes language attitudes as follows:

> Language attitudes can be defined as the positive or negative emotions experienced by people when they are faced with a choice between languages in a variety of situations or are learning a language.

The dominant use of some languages in various domains has created attitudes towards other languages. Language is very important because, according to Langacker (1967: 01), it "permeates our thoughts, mediates our relations with others and even creeps into our dreams". In an article written by Ndhlovu that was published in *The Star* (2005:19), she says" a language speaks of culture, culture speaks of identity, identity is about belonging, and belonging gives a person a sense of pride". In education, languages are very critical because they can affect the processes of learning and teaching.

3.3. Qualitative data: Locating and entering the research site

The fieldwork was conducted in Limpopo Province (former Northern Province) because it is predominantly a Sepedi-speaking area at 52,7 percent (see page

5). In Limpopo province Sepedi is the dominant language and there is a very limited number of non-Sepedi speakers in the classrooms. The data gathering process took place from 26 July 2004 to 03 August 2004 in the sampled secondary schools. This was one week after the reopening of schools after the Winter break. As interviewees were secondary school learners and educators, the appointments for conducting interviews were organised through the school principals. The specific areas where the fieldwork was conducted are Mphahlele and Lebowakgomo. The significance of the physical location of the participants in the way Sepedi is perceived and used plays a role in determining their language attitudes. Perceptions may differ with regard to the location of respondents. Mphahlele is a semi-urban area where the majority of schools are governmental and most learners come from lower to middle-income families. Most people switch codes when they speak and they might not have a problem with the translated texts. Lebowakgomo is an urban area and many children come from middle to upper class families. Learners in urban areas might be more exposed to current debates regarding language (s) as compared to their rural or semi-urban counterparts.

According to Kamuangu (2001: 34), conducting qualitative research also involves not only defining sites, describing participants and specific ways utilised to gather and analyse data but also, and above all, mediating “intrusion” and defining the researcher’s role in order to accommodate ‘behaviour’ and create or develop interpersonal relationships, conducive to effective and manageable fieldwork in an unfamiliar site.

3.3.1. Observation method

According to Borg and Gall (1983), the observation method is the primary way of collecting data whereby the researcher may choose to be a participant or non-participant observer in a particular research study. With this observation method, researchers “pay attention, watch, and listen carefully. They use all the senses,

noticing what is seen, heard, smelled, tasted, or touched" (Neuman, 1997: 361). In this study, the researcher was involved in discussions about language particularly striving to establish the learners' attitudes towards Sepedi as medium of instruction.

The researcher intended to observe the linguistic situation in secondary schools and the response of learners and educators with regard to the use of indigenous languages, especially Sepedi, in education. The intention in this study was to observe people' attitudes, specifically learners and educators, towards translated examination papers which will in turn mean using Sepedi as medium of instruction. Field notes were also taken during observations. According to Fetterman (1989) cited in Neuman (1997: 363), good notes are the bricks and mortar of field research.

3.3.2 Focus group interviews

A focus group interview is an interview in which instead of participants being interviewed individually, they are interviewed as a group. According to Gall et al (1996: 301), in this type of interview, the researcher addresses questions to a group of participants that have been specifically chosen for that purpose. For Gay (1996: 224), in focus group interviews respondents share their opinions, and the aim is not to debate, argument or consensus, but rather to express ideas and feelings. According to Neuman (1997: 253), focus groups are useful in exploratory research or to generate new ideas for hypotheses, questionnaire items, and the interpretation of results.

For this study, groups of learners from four different secondary schools in urban and semi-urban areas of the Limpopo province were selected non-randomly for group interviews. A total of sixteen learners (four learners per school, that is two girls and two boys) were sampled for this type of interview. The interviews were arranged with the school principals who then introduced the researcher to the

learners and their educators in order to create a conducive environment for participation.

The main goal of the interviews was to gather information and build a picture of understanding the personal opinions of the interviewees towards the use of Sepedi in learning and teaching. It was also to detect whether or not the translated examination papers improve the learners' attitudes towards the use of Sepedi in scientific contexts. Data gathered through this method was useful in the sense that more relevant information and insights become available to the researcher as a result of responses furnished by the interviewees. The interviewer is able to clarify any vague information immediately. According to Pirow (1990), the main disadvantages of this technique are that "it is expensive, time-consuming and it includes interviewer bias" (Pirow, 1990).

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3.3.3 Face-to-face interviews

A face-to-face interview is an interview in which respondents are interviewed separately in order to access their opinions and hidden assumptions. Interviews are not merely used for gathering data, but they are also used to ascertain the interviewee's perspective on the situation. An interview schedule is prepared and contains a limited number of questions, which cover the key areas of which information must be gathered. Each interviewee is asked those questions. Face-to-face interviews were conducted with the educators, as it was apparent that in most schools there is one Chemistry educator and where there are two educators one teaches Physical science and the other teaches Chemistry. There was no need to conduct group interviews, as was possible with the learners. This type of data collection method enables the researcher to get in-depth information.

The interview questions were formulated following the guidelines from Patton (1990) and Freeman (1998) such as:

- Feelings - what a person feels, emotional responses and reactions, and knowledge
- Behaviour/personal experience
- Opinion or values – what a person thinks or believes

The interview schedules prepared for the in-depth interviews containing a limited number of semi-structured questions addressing the research question are provided in Appendix A. Open-ended or unstructured questions were used with this type of method. The open-ended questions were particularly used to give respondents more freedom to provide their answers. The respondents were free to express themselves in their own words. The interviewees were asked these questions. With this method, the interviewer can make follow-up questions and probe responses, which is impossible with questionnaires. This type of technique also allows the respondents to expand on their responses.

The advantages of using in-depth interviews are that they allow the interviewer flexibility, promote elaboration and discussion, and provide an opportunity to probe (Pirow, 1990). They also allow for a relaxed environment conducive to the in-depth discussion of complex topics. According to Neuman (1997), the advantage that the researcher using this method has over other researchers is immersion. But with immersion, comes bias and subjectivity.

The results of the interviews were tape-recorded and transcribed, and additional field notes were taken to avoid accidents that might happen with the tapes.

3.3.4 Questionnaires

A questionnaire is a method used to gather data in which the researcher prepares questions and asks the respondents to respond to them by writing down their answers. Unlike the interview schedule where the researcher reads the questions to the respondents, participants in questionnaires have to read the

question themselves and “respond by writing down their answers to elicit their reactions, beliefs and attitudes (Macmillan and Schumacher, 1993: 42). The questionnaires were administered to the learners and their educators from both urban and semi-urban secondary schools in the Limpopo province. An example of a questionnaire is attached (Appendix B).

The reason for using varying techniques of data collection was to increase the trustworthiness of the results. In collecting data, I used methods presented by researchers such as Knobel and Lankshear (1989) and Freeman (1998) who address the questions of ‘representativeness’, ‘validity’ and ‘reliability’. Representativeness focuses on whether particular groups being investigated actually represent wider groups. In this case, it must be noted that the selected secondary schools represent a small sample. Validity refers to the extent to which the materials gathered represent an accurate picture of what is being studied. Reliability addresses the questions of whether or not the data are the products of the techniques used.

3.4 Limitations of the research

The qualitative research study is limited in its scope and cannot be generalized to a bigger population than its sample. The research was conducted using a limited number of schools and participants and thus the results cannot be generalized to all schools. Each school has its own culture and policies.

Qualitative research using non-probability judgment sampling method that makes use of interview technique to collect data, always suffers from the subjectivity of the researcher.

3. 5 Method of term extraction and Translation equivalents

To investigate the translation strategies that were used in translating these examination papers, an extraction method was used. This involves extracting simple word terms, nouns and phrases and their translation equivalents, and referring to strategies or processes outlined by Baker (1992) so as to discover which strategy was used. This suggests that in a broad systemic framework the method of comparison between the source text (s) and target text (s) has to take into account a complex network of relations between, on the one hand, the **source text** and the political, social, cultural, literary and textual norms and conventions of the **source system**, and on the other hand, the target text (s) and the political, social, cultural and textual norms and conventions of the **target system** (Kruger and Wallmach, 1997: 123).

The following are examples of the type of comparative analysis of source- and target-language text portions that were carried out in my research. These were taken from Ntake and Pare's *Questions and Answers: MATRIC Physical Science*.

English	**Sepedi**
Atom	Atomo
Bromine	Bromine
Crystalline	Tša khristale
Dissolve	Tologa
Hydrogen suphide	Salfide ya haetrotšene
Oxidation	Oksitšenefatšo
Salt bridge	Leporogo la letswai
Solution	Setološwa
The emf of the cell	Kgapeletšo ya tlhohleletšo ya mohlagase (ktm) wa lelahle

The examples above were extracted from the 1996 and 1977 Chemistry question papers written by the Higher Grade learners and the reason for choosing these papers is that 1996 was the time when the single national examination system was introduced.

Some paragraphs and phrases were also extracted to determine whether certain terms could be understood from the context. For example,

English	**Sepedi**
Pure water is neutral because:	Meetse a hlwekilego a magareng ka gobane:
A. Water molecules are polar	A. Molekule wa meetse o na le diphoulo
B. [H+aq] = [OH – (aq)]	B. [H+aq] = [OH – (aq)]
C. It is slightly ionised	C. A ayonafetše gannyane
D. The concentration of H+(aq) ions and OH – (aq) is very small	d. Tlalo ya diayone tša H+(aq) le OH – (aq) ke e nnyane kudu

The next step was then to identify the various translation strategies utilised by Ntake and Pare in finding suitable translation equivalents for the English terms identified. There are various translation strategies, which according to Baker (1992) are often used by professional translators in solving various types of problems of non-equivalence at word level (refer to page 31).