

## CHAPTER 5

# THE METHODOLOGY OF INVESTIGATION AND THE DISCUSSION OF THE EMPIRICAL AND STATISTICAL CONSIDERATIONS

### 5.1 INTRODUCTION

The purpose of this chapter is to discuss the methodology of the empirical investigation and statistical data analysis. The data collection technique, the sample and the research design are described. The following chapter discusses the data analysis procedure.

The basic aim of this research was to investigate whether teachers' assessment of learners' work could have a profound influence on the culture of learning in schools. Several aspects of teachers' assessment of learners' work have been explored, and the contribution of these to the culture of learning. All the previous chapters probed this problem through the study of literature. This literature review has established a sound theoretical framework for the empirical investigation.

This chapter describes the quantitative research applied to confirm or reject empirically and statistically the following hypotheses:

- Hypothesis 1.** An assessment system built upon the traditional evaluation methods has a detrimental effect on the development of a culture of learning in schools.

**Hypothesis 2.** Assessment strategies built upon an Outcomes-based assessment policy are more effective in contributing toward the development of a culture of learning in schools.

The empirical investigation also tests the following Null hypothesis:

**Hypothesis 3.** No distinction can be drawn between teachers' perceptions regarding the impact or influence of traditional evaluation methods and teachers' perceptions regarding the impact or influence of Outcomes-based assessment strategies on the culture of learning in schools.

The quantitative approach used to address these hypotheses involved the following:

- Development of a survey questionnaire based on the findings of the literature study;
- Design and execution of the survey questionnaire;
- Data analysis and interpretation.

The development, design and execution of the survey questionnaire are described in detail in this chapter, chapter 5. Chapter 6 discusses data analysis and interpretation of the results of the survey.

Traditionally quantitative research attempts to collect data in a number of ways, but its collection typically involved structured interviews, postal questionnaires, standardized tests of performance or the use of attitude inventories (Scott and Usher, 1996:55). Seeing that this research investigates teachers' assessment of learners' work and its influence on the culture of learning, data were collected from Teachers, Heads of Departments in schools, Deputy Principals and Principals. These individuals were selected as they are responsible for carrying out assessment policy and practices at school level, and they practice assessment of learners' work throughout their professional careers.

The data were collected from these officials through postal questionnaires, which is one of the typical strategies of collecting data in quantitative research. These data were collected in order to compare the theory and data for the empirical investigation.

The following sections describe the research sample, and the procedures applied in the collection of data for the empirical investigation.

## **5.2 THE DESCRIPTION OF THE RESEARCH SAMPLE**

The researcher probes the problem that assessment of learners' work has been taking place in an educational setting, but has yielded little positive influence on the culture of learning, mainly because it was too judgmental, as indicated in chapter one. Therefore the focus of this investigation was to establish the perceptions of teachers with regard to the association between assessment strategies and the promotion of a culture of learning amongst learners.

Merriam (1998:60) is of the opinion that, once the general problem has been identified, the task becomes to select the population from which the study could be conducted. In this study the researcher regarded Teachers, Heads of Departments, Deputy Principals and Principals as the target population. These individuals were selected as they have been using assessment of learners' work throughout their teaching careers.

Robinson and Levin (1997:23) indicate that it is usually not possible to deal with the whole of the target population, one must identify that portion of the population to which one can have access – called the accessible population. This is confirmed by Gall, Borg and Gall (1996:134), who reason that a researcher is generally not able to access all of the target population, particularly if it is a large population. So for practical reasons an accessible population needs to be identified. The identification of an accessible population is usually influenced by the time and resources of the researcher (Ary, Jacobs and Razavieh 1985:139). Due to such limitations, the researcher in this study only

included and identified Gauteng Department of Education teachers and Mpumalanga Department of Education teachers as the accessible population for this study.

The sample for this study was thus selected from these two provinces. According to Ary, et al (1985:139) sampling is indispensable to the researcher. Usually the time, money and effort required do not permit a researcher to study all possible subjects of a population. Furthermore, it is generally not necessary to study all possible cases to understand the phenomenon under consideration. Sampling comes to the researcher's aid by enabling researchers to study a portion of the population rather than the entire population.

### 5.3 RESEARCH SAMPLING PROCEDURES

Scott and Usher (1996:55) state that researchers usually draw a sample or samples from the accessible population. The accessible population represents the population from which the researcher would like to generalize the findings of investigation. It is therefore extremely important that the individuals included in the sample constitute a representative cross section of individuals in the population.

Rudduck and McIntyre (1998:47) also confirm that the research sample should reflect a true representation and reflection of the universum in which the researcher can infer, deduce and generalize the findings of the investigation. Since sampling is a critical component of research, it needs to be done very carefully, since the sample population needs to reflect the pertinent characteristics of the population a researcher may wish to speak about, in order to summarize quantitative research results (Thomas 1998:220).

The accessible population of this study is spread out in two provinces. As a result it would be very difficult, if not impossible, to list all the teachers of those provinces and select the sample among them. In addition, it would be a very expensive undertaking to study a sample that is scattered all around these two provinces. Ary, et al (1985:149) suggest that it is more convenient to study subjects in naturally occurring groups or clusters. As a result, the researcher selected one region from Gauteng Province - the

Northern Region, and selected five districts from that region, namely North 1, North II, North III, North IV and North VI. These five districts are close to each other and form a cluster, see map 5.1 on page 128. In Mpumalanga Province the researcher selected the Eastern Highveld Region, and took five districts namely Eerstehoek, Ermelo, Standerton, Witbank and Moretele. These five districts are close to each other and form a cluster, see map 5.2 on page 129. All these districts from both regions have urban and rural schools, which maintain the pertinent characteristics of teachers as the population for this study. This sample population has also used assessment of learners' work throughout their careers, and they have been trained by both Provincial and National Departments of Education with regard to Outcomes-based Education policies of assessment.

The data concerning teachers' perceptions about learners' assessment and its influence on the culture of learning drawn from this sample population will not be analyzed and described in order to get the results of these two provinces inputs only. Arkava and Lane (1983) in De Vos (2001:191) maintain that a sample population is the element of the population considered for inclusion in the study. Alternatively it can be viewed as a subset of measurements drawn from a population in which researchers are interested. Therefore the sample population from these two provinces will represent the entire population of this study. This shows that the researcher was interested in describing the sample not primarily as an end in itself, but rather as a means for explaining teachers' perceptions about assessment of learners' work in schools and its influence on the culture of learning.

# 5.1: For Gauteng Province

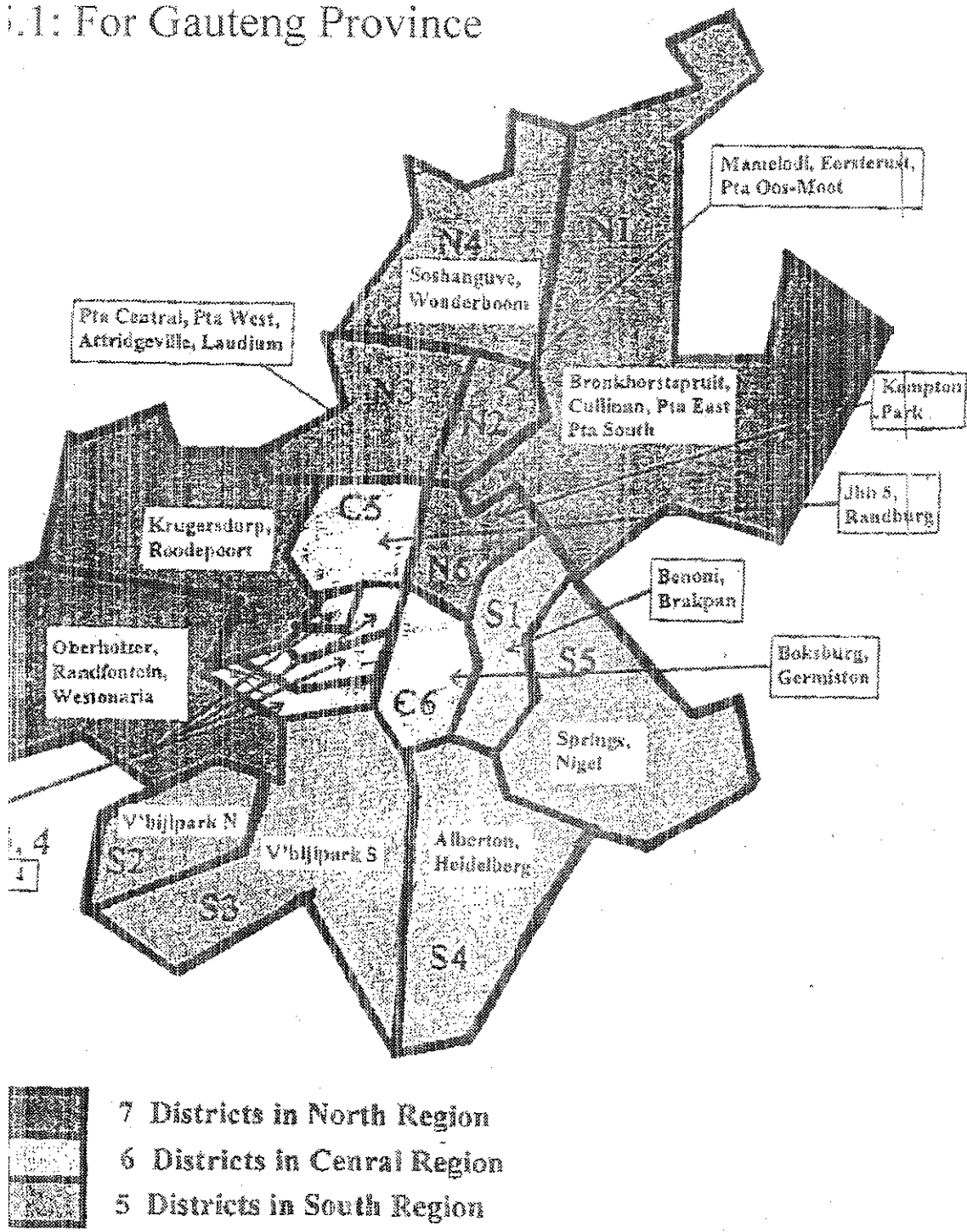


Figure 5.1 Map showing the regions within Gauteng Province



# 5.2

## Mpumalanga Province

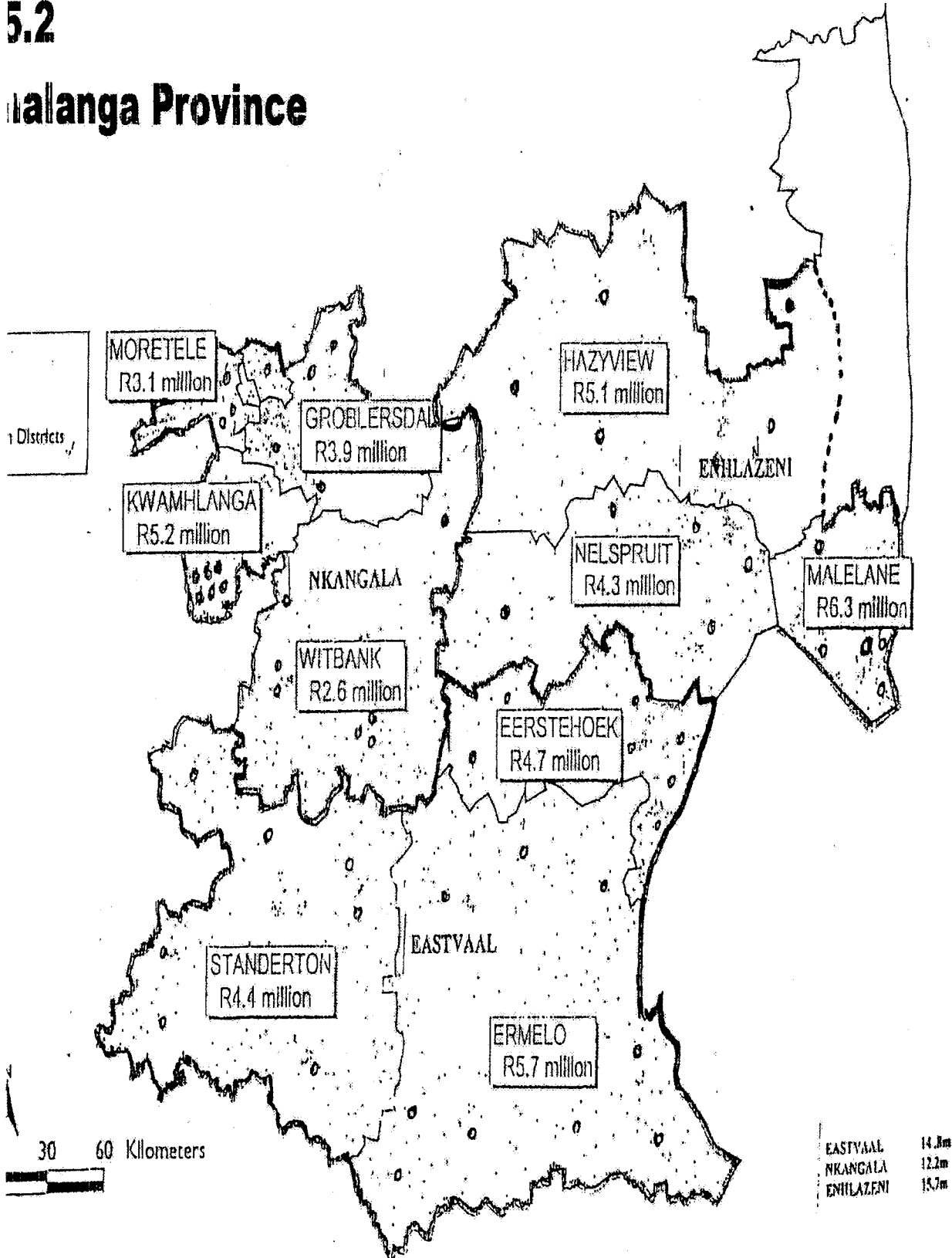


Figure 5.2 Map showing the regions within Mpumalanga Province

The researcher was provided with a list of schools and number of teachers from each district of these regions. The number of teachers was so large that the researcher could not list all its members for the purpose of drawing a sample. The researcher solved this problem by taking 20% of the teachers in each district and included all these teachers in the sample, see table 5.3 and 5.4. This kind of probability sampling is referred to as cluster sampling since the unit chosen is not an individual but a group of individuals who are naturally together. These individuals constitute a cluster in so far as they are alike with respect to characteristics relevant to the variables of the study (Ary, et al 1985:144).

Cates (1985:60) and Charles (1988:158) postulate that cluster sampling is the method preferred and employed by researchers when it is more feasible to select groups of individuals than individual subjects to be included in the sample. Furthermore Cates (1985:60) states that when such a group is included as a sample, it is often referred to as an intact group, since the research takes the group intact, exactly as it exists, with all its inherent patterns of characteristics and behaviors. In so far as they are alike with respect to characteristics relevant to the variables of the study, this will also validate the collected data and findings. Having selected the sample, the next step was to collect the data through questionnaires as the selected quantitative research strategy.

**Table 5.3 Distribution Of Schools And Teachers In Gauteng Department Of Education. Northern Region**

DISTRICTS	NUMBER OF PRIMARY SCHOOLS	NUMBER OF SECONDARY SCHOOLS	NUMBER OF COMBINED SCHOOLS	NUMBER OF TEACHERS	NUMBER OF TEACHERS INCLUDED IN THE SAMPLE
North One	102	19	7	1 656	330
North Two	64	22	13	1 158	230
North Three	95	50	25	3 248	648
North Four	79	36	7	2 799	558
North Six	72	25	16	2 201	440
Total	412	202	68	11 062	2 206

The number of teachers included in this research sample from the Gauteng Department of Education: Northern Region was 2 206.



**Table 5.4. Distribution of Schools and Teachers in Mpumalanga Department of Education, Eastern Highveld Region**

DISTRICTS	NUMBER OF PRIMARY SCHOOLS	NUMBER OF SECONDARY SCHOOLS	NUMBER OF COMBINED SCHOOLS	NUMBER OF TEACHERS	NUMBER OF TEACHERS INCLUDED IN THE SAMPLE
Eerstehoek District	100	32	25	2 133	426
Ermelo District	231	23	39	2 575	514
Moretele District	126	36	19	2 083	416
Standerton District	253	33	33	3 001	600
Witbank District	171	33	32	2 541	508
Total	881	157	148	12 333	2 464

The number of teachers included in the research sample for Mpumalanga Department of Education in the Eastern Highveld region was 2 464.

#### **5.4 THE CONSTRUCTION AND CONTENT VALIDATION OF THE QUESTIONNAIRE.**

In this study the content validity and reliability of the questionnaire was verified by presenting it to professors and lectures in the Faculty of Education for their evaluation regarding different identified aspects of learners' work and its influence on the culture of learning. They agreed that the items in the questionnaires were representative of the theory. They also agreed that the language used in the questionnaire was on the appropriate level of understanding of teachers who answered the questionnaires.

A questionnaire is an instrument that attempts to obtain comparable data from all members of a population or sample because the same questions are asked to all research participants (Gay and Airasian 2000:280). Again Gay and Airasian (2000:282) maintain

that a questionnaire should be attractive, brief, and easy to fill out. A researcher should carefully plan its content and format. A sloppy, crowded, misspelled, and lengthy questionnaire turns off respondents. Hence the research may yield few responses from the participants. The researcher should include items and questions that have been thought through properly and that directly relate to the topic and objectives of the study (Gay and Airasian 2000:282; McMillan and Schumacher 1997:253).

Masitsa (1995:258) refers to data as facts or information about something which is used in deciding or discussing something, or as a basis for inference. It is usually the form of facts or statistics that one can analyze or use for doing further calculations. It is information organized for analysis or used as basis for decision. Therefore it is imperative for quantitative research to collect data that will enable the researcher to statistically quantify the data in order to confirm a theoretical framework, which has been formulated. This is in agreement with Anderson, et al (1994:109) who state that the researcher seeks data to confirm theory.

The researcher has constructed a questionnaire as an instrument to draw data from the sample population. Keeves and Lakomski (1999:125) indicate that some attention must be given to the validity question – that is, whether the questionnaires do really measure what they are supposed to measure. This is why Ary, Jacobs and Razavieh (1985:357) argue that the most obvious type of ensuring validity of questionnaires is that the theoretical assumptions contained in the literature have to be contained in the questionnaires. If this is done the questionnaires will have a higher content validity. For this reason, the researcher thoroughly explored the hypotheses of this research study as referred to in section 5.1, and also explored the theoretical framework which has been supplied by literature in the preceding chapters. The question items therefore measure the precise variables under investigation and probe the crucial issues in depth (Hammersly 1993:20).

The first part of the questionnaire was designed to obtain personal information about the surveyed population. Respondents were requested to state their personal information by crossing next to the given and appropriate biographical information such as the province, gender, age, teaching experience, highest educational qualification, field of specialization, teaching phase, medium of teaching, type of school, post position, and

how and what information is obtained about assessment of learners' work in schools. This information was needed in order to ensure that all participants are professional teachers and also that they are involved in teaching and learning activities.

The researcher has built 84 questions evolving around 3 main subject areas, which were explored in the literature in the preceding chapters. The first subject area related to different aspects of assessment and the influence of these on the culture of learning. This subject area revealed the following key issues:

- Assessment as an integral part of teaching and learning;
- Teachers' understanding and conceptualization regarding assessment as an instrument to be used to promote the culture of learning in schools; and
- Learners, principals and parents involvement in assessment as a viable mean of improving and developing the culture of learning in schools (See chapter 2).

Consequently 19 question items were constructed. These items are listed in appendix 1, under Section B, and start from item V15 to V33. These items were designed specifically to elicit teachers' responses regarding the above major issues on assessment. Most of the content of these items emanated specifically from chapter 1 and 2 of this study, seeing that the literature revelations of these chapters assembled enormous data regarding assessment and its influence on the culture of learning.

The second subject area extracted from the literature in chapter 3 is traditional evaluation and its influence on the culture of learning. In terms of this subject area, the following issues emerged from the literature:

- Traditional evaluation was a teacher-centered method;
- Traditional evaluation was an examination-driven and product-oriented method;

- In traditional evaluation, teaching tools such as homework, classwork, assignments and tests were used to take judgmental decisions about learners' work;
- Traditional evaluation results separated well-doing learners from the poorly-doing learners; and
- Traditional evaluation methods were separable entities from teaching and learning activities

Twenty-six items were built from these data, corresponding to V34 to V59 under Category C, Appendix 1. The researcher believed that these questions could enable teachers to express their views or perceptions about traditional evaluation of learners work and its influence on the culture of learning.

The final subject area examined in the literature in chapter 4, relates to Outcomes-based Assessment strategies and their influence on the culture of learning. The following issues were highlighted:

- Assessment in OBE is regarded as an integral part of teaching and learning;
- Outcomes-based assessment is learner-centered;
- Outcomes-based assessment assess learners' knowledge, skills and values of the learnt content;
- Outcomes-based assessment use teaching tools such as portfolio, test and examinations to enable all learners to achieve learning outcomes;
- Outcomes-based assessment assist individual learner to perform according to his/her own pace and potential;
- Outcomes-based assessment use continuous assessment to enable learners to think constructively, critically to derive enjoyment in a learning environment; and

- Outcomes-based assessment use assessment criteria, performance indicator, range statement and learning outcomes, to enable learners to master standards of various learning areas.

Thirty -seven questions of the questionnaire evolve around these ideas and information, covering questions V60 to V98 under Section D, Appendix 1. These are questions that could help teachers to express their perceptions regarding OBE assessment strategies and their influence on the culture of learning.

Thomas (1998:162) asserts that questionnaires are designed to reveal peoples' attitudes through the opinions they express. Hence understanding, clarity of language and the use of simple concepts in questionnaire construction need to be given serious attention in order to enhance the reliability of responses. To maintain the reliability of these questionnaires, the researcher constructed questions around two variables: the assessment of learners' work, and the influence on the culture of learning. All respondents involved in this investigation answered questions based on these two variables, to help balance the consistency of questionnaires. This is supported by Ary, Jacobs and Razavieh (1985:163), who state that the consistency of the questionnaire is one procedure for assessing the reliability of questionnaires or interviews.

To further increase the reliability and validity of the data collection processes, the researcher consulted the Statistical Consultation Service of the University of Pretoria and other experts in Educational Research to improve the technical quality of the data collection process. To further support the foregoing, Vockell and Asher (1995:92) cite that it is always an advantage to have someone else look at the questionnaire or take the test before the questionnaire is taken to the target audience.

#### **5.4.1 Types Of Questionnaires**

The first section of the questionnaire covers the demographic characteristics of the respondents. Thomas (1998:162) is of the idea that biographical information is used on the assumption that its categories may be associated with the study's target variables. The researcher determined the relevant demographic characteristics based on the

purpose of the study. Houser (1998:99) notes that relevant demographic characteristics potentially influence the outcome or dependent variable. Hence demographic characteristics were chosen that were relevant for the purpose of this study.

The main objective of this investigation was to assess teachers' views about assessment of learners' work and its influence on the culture of learning. To examine this empirically, a questionnaire using a five point scale was drawn up, in order to solicit teachers' views with regard to this study. In order to secure the content validity of the questionnaire, the researcher reviewed numerous studies used this approach, and their findings were taken into consideration when constructing the research questionnaire. These aspects are discussed in more detail below.

In a research study of this nature, the questionnaire usually contains questions aimed at getting specific information on a variety of topics. There are two types of questions - either open-ended questions or structured format questions (Gall, et al, 1996:140). The focus of this research is on the quantitative data collection. Vockell and Asher (1995:122) cite that quantitative research studies generally design questions in a structured format, so that quantification and analysis of the results may be carried out efficiently. The quantitative researcher uses the strategy of structured questions when they have already identified target behaviors and in some way or other have assigned numeric values to them.

The structured format has been used in this research study because it has the advantage of requiring all the respondents to answer within the same framework. This means that the researcher always knows how each respondent felt about issues on the questionnaire. Another added advantage of structured questions is that they are easily adapted to computerizing scoring (Vockell and Asher, 1995:129-130).

However, since factor analysis was to be used as the statistical procedure applied in this empirical investigation, structured question items which belong to identified factors of variables would be more appropriate for this investigation, since factor analysis distinguishes common factor variance from unique variance (Kachigan 1991:238). The researcher therefore decided to class the structured items under four categories. This



would allow the factor analysis to reveal and investigate by identifying factors that could be defined reasonably well by the actual variables.

The questionnaire used in this study was therefore structured as follows to ensure content validity. The first twelve item statements probed the biographical information of respondents in order to ensure that only teachers respond to this questionnaire (see appendix 1, Section A). The second nineteen item statements looked at teachers' responses with regard to assessment of learners' work and its influence on the culture of learning (see appendix 1, Section B). The third category of twenty six item statements considered teachers' views regarding traditional evaluation of learners' work and their influence on the culture of learning (appendix 1, Section C). The fourth category of thirty seven item statement considered teachers' views about Outcomes-based Education policies of assessment and their influence on the culture of learning .The researcher used a funnel approach in patterning the question sequence, seeing that a funnel approach helps researchers to begin with a very broad query, then progressively narrows the scope of questions in order to address specific points (Thomas, 1998:172).

#### **5.4.2 Scaling Of The Questionnaire**

Houser (1998:15) cites that quantitative research is defined as research that is based on the measurement and quantification of data. Whatever the dependent variable of interest in quantitative research, there must be a way to transfer it into a numeric value. This is why the researcher in this study has used a five-point rating scale for each question, so that respondents would rate each question based on this five-point scale. This scale is known as the Likert scale - the essential component is not the five points on the scale but the continual ranging from "strongly agree" to "strongly disagree" (Vockell and Asher 1995:131). Andrich (1995:73) in Masters and Keeves (1999:48) is of the view that the five-point scale has enough categories to enable the respondents to have a large capacity to discriminate. It also has a neutral, undecided or uncertain category which people can select if they do not understand the question, or are genuinely undecided, neutral or uncertain. However this category usually does not attract respondents, unlike those categories found on either side of it, which are "strongly agree", "agree" and "disagree" and "strongly disagree" which are the categories used to obtain the measures (Masters and Keeves, 1999:120).

Respondents were requested to give the proportion of their total views with regard to teachers' assessment of learners' work and its contribution to the culture of learning on a five-point scale. Then they were expected to rate their views based on this scale. Rating on one would mean "strongly disagreed" with that aspect of assessment, rating on two would mean "disagreed" with that aspect of assessment, rating on three would mean "uncertain" with that particular aspect of assessment, rating on four would mean "agreed" with that aspect of assessment and rating on five would mean "strongly agreed" (see appendix 1). All respondents received the same questionnaire containing the same five-point rating scale. This was done in order to maintain the validity and reliability of the instrument.

The table below is an example of a five – point scale questionnaire.

Strongly disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

The advantages of using the Likert scale in this study were that it keeps the respondent on the subject, and it is relatively objective and easy to complete and to tabulate for statistical analysis (Best and Kahn, 1993:231).

## 5.5 STATISTICAL PROCEDURE APPLIED IN THE EMPIRICAL INVESTIGATION

The ultimate purpose of conducting a quantitative study is to test hypotheses, and this involves using statistical methods that allow the researcher to infer from data gleaned from the sample information that can be applied to the larger population. Inferential statistics are methods that allow the researcher to achieve this goal (Houser, 1998:173). Inferential statistics are important as statistics are used to make inferences concerning the sample population and the findings.

The researcher formed three constructs to cluster the variables which showed commonalities. These variables were clustered under the three respective constructs according to their commonalities and relevance. These constructs were:

- *Teachers' views about Outcomes-based education assessment strategies and its influence on the culture of learning;*
- *Teachers' views regarding traditional evaluation and its influence on the culture of learning; and*
- *Teachers' understanding regarding assessment of learners' work and its influence on the culture of learning.*

These constructs and their groupable variables were then subjected to confirmatory factor analysis, in order to confirm and identify that these variables belonged to these factors. Fraser and Van Staden (1996:218) reason that factor analysis assists in the grouping of variables that correlate highly with one another. The function of the factor analysis was to determine whether the identified variables influencing a given phenomenon could substantiate, verify, and support evidence through the use of sophisticated statistical techniques or, as Anastasi (1982:146) puts it, to analyze the interrelationships of behavior data.

With regard to statistical procedures for this study, the researcher used a computer to analyze the collected data and have access to precise data. Vockell and Asher (1995:398) note that computer analysis enables researchers to be confident of the results of calculations because universities employ computer consultants who are familiar with statistical programs.

### **5.5.1 The Principal Component Factor Analysis**

Teachers' views were assessed in terms of existing evidence, that is, on contemporary trends revealed by educationists in the literature used in this study. Teachers in practice responded to the questionnaire, which was constructed from this literature background. Teachers' responses were subjected to a principal component factor analysis. Fraser and Van Staden (1996:218) believe that this statistical technique and empirical procedure is

used to validate the hypothetical assumptions made with regard to the study under investigation. This is why in this study different variables on assessment and its influence in culture of learning were analyzed and assessed in order to determine the possible influence of these variables on teachers' opinions on a variety of issues related to assessment in the first place. Factor analysis was executed on the teachers' responses in order to confirm the existence of different variables influencing assessment with regard to the culture of learning.

The researcher then subjected the teachers' responses to confirmatory factor analysis, with the intention of grouping variables that correlate highly with one another, which the researcher also presumed to be groupable variables. Kachigan (1991:238) regards factor analysis as a strategy to distinguish common factor variance from unique or specific variance. The main purpose of using factor analysis is to reveal, identify and confirm these factors that could be defined reasonably well by the actual variables (Ferguson 1987:488). The function of factor analysis is also to determine how many constructs the group of items are actually measuring (Dooley 1984:70). A principal component factor analysis with a varimax method of rotation known as the PROC FACTOR PROCEDURE (SAS/STAT USERS'GUIDE 1990:774-814) was applied to the data sets to extract possible factors.

The factor analysis was preceded by a principal component analysis (a method of extracting the initial factors), with the intention of producing principal components and common factor scores with variances equal to the corresponding eigenvalue (Kerwin 1992:507). This procedure stops short of rotating the factors. The procedure is usually concluded by using a varimax method of rotation. The varimax method of rotation of factor analysis has proved to be very successful as an analysis to obtain an orthogonal rotation of factors (Nunnally 1967:333). The reason for a varimax method is to obtain as many high positive and near zero loadings as possible. These factor loadings reveal the extent to which each of the variables contribute to the meaning of each factor (Kachigan 1991:247).

### **5.5.2 The Extraction Of Factors**

To determine the possible number of factors accounted for in the investigation, a number of techniques are usually applied. Kachigan (1991:246) cites the weighing and retaining of the eigenvalue to the point where additional factors account for less variance than a typical variable; that is, less than one eigenvalue. He also cites the technique of assessing the degree to which each of the variables correlated with each of the factors.

Researchers apply the scree plot of eigenvalues to indicate the number of extracted factors. Hair, Anderson, Tatham and Black (1998:128) maintain that this is a multivariable technique that groups variables into factors, based on the internal relationship as quantified by means of the correlation matrix. This study used the technique of assessing the degree to which of the variables correlate with each of the factors. The scree plot of the eigenvalues was used to indicate the number of extracted factors.

### **5.5.3 The Reliability Estimation Of The Items In The Questionnaire**

Vockell (1993:22) states that reliability addresses the question of whether or not a measuring instrument is consistent. Sax (1974:172) also indicates that reliability describes the extent to which measurements can be depended on to provide consistent, unambiguous information. The reliability coefficients are not only an indication of the internal consistency of the different test items, but also an estimation of whether the same test questions would generate similar results when applied under similar circumstances on different occasions (Anastasi 1982:102).

In this study Cronbach's coefficient Alpha Formula was used to estimate the reliabilities of the items of the study questionnaire on which the factor analysis was based. Cronbach's coefficient Alpha Formula provides a reliability estimate for a set of two or more construct indicators (Hair, Anderson, Tatham and Black 1992:428). This reliability estimation instrument appeared to be more relevant for this study, since the research study has three sets or constructs that were extracted by the researcher for confirmatory factor analysis using the PROC FACTOR Procedure through rotated factor pattern.

Cronbach's coefficient alpha also provides a good estimate of reliability in most situations, since according to Nunnally (1967:211), the major source of measurement

error lies in the sampling of error, that is the sampling of items per se. Acceptable correlation was set at  $\pm 0.3$  or above. The correlation coefficients of the appropriate sets of questions in this study were subsequently interpreted according to this scales

## **5.6 THE APPLICATION OF THE QUESTIONNAIRE**

The researcher wrote letters to Regional Directors of the two respective provinces, seeking permission to conduct the research (see appendixes 2 and 3). In the Northern Region of Gauteng Province, it was requested to conduct research in the following districts: North 1, North 2, North 3, North 4 and North 6. In the Eastern Highveld Region in Mpumalanga Province permission to conduct research in the following districts was requested: Moretele, Witbank, Eerstehoek, Standerton and Ermelo.

Upon receiving written permission from the Regional Directors (see appendix 4 and 5) the researcher then wrote letters to District Directors requesting their co-operation and assistance, and information on the addresses and telephones of their respective circuits and schools.

After receiving the necessary information from the District Directors, letters were written to the relevant Circuit Managers and Principals of different schools requesting their permission and assistance in distributing the questionnaires to teachers. The return date of questionnaires and the address to which to be returned was included in the letters which were received by each school. Each bundle of questionnaires was accompanied by a prepaid envelope.

## **5.7 SUMMARY**

In this chapter the research instruments were discussed, and the procedures to be followed for the empirical analysis were given. Chapter six discusses data analysis and interpretation of the empirical research.



## CHAPTER 6

# TABLING ANALYSIS AND INTERPRETATION OF EMPIRICAL DATA

### 6.1 INTRODUCTION

In chapter five the research design was explained. The purpose of chapter five was to provide a clear description of the specific steps to be followed until the data could be analyzed. It showed how the researcher secured the internal validation of this study. Firstly; by consulting the literature very broadly to ensure that it covered all the variables of this study. Secondly; it showed the construction of the questionnaires according to the literature study, and finally the way in which empirical analysis would be conducted for this study. This chapter, chapter six, presents and analyses the responses of teachers to the questionnaire described in detail in chapter five.

### 6.2 INTERPRETATION OF THE BIOGRAPHICAL DATA OF THE RESPONDENTS

The researcher prepared approximately 5000 questionnaires for teachers represented by the sample. The total number of teachers included in the research sample was 4 670. It was expected that respondents should return the questionnaires on the 23 October 2000 to their respective principals, to allow for convenient collection by the researcher. The researcher received back 2 621 of the approximately 5000 questionnaires which were distributed, implying that just over half of the questionnaires were received for further investigation and computation.

When the usual questionnaires were further analyzed, it was found that 1 403 questionnaires were completed by teachers from Mpumalanga Province, which makes 53,63 percent of the sample, and 1 212 were completed by teachers from Gauteng Province, which makes 46,35 percent of the sample. It was also found that 844 male teachers completed the questionnaires which makes 32,30 percent of the sample, and 1 769 had been completed by female teachers which makes 67,70 percent of the sample for both provinces.

The teaching experiences of the respondents were also determined. It was found that teachers with less than five years experience consisted of 8,81 percent of the sample; 23,66 percent were teachers who have teaching experience between ten and fifteen years experience; 42,34 percent were teachers who have made more than fifteen years teaching experience.

Educational qualifications of the respondents were categorized into five groups. The first group comprised of teachers with std 10 or lower, this category made 5,54 percent. The second group were teachers with post school diplomas, this category made 58,03 percent of the sample; this group proved to be the biggest group. There were only 7,36 percent of teachers with B-degrees (the third group), and the fourth group of teachers with Degrees plus a Diploma made 19,59. The fifth group of teachers with Post-graduate qualifications made 9,49 percent of the sample.

The learning areas most widely taught were grouped into eight categories. The first group included Communication, Literacy and Language and comprised 35,61 percent of the respondents. In the second group Numeracy and Mathematics were included and this comprised 20,84 percent of the respondents. In the third group Human and Social Sciences were included incorporating 12,04 percent of the respondents. 12,74 percent of the respondent fell within the fourth group, which included Natural Sciences. The fifth group, Arts and Culture, included 3,82 percent of the respondents. In the sixth group, Economics and Management Science, 6,35 percent of the respondents were included. In the seventh group, Life Orientation, 5,30 percent of the respondents were included. The eight group was Technology and included only 3,31 percent of the respondents.

The phases in which these respondents mostly teach was also investigated, and these were grouped into four phases. The first phase was the foundation phase, and included 27,35 percent of the respondents. The second phase was the intermediate phase and included 28,22 percent of the respondents. The third phase was the senior phase and included 40,53 percent of the respondents, this proved to be the biggest group. The fourth phase was further education and training phase and included 3,90 percent of the respondents, which proved to be the smallest group in this category.

In this research study it was found that respondents used mostly English and Afrikaans as a medium of instruction; 56,42 percent used English as a medium of instruction, and 19,79 percent use Afrikaans a medium of instruction. The remaining 23,79 percent of the respondents used an African language as a medium of instruction. However it is a well-known fact that Afrikaans and English are the two languages that are mostly used in South African Schools as mediums of instruction.

The teachers' post levels were also investigated, and were divided into four categories. The first group comprised of ordinary teachers and included 76,79 percent of the respondents, which was the largest group in this study, 14,19 percent were Heads of Departments; 4,67 percent were Deputy Principals, and 4,36 percent were Principals. All these respondents were included in the sample.

It was also necessary to investigate the type of schools where the respondents taught. The biggest proportion of teachers (92,90 percent) taught in public schools, while 7,10 percent taught in private schools.

The study also investigated how respondents became interested in assessment of learners' work. 47,54 percent of the respondents indicated that they had become interested in assessment as a result of information they have received through workshops. 18,58 percent indicated that they had become interested in assessment through formal courses or programs. 16,14 percent became interested in assessment through comprehensive reading. Lastly, 9,97 percent indicated that they have become interested in assessment through departmental circulars and media programs.

### 6.3 RESULTS OF THE FREQUENCY ANALYSIS

In the preceding paragraphs the biographical data responses of the respondents were discussed. This section discusses the subsequent 84 variables of the questionnaire which addressed the main issues relating to assessment and its influence on the culture of learning. Upon the receipt of the 2621 questionnaires the researcher took these to the statistician for computation. The statistical analysis produced frequency results.

The frequency results gives the number of respondents who reacted to each variable, and are presented in tables 6.1, 6.2 and 6.3. In these tables the reader will notice that each variable and its five-point-scale are listed, and the frequency results for each scale are expressed as absolute numbers and percentages. The number of respondents for each scale signifies the significance of that variable about teachers perception with regards to assessment and its influence on the culture of learning. If a great number of teachers match with scale 1 this indicates that they “strongly disagree” with that variable, when matched with scale 2 it indicates that they “disagree”, with scale 3 that they are “uncertain”, with scale 4 that they “agree”, and with scale 5 it will mean that they “strongly agree” (See appendix 1).

The percentage information shows what percentage of the sample selected the particular scale in question.

Hereunder follow the tables showing the results of the frequency analysis.

**Table 6.1** *Frequency analysis of question items investigating Assessment of learners’ work and its influence on the culture of learning.*

VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.15. (Frequency Missing = 4) Good assessment of learners work contributes to the culture of learning.		
1	21	0.80
2	38	1.45
3	208	7.95
4	1413	53.99
5	937	35.80
Cumulative frequencies and percentage	2617	99.9



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.16. (Frequency Missing = 6) Teachers' assessment of learners' work enables learners to think critically and develop problem solving skills.		
1	35	1.34
2	97	3.71
3	253	9.67
4	1376	52.62
5	854	32.66
Cumulative frequencies and percentage	2615	100.00
V.17. (Frequency Missing = 7) Teachers' assessment of learners' work promotes a positive attitude towards learning among learners.		
1	15	0.57
2	47	1.80
3	206	7.88
4	1310	50.11
5	1036	39.63
Cumulative frequencies and percentage	2614	99.9
V.18. (Frequency Missing = 6) Frequent assessment of learners' work allows teachers to intervene with remedial teaching at an early stage.		
1	19	0.73
2	54	2.07
3	186	7.11
4	1107	42.33
5	1249	47.76
Cumulative frequencies and percentage	2615	100.00
V.19. (Frequency Missing = 8) Teachers' assessment of learners' work contributes to collaboration and caring between teachers and learners.		
1	15	0.57
2	46	1.76
3	260	9.95
4	1413	54.08
5	879	33.64
Cumulative frequencies and percentage	2613	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.20. (Frequency Missing = 4) Assessment assists teachers to review information taught to learners.		
1	13	0.50
2	48	1.83
3	135	5.16
4	1271	48.57
5	1150	43.94
Cumulative frequencies and percentage	2617	100.00
V.21. (Frequency Missing = 4) Assessment assists learners to review their own learning and look at better ways of improving learning.		
1	20	0.76
2	74	2.83
3	246	9.40
4	1284	49.06
5	993	37.94
Cumulative frequencies and percentage	2617	99.9
V.22. (Frequency Missing = 3) Teachers' assessment of learners' work allows learners' to see assessment as part of teaching and learning.		
1	19	0.73
2	50	1.91
3	276	10.54
4	1399	53.44
5	874	33.38
Cumulative frequencies and percentage	2618	100.00
V.23. (Frequency Missing = 5) Regular assessment of learners' work enhances learners' perception of success.		
1	10	0.38
2	68	2.60
3	347	13.26
4	1480	56.57
5	711	27.18
Cumulative frequencies and percentage	2616	99.9





VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.24. (Frequency Missing = 6) Teachers' assessment of learners' work assists learners to see that teachers can identify learners' learning problems.		
1	22	0.84
2	69	2.64
3	248	9.48
4	1335	51.05
5	941	35.98
Cumulative frequencies and percentage	2615	99.9
V.25. (Frequency Missing = 5) Teachers' assessment of learners' work assists learners' to monitor progress of learning.		
1	21	0.80
2	76	2.91
3	327	12.50
4	1399	53.48
5	793	30.31
Cumulative frequencies and percentage	2616	100.00
V.26. (Frequency Missing = 9) Assessment of learners' work indicates to principal to share decision task with teachers regarding learners' work.		
1	37	1.42
2	113	4.33
3	424	16.23
4	1303	49.89
5	735	28.14
Cumulative frequencies and percentage	2612	100.00
V.27. (Frequency Missing = 6) Assessment of learners' work indicates to principals that teaching and learning are monitored in schools.		
1	29	1.11
2	108	4.13
3	275	10.52
4	1336	51.09
5	867	33.15
Cumulative frequencies and percentage	2615	100.00
V.28. (Frequency Missing = 7) Teachers' assessment of learners' work assists principal to see that assessment is an adequate evaluation mechanism.		
1	34	1.30
2	139	5.32
3	460	17.60
4	1340	51.26
5	641	24.52



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
Cumulative frequencies and percentage	2614	100.00
V.29. (Frequency Missing = 9) Assessment of learners' work ensure that principals will allocate enough time for assessment purpose.		
1	71	2.72
2	210	8.04
3	639	24.46
4	1139	43.61
5	553	21.17
Cumulative frequencies and percentage	2612	100.00
V.30. (Frequency Missing = 4) Feedback of assessment of learners' work to parents, enables parents to play an active role in the education of children.		
1	34	1.30
2	94	3.59
3	234	8.94
4	1115	42.61
5	1140	43.56
Cumulative frequencies and percentage	2617	100.00
V.31. (Frequency Missing = 5) Teachers' assessment of learners' work and feedback to parents create a positive relationship between parents, learners and teachers.		
1	19	0.73
2	81	3.10
3	230	8.79
4	1124	42.97
5	1162	44.42
Cumulative frequencies and percentage	2616	100.00
V.32. (Frequency Missing = 6) Teachers' assessment of learners' work enhance learning contact between parents and children.		
1	28	1.07
2	96	3.67
3	357	13.65
4	1409	53.88
5	725	27.72
Cumulative frequencies and percentage	2615	99.9
V.33. (Frequency Missing = 7) Assessment of learners' work involves parental decision with regard to information of assessment.		
1	56	2.14
2	214	8.19
3	583	22.30
4	1178	45.07
5	538	22.30

VARIABLE / SCALES	FREQUENCY	PERCENTAGE
Cumulative frequencies and percentage	2614	100.00

Table 6.1 reveals that respondents understand that assessment is a powerful tool which could assist learners to learn for the promotion of the culture of learning. This indicates that teachers are becoming aware that teaching and learning practices need to be assessment driven. Paxton (1995:189-195) indicates that assessment is a practice by which teachers try to identify areas where improvement is necessary and how performance could be improved. Most respondents in this table reacted between the four point scale and the five point scale with regard to their total proportional input, concerning assessment of learners' work and its influence on the culture of learning.

The cumulative percentage in almost all variables in table 6.1 regarding agreed or strongly agreed scales is above 60%. This indicates that teachers regard assessment in teaching and learning as an important activity in promoting the culture of learning in schools. The researcher also took note of the fact that teachers realize that assessment is not an activity that needs to be performed by learners and teachers only. This is substantiated by the fact the following variables have accumulated more the 60% in the 'agree' and 'strongly agree' classes from teachers' responses: V28 - teachers assessment of learners' work assists principal to see that assessment is an adequate evaluation mechanism; V29 - assessment of learner's work ensures that principals will allocate enough time for assessment purpose; and V33 - assessment of learner's work involves parental decision with regard to information of assessment. These variables investigated teachers' perceptions regarding principals and parental involvement in terms of the influence of assessment on the culture of learning.

The teachers' perceptions confirm that assessment is an important activity in teaching and learning processes. They also confirm that the involvement of parents and principals is an important element in assessment of learners' work for the promotion of a culture of learning. It can be concluded therefore that this aspect of the empirical analysis has enabled the researcher to achieve objectives 1 and 3 (see section 1.6.1)



**Table 6.2 Results of the frequency analysis of the question items relating to traditional evaluation of learners' work and its influence on the culture of learning.**

VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.34. (Frequency Missing = 4) Traditional evaluation of learners' work is seen as a separate activity from teaching and learning processes.		
1	309	11.81
2	606	23.16
3	484	18.49
4	870	33.24
5	348	13.30
Cumulative frequencies and percentage	2617	100.00
V.35. (Frequency Missing = 5) Traditional evaluation of learners' work is based on the idea of well-defined criteria of right and wrong.		
1	73	2.79
2	290	11.09
3	383	14.64
4	1339	51.19
5	531	20.30
Cumulative frequencies and percentage	2616	100.00
V.36. (Frequency Missing = 6) Traditional evaluation of learners' work used reproductive evaluation strategies to assess knowledge as provided by textbook.		
1	74	2.83
2	280	10.71
3	355	13.58
4	1303	49.83
5	603	23.06
Cumulative frequencies and percentage	2615	100.00
V.37. (Frequency Missing = 5) In traditional evaluation of learners' work teachers were given opportunity to make decisions about learners' performance.		
1	93	3.56
2	225	8.60
3	316	12.08
4	1399	53.48
5	583	22.29
Cumulative frequencies and percentage	2616	100.00



V.38. (Frequency Missing = 5) In traditional evaluation of learners' work both evaluation and measurement were used as instruments to score and grade learners.		
1	33	1.26
2	148	5.66
3	339	12.96
4	1500	57.34
5	596	22.78
Cumulative frequencies and percentage	2616	100.00
V.39. (Frequency Missing = 3) Teachers' assessment of learners' work in traditional evaluation used measurement and evaluation to ensure that teaching objectives have been well transmitted to learners.		
1	37	1.41
2	125	4.77
3	343	13.10
4	1611	61.54
5	502	19.17
Cumulative frequencies and percentage	2618	99.9
V.40. (Frequency Missing = 3) In traditional evaluation of learners' work teachers were expected to identify specific strengths and weaknesses of learners in the learning environment.		
1	166	6.34
2	205	7.83
3	342	13.06
4	1399	53.44
5	506	19.33
Cumulative frequencies and percentage	2618	100.00
V.41. (Frequency Missing = 3) In traditional evaluation teachers were expected to ask questions checking whether pupils were listening to teachers in the learning environment.		
1	37	1.41
2	115	4.39
3	229	8.75
4	1483	56.65
5	754	28.80
Cumulative frequencies and percentage	2618	100.00



V.42. (Frequency Missing = 5) In traditional evaluation teachers were given opportunity to evaluate their instruction, by assessing the quality of learners' performance.		
1	67	2.56
2	199	7.61
3	320	12.23
4	1517	57.99
5	513	19.61
Cumulative frequencies and percentage	2616	100.00
V.43. (Frequency Missing = 10) Teachers' assessment of learners' work in traditional setting forced teachers to award good grades.		
1	276	10.57
2	452	17.31
3	477	18.27
4	1022	39.14
5	384	14.71
Cumulative frequencies and percentage	2611	100.00
V.44. (Frequency Missing = 4) In traditional evaluation teachers' assessment of learners' work had to ensure higher authorities that standard policies of education are maintained.		
1	178	2.56
2	274	7.57
3	577	17.31
4	1215	50.36
5	373	22.20
Cumulative frequencies and percentage	2617	100.00
V.45. (Frequency Missing = 4) In traditional evaluation teachers used formative assessment in order to make moment-to-moment decisions about pupils' learning.		
1	178	6.80
2	274	10.47
3	577	22.05
4	1215	46.43
5	373	14.25
Cumulative frequencies and percentage	2617	100.00
V.46. (Frequency Missing = 7) In traditional evaluation teachers used summative assessment to indicate their approval and disapproval on learners' work.		
1	65	2.49
2	245	9.37
3	567	21.69
4	1308	50.04
5	429	16.41



Cumulative frequencies and percentage	2614	100.00
V.47. (Frequency Missing = 5) In traditional evaluation teachers used summative assessment results to show parents how their children were doing in schools.		
1	55	2.10
2	148	5.66
3	362	13.84
4	1547	59.14
5	504	19.27
Cumulative frequencies and percentage	2616	100.00
V.48. (Frequency Missing = 2) Homework and assignments in traditional evaluation were used by teachers as an assessment tool to prepare learners to do well in the final examination.		
1	70	2.67
2	255	9.74
3	213	8.13
4	1424	54.37
5	657	25.09
Cumulative frequencies and percentage	2619	100.00
V.49. (Frequency Missing = 3) In traditional evaluation teachers used homework and assignments to monitor instructional work in classes.		
1	48	1.83
2	184	7.03
3	263	10.05
4	1562	59.66
5	561	21.43
Cumulative frequencies and percentage	2618	100.00
V.50. (Frequency Missing = 5) In traditional evaluation teachers used classwork and official tests to check and balance work which had been done by them.		
1	38	1.45
2	119	4.55
3	213	8.14
4	1525	58.30
5	721	27.56
Cumulative frequencies and percentage	2616	100.00





V.51. (Frequency Missing = 5) In traditional evaluation teachers used classwork and official tests to support and encourage learners to perform better.		
1	8	1.07
2	115	4.40
3	219	8.37
4	1444	55.20
5	810	30.96
<b>Cumulative frequencies and percentage</b>	<b>2616</b>	<b>100.00</b>
V.52. (Frequency Missing = 4) In traditional evaluation teachers expected formal examination to be a mechanism of identifying talents and measuring learners' performance.		
1	45	1.72
2	170	6.50
3	252	9.63
4	1369	52.31
5	781	29.84
<b>Cumulative frequencies and percentage</b>	<b>2617</b>	<b>100.00</b>
V.53. (Frequency Missing = 3) Teachers in traditional evaluation believed that formal examination was an assessment tool of developing knowledge, skills and attitudes that learners would use when entering either the work-force of higher education.		
1	83	3.17
2	196	7.49
3	293	11.19
4	1336	51.03
5	710	27.12
<b>Cumulative frequencies and percentage</b>	<b>2618</b>	<b>100.00</b>
V.54. (Frequency Missing = 4) In traditional evaluation teachers were expected to be more active in preparation of the formal examination of learners.		
1	49	1.87
2	107	4.09
3	201	7.68
4	1386	52.96
5	874	33.40
<b>Cumulative frequencies and percentage</b>	<b>2617</b>	<b>100.00</b>



V.55. (Frequency Missing = 9) Formal examination results in traditional evaluation were used to judge the pass and failure of learners.		
1	43	1.65
2	84	3.22
3	154	5.90
4	1343	51.42
5	988	37.83
Cumulative frequencies and percentage	2612	100.00
V.56. (Frequency Missing = 6) Formal examination in traditional evaluation assisted teachers and departmental officials to select learners for secondary education and higher education.		
1	46	1.76
2	112	4.28
3	242	9.25
4	1399	53.50
5	816	31.20
Cumulative frequencies and percentage	2615	99.9
V.57. (Frequency Missing = 7) Teachers' evaluation of learners' work in traditional settings was examination driven.		
1	42	1.61
2	182	6.96
3	298	11.40
4	1277	48.48
5	815	31.18
Cumulative frequencies and percentage	2614	99.63
V.58. (Frequency Missing = 8) In traditional evaluation norm-referenced-assessment was used to compare learners' performance with one another.		
1	59	2.26
2	192	7.35
3	409	15.65
4	1316	50.36
5	637	24.38
Cumulative frequencies and percentage	2613	100.00
V.59. (Frequency Missing = 9) In traditional education teachers used norm-referenced assessment to group and place learners according to norms, scores and achievements.		
1	74	2.83
2	186	7.12
3	348	13.32
4	1333	51.03
5	631	25.69
Cumulative frequencies and percentage	2612	99.9

The reader will notice that the term frequently used in table 6.2 is traditional evaluation. This has been done because 'traditional evaluation' refers to the classical practices, where the summative nature of the assessment process was often regarded as the final and only measure against which performance was judged.

Table 6.2 reveals that a great number of respondents reacted between the 4 point scale and the 5 point scale. This indicates that the teachers are rapidly becoming aware that traditional evaluation is a product driven process. The emphasis was on what teachers teach, hence evaluation was applied to check transmitted knowledge to learners by teachers and to measure whether teachers took responsibility for learning and teaching (Tiley 1997:12). As a result Taylor and Vinjevold (1999:108) are of the opinion that the traditional system of evaluation only concentrated on evaluating learners mainly to produce good results at the end-of-year examination. Hence this evaluation system was judgmental and did not cater adequately for development of learners in order to improve the culture of learning (see section 3.1).

This is supported by the fact that almost all variables of this table that discuss traditional evaluation concentrate on teachers as the only people who assess in schools. Respondents reacted high on scales which agreed or strongly agreed with this idea. Hence respondents have the perception that traditional evaluation methods emphasised only the main role of teachers, as the people who should be actively involved regarding assessment in all teaching and learning activities.

However, there are two variables in table 6.2 where respondents did not react over 60% in this regard. These are the following: V34 - traditional evaluation of learners work is seen as a separate activity from teaching and learning processes; and V43 - teachers' assessment of learners' work in traditional setting forced teachers to award good grades.

This suggests that teachers are aware that the traditional evaluation policy which promoted these activities was not acceptable. Hence the teachers' perception is that treating assessment of learners' work exclusively from teaching and learning processes negated the good part that assessment can play in the teaching and learning situation. It also shows that teachers are aware that in traditional evaluation, teachers were forced to play an active role regarding assessment, so that learners could receive good grades at

the end of the examination. This is regardless of whether learners gainfully achieved knowledge, skills, values and good attitudes about what they have learned. These reasons deducted from the empirical analysis indicate that the traditional evaluation method had a minimum contribution towards the culture of learning in schools (see objective 4 in section 1.6.1).

**Table 6.3 Results of the frequency analysis of question items relating to Outcomes-Based Assessment and its influence on the culture of learning.**

VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.60. (Frequency Missing = 58) Assessment of learners' work in Outcomes-based Education is regarded as an integral part of the teaching and learning processes.		
1	32	1.25
2	59	2.30
3	270	10.53
4	1397	54.51
5	805	31.41
Cumulative frequencies and percentage	2563	100.00
V.61. (Frequency Missing = 3) Assessment of learners' knowledge in Outcomes-based Education aims towards assisting learners to apply such knowledge in life processes.		
1	29	1.11
2	60	2.29
3	238	9.09
4	1336	51.03
5	955	36.48
Cumulative frequencies and percentage	2618	100.00
V.62. (Frequency Missing = 3) Outcomes-based Assessment strategies assist both teachers and learners to measure progress of learning and teaching.		
1	33	1.26
2	105	4.01
3	313	11.96
4	1342	51.26
5	825	31.51
Cumulative frequencies and percentage	2618	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.63. (Frequency Missing = 4) Outcomes-based Assessment allows teachers to determine whether learners have achieved outcomes of learning.		
1	32	1.22
2	90	3.44
3	288	11.00
4	1308	49.98
5	899	34.35
Cumulative frequencies and percentage	2617	100.00
V.64. (Frequency Missing = 5) Teachers' assessment of learners' work in Outcomes-based Education is meant to improve skills, attitudes and value of learners.		
1	31	1.15
2	83	3.17
3	303	11.59
4	1328	52.85
5	817	31.24
Cumulative frequencies and percentage	2616	100.00
V.65. (Frequency Missing = 6) Teachers' assessment of learners' work in Outcomes-based Education assesses learners' progress and development.		
1	30	1.15
2	83	3.17
3	303	11.59
4	1382	52.85
5	817	31.24
Cumulative frequencies and percentage	2615	100.00
V.66. (Frequency Missing = 7) Outcomes-based Education expects assessment to assist learners to understand the content of a subject in order to demonstrate the learning outcomes.		
1	37	1.42
2	122	4.67
3	424	16.22
4	1339	51.22
5	629	26.47
Cumulative frequencies and percentage	2614	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.67. (Frequency Missing = 6) In Outcomes-based Assessment teachers assess specific learning outcomes such as social and personal skills, values and good dispositions of learning.		
1	41	1.57
2	87	3.33
3	388	14.84
4	1367	52.28
5	732	27.99
Cumulative frequencies and percentage	2615	100.01
V.68. (Frequency Missing = 5) Outcomes-based Assessment is expected to assist learners to make use of specific outcomes at the end of their learning experiences.		
1	38	1.45
2	80	3.06
3	349	13.34
4	1303	49.81
5	846	32.34
Cumulative frequencies and percentage	2616	100.00
V.69. (Frequency Missing = 8) Teachers' continual assessment of specific outcomes promotes the achievements of critical cross-field outcomes in Outcomes-based Education.		
1	34	1.30
2	86	3.29
3	678	25.95
4	1298	49.67
5	517	19.79
Cumulative frequencies and percentage	2613	100.00
V.70. (Frequency Missing = 9) Teachers' assessment of critical cross-field outcomes in Outcomes-based Education enhances the interest of learning to learners.		
1	40	1.53
2	110	4.21
3	641	24.54
4	1266	48.47
5	555	21.25
Cumulative frequencies and percentage	2612	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.71. (Frequency Missing = 11) Assessment criteria are applied by teachers during assessment to indicate to learners what has to be achieved.		
1	29	1.11
2	87	3.33
3	458	17.55
4	1374	52.64
5	662	25.36
Cumulative frequencies and percentage	2610	99.9
V.72. (Frequency Missing = 8) Performance indicators assist both teachers and learners to assess the quality and quantity of what learners have achieved in Outcomes-based Education.		
1	27	1.03
2	91	3.48
3	452	17.30
4	1347	51.55
5	696	26.64
Cumulative frequencies and percentage	2613	100.00
V.73. (Frequency Missing = 11) Teachers use assessment criteria to help learners to demonstrate what is expected from them.		
1	26	1.00
2	69	2.63
3	455	17.43
4	1401	53.68
5	659	25.25
Cumulative frequencies and percentage	2610	99.99
V.74. (Frequency Missing = 10) Teachers use performance indicators to assess whether learners have mastered both the process as well as the contents of learning.		
1	22	0.84
2	76	2.91
3	425	17.31
4	1382	52.93
5	679	26.01
Cumulative frequencies and percentage	2611	100.00





VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.75. (Frequency Missing = 9) Range statements assist teachers to provide valuable quality of learning when assessing learners' work in Outcomes-based Education.		
1	35	1.34
2	88	3.37
3	648	24.81
4	1310	50.15
5	531	20.33
Cumulative frequencies and percentage	2612	100.00
V.76. (Frequency Missing = 9) Teachers' assessment of learners' work allows learners to master unit standards that are regarded as national and international statements.		
1	45	1.72
2	128	4.90
3	880	33.69
4	1120	42.88
5	439	16.81
Cumulative frequencies and percentage	2612	100.00
V.77. (Frequency Missing = 32) Teachers' assessment of learners' work assists learners to know units standard for each learning area of that particular level of learning.		
1	34	1.31
2	130	5.02
3	722	27.89
4	1275	49.25
5	428	16.53
Cumulative frequencies and percentage	2589	100.00
V.80. (Frequency Missing = 6) In Outcomes-based-Education teachers use performance-based assessment approaches to engage learners in performing substantial tasks of importance in their own right.		
1	20	0.76
2	99	3.79
3	549	20.99
4	1507	57.63
5	440	16.83
Cumulative frequencies and percentage	2615	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.81. (Frequency Missing = 6) Teachers use performance-based assessment to assist learners to apply skills and knowledge that learners have learned.		
1	28	1.07
2	69	2.64
3	367	14.03
4	1566	59.89
5	585	22.37
Cumulative frequencies and percentage	2615	100.00
V.82. (Frequency Missing = 9) Performance-based assessment empowers learners to perform beyond the information which has been taught by teachers.		
1	37	1.42
2	134	5.13
3	510	19.53
4	1305	49.96
5	626	23.97
Cumulative frequencies and percentage	2612	100.00
V.83. (Frequency Missing = 6) In performance-based approach teachers use performance criteria so that learners could be aware of the performance results during assessment.		
1	21	0.80
2	88	3.37
3	521	19.92
4	1467	56.10
5	518	19.81
Cumulative frequencies and percentage	2615	100.00
V.84. (Frequency Missing = 10) Teachers in Outcomes-based Education use portfolio assessment strategies to assist learners to monitor their own progress.		
1	24	0.92
2	79	3.03
3	479	18.35
4	1397	53.50
5	632	24.21
Cumulative frequencies and percentage	2611	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.85. (Frequency Missing = 10) Teachers' assessment of learners' work through portfolio strategies allow learners to be actively involved in assessment.		
1	35	1.34
2	86	3.29
3	482	18.46
4	1464	56.07
5	544	20.83
Cumulative frequencies and percentage	2611	99.99
V.86. (Frequency Missing = 8) Portfolio assessment strategies enable teachers to evaluate learners' performance on an individual basis.		
1	29	1.11
2	83	3.18
3	449	17.18
4	1408	53.88
5	644	24.65
Cumulative frequencies and percentage	2613	100.00
V.87. (Frequency Missing = 11) Portfolio assessment allows learners to apply assessment criteria performance indicators and range statements in their own right.		
1	30	1.15
2	124	4.75
3	650	24.90
4	1259	48.24
5	547	20.96
Cumulative frequencies and percentage	2610	100.00
V.88. (Frequency Missing = 12) Portfolio assessment strategies promotes communication between teachers and learners in teaching situation.		
1	26	1.00
2	78	2.99
3	456	17.48
4	1401	53.70
5	648	24.84
Cumulative frequencies and percentage	2609	100.00



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.89. (Frequency Missing = 10) In Outcomes-based Education teachers use self-assessment to allow learners to be active in the assessment practices.		
1	29	1.11
2	107	4.10
3	400	15.32
4	1444	55.30
5	631	24.17
Cumulative frequencies and percentage	2611	100.00
V.90. (Frequency Missing = 10) In Outcomes-based Education teachers use peer-assessment so that learners could share and contribute to the work of their classmates.		
1	32	1.23
2	89	3.41
3	378	14.48
4	1323	50.67
5	789	30.22
Cumulative frequencies and percentage	2611	100.00
V.91. (Frequency Missing = 9) Teachers use self-assessment to promote self-thinking and self-development amongst learners.		
1	34	1.30
2	81	3.10
3	381	14.59
4	1377	52.72
5	739	28.29
Cumulative frequencies and percentage	2612	100.00
V.92. (Frequency Missing = 9) In Outcomes-based assessment teachers can break-down teaching and learning tasks into different components through continuous assessment strategies.		
1	28	1.07
2	86	3.29
3	458	17.53
4	1383	52.95
5	657	25.15
Cumulative frequencies and percentage	2612	99.99



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
V.93. (Frequency Missing = 9) In Outcomes-based Education teachers use continuous assessment to support learners and to give feedback into teaching and learning processes.		
1	32	1.23
2	53	2.03
3	321	12.29
4	1452	55.59
5	754	28.87
Cumulative frequencies and percentage	2612	100.00
V.94. (Frequency Missing = 9) Continuous assessment takes place while learners are actively involved in daily classroom activities.		
1	30	1.15
2	58	2.22
3	256	9.80
4	1306	50.00
5	962	36.83
Cumulative frequencies and percentage	2612	100.00
V.95. (Frequency Missing = 13) Continuous assessment assists learners to be able to construct meaning and concepts about the learning task.		
1	23	0.88
2	70	2.68
3	373	14.30
4	1353	51.88
5	789	30.25
Cumulative frequencies and percentage	2608	99.99
V.96. (Frequency Missing = 9) Continuous assessment allows teachers to use varieties of assessment strategies.		
1	26	1.00
2	52	1.99
3	295	11.29
4	1295	49.58
5	944	36.14
Cumulative frequencies and percentage	2612	100.00
V.97. (Frequency Missing = 9) In Outcomes-based Education criterion-referenced assessment is used by teachers to assess learners' work against set standards or criteria.		
1	28	1.07
2	121	4.63
3	506	19.37
4	1317	50.42
5	640	24.50



VARIABLE / SCALES	FREQUENCY	PERCENTAGE
Cumulative frequencies and percentage	2612	99.99
V.98. (Frequency Missing = 10) In Outcomes-based Education teachers use criterion-referenced assessment to assist learners to achieve learning outcomes according to the agreed learning criteria.		
1	34	1.30
2	83	3.18
3	458	18.58
4	1327	50.82
5	628	26.12
Cumulative frequencies and percentage	2611	100.00

Table 6.3 reveals that 60% and above of the respondents of this study indicated that the Outcomes- Based Assessment approach intends to focus equally on knowledge, skills, attitudes and the process of learning which results in the achievement of both the specific outcomes and critical cross-field outcomes (see section 4.1). Outcomes- Based Assessment also stresses that learning should empower learners to achieve learning outcomes by using assessment as part of guiding and evaluating teaching and learning processes, for the improvement of culture of learning. Such an approach deviates from the conventional and traditional content-based education and training, which according to Wiggins (1998:4) has an assessment strategy which leads to silent examinees sitting in rows, answering uniform questions with orthodox answers, following calendars that dictate that all learners must be examined simultaneously regardless of readiness. Much of the literature of this study has pointed this out as an assessment approach which could have a little contribution to the culture of learning.

Again when considering the cumulative percentage in respect of agreed and strongly agreed scales of table 6.3, indications are that both scales have accumulated above 60%. This shows that teachers perceive the outcomes-based assessment approach to have a positive impact upon the culture of learning in schools. Hence this indicates that OBE assessment practices have the potential to contribute to the culture of learning in schools (see objective 5 in section 1.6.1).

The researcher also noticed that the cumulative percentage of agreed and strongly agreed scales of table 6.3 were in fact almost all above 80%. Consequently, it can be concluded

that teachers are aware that OBE assessment strategies can enable all learners to experience assessment in terms of learners' learning and competence, rather than as grading or competition between learners. It also links assessment closely to the desired learning outcomes, by systematically incorporating assessment as an integral part of teaching and learning processes (see objective 2 in section 1.6.1).

#### 6.4 THE EXTRACTION OF FACTORS

The results of the Principal Component factor analysis performed on the variables of this study, extracted three different factors. The varimax method of rotation was applied to selected data sets in order to identify and extract possible commonalities or factors underlying assessment of learners' work and its influence on the culture of learning.

In the analysis of extracted factors, the factor analysis also grouped the variables into three different constructs which are similar to the three constructs that the researcher grouped the variables into for further investigative factor analysis (see section 5.5). However the chronology of the variables under these constructs has been changed by the varimax method rotation in all three factors. It was therefore concluded that the chronological change was also due to the factor analysis techniques of grouping variables based on the internal relationship between variables (Hair et al 1998: 123). See table 6.4 which shows the correlation matrix of the Rotated Factor Pattern.

**Table 6.4** *Correlation Matrix Of The Rotated Factor Pattern Of Items Assessing The Opinions Of Teachers Regarding Assessment Of Learners' Work And Its Influence On The Culture Of Learning. The variables are ranked from highest correlation with Factor 1, then Factor 2, then Factor 3.*

VARIABLE NUMBER AND DESCRIPTION	FACTOR 1	FACTOR 2	FACTOR 3
V72. Performance indicators assist both teachers and learners to assess the quality and quantity of what learners have achieved in Outcomes-based Education.	0.73219	0.11952	0.14535
V88. Portfolio assessment strategies promotes communication between teachers and learners in teaching learning situation.	0.72303	0.10016	0.12646





V86. Portfolio assessment strategies enables teachers to evaluate learners' performance on an individual basis.	0.70926	0.08819	0.12597
V85. In Outcomes-based Education teachers use self-assessment so that learners could share and contribute to the work of their classmates.	0.70640	0.13122	0.16195
V73. Teachers use assessment criteria to help learners to demonstrate what is expected from them.	0.70613	0.12497	0.14923
V74. Teachers use performance indicators to assess whether learners have mastered both the process as well as the contents of learning.	0.70410	0.09632	0.13263
V84. Teachers in Outcomes-based Education use portfolio assessment strategies to assist learners to monitor their own progress.	0.69323	0.10031	0.14643
V85. Teachers' assessment of learners' work through portfolio strategies allow learners to be actively involved in assessment exercise.	0.69279	0.10196	0.16349
V65. Teachers' assessment of learners' work in Outcomes-based Education assesses learners' progress and development.	0.69242	0.16798	0.18862
V70. Teachers' assessment of critical cross-field outcomes in Outcomes-based Education enhances the interest of learning to learners.	0.68743	0.16102	0.15449
V75. Range statements assist teachers to provide valuable quality of learning when assessing learners' work in Outcomes-based Education.	0.68461	0.12883	0.13572
V90. In Outcomes-based Education teachers use peer-assessment so that learners could share and contribute to the work of their classmates.	0.68289	0.08891	0.11740
V91. Teachers use self-assessment to promote self-thinking and self-development among learners.	0.67873	0.12943	0.17147
V93. In Outcomes-based Education teachers use continuous assessment to support learners and to give feedback into teaching and learning process.	0.67637	0.14532	0.19473
V69. Teachers' continual assessment of specific outcomes promotes the achievements of critical cross-field outcomes in Outcomes-based Education.	0.67470	0.10459	0.14329
V64. Teachers' assessment of learners' work in Outcomes-based Education is meant to improve skills, attitude and value of learners.	0.66712	0.16899	0.22760
V96. Continuous assessment allows teachers to use varieties of assessment.	0.66612	0.14522	0.20504
V62. Outcomes-based Assessment strategies assist both teachers and learners to measure progress of learning and teaching.	0.66617	0.13632	0.19155
V81. Teachers use performance-based assessment to assist learners to apply skills and knowledge that learners have learned.	0.66537	0.11244	0.16981
V92. In Outcomes-based assessment teachers and learners can break-down teaching and learning tasks into different components through continuous assessment strategies.	0.66490	0.14392	0.21977
V71. Assessment criteria are applied by teachers during assessment to indicate to learners what has to be achieved.	0.65890	0.12203	0.14458
V95. Continuous assessment assists learners to be able to construct meaning and concepts about the learning task.	0.65686	0.18940	0.24014



V94. Continuous assessment takes place while learners are actively involved in daily classroom activities.	0.65676	0.15763	0.16519
V63. Outcomes-based Assessment allows teachers to determine whether learners have achieved outcomes of learning.	0.65631	0.16072	0.19591
V68. Outcomes-based Assessment is expected to assist learners to make use of specific outcomes at the end of their learning experience.	0.65420	0.14265	0.18237
V80. In Outcomes-based-Education teachers use performance-based assessment approaches to engage learners in performing substantial tasks of importance in their own right.	0.65185	0.12777	0.16369
V87. Portfolio assessment allows learners to apply assessment criteria performance indicators and range statements in their own right.	0.65019	0.13337	0.16938
V98. In Outcomes-based Education teachers use criterion-referenced assessment to assist learners to achieve learning outcomes according to the agreed learning criteria.	0.64079	0.16434	0.24032
V67. In Outcomes-based Assessment teachers assess specific learning outcomes such as social and personal skills, values and good dispositions of learning.	0.62933	0.14989	0.17534
V61. Assessment of learners' knowledge in Outcomes-based Education aims towards assisting learners to apply such knowledge in life processes.	0.62281	0.13044	0.17860
V66. Outcomes-based Education expects assessment to assist learners to understand the content of a subject in order to demonstrate the learning outcomes.	0.62266	0.16522	0.23455
V83. In performance-based approach teachers use performance criteria so that learners could be aware of the performance results during assessment.	0.61578	0.12570	0.20283
V97. In Outcomes-based Education criterion-referenced assessment is used by teachers to assess learners' work against set standards of criteria.	0.60784	0.14852	0.21678
V82. Performance-based assessment empowers learners to perform beyond the information which has been taught by teachers.	0.59265	0.15216	0.17431
V60. Assessment of learners' work in Outcomes-based Education is regarded as an integral part of the teaching and learning processes.	0.54245	0.13347	0.20319
V52. In traditional evaluation teachers expected formal examination to be a mechanism of identifying talents and measure learners' performance.	0.09947	0.14978	0.13162
V50. In traditional evaluation teachers used classwork and official tests to support and encourage learners to perform better.	0.09106	0.16438	0.12462
V54. In traditional evaluation teachers were expected to be more active in preparation of the formal examination of learners.	0.14791	0.19526	0.07807
V49. In traditional evaluation teachers used homework and assignments to monitor instructional work in classes.	0.03968	0.17618	0.11830
V57. Teachers' evaluation of learners' work in traditional settings was examination driven.	0.24221	0.17306	0.10520



V51. In traditional evaluation teachers classwork and official tests to support and encourage learners to perform better.	0. 02746	0. 56381	0. 13288
V47. In traditional evaluation teachers used summative assessment results to show parents how their children were doing in schools.	0. 12069	0. 56810	0. 05900
V59. In traditional education teachers used norm-referenced assessment to group and place learners according to norms, scores and achievements.	0. 16979	0. 56287	0. 12937
V58. In traditional evaluation norm-referenced-assessment was used to compare learners' performance with one another.	0. 21059	0. 55302	0. 14147
V46. In traditional evaluation teachers used summative assessment to indicate their approval and disapproval on learners' work.	0. 17508	0. 55269	0. 04230
V41. In traditional evaluation teachers were expected to ask questions checking whether pupils were listening to teachers in the learning environment.	0. 08793	0. 55128	0. 07202
V48. Homework and assignments in traditional evaluation were used by teachers as an assessment tool to prepare learners to do well in the final examination.	0. 05814	0. 54996	0. 07467
V44. In traditional evaluation teachers' assessment of learners' work had to ensure higher authorities that standard policies of education are maintained.	0. 14105	0. 54138	0. 11802
V55. Formal examination results in traditional evaluation were used to judge the pass and failure of learners.	0. 17236	0. 52554	0. 05581
V53. Teachers in traditional evaluation believed that formal examination was an assessment tool of developing knowledge, skills and attitudes that learners would use when entering either the work-force education.	0. 09040	0. 52447	0. 10928
V56. Formal examination in traditional evaluation assisted teachers and departmental officials to select learners for secondary education and higher education.	0. 11724	0. 51834	0. 12267
V38. In traditional evaluation of learners' work both evaluation and measurement were used as instruments to score and grade learners.	0. 08980	0. 51640	0. 14545
V42. In traditional evaluation teachers were given opportunity to evaluate their instruction, by assessing the quality of learners' performance.	0. 01527	0. 50373	0. 07965
V39. Teachers' assessment of learners' work in traditional evaluation used measurement and evaluation to ensure that teaching objectives have been well transmitted to learners.	0. 03180	0. 46544	0. 11523
V36. Traditional evaluation of learners' work used reproductive evaluation strategies to assess knowledge as provided by textbooks.	0. 21376	0. 46396	0. 05651
V35. Traditional evaluation of learners' work was based on the idea of well-defined criteria of right and wrong.	0. 11860	0. 45026	0. 04514
V37. In traditional evaluation of learners' work teachers were given opportunity to make decisions about learners' performance.	0. 05817	0. 44854	0. 09233



V45. In traditional evaluation teachers used formative assessment in order to make moment-to-moment decisions about pupil's learning.	0. 12055	0. 13061	0. 00593
V43. Teachers' assessment of learners' work in traditional setting forced teachers to award good grades.	0. 16619	0. 40163	0. 07563
V34. Traditional evaluation of learners' work is seen as a separate activity from teaching and learning processes.	0. 14022	0. 33437	0. 00897
V40. In traditional evaluation of learners' work teachers were expected to identify specific strengths and weaknesses of learners in the learning environment.	0. 01002	0. 17811	0. 01678
V28. Teachers' assessment of learners' work assists principal to see that assessment is an adequate evaluation mechanism.	0. 15180	0. 15460	0. 62532
V25. Teachers' assessment of learners' work assists learners to monitor progress of learning.	0. 14527	0. 11891	0. 63042
V27. assessment of learners' work indicates to principals that teaching and learning are monitored in schools.	0. 19789	0. 12768	0. 52302
V22. Teachers' assessment of learners' work allows to see assessment as part of teaching and learning.	0. 20942	0. 09213	0. 58977
V24. Teachers' assessment of learners' work assists learners to see that teachers can identify learners learning problems.	0. 16472	0. 09906	0. 53638
V26. Assessment of learners' work assists principals to share decisions task with teachers regarding learners' work.	0. 15510	0. 13664	0. 55542
V32. Teachers' assessment of learners' work enhances learning contact between parents and children.	0. 22950	0. 14402	0. 57831
V30. Feedback of assessment learners' work to parents, enables parents to play an active role in the education of children.	0. 20098	0. 05819	0. 37704
V21. Assessment assists learners to review their own learning and look at better ways of improving learning.	0. 19756	0. 04585	0. 57031
V31. Teachers' assessment of learners' work and feedback to parents create a positive relationship between parents, learners and teachers.	0. 23239	0. 11428	0. 55834
V23. Regular assessment of learners' work enhances learners' perception of success.	0.13827	0. 08886	0. 55036
V19. Teachers' assessment of learners' work contributes to collaboration and caring between teachers and learners.	0. 19073	0. 09425	0. 57946
V29. Assessment of learners' work ensure that principals will allocate enough time for assessment purpose.	0. 11707	0. 15484	0. 51275
V33. Assessment of learners' work involves parental decision with regard to information of assessment.	0. 18102	0. 14844	0. 55691
V20. Assessment assists teachers to review information taught to learners.	0. 17261	0. 04150	0. 52309
V17. Good assessment of learners' work promotes a positive attitude towards learning among learners.	0. 21367	0. 08762	0. 51343
V18. Frequent assessment of learners' work allows teachers to intervene with remedial teaching at an early stage.	0. 15319	0. 01669	0. 47711
V16. Teachers' assessment of learners' work enables learners to think critically and develop problem solving skills.	0. 21299	0. 07311	0. 47654
V15. Good assessment of learners' work contributes to the culture of learning.	0. 20102	0. 05608	0. 41637

Variance explained by each factor	17.3423595	7.8793196	7.2559232
Eigenvalues	54.34000251	10.8298612	7.5540027
Final communality estimates	32.477602		
Total variance explained by factors	79.40%		
Cronbach alpha reliability coefficient.	0.965598		

A variety of techniques can be applied to determine the possible number of factors that can be accounted for in an investigation. These are: the weighing of eigenvalues, interpretation of the scree plot in terms of the percentage of total variances accounted for by each of the successfully extracted factors, consideration of the total variance accounted for or explained by the factor (Kachigan 1991:246-247), and possibly also the degree to which each of the variables correlates with each of the factors.

Table 6.4 demonstrates the extraction of the variables for three factors based on the weighing of eigenvalues and the degree to which each of the variables correlates with each of the factors. As it has been indicated in section 5.5.1 in chapter 5, only variables loaded more than 0.30 extracted by the Proc Factor Procedure through rotated factor pattern will be regarded as substantial variables for that factor. In table 6.4 all variables which loaded more than 0.3.0 eigenvalues have been clustered as items belonging to that factor. Hence a logical analysis of these variables revealed that this study has extracted three factors and also confirmed that these factors dealt with the following issues:

*Factor 1: Teachers' views about Outcomes-based Education assessment strategies and its influence on the culture of learning.*

*Factor 2: Teachers' views regarding traditional evaluation and its influence on the culture of learning.*

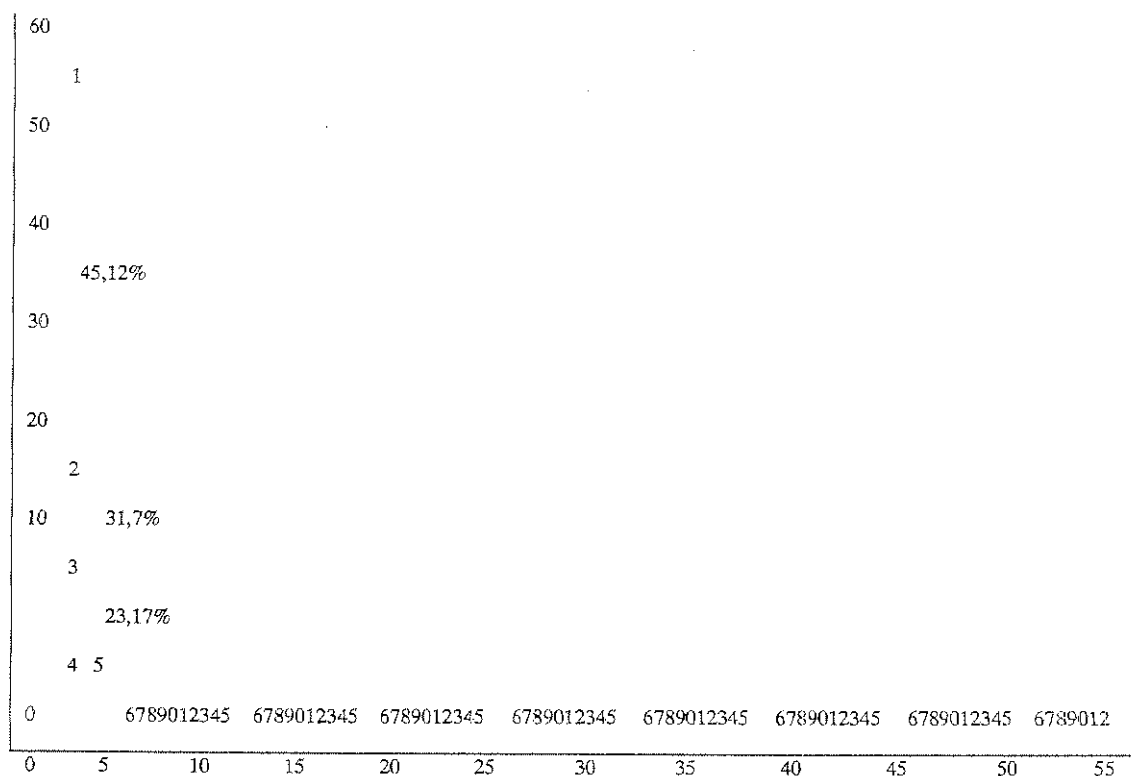
*Factor 3: Teachers' understanding regarding assessment of learners' work and its influence on the culture of learning.*

The researcher applied the scree plot of eigenvalues to indicate and confirm the number of factors extracted. Hair, Anderson, Tatham and Black (1998:128) maintain that this is a multivariable technique that groups variables into factors, based on the internal



relationships quantified by means of the correlation matrix. See graph 6.5, which illustrate the percentage of variance explained by each extracted factor.

**Figure 6.5** *Graph scree plot of eigenvalues. The maximum likelihood factor procedure was used.*



Cattell’s Scree Plot (Cattell 1966:245-276), and adapted versions thereof, are often used to show the presence of the number of factors accounted for by a measuring instrument, or questionnaire as in this specific case. Graph 6.5 indicates that 45,12 percent of variables have been grouped in factor one, this represents slightly more than half of the total number of the dependent variables of this study. This could possibly indicate that, many respondents reacted similarly to the variables of this factor. 31,7 percent of the variables have been grouped in factor two; and 23,17 percent of the variables have been grouped in factor three. All the dependent variables of this study appearing on the horizontal line of the graph have been grouped in these three extracted factors. This shows that the researcher had only three extracted factors for this study.

The reader will notice that in table 6.4 variables listed under three different factors having an eigenvalue greater than 0.30 have been shaded. These are the variables which belong to the three factors as extracted by the Principal Component Factor Analysis. The following sections analyse these in relation to the hypotheses of this research study.

## 6.5 STATEMENT OF HYPOTHESES

The empirical investigations and statistical techniques applied in this study intended to support or refute the hypothetical theory of this research study. The statement hypotheses of this study are:

**Hypothesis 1.** An assessment system built upon the traditional evaluation methods has a detrimental effect on the development of a culture of learning in schools.

**Hypothesis 2.** Assessment strategies built upon an Outcomes-based assessment policy are more effective in contributing toward the development of a culture of learning in schools.

The empirical investigation also tests the following Null hypothesis:

**Hypothesis 3.** No distinction can be drawn between teachers' perceptions regarding the impact or influence of traditional evaluation methods and teachers' perceptions regarding the impact or influence of Outcomes-based assessment strategies on the culture of learning in schools.

In the first chapter of this study, the aims of this study were discussed and the researcher stated the hypotheses. The early stating of hypotheses is justifiable because Vockell and Asher (1995:419) contend that the scientific method depends on first stating a prediction and then following this by conducting research to verify or refute the prediction. In the



following paragraphs and tables, statistical techniques and logical empirical explanations are applied in order to refute or support the above hypotheses.

## 6.6 RESULTS OF THE FACTOR ANALYSIS

### 6.6.1 Results Of Rotated Factor Pattern Of Items Assessing Teachers' Views About Outcomes-based Education Assessment Strategies And Their Influence On The Culture Of Learning.

All variables under factor one which loaded more than 0.30 eigenvalues relate to Outcomes-based Education assessment strategies and their influence on the culture of learning. This factor and its respective variables are illustrated in table 6.6.

*Table 6.6. Variables Represented By Factor One*

ITEM NUMBER AND DESCRIPTION		EIGENVALUE OF ITEMS FOR FACTOR 1
V.72	Performance indicators assist both teachers and learners to assess the quality and quantity of what learners have achieved in OBE	0,73 219
V.88	Portfolio assessment strategies promotes communication between teachers and learners in teaching-learning situation	0,72 303
V.86	Portfolio assessment strategies enable teachers to evaluate learners' performance on an individual basis.	0,70 926
V.89	In OBE teachers use self-assessment to allow learners to be active in the assessment practices.	0,70 640
V.73	Teachers use assessment criteria to help learners to be active in the assessment practices.	0,70 613
V.74	Teachers use performance indicators to assess whether learners have mastered both the process as well as the content of learning.	0,70 430
V.84	Teachers in OBE use portfolio assessment strategies to assist learners to monitor their own progress.	0,69 523
V.85	Teachers' assessment of learners' work through portfolio strategies allow learners to be actively involved in assessment exercises.	0,69 279
V.65	Teachers' assessment of learners' work in OBE assesses learners' progress and development.	0,69 242
V.70	Teachers' assessment of critical cross-field outcomes in OBE enhances the interest of learning to learners.	0,68 745



ITEM NUMBER AND DESCRIPTION		EIGENVALUE OF ITEMS FOR FACTOR 1
V.75	Range statement assists teachers to provide valuable quality of learning when assessing learners' work in OBE.	0,68 461
V.90	In OBE teachers use peer-assessment so that learners could share and contribute to the work of their classmates.	0,68 289
V.91	Teachers use self-assessment to promote self-thinking and self-development among learners.	0,67 875
V.93	In OBE teachers use continuous assessment to support learners and give feedback into teaching and learning processes.	0,67 637
V.69	Teachers continual assessment of specific outcomes promotes the achievements of critical cross-field outcomes in OBE	0,67 470
V.64	Teachers assessment of learners' work in OBE is meant to improve skills, attitude and value of learners.	0,66 732
V.96	Continuous assessment allows teachers to use varieties of assessment strategies.	0,66 682
V.62	OBE assessment strategies assist both teachers and learners to measure progress of learning and teaching.	0,66 617
V.81	Teachers use performance-based assessment to assist learners to apply skills and knowledge that learners have learned.	0,66 557
V.92	In Outcomes-based Assessment teachers and learners can break-down teaching and learning tasks into different components through continuous assessment strategies.	0,66 490
V.71	Assessment Criteria are applied by teachers during assessment to indicate to learners what has to be achieved	0,65 860
V.95	Continuous assessment assists learners to be able to construct meaning and concepts about the learning task.	0,65 686
V.94	Continuous assessment takes place while learners are actively involved in daily classroom activities.	0,65 676
V.63	Outcomes-based Assessment allows teachers to determine whether learners have achieved outcomes of learning.	0,65 631
V.68	Outcomes-based Assessment is expected to assist learners to make use of specific outcomes of the end of their learning experiences.	0,65 420
V.80	In OBE teachers use performance-based assessment approaches to engage learners in performing substantial tasks of importance in their own right.	0,65 186
V.87	Portfolio assessment allows learners to apply assessment criteria, performance indicators and range statements in their own right.	0,65 032
V.98	In OBE teachers use criteria referenced assessment to assist learners to achieve learning outcomes according to the agreed learning criteria.	0,64 079
V.67	In Outcomes-based Assessment teachers assess specific learning outcomes such as social and personal skills, values and good dispositions of learning.	0,62 541



ITEM NUMBER AND DESCRIPTION		EIGENVALUE OF ITEMS FOR FACTOR 1
V.77	Teachers assessment of learners' work assists learners to know units standards for each learning area of that particular level of learning.	0,62 325
V.76	Teachers' assessment of learners' work allows learners to master unit standards which are regarded as material and international statements.	0,62 303
V.61	Assessment of learners' knowledge in OBE aims towards assisting learners to apply such knowledge in life processes.	0,62 281
V.66	OBE expect assessment to assist learners to understand the content of a subject in order to demonstrate the learning outcomes.	0,62 266
V.83	In performance-based approach teachers use performance criteria so that learners could be aware of the performance results.	0,61 578
V.97	In OBE criterion-referenced assessment is used by teachers to assess learners' work against set standards or criteria.	0,60 784
V.82	Performance-based assessment empowers learners to perform beyond the information which has been taught by teachers	0,59 706
V.60	Assessment of learners' work in OBE is regarded as an integral part of the teaching and learning processes.	0,54 246

<i>VARIANCE EXPLANATION OF THIS FACTOR</i>	17,34
<i>EIGENVALUE FOR THIS FACTOR</i>	54,34
<i>FINAL COMMONALITY ESTIMATES</i>	32,47
<i>TOTAL VARIANCE EXPLAINED BY FACTORS</i>	79,40%
<i>CRONBACH ALPHA RELIABILITY CO-EFFICIENT</i>	0,965 598

The first factor identified and illustrated in table 6.6 links to teachers' views about OBE-assessment strategies and their influence on the culture of learning. All item statements grouped under this factor are quantified by eigenvalue scores. In this study a variable eigenvalue larger than 0,30 was classed as meaningful to the analysis of this study. In this factor all variables identified were larger than 0,30.

The first six variables have eigenvalues equal to or greater than 0.70 - these variables need to be considered very seriously. These variables correspond to V72 - performance Indicators assist both teachers and learners to assess the quality and quantity of what

learners have achieved in OBE; V88 – portfolio assessment strategies promotes communication between teachers and learners in teaching-learning situation; V86 - portfolio assessment strategies enable teachers to evaluate learners' performance on an individual basis; ; V89 - in OBE teachers use self-assessment to allow learners to be active in the assessment practices; V73 – Teachers use assessment criteria to help learners to be active in the assessment practices; to help learners to demonstrate what is expected from them; and V74 - teachers use performance indicators to assess whether learners have mastered both the processes as well as the content of learning.

This indicates that these variables received high responses from the respondents. This could be due to the reason that, in OBE, teachers and learners are expected to take an active role with regard to assessment activities, considering all the instances of variables in which both learners and teachers are taking an active role. This is supported by literature such as Boschee and Baron (1993:2), who argue that teachers and learners should share the responsibility of assessment for learning purposes. The literature review in chapter four further supports this idea by stating that, in Outcomes-based assessment, learners are given a chance to evaluate their strengths and weaknesses in learning, and teachers to examine their teaching effectiveness. Together, as partners in the assessment process, they are actively engaged in dialogue about learning and teaching. Seely (1994:4) feels that such assessment exercises can play a critical role in the academic lives of learners and in the professional lives of teachers.

Nevertheless the subsequent variables in this factor also have high loadings of eigenvalues of 0,60, and above. This also indicates that these variables received greater inputs from respondents. This is supported by the literature review, which revealed that, according to Willis and Kissane (1997:5), in the recent decade a considerable number of education systems around the world have undertaken processes of describing student outcomes quite explicitly in terms of the actual learning student should exhibit. This system is known as OBE and uses assessment strategies that enable students to demonstrate learning outcomes; hence the South African Education system is not excluded in this new system.

The literature study also indicated that OBE requires teachers to use assessment in the learners' best interest, so that assessment outcomes can communicate to learners

whether they have achieved the learning outcomes, allowing both teachers and learners to measure future progress (Wolfondale 1995:13). This idea must have attracted the attention of teachers in those variables of OBE.

Based on the high positive factor loadings, the fact that the question items have high eigenvalues ranging between 0,50 and 0.74, and the supporting literature, the following hypothesis of this study is supported:

**Hypothesis 2.** Assessment strategies built upon an Outcomes-based assessment policy are more effective in contributing toward the development of a culture of learning in schools.

#### 6.6.2 Results Of Rotated Factor Pattern Of Items Assessing Teachers' Views Regarding Traditional Evaluation Of Learners' Work And Its Influence On The Culture Of Learning.

All variables under factor two that loaded more than 0.30 eigenvalue relate to teachers' views regarding traditional evaluation of learners' work and its influence on the culture of learning. This factor and its variables are illustrated in table 6.7.

*Table 6.7. Variables Represented By Factor Two*

ITEM NUMBER AND DESCRIPTION		EIGENVAL UES OF ITEMS FOR FACTOR 2
V.52	In traditional evaluation teachers expected formal examination to be a mechanism of identifying talents and measure learners' performance.	0,60 782
V.50	In traditional evaluation teachers used classwork and official tests to check and balance work which had been done by them.	0,60 438
V.54	In traditional evaluation teachers were expected to be more active in preparation of the formal examination of learners.	0,59 526
V.49	In traditional evaluation teachers used homework and assignments to monitor instructional work in classes.	0,57 818
V.57	Teachers' evaluation of learners' work in traditional setting was examination driven.	0,57 306
V.51	In traditional evaluation teachers used classwork and official tests to support and encourage learners to perform better.	0,56 881





V.47	In traditional evaluation teachers used summative assessment results to show parents how their children were doing in schools.	0,56 810
V.59	In traditional education teachers used norm-referenced assessment to group and place learners according to norms, scores and achievements.	0,55 302
V.58	In traditional evaluation norm-referenced assessment was used to compare learners' performance with one another.	0,55 302
V.46	In traditional evaluation teachers used summative assessment to indicate their approval and disapproval on learners' work.	0,55 269
V.41	In traditional evaluation teachers were expected to ask questions checking whether pupils were listening to teachers in the learning environment.	0,55 128
V.48	In traditional evaluation teachers used formative assessment in order to make moment-to-moment decisions about pupils' learning.	0,54 996
V.44	In traditional evaluation teachers' assessment of learners' work had to ensure higher authorities so that standard policies of education are maintained.	0,54 138
V.55	Formal examination results in traditional evaluation were used to judge the pass and failure of learners.	0,52 554
V.53	Teachers in traditional evaluation believed that formal examination was an assessment tool of developing knowledge, skills and attitudes that learners would use when entering workforce or higher education.	0,52 447
V.56	Formal examination in traditional evaluation assisted teachers and departmental officials to select learners for secondary education and higher education.	0,51 834
V.38	In traditional evaluation of learners' work both evaluation and measurement were used as instruments to score and grade learners.	0,51 640
V.42	In traditional evaluation teachers were given opportunity to evaluate their instruction, by assessing the quality of learners' performance.	0,50 373
V.39	Teachers' assessment of learners' work in traditional evaluation used measurement and evaluation to ensure that teaching objectives have been transmitted well to learners.	0,46 544
V.36	Traditional evaluation of learners' work used reproductive evaluation strategies to assess knowledge as provided by text books.	0,46 396
V.35	Traditional evaluation of learners' work was based on the idea of well-defined criteria of right or wrong.	0,44 854
V.37	In traditional evaluation of learners' work teachers were given opportunity to make decisions about learners' performance.	0,44 854
V.45	In traditional evaluation teachers used formative assessment in order to make moment-to-moment decisions about pupils' learning.	0,43 061
V.43	Teachers' assessment of learners' work in traditional setting forced teachers to award good grades.	0,40 163
V.34	Traditional evaluation of learners' work is seen as a separate activity from teaching and learning processes.	0,33 437
V.40	In traditional evaluation of learners' work teachers were expected to identify specific strengths and weaknesses of learners in the learning environment.	0,32 811

<i>VARIANCE EXPLANATION OF THIS FACTOR</i>	7.88
<i>EIGENVALUE FOR THIS FACTOR</i>	10.83
<i>FINAL COMMONALITY ESTIMATES</i>	32.47
<i>TOTAL VARIANCE EXPLAINED BY FACTORS</i>	79,40%

<i>CRONBACH ALPHA RELIABILITY CO-EFFICIENT</i>	0,965598
--	----------

Table 6.7 summarizes the rotated factor pattern of item statements that assessed teachers' views regarding traditional evaluation of learners' work and its influence on the culture of learning. This table reveals that this factor is most strongly correlated to two variables: V52 - In traditional evaluation teachers expected formal examination to be a mechanism of identifying talents and measure learners' performance – has an eigenvalue; and V50 - in traditional evaluation teachers used classwork and official tests to check and balance work which had been done by teachers. These two variables have eigenvalues of 0.60 782 and 0.60 438 respectively .

However the eigenvalue of these variables also correlate highly with one eigenvalue variable in factor one. This variable in factor one is V97, which is 'in OBE criterion-referenced assessment is used by teachers to assess learners' work against set standards or criteria'. This variable carries an eigenvalue of 0,60 784 (see table 6.7 – item V.97).

These two variables' eigenvalues from factor two are not only highly correlated to the eigenvalue variable linked to factor one (V.97), but also showed closed homogeneity. All three variables stress that teachers assess learners against certain criteria. For example in factor one, teachers assess learners' work against set standards, and in factor two teachers expect classwork, tests and examinations to measure learners' performance. Therefore an assumption could be made that this might have influenced the respondents, as a result these variables accumulated more eigenvalue.

Nonetheless there is much evidences in the literature which shows that in traditional evaluation, teachers used certain techniques to measure the successes and failures of learners. Generally teachers used classwork and tests as preparatory exercises, which teachers believed would help learners to perform well when the official tests and public examinations are conducted. King and Van den Berg (1992:22) also assert that teachers only used tests and classwork to measure whether learners will meet the criteria of final examination, consequently tests and classwork were used as an assessment criteria to judge whether learners would be successful or fail in the final examination. This is why



Taylor and Vinjevoid (1999:108) argue that in no means does this assessment attempt to elicit excitement and interest of learning which form the basis of the culture of learning.

Factor two has an eigenvalue variable of 0,59 526, that is V54 which describes that in traditional evaluation teachers were expected to be more active in preparation of the formal examination of learners. In factor one another variable has accumulated 0,59 706 eigenvalue, (see table 6.7 – V82). These two eigenvalues are more or less the same, however the factor one variable describes that performance-based assessment empowers learners to perform beyond the information that has been taught by teachers. The researcher therefore considered why respondents reacted similarly to these variables. It was assumed that the respondents might have been influenced by the fact that in traditional evaluation teachers take on an active role in preparation for the formal examination. In contrast, in performance-based assessment learners can perform more than what the teacher has prepared him or her for. As a result respondents could have taken it for granted that what learners do is due to the active role played by teachers.

However, there is substantial evidence in the literature to show that teachers in traditional evaluation adjusted teaching to enable learners to perform very well in examinations, in order to score the highest marks. As a result memorization as an assessment method was used in order to help learners to yield orthodox answers in a reproductive way (Wiggins 1998:4). Nkomo (1990:332) believes that this deprived learners of the opportunity to make sense of the experiences that they gained during teaching and learning, hence it has a minimal contribution to the culture of learning, since learners were only expected to demonstrate higher performance only in the final examination.

Another variable in factor two had an eigenvalue of 0,54 138 (see table 6.7 – V.44). This variable explains that in traditional evaluation teachers' assessment of learners' work had to ensure higher authorities that standard policies of education are maintained. In factor one another variable had an eigenvalue of 0,54 246, (see table 6.6 – V.60). It explains assessment of learners' work in OBE as an integral part of teaching and learning processes. These two eigenvalues are highly correlated, which means respondents reacted similarly to these variables. Hence the researcher analyzed the similar reaction of the respondents to these variables. The assumption was made that,

respondents had been influenced by the use of assessment of learners' work in both V44 and V60, (see both table 6.7 and 6.6 – V44 and V60). In both item statements, assessment of learners' work has been used, although in different contexts, but this might have influenced the respondent to react similarly.

However, there is again ample evidence in the literature to support the idea that assessment of learners' work both in the OBE system and in traditional settings differs to a very greater extent. According to Wiggins (1998:3), Outcomes-based assessment is often unobtrusive to students and teachers, and is visually indistinguishable from what takes place during good teaching and learning. This indicates that assessment in OBE is an integral component of teaching and learning. On the contrary, literature in chapter one of this study revealed that, in traditional evaluation, teachers continued assessing learners' work at the end of learning experiences, which was very narrowly focused on the type of external examination. This is why Chisholm (1999:8) and Jansen (1999:37) assert that such a reason for assessment only encouraged rote learning, recall of information, and teachers regurgitating learning content to learners for the purpose of final examination. These assessment methods discouraged teachers to instill an interest of learning amongst learners, hence they were of little effect on the culture of learning.

The eigenvalue variables of factor two are less loaded in comparison to the eigenvalue variables of factor one (compare tables 6.6 and 6.7). This shows that the varimax method of rotation applied in this study obtained as many high positive loadings for factor one. However, there are four variables which have highly correlated eigenvalues for both factors, (see V.54 in table 6.7 and V.60 in table 6.8 and see V.44 in table 6.7 and V.60 in table 6.8)). Nevertheless factor one still has more highly loaded eigenvalue variables, which indicates that factor one variables obtained high responses from the respondents.

In the four highly correlated eigenvalue variables for both factor one and two, indications in the literature give reasons that OBE assessment strategies contribute more effectively to the culture of learning than traditional evaluation of learners' work. As a result the following hypothesis of this study has been supported:

**Hypothesis 1.** An assessment system built upon the traditional evaluation methods has a detrimental effect on the development of a culture of learning in schools.

### 6.6.3 Results of Rotated Factor Pattern Of Items Assessing Teachers' Understanding Regarding Assessment And Its Influence On The Culture Of Learning

All variables under factor three which loaded more than 0.30 eigenvalue relate to items concerning teachers' understanding about assessment of learners' work and its influence on the culture of learning. This factor and its respective variables are illustrated in table 6.8.

**Table 6.8. Variables Represented By Factor Three**

ITEM NUMBER AND DESCRIPTION	EIGENVALUE OF ITEMS FOR FACTOR 3	
V.28	Teachers' assessment of learners' work assist principals to see that assessment is an adequate evaluation mechanism.	0,62 852
V.25	Teachers' assessment of learners' work assists learners to monitor progress of learning.	0,60 042
V.27	Assessment of learners' work indicated to principals that teaching and learning are monitored in schools.	0,59 302
V.22	Teachers' assessment of learners' work allows learners to see assessment as part of teaching and learning.	0,58 997
V.24	Teachers' assessment of learners' work assists learners to see that teachers can identify learners' learning problems.	0,58 968
V.26	Assessment of learners' work assists principals to share decision task with teachers regarding learners' work.	0,58 543
V.32	Teachers' assessment of learners' work enhances learning contact between parents and children.	0,57 803
V.30	Feedback of assessment of learners' work to parents, enables parents to play an active role in the education of children.	0,57 704
V.21	Assessment assists learners to review their own learning and look at better ways of improving learning.	0,57 081
V.31	Teachers' assessment of learners' work and feedback to parents create a positive relationship between parents, learners and teachers.	0,56 834
V.23	Regular assessment of learners' work enhances learners' perception of success.	0,56 060
V.19	Teachers' assessment of learners' work contributes to collaboration and caring between teachers and learners.	0,54 940



V.29	Assessment of learners' work ensures that principals will allocate enough time for assessment purposes.	0,54 275
V.33	Assessment of learners' work involves parental decision with regard to information of assessment.	0,53 691
V.20	Assessment assists teachers to review information taught to learners.	0,52 309
V.17	Good assessment of learners' work promotes a positive attitude towards learning amongst learners.	0,51 343
V.18	Frequent assessment of learners' work allows teachers to intervene with remedial teaching at an early stage.	0,47 741
V.16	Teachers' assessment of learners' work enables learners to think critically and develop problem-solving skills.	0,47 654
V.15	Good assessment of learners' work contributes to the culture of learning.	0,41 637

<i>VARIANCE EXPLANATION OF THIS FACTOR</i>	7.25
<i>EIGENVALUE FOR THIS FACTOR</i>	7.55
<i>FINAL COMMUNALITY ESTIMATES</i>	32.47
<i>TOTAL VARIANCE EXPLAINED BY FACTORS</i>	79,40%
<i>CRONBACH ALPHA RELIABILITY CO-EFFICIENT</i>	0,965598

This table 6.8 illustrates item statements about teachers' understanding regarding assessment and its influence on the culture of learning. This forms the third factor of this study that has been extracted by factor analysis applied in this study.

The first two variables of this factor show a loading of high eigenvalue. This indicates that respondents gave serious consideration to these variables. The first variable V.28 has a high eigenvalue of 0,62 852: teachers' assessment of learners' work assists principals to see that assessment is an adequate evaluation mechanism. This variable received high positive responses from respondents.

Based on this, it was assumed that teachers gave this variable high input as many teachers believe that assessment results give principals a reflection that effective teaching and learning does take place in their schools. However there is a paradigm shift in this study with regard to assessment. Teachers in the OBE system are expected to use assessment strategies to indicate that effective teaching and learning is taking place for the improvement of the culture of learning (Siebörger and Macintosh 1998:21). Hence principals would also be expected to promote assessment as an adequate evaluation mechanism to ensure that learners achieve outcomes of learning for the benefits of the culture of learning.

In the literature study numerous data revealed that principals would be expected to ensure that desired outcomes of learning are achieved by learners (Pretorius 1998:102). However, principals in isolation cannot use assessment to assist learners to achieve the desired learning outcomes. It is suggested that an ideal management style for OBE is to regard teachers as a management team, which should be involved with regular assessment of learners' work, and where principals provide ample opportunities for teachers to develop high quality assessment strategies. Principals could therefore share in the assessment decisions taken by teachers and learners. This could promote co-operation between learners, teachers and principals, and possibly the culture of learning could be attained.

The second variable is V.25 with a high loading eigenvalue of 0,60 042, (see table 6.8 V.25). This item is 'teachers' assessment of learners' work assists learners to monitor progress of learning'. In the analysis of this variable, the researcher assumed that the reason which could have influenced respondents to give high responses to this variable is that teachers assist learners through assessment in order for learners to monitor progress of learning.

On numerous occasions in the literature review, educationalists have persistently and consistently argued that teachers become thrilled in any didactic situation where learners consciously monitor their own learning in order to tap progress of learning, (Airasian 1994:149). Hence teachers' assessment promotes self-assessment that motivates learners to know how they are performing, and to make time for improvement. This results in a form of assessment which carries an active ingredient on the part of the learner, which could possibly enhance the culture of learning.

The subsequent variables in this factor also shows a loading of high eigenvalue of 0,50, and above, and of 0,30, and above, which indicates that they have received a large proportion of responses from the respondents. This suggests that a varimax method of rotation obtained many high positive loadings for this factor. Hence the high positive loadings of factor three variables and the substantiated evidence from literature lead to the rejection of the null hypothesis of the study:

**Null Hypothesis** No distinction can be drawn between teachers' perceptions regarding the impact or influence of traditional evaluation methods and teachers' perceptions regarding the impact or influence of Outcomes-based assessment strategies on the culture of learning in schools.

## 6.7 SUMMARY

The biographical data of the respondents of this research study was given and explained in this chapter. This was followed by the interpretation of the responses of the data of the research questionnaire, whereby a principal factor analysis with a varimax method was applied to extract the possible factors of this study.

The three principal component factors extracted were:

- Items assessing teachers' views about Outcomes-based education assessment strategies and their influence on the culture of learning
- Items assessing teachers views regarding traditional evaluation of learners' work and its influence on the culture of learning"; and
- Items assessing teachers' understanding regarding assessment and its influence on the culture of learning.

Each factor was extracted with its own eigenvalue. Then the statistical procedure was applied to ensure that all eigenvalue variables are above 0,30 eigenvalue, since this was a deciding means for the eigenvalue variables. This was followed by the analyses of the statistic of the eigenvalue of variables of the respective three factors, in order to determine how they contribute to the significance of this study. Then empirical explanations were given to support the statistical results. The three extracted factors and their eigenvalues and the empirical explanations supported both the statistical results of this study, and also the hypotheses of this study.

A summary of findings and recommendations as a result of the survey will be given in chapter seven, as well as a critical view of this study.



## CHAPTER 7

# OVERVIEW AND SUMMARY OF THE MAIN FINDINGS EMERGING FROM THE EMPIRICAL INVESTIGATION, RECOMMENDATIONS, IMPLICATIONS AND CONCLUSIONS OF THE STUDY

### 7.1 INTRODUCTION

In chapter 1 the problem was stated that the traditional and current problem in education has been to develop effective strategies of evaluation and assessment of learners' work in schools, due to the reason that assessment is a powerful tool in education and training (Pretorius 1998:2; Nolan 1997:12; Phele 1997:8 and Smit 1995:57). However, in the past its influence has been underrated by both teachers and learners. Assessment was always regarded as judgmental with tests and examinations. These tests and examinations were largely content-based and comprised of closed questions which required learners to memorize information, and they also took place at the end of a section of work or at the end of the term (Clarke 1996:23). As a result these traditional strategies of assessment did very little to promote a sound culture of learning in many schools.

On the other hand there has been an advent of new assessment strategies which will lead teachers at all levels to question their past assessment practices, and start learning about new ways of assessing which are compatible with the principles of Outcomes-based education (Killen 2002a:1). One of these principles is that assessment practices are the most effective way of influencing the quality of student learning (Coetzer 2001:81).

In order to obtain more information on this problem, a literature survey was conducted to glean as much possible information about teachers' assessment of learners' work and



its influence on the culture of learning. The literature survey is presented in chapters two, three and four.

The research design was explained in chapter five. The empirical data, analysis and interpretation of information were given in chapter six. Factor analysis was applied, the main purpose of which was for the factorization of the items of the questionnaire to assess the construct validity, and clustering of the variables. The principal component factor analysis verified the existence of the number of variables influencing teachers' assessment of learners' work and its influence on the culture of learning (see chapter 6).

In this chapter the main findings are summarized, recommendations and implications of the research are given, and conclusions are drawn.

## **7.2 OVERVIEW OF THE RESEARCH STUDY**

The following variables in the literature survey were studied in order to investigate whether teachers' assessment of learners' work has the potential of promoting the culture of learning in schools.

### **7.2.1 Teachers', Learners', Parents' and Principals' Understanding Regarding Assessment And Its Influence On The Culture Of Learning**

In chapter two literature revelations distinctively showed that teachers need not perceive assessment as an instrument of ranking or for judging learners as to whether they "can do" or "cannot do" (Satterly 1989:5). Rather, teachers should perceive assessment as a collaborative and caring pedagogical instrument that will enable and motivate learners to build on their strengths and weaknesses in order to achieve the desired learning outcomes. If teachers can view assessment in this light, Popham (1995:19) believes that learners cannot regard assessment as a gauging instrument for the amount of content of work that has been taught by their teachers. Seen in this light, assessment could

possibly motivate learners to continue with learning, and develop a positive attitude towards the culture of learning.

Although teachers are regarded as regular assessors, the literature study did indicate that assessment involves shared decision-making amongst principals and teachers in schools (Stiggins and Conklin, 1992:31). Principals who share assessment decisions with teachers enrich their own ideas about assessment. In addition, when assessment decisions are shared at schools, learners are more likely to accept the results of assessment. This could increase learners' co-operation towards the achievement of the culture of learning.

Generally assessment of learners' work is described as something that is done by teachers to learners only. However Ryna (1994:43) indicates that parents are now being invited to take part in assessing their children's growth and progress in schools. Mashile and Mellet (1996:223) also concur that parental involvement with regard to assessment probably lessens the pedagogical deprivation and promotes intrinsic motivation. When learners realize that their parents are involved with assessment and take it seriously, learners will also regard assessment to be important, hence the culture of learning could be promoted.

### **7.2.2 The Nature And Types Of Traditional Evaluation Strategies And Its Influence On The Culture Of Learning**

In numerous literature studies discussed in chapter three, indications are that throughout the history of education teachers have been involved with assessing and evaluating the work and progress of learners. However King and Van den Berg (1992:18) argue that, in the South African education system, assessment was never used to motivate and diagnose learners' problems. It was narrowly focused on the type of final examination that will be written, consequently such an assessment presented a very different face, whereby teachers willingly or unwillingly sort out learners for the preparation of final examination.

According to Rensburg (the Citizen, 4th November 1998), this was the traditional system of assessment, which only concentrated on evaluating learners mainly to control the end-of-year examinations (see chapter three). Again this type of assessment only encouraged learners to be in competition with one another, by creating a buffer zone between inferior learners and superior learners; the superior ones would be learners who uncritically recalled and regurgitated subject-content and strongly believed that success depended more on memorization and recall of facts than any other thing (King and Van den Berg 1992:21).

Basically this shows that traditional assessment used reproductive evaluation strategies to assess knowledge as provided by textbooks. This indicates that paper-and-pencil, tests, examinations and assignments, which teachers scored and assigned grades to learners' performance, were the only formal instruments of assessment. Airasian (1989:5) believes that it helped teachers to understand their pupils, monitor learners' learning and establish a viable classroom culture of learning.

Such nature of assessment indicates that examination was put forward as a huge hurdle with secrecy and mystique, Teachers were forced to continuously use assessment measures entirely to provide learners with coping strategies for the external examination (King and Van den Berg 1992:19). Such assessment methods did not cater adequately for the development of learners, and also had little contribution towards the culture of learning (see chapter one).

This suggests that teachers were frequently applying assessment instruments which would only help learners to master learning content and specific knowledge in a reproductive way. Avenant (1990:219) indicates that teachers use measurement and evaluation as compasses to determine whether teachers were going in the right direction of assisting learners to master learning content and knowledge as would be expected in the final examination. Teachers were geared toward using assessment in the learning environment to measure and evaluate teachers' instructional objectives, and whether they were still aligned well with the prescribed content syllabus. By doing so, teachers would complete the work efficiently, and learners thereof could yield back orthodox answers in a perfect reproductive way (Airasian 1989:125).

The evidence in the literature further indicates that, although formative assessment was used by teachers in a traditional setting, it did not correctly serve the purpose of giving teachers clues about the specific pupils' problems of learning in order to devise ways of supporting learners (Airasian, 1994:135). Instead formative assessment was used as an evidence-gathering strategy to convince the bureaucrats of education departments and parents that learners are taught and well prepared to sit for final examinations. These were mostly summative assessment that, according to Satterly (1989:7), supplies a sort of seal of approval or disapproval on learners' performances (see chapter three).

This is why many researchers feel that home-work, assignments, classwork exercises and official tests were used by teachers to reinforce and enrich their teaching objectives. This was so that learners could perform well in the public examination, and achieve the set standards or norms in order to be compared well with their peer group (see chapter three). Such an assessment approach contributed very little to the culture of learning.

In numerous literature surveys, indications are that most assessment work in the traditional approach was not specifically used as an integral part of teaching and learning processes. The system of traditional assessment forced teachers to continually assess learners focused on the outcomes of final examination (Malan 1997:33).

Nevertheless Van der Horst and MacDonald (1997:27) strongly believe that many excellent teachers in traditional education have employed methods purported to assist learners to use knowledge, skills, attitudes and values. These helped learners to be active and valuable participants in creating a better future for themselves and created a better country for all the citizens. These are teachers who have placed a high priority on learner participation and who have encouraged learners to think and solve problems. Although the old curriculum was content-driven, those teachers managed to guide learners to a deep understanding and appreciation of their subjects. They managed to develop the skills required for research in subject areas and motivated learners to become thoughtful and skilled people. However, they were few in number, hence very few learners benefited.

### 7.2.3 The Nature And Types Of Outcomes-based Assessment Strategies And Their Influence On The Culture Of Learning

Literature on Outcomes-based Assessment revealed a variety of variables which normally contribute to the success and achievement of the culture of learning. According to Olivier (1998:37) assessment approaches in OBE has moved its focus from being mainly judgmental, and also not only concentrating on the achievement of learning outcomes, but Outcomes-based Assessment also considers supportive traits of promoting learning and teaching activities. This shows that Outcomes-based Assessment is a process which is often unobtrusive to students and teachers, and is visually indistinguishable from what takes place during teaching and learning (Wiggins 1998:3).

This shows that it is a system of assessment that is destined to improve learners' performance in learning. It is primarily meant to educate and improve learners' performances; this indicates that it has good features of promoting the culture of learning. Wiggins (1998:4) further supports this idea by citing that "Outcomes-based Assessment gives students the kind of challenges, diversity and flexibility that makes assessment more realistic, by enabling learners working together with their teachers critiquing one another's opinion or writing, hearing debates and even making presentations in group discussion." Such methods of assessment resemble the way learners will be expected to use their knowledge and skills in the real world (see chapter four). It therefore can build the culture of learning amongst learners.

This simply points out that Outcomes-based Assessment does not expect only a few learners to achieve outstanding performance, but its intention is to see all learners become successful in accordance with their varying potentialities. Its intention as Wiggins (1998:11) puts it is to "maximize learning on worth tasks that require enduring knowledge and skills." This approach of assessment is against assessing micro-skills and isolated bits of information, which promotes reproductive learning. Spady (1994a:50) believes that such assessment gains are usually quickly forgotten by learners once assessment is completed.

This suggests that assessment would be ever more central to the teachers' task. The literature has introduced new operational terms for implementing assessment as a central task for teachers. This was part of South Africa's "brave new world" (report of Review Committee on C2005, 2000:33). These new concepts are explained as follows in relation to assessment: that learners will be expected to achieve critical-cross-field outcomes to ensure that learners gain skills, knowledge and value; learners will attain specific outcomes which are derived from the different learning areas – which inform the demonstration of assessment of an outcome. All outcomes will be associated with assessment criteria which will indicate in broad terms the observable processes and products of learning, which serve as culminating demonstrations of the learners' achievements. The assessment criteria do not themselves provide sufficient details of exactly what and how much learning marks an acceptable level of achievement of the outcome. For this reason the assessment criteria are explained and detailed in the performance indicators and range statements (report of Review Committee on C2005, 2000:36). Through all these concepts and approaches of Outcomes-based Assessment, it is believed that it can enable learners to achieve unit standards that are nationally and internationally registered (Van der Wagen and Ridley 1997:13).

In view of the nature of OBE, new assessment strategies and approaches have emerged in the last few decades. These alternative assessment strategies have been taken into consideration, that assessment needs to move away from the emphasis of summative assessment as a single event, to developmental assessment which is an ongoing process. This will help learners to develop an ability of identifying learning problems and monitor progress of their own learning (Staatkoerant 1998:17).

Such an assessment would be an inseparable entity in teaching-learning activities. The literature survey has pointed out the following assessment strategies and approaches, as forming the categories of Outcomes-based Assessment namely: Performance Assessment; Portfolio Assessment; Self-Assessment; Peer Assessment; Continuous Assessment; and Criterion-Referenced Assessment (see chapter four). In several instances the literature survey indicated that the pay offs of these assessment strategies are that teaching, learning and assessment are inextricable in any learning-teaching situation. The result is that appraisal of learners' work becomes a central focus of the instructional program (Seely 1994:57). This indicates that such assessment strategies



have both the pedagogical positive persuasions, which underpin the vitality of the culture of learning.

### 7.3 MAIN FINDINGS EMERGING FROM THE EMPIRICAL INVESTIGATION

Following the main findings from the literature survey, the researcher will now discuss the findings emerging from the empirical investigation.

The empirical data of this study was subjected to factor analysis. The researcher did not only allow for the extraction and identification of important variables regarding teachers' assessment and its influence on the culture of learning. Through factor analysis three sets of factors and their respective variables were established in order to construct significance and interpret teachers' perceptions concerning the assessment of learners' work and its influence on the culture of learning. The following three factors were identified, namely:

- Teachers views about OBE assessment strategies and their influence on the culture of learning;
- Teachers' views regarding traditional evaluation of learners' work and its influence on the culture of learning; and
- Teachers' understanding regarding assessment and its influence on the culture of learning.

The first factor regarding Outcomes-based Assessment strategies accumulated the highest eigenvalue of 54.34 and its variables loaded eigenvalues of between 0.73 and 0.50 (see table 6.6). These were the highest loadings of eigenvalue in this study. The higher factor loadings therefore supported the assumption that teachers conceptualized the underpinning phenomena addressing OBE. They could therefore draw a clear distinction between Outcomes-based assessment policy and the traditional phenomena underpinning traditional product driven assessment practices. It was therefore assumed



that teachers are aware that Outcomes-based Assessment strategies could play a vital role in promoting the culture of learning.

This assumption is supported by various literature on numerous occasions. For example, Wolfondale (1995:13) argues that OBE uses assessment in the learners' best interest, because the outcomes of learning communicate to learners whether they have achieved expected outcomes. Assessment results are used by both teachers and learners to measure future progress. Assessment here does not only test and examine the knowledge content that has been taught, but it also tends to be diagnostic and prognostic in nature. This could motivate learners to learn and in this way the culture of learning is likely to be promoted.

The results of the empirical analysis indicated that teachers reacted very positively to the question items that supported OBE assessment strategies (see table 6.3). Teachers also agreed positively to statements indicating that traditional evaluation considered teachers to be the only people responsible for assessment and evaluation in schools. Assessment in this context appears to have been applied by teachers to confirm their instructional objectives, and disregarded possible benefits to learners from teaching and learning experiences.

The results of the highest accumulated eigenvalue of 54.34 (See 6.3.5.1) for factor one is due to the reason that teachers held strong views about the OBE assessment approach. This is supported by the fact that a greater proportion of respondents in the sample indicated that they became interested in assessment through the information they received from departmental workshops (see section 6.6). These data indicate that **Hypothesis 2** is supported which states that assessment strategies built upon an Outcomes-based assessment policy are more effective in contributing toward the development of a culture of learning in schools

The second factor relates to teachers' views regarding traditional evaluation and its influence on the culture of learning. This factor had accumulated an eigenvalue of 10.83. This is far lower than the eigenvalue of the first factor, and its variables only accumulated eigenvalues of between 0.60 and 0.32 (see table 6.7). For statistical purposes, it was accepted that respondents gave enough inputs in this factor.

It was assumed that respondents did not give high inputs in comparison with the first factor. The reason for this is thought to be that teachers are beginning to realize that traditional evaluation practices are generally associated with non-transparent governance structures, teacher-centered teaching, authoritarianism, rote-learning, an obsession with content, lack of integration between education and training, rigid divisions, and punitive formal examinations designed to yield high levels of failure. It would be clear to teachers, if given a framework of OBE assessment strategies, that the traditional product-driven assessment strategies represent unpedagogical practices. The literature survey also indicated that traditional assessment basically used reproductive evaluation strategies to assess knowledge as provided by. Again teachers were continually and narrowly assessing learners only for the benefit of the end-of-year examinations, not to motivate learners to master skills and develop positive attitudes towards learning. As a result this type of evaluation minimized opportunities for promoting the culture of learning.

The results of the empirical analysis indicate that teachers have a perception that assessment in the traditional setting was a tool narrowly used by teachers to prepare learners to succeed in final examinations. This is based on the high positive responses from respondents to question items that consider traditional evaluation to be a preparatory educational instrument applied by teachers to ensure that learners become successful in examinations (Table 6.7). As a result this indicates that assessment was not applied as part of teaching and learning processes, it was used only to determine whether learners have memorized the subject content, in order to yield orthodox answers in the final examinations. Hence the culture of learning in such situations was not effective.

The results of the lower accumulated eigenvalue of 10.83 (See 6.3.5.2) for factor two when compared with the highest accumulated eigenvalue of 54.34 for factor one support **Hypothesis 1** which states that an assessment system built upon the traditional evaluation methods has a detrimental effect on the development of the culture of learning in schools.

The lesser loading on factor two is possible due to the reason that many item statements in the questionnaire probed that assessment in the traditional setting was based on the

idea that assessment was used by teachers in order to rank and judge learners as extracted from the literature. It appears as though teachers received the same information from workshops, which were departmental attempts to introduce OBE assessment policy in schools. Respondents might also have been influenced by the media, which was also a mouthpiece used by the department to propagate that OBE assessment is more effective than traditional evaluation.

The different results of the accumulated eigenvalues for factor one and two, through factor analysis, enables the researcher to reject the Null hypothesis (**Hypothesis 3**) of this study, which stated that no distinction can be drawn between teachers' perceptions regarding the impact or influence of traditional evaluation methods and teachers' perceptions regarding the impact or influence of Outcomes-based assessment strategies on the culture of learning in schools

The results of the empirical analysis show that teachers are beginning to have strong views about the differences between traditional evaluation methods and OBE assessment tools. This is supported by table 6.6 accumulating a higher eigenvalue than table 6.7. Another strong reason could be that teachers are now trained about old evaluation methods, that are believed to be teacher-centered, and also about the new styles of OBE assessment, that are believed to learner-centred. Hence teachers are now holding strong convictions about the distinction between traditional evaluation methods and OBE assessment strategies.

The third factor relates to teachers' understanding regarding assessment and its influence on the culture of learning. This factor has a loading eigenvalue of 7.55, which is lower than that of the other two factors. Nevertheless, for the statistical analysis purpose of this study this factor was accepted. However an assumption was made that respondents did not give sufficient responses in this factor, because it is generally known that teachers do not understand the operational meaning of the word "assessment" in an educational context (see chapter one). Satterly (1989:1) supports this idea when he argues that teachers generally associate educational assessment with ranking and evaluation of learners' work. Further support for the supposition that teachers always link assessment with evaluation, is that respondents gave higher inputs in V.28 in the questionnaire. This variable loaded an eigenvalue of 0.63, which was the highest

eigenvalue variable for factor three. This variable explains that teachers' assessment of learners' work assists principals to see that assessment is an adequate evaluation mechanism (see table 6.8 – V.28).

Furthermore Russell and Willinsky (1997:188) argue that teachers base evaluation on the framework of vocational or educational placement, and use formal assessment of learners to account to various audiences in appropriate fashion concerning the programs of the school. The key reason was that teachers have traditionally been considered accountable for a curriculum for which the content was prescribed, and assessment patterns were established to determine the extent to which students had achieved the objectives of the prescribed programs. This is the reason why teachers have given a higher proportion input regarding teachers' assessment of learners' work to assist principals to see that assessment is an adequate evaluation tool. However House (1973), as quoted by Russell and Willinsky (1997:188), points out that the implementation of a tight managerial model of evaluation is unlikely to result in improving teaching and learning.

Assessment is a vital component within didactic situations. However, in the results of the empirical analysis of this study, the factor relating to assessment received the lowest eigenvalue compared to the other two extracted factors (see tables 6.6, 6.7 and 6.8). In table 6.8, which discussed all variables related to assessment, the variable that directly and openly probed the idea that assessment of learners' work contributes to the culture of learning accumulated the lowest eigenvalue in comparison to all other variables in table 6.8. Literature studies have indicated that for curricula to be well implemented in schools, assessment needs to be aligned with all curriculum activities. This is needed to assist both teachers and learners to know the direction that they are heading in the teaching and learning environment.

This implies that teachers do not recognize the inextricable linkage between teaching-learning processes and assessment. Clearly much needs to be done in order for teachers to understand the pedagogical meaning of the concept of assessment within the didactical situation.

## 7.4 RECOMMENDATIONS AND IMPLICATIONS

It is evident from the empirical investigation that teachers perceive assessment of learners' work to have greater potential in contributing to the culture of learning. In order to increase teachers' assessment effectiveness with regard to learners' work for the promotion of the culture of learning in schools, the following recommendations are made:

### 7.4.1 Classroom Assessment Practices

Assessment in a teaching and learning situation need not be a single event performed by teachers only at the end of learning experiences, in order to ascertain that learners can only remember and recall the factual information which has been taught. This only assists teachers to gauge whether they have achieved instructional objectives, and allows learners to reflect on the content which has been taught. Such assessment or evaluation is only geared to determining to what extent learners are able to master, remember and recall the learning content (Olivier 1998:20). Such a system of assessment does not prepare students for real life and for lifelong learning, because learners are scored according to their ability to reflect, remember and recall, and then passed or failed according to set procedures and criteria.

Assessment needs to be viewed by both teachers and learners as an inseparable activity in teaching and learning processes. Teachers need to regard assessment as a curriculating process, which determines how learning should empower learners through the achievement of learning outcomes. They should also regard assessment as part of guiding and evaluating the learning processes. Assessment needs to focus on knowledge and skills in the learning process that will enable learners to achieve the final results. Learners exposed to this approach of assessment have the benefit of mastering methods, techniques and procedures which relate to real-life work and which can be repeated in new contexts.

The factor analysis of this study also revealed the respondents' homogeneity of responses regarding certain issues related to OBE assessment strategies and traditional



evaluation methods. The assessment practices which were traditionally used for the knowledge and input-based education and training system are still useful in OBE assessment. Siebörger and Macintosh (1998:42) stress that outcomes of learning do not exist without traditional content knowledge. However, the main emphasis with OBE is that learners would also have to do something with the knowledge. This suggests that exit level summative assessment (examinations), and norm-referenced assessment (grading and averaging) will still be used as part of a more integrative assessment

Therefore, it is recommended that the teachers' assessment practices should acknowledge and extend the substantial body of knowledge on principles of sound assessment practices that can be found in any recognized texts on various subjects. Consequently, teachers would possibly apply fair assessment practices, or practices that could produce reliable evidence which may be interpreted in valid ways, thus having more chances of contribute to the culture of learning in schools. The sound assessment practices revealed the learners have learned, teachers have presented their lessons well, and they have adequately used the appropriate methods and the relevant materials.

Osman and Kirk (2001:179) point out that assessment is a continuous process of shaping and reshaping, hence an appropriate blending of old and new methods of assessment is recommended in a learning environment. OBE makes use of formative and summative assessment methods, just like traditional evaluation, however these methods in OBE have been reshaped and redesigned. For example in Outcomes-based assessment results collected initially for formative assessment, can be used for summative assessment with the agreement of the learner. This will prevent having to assess outcomes twice.

Therefore the notion of summative assessment in OBE does not confine this assessment method to a written examination that can only assess a sample of learning within a limited time (SAQA, Quality Assurance And Development, Unit Standard And Qualification, 2001a:33). Instead it allows for the use of a range of assessment methods including inter-alia: observation, product evaluation, written and oral questioning. It also allows a range of assessment instruments such as practical role plays, written assignments, texts, examinations, demonstrations, projects, case studies, and simulations. These assessment methods and instruments are administered when learners are involved with teaching-learning processes, and also when learners have gone



through the learning programmes and are ready to be assessed. These assessment strategies are applicable to both formative and summative assessment with the proviso that the assessment methods and instruments match what is being assessed, so that appropriate and sufficient evidence is collected for declaration of competence, so that credit can be given to the learner.

The implications of classroom assessment are the promotion of learners' participation in the practices of learning and teaching activities. According to Morrow (2001:103), to learn a practice is to become a participant, or a more competent participant in the practice. Then through classroom assessment practice, teachers will show the extent to which the learner is satisfactorily engaged in the learning practice. It is therefore recommended that teachers, through assessment, should make learners participants in the learning environment, for the promotion of the culture of learning.

#### **7.4.2 National And Provincial Management Of The Assessment System In Schools**

Departmental officials and other related educational assessors need to perceive themselves as learning facilitators who administer assessment in order to facilitate learning. Consequently, learners could regard assessment as part and parcel of learning and teaching activities. Robinson (2001b:156) clearly states that assessors need to acquire certain skills and expertise in order to be competent. These skills and expertise involve inter-alia good interpersonal skills, subject matter expertise and assessment expertise. Good interpersonal skills are recommended for teachers and other assessors in didactic situations. The reason for this is that assessors will have to communicate information and objectives for assessment. Learners will also need to share in this communication, hence interpersonal relationships need to be well developed in both parties. Teachers and departmental assessors need to conduct assessment fairly and with great integrity, to earn the trust of learners that they have the learners' interest of learning at heart, for the promotion of a culture of learning in schools.

It is again recommended that teachers and departmental assessors must be proficient in the subject matter of the learning areas which they are assessing. They should possess





unquestionable assessment expertise, which could allow them to follow the correct assessment process, i.e. plan and agree on the assessment with the learner, guide the learner in the collection of evidence, conduct the assessment, and finally, provide feedback to the learner about the assessment decision. Such skills and knowledge will be evident especially when teachers apply portfolio assessment techniques.

These recommendations clearly demonstrate that assessment is no longer something that is “done” to the learner, but something that the learner is actively involved in. As such, the role of the teacher and departmental assessor has changed: From being “Gate Keepers”, who use assessment to prevent learners from developing further, to a supportive guide who has the success of the learner at heart – so that the learner can gain access to further learning (SAQA Guidelines for the assessment of NQF Registered Unit Standards and Qualifications, 2001b:57).

This implies that departmental officials both at provincial and national level need to redouble their efforts to help teachers understand the fundamental transformation of assessment in schools. They need to understand that learners should no longer be assessed in order to reproduce the learned content or to ascertain that learning and teaching objectives have been achieved. Learners in the OBE system are assessed by the content that they have learned, which is central to skills, capacities and dispositions. Therefore the processes of learning and teaching need to consider all these valuable pedagogical structures in any didactic situation.

This calls upon teachers to be aware that distinguishing between presentation of content and assessment is only relevant in an analytic mode. In practice, presentation of content and assessment are intertwined, because they both relate to the process of learning. It is this type of teaching and learning which could possibly indicate to learners the skills, knowledge, values and capacities within the presented content. Hence such assessment strategies could enable learners to become practitioners in their own learning.

Departmental officials and other related Educational assessors have to decide on what part to take regarding this fundamental transformational assessment approach. Morrow (2001:89) states that “to gather the living flower of this new educational system, which is underpinned by assessment strategies for the promotion of the culture of learning.

Both national and provincial officers of education, need not to work in ivory towers instead they need to understand that they are not legislators but interpreters, who need to devote their intellectual energies to provide workable interpretations of OBE, and those who work in educational administrations must take on board the responsibility to implement OBE effectively- to make it work.” This means that departmental structures must consult appropriately with relevant stakeholders in order to develop immeasurable capacity regarding Outcomes-based Assessment policy.

### **7.4.3 Teachers’ Education And Assessment Systems In Schools**

Maistry (2001:159) states “for many years South African schooling including teachers education has been driven by a terminal external examination system that is largely context insensitive”. This assessment system has had a profound influence on teachers - so much so that many have adopted a ‘teach-to-test’ pedagogy. The nature of the external assessment has, however, dictated a different set of expectations amongst teachers. This together with the repressive teaching context under which many teachers teach, has manifested itself in the development of unique coping strategies by many teachers, as a result the culture of learning and teaching has been hampered.

Research indicates that teachers’ education is based on subject-curriculum design. The culture of learning of the subject-based curriculum is to ensure that students not only acquire the knowledge of the particular sets of subjects, but that they also become proficient in the methodology by which such knowledge is generated, structured and evaluated. Each subject has its own particular value construct that informs it. Hopefully, students seeking to construct their own knowledge will do so using the preferred methodology and within the value parameters of the discipline. Student teachers had to be assessed formally in order to obtain a particular qualification. Consequently, student teachers had to memorize large blocks of information in textbooks in order to pass examinations. Thus teachers’ education in itself is also from an examination-orientated background.

The aforementioned evidence of teachers’ education shows the extent to which the doctrine of fundamental pedagogics has been internalized in teachers, and how it has manifested itself in an archaic notion of teaching, learning and assessment that prevails

amongst experienced teachers. Mainstry (2001:160) believes that fundamental pedagogics is based on the tenets of authority and control (with teachers as a dispenser of uncontested knowledge), and a centrally determined curriculum that emphasized rote learning of subject matter in teachers' education.

However in this research study it is recommended that the task of the teacher with regard to assessment centers on the creation and organization of a stimulating and rewarding learning environment for learners. This should seek to ensure learners' active and willing participation in their learning experiences (see chapter one). Teachers need to use assessment to enable learners to encounter theory and issues in the most practical way possible (see chapter two). Lastly, teachers need to apply assessment strategies and activities that will enable learners to analyze and interpret their learning content, in order to make value judgements and develop positive attitudes towards learning

This implies that teachers need to use assessment strategies to facilitate the process by which learners develop an appreciation and ability to participate in their respective environments of learning. This further emphasizes that what is crucial with assessment is that pupils are expected to analyze and discuss problems; this entails an understanding and appreciation of the purpose, procedures and rules of assessment discourse. This indicates that assessment knowledge is more a matter of "knowing how" as opposed to simply "knowing that". This suggests that no amount of listening to the teacher can ensure the internalization by the learner of the "knowing how". Good assessment involves learner-centered learning activities such as case studies, data-analysis, theoretical exercises and industrial visits. Brain storming, debate, investigations, decision-taking exercises, group work and presentations also have a valuable part to play in assessment, teaching and learning for the promotion of the culture of learning (see chapter four).

This system of assessment strategies clearly demonstrates that assessment is an inseparable entity from teaching and learning processes. This is why Airasian (2001:6) argues that it would take some skill and experience to use these sometimes time-consuming approaches. Nevertheless, literature study and the results of the empirical investigation of this study show that teachers' assessment of learners' work could possibly create a learning environment that is conducive to autonomous and co-

operative learning, which would facilitate a free flow of ideas, and encourage ongoing learning.

Teachers will have to plan and deliver instruction, and include decisions about what will be taught, how and when it will be taught, what materials will be used, how a lesson is progressing and what changes in planned activities must be made. These recommendations and implications on teachers' education and assessment systems in schools indicate that a lot more needs to be done in changing the old mindset of the teachers' education curriculum.

## 7.5 LIMITATIONS OF THE STUDY

The purposive sampling procedure and the structured question items in the questionnaire decreases the generalisability of findings. This study attempted not to generalise to all areas of assessment in schools. There are a number of areas that need to be assessed in schools. For example, Airasian (2001:6) cites that a first kind of assessment is used by teachers early in the school year to learn about their pupils' social, academic, and behavioral characteristics and needs in order to foster and enhance instruction, communication and co-operation in the classrooms. This assessment is called sizing-up assessment. Another kind of assessment is used by teachers when carrying out their official responsibilities as members of the school bureaucracy. Tasks such as grading, grouping, assessing progress, interpreting test results, conferencing with parents, identifying pupils for special needs placement and making promotion recommendations, are all part of the official responsibilities a teacher assumes as an employee in a school system. Such assessments are known as official assessment.

There are a number of challenges for teachers regarding assessment. Consider the situation in which a stakeholder, perhaps a national and state policy-maker, wants to set state and national standards, develop policies based on assessment, track the progress of national and state achievements, provide resources to improve learning and provide rewards or sanctions for pupils, schools and state achievements. They will look to what has transpired from the results of assessment in all these activities in school.

This is the reason why this research study confined itself to teachers' assessment of learners' work as an inseparable activity from teaching and learning processes in order to promote the culture of learning in schools. The researcher only gathered the theoretical data that considered the role of assessment regarding teaching and learning activities in the learning environment. Likewise the researcher also restricted his research methodology to questionnaires that only probed teachers' perceptions about assessment in the learning environment. Hence the field of study was demarcated to study assessment as an activity that manifested itself in the learning environment practiced by teachers and learners for the promotion of a culture of learning in schools.

## 7.6 SUGGESTIONS FOR FUTURE RESEARCH

In the recommendations and implications of this study in section 7.4.3, it is mentioned that there is a sharp contradiction between teachers' education and assessment of learners' work by teachers to improve the culture of learning. Teachers education is still driven by external examinations, which makes the teacher's position more difficult and challenging in an environment where teachers are expected to apply assessment as a strategy for promoting learning in a learning environment, so that learners will experience success in their learning situations.

Van der Vyver (2001:128) states that the examination driven education system of teachers encouraged student teachers to read the particular examination question and then dump memorized sets of information as their responses to obtain a particular qualification. Since teachers have been exposed to this type of context throughout their careers, they have tended to develop the same strategies in their respective teaching and learning situations. As a result they subvert assessment strategies that could assist learners to develop a positive attitude towards learning. They know that ultimately their learners will be measured by their ability to competently answer the external examination. The teacher's primary concern is therefore how best to prepare their learners for terminal examination. Consequently the teacher's main obligation to pupils



is to get them through the syllabus and to prepare them for the final examinations (see chapter three).

There must be a critical dialogue between teacher education institutions and education departments about the values or implications of these new OBE assessment strategies and approaches. Green (2001:129) believes that any change initiative in education has to engage with who teachers are, where they come from and where they perceive themselves to be going, since the emotional and cognitive well-being of learners depends on the emotional and cognitive well-being of teachers.

In chapter one in section 1.7.5 it was mentioned that the term ‘culture of learning’ is generally defined in terms of learners’ behavior at such institutions, but it needs to be recognized that most often learner behavior is determined by or is a response to teacher behavior. Therefore this research study postulates that there is a need for further research investigating the role of teachers’ colleges regarding Outcomes-based Assessment approaches and their influence in improving the quality of learning and teaching in schools.

Secondly, further research needs to be conducted into the problem of practising teachers who seem not to understand assessment functions with the didactical context. This problem was revealed in the empirical analysis, which showed that many teachers appear to lack a deep understanding about this concept. A particular gap was how assessment needs to be applied in the teaching and learning situation.

Thirdly, further research needs to be done regarding the relationship between formative assessment and summative assessment. Outcomes-based assessment policy appears to regard both formative and summative assessment as authentic assessment. On the contrary, the traditional evaluation school of thought only accepts summative assessment as authentic assessment. This has been revealed by literature studies on a number of occasion in this study.

Lastly, different assessment strategies have been studied in this research. However the study did not look at different assessment strategies for different learning areas. There is a need for future research to evaluate the application of different assessment strategies

for different learning areas. Seeing that the nature, content and scope of different learning areas vary, consequently their assessment strategies may not be the same.

## 7.7 CONCLUSIONS

The aims of this study were to determine in what ways did traditional assessment influence the culture of learning, and whether outcomes-based assessment practices have the potential to contribute to the establishment of the culture of learning in schools. These two aims were investigated initially through a literature review, and then through an empirical investigation. For the purpose of this study, the empirical investigation was restricted to a consideration of teacher's opinions/perceptions, it did not involve scenario based observations.

Literature studies revealed that teachers used traditional evaluation methods to ascertain whether instructional objectives were achieved in the didactic situation. It has been revealed that these methods always applied techniques that would allow learners to pass the end-of-year examination, and that would prepare learners to be ready for summative assessment. Hence these techniques were content-driven, only prescribing the pathway to be followed by learners in order to achieve good results at the end of the year. The teachers' responsibility was to drill subject-content in preparing learners for the writing of examinations. Any deviations either by teachers or learners suggested failure.

The results of the empirical analysis showed that traditional evaluation methods were teacher-centred. This was mainly because teachers were expected to 'deposit' the prescribed learning content 'into' learners, and learners were expected to be open receptacles ready to receive information from their respective teachers. Then if teachers felt that learners had well received the prescribed information they were passed; on the contrary whenever teachers felt that learners did not receive the information very well they were failed. This made teachers judge learners irrespective of the reasons that may have caused learners not to perform well. This approach appears to have discarded remediation and continuous assessment in the learning situation that could have signaled to teachers problems that learners were experiencing about the content to be learnt.



Both literature review and empirical results indicated that the OBE assessment policy attempts to apply assessment as part of teaching and learning processes. Several citations from the literature were made to indicate that assessment should not only be performed by teachers in the didactic situation. Instead, it should promote dialogue between teachers and learners about the subject-content, and enable learners to master skills, values, knowledge and good attitudes towards learning for the benefit of the culture of learning in schools.

The results of the empirical analysis revealed assessment in the OBE approach to be an element that makes teaching learner-centred. Assessment in OBE promotes interaction between teachers and learners, where teachers assist, guide and help learners to become inquiring participants, develop confidence, become open-minded, resourceful and task-committed individuals in the learning environment. The interaction between the teachers and learners develops the attitude for effective and productive thinking in the teaching and learning situation. The empirical results also indicated that assessment needs to promote interaction, which ensures that learners are active in the learning and teaching processes, not merely recipients of knowledge and information.

Such assessment advocates that teachers need to use assessment strategies that are clear and transparent in order to allow responsiveness and active participation of learners for the promotion of the culture of learning in schools.