CHAPTER FIVE

RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

In this chapter a report is given of the research design that was used in the empirical phase of this study, i.e. how the researcher collected and processed data to address the research questions that informed the study. Section 5.2 explains the research methodology used in the study, advantages, disadvantages, the rationale for the methodology and justification for the adoption of a qualitative research design. Section 5.3 is on sampling. The sampling method used, sample size and a justification why the researcher used the particular sampling method are discussed under this section. Justification for the sampling the sampling of the three junior secondary schools is discussed under 5.3.1. Section 5.4 covers data collection and then 5.5 explains the role of the researcher as an instrument in data collection. Section 5.6 details the methods that were employed for collecting the data namely focus groups, what they are, why they were used, and their limitations; follow-up interviews, lesson observations and field notes. Section 5.7 explains how the researcher ensured the verifiability of the research findings. The final section, 5.8 details how the data were processed. Included in this section are explanations on how the researcher segmented, coded, compiled a master list, checked for intercorder and intracorder reliability, enumerated and showed relationships among variables.
5.2 RESEARCH METHODOLOGY

The research is designed in such a way as to shed light on the present and actual practice regarding the teaching of mixed-ability classes in the junior secondary schools in Botswana. This was achieved through various focus group interviews, follow-up interviews with individual teachers and lesson observations with different core subject teachers. The focus groups were sampled from three neighbouring community junior secondary schools in the Northeast district of Botswana.

After focus group interviews, follow-up interviews and lesson observations were conducted only in cases where the researcher intended to verify or challenge information obtained during focus group interviews. During lesson observations, field notes were written and analysed.

The study is a qualitative case study research (where instructional experiences are described as they occur in a real life setting). Since the overall purpose of qualitative methodology is a better understanding of real life, individuals or groups, this approach was deemed appropriate to use in an area which has hitherto not been explored extensively. The qualitative methodology enables researchers to interact with participants, to conduct actual interviews with them, to observe routines, and thereby to reconstruct their reality and environment from their own point of view (Silverman 1993:9). The qualitative methodology allows findings to be represented in the common, everyday language of the situation, not scientific or statistical jargon as in quantitative
research (Rubin and Rubin 1995:1-2). Writing on qualitative research methods, Aukerman (2001:2) states that these methods are built on a postpositivistic, phenomenological world-view, which assumes that reality is socially constructed through individual or collective definitions of the situation.

Merian (1988) (in Bogdan and Biklen 1992:62) defines a case study research as a detailed examination of one setting, or a single depository of documents, or some particular event. Case study research should not be confused with case study analysis, the latter is frequently used for policy research because it can be designed to give more global analysis of a situation. According to Gall et al. (1996:545) case study research serves the following two purposes: First, it is done to shed light on a phenomenon, which is the process, events, persons, or things of interest to the researcher. Second, case studies involve fieldwork in which the researcher interacts with study participants in their own natural settings. The researcher learns about the phenomenon from the perspective of the practitioners who are in the field, thus he/she becomes immersed in the phenomenon of interest (Aukerman 2001:2). The fact that a qualitative research design was adopted for this study implies that the researcher was aimed at gaining an understanding of a social phenomenon (in this case teaching mixed-ability classes) from the participants’ perspective (McMillan and Schumacher 1993:373).

According to McMillan and Schumacher (1993:375) qualitative research is concerned with the investigation of small, distinct groups. The depth associated with qualitative research allows the researcher to achieve ‘verstehen’ or empathetic understanding since it
affords the researcher the opportunity to access the meanings that individuals give to their measurable behaviour (Jones 1997:3). Qualitative research reports include descriptions, judgments and evaluations. Because of a qualitative researcher’s postpositivistic paradigm, there is little or no attention paid to generalisability, replicability, and predictability, as used by quantitative researchers. Emphasis is laid on dependability, which is enhanced by the use of prolonged engagement in the field, triangulation, case analyses, auditing and or checks by stakeholders (Aukerman 2001:2).

5.2.1 Advantages of qualitative research methodologies

The qualitative case study approach was employed taking cognisance of the methodology’s advantages as observed by a number of authors such as Gall et al. (1996:549), Jones (1997:3) and Aukerman (2001:2). Some of the advantages of the qualitative research methodologies are:

• They allow the cognitive and affective components of the informants to be explored in greater depth than quantitative methodologies.

• They encourage the informants to introduce concepts of importance from the emic perspective (the research participants’ perceptions and understanding of their social reality), rather than adhering to subject areas that have been pre-determined by the researcher. The flexibility of qualitative methodologies is appropriate for research that may be exploratory in nature.
• Qualitative approaches permit the identification of longitudinal changes, whereas quantitative approaches tend to take a ‘snapshot’ of behaviour, cognition or affect at the time the research is conducted.

• They allow the researcher to describe existing phenomena and current situations.

• Qualitative methods, especially observation or unstructured interviews allow the researcher to develop an overall picture of the subject under investigation.

5.2.2 Disadvantages of qualitative research methodologies

However, objections to the use of qualitative research methods do exist. The main argument against is the concept of validity, in that it is difficult to determine the truthfulness of findings. The relatively low sample numbers often encountered may also lead to claims of findings being unrepresentative of the population (Jones 1997:3). Even if the researcher identifies certain themes, the claim that such themes are not representative of the population as a whole is possible. Some critiques may argue that the chosen case is untypical. The Colorado State University (CSU) (2001:1) identifies the following as some of the disadvantages of qualitative research traditions:

• Researcher bias can contaminate the design of the study.

• Researcher bias can enter into data collection.

• Sources or subjects may not all be equally credible.

• Some subjects may be previously influenced and affect the outcome of the study.

• Background information may be missing.
• Analysis of observations can be biased.

• Any group that is studied is altered to some degree by the very presence of the researcher. Therefore, any data collected is somewhat skewed (Heisenburg Uncertainty Principle).

• It takes time to build trust with participants that facilitates full and honest self-representation. Short-term observational studies are at a particular disadvantage where trust building is concerned.

One may wonder how in the present study the researcher circumvented the negative effects of the above-identified problems. The mitigating effects of the above problems were countered by triangulating the methodology, which was achieved through literature study, focus groups, follow-up interviews and lesson observations. Jones (1997:4) and the Alberta Consultative Health Research Network (2001:1) state that triangulation has the following advantages:

• Research development (one approach is used to inform the other, such as using qualitative research to develop an instrument to be used in quantitative research).

• Increased validity (confirmation of results by means of different data sources).

• Complementarity (adding information, i.e. words to numbers and vice versa).

• Creating new lines of thinking by the emergence of fresh perspectives or contradictions.
The qualitative study had an emergent design, meaning that the research design was flexible, unique and continued to evolve throughout the research process (with each new research decision dependent on prior information). The emergent nature of the design meant that the research did not involve pre-planned, sequential, fixed steps, which could be followed (Schunnk 1998:243). Bogdan and Biklen (1993:374) describe the emergent design appearing to be of a circular nature, with processes of sampling, data collection and partial data analysis being “simultaneous and interactive rather than discrete sequential steps”.

5.2.3 Justification for the adoption of a qualitative research design

In justifying the use of qualitative research designs, Bogdan and Biklen (1992:49) point out that:

Unlike quantitative researchers, qualitative researchers do not see themselves as collecting ‘the facts’ of human behavior, which when accumulated will provide verification and elaboration on a theory that will allow scientists to state causes and predict human behavior. Qualitative researchers understand human behavior as too complex to do that and see the search for cause and prediction as undermining their ability to grasp the basic interpretive nature of human behavior and the human experience.

Qualitative researchers’ goal is to better understand human behavior and experience. They seek to grasp the processes by which people construct meaning and to describe what those meanings are. They use empirical observation because it is with concrete
incidents of human behavior that investigators can think more clearly and deeply about the human condition.

In this investigation, the researcher adopted a qualitative design because of the following reasons:

- In his opinion, there is too little written research findings on the phenomenon that was being investigated (mixed-ability grouping in Botswana).
- The research design afforded the researcher an opportunity to learn about optimising mixed-ability grouping for effective instruction from the perspective of the practitioners.
- The research design enabled the researcher to achieve an empathetic understanding since he was able to access the meanings that individuals give to their measurable behaviour.

5.3 Sampling

The study made use of purposeful sampling. The goal of purposive sampling is to choose cases that are likely to be information-rich with respect to the purpose of the study (Gall et al. 1996:219). Three community junior secondary schools were selected in the Northeast district of Botswana. The focus groups from all the three schools consisted of teachers who were teaching the following core subjects: Agriculture, Science, Social Studies, English, Mathematics and Setswana. The researcher limited the study to core subjects, because in his opinion there is bound to be more diversity in a class having forty students, as compared to a class of fifteen to twenty students as is the case with optional
subjects. The rationale behind sampling across subjects and experience was informed by the perception that different subject teachers, of different experiences, experience different difficulties in handling mixed-ability classes. Participants for the first focus group were drawn from forty-one secondary school teachers who were teaching in one of the community junior secondary schools where the research was conducted during the second and third term of the year 2003.

The second and third focus groups were sampled from two neighbouring community junior secondary schools that had basically the same set-up, organisational structures, routine operations, teacher-pupil ratio, teaching loads and extracurricular activities as the first school. Snowball sampling was used to select teachers from these two other schools. Goetz and LeCompte (in McMillan and Schumacher 1993:381) describe snowball sampling as a technique in which a preceding participant names each successive participant. The researcher requested teachers whom he knew from the other two junior secondary schools to identify some teachers who had attributes qualifying them for participation in focus group interviews (these attributes were teaching core subjects and not above the senior teacher two grade). This was meant to achieve some homogeneity in the focus groups, so as to enhance fruitful discussions (Gibbs 1997:4). The researcher then contacted the suggested teachers from each school until sufficient participants were selected for each focus group.

Writing on sample sizes in qualitative studies, Wiseman (1999:259) states that qualitative researchers should ensure that the nature of samples they acquire as the subjects of their
investigation are small and purposeful. This is necessitated by the need to acquire the in-depth understanding of the issue under consideration. In essence, it is better to find out a lot about a little, than to find out a little about a lot. Qualitative studies represent the rare exception of the usefulness of small, nonrandom samples. It is because of the above considerations that the researcher considered it suffices to select only three focus groups. Because of the emergent design of the qualitative study, observations were done to clarify and verify information obtained by means of the focus group interviews.

5.3.1 Justification for the sampling of the three junior secondary schools

The three sampled junior secondary schools are a replica of junior secondary schools throughout Botswana, in terms of infrastructure, teaching staff composition, curricular, teacher-pupil ratio and student diversity. This is because construction of infrastructure, admission of students and staffing are centralised. This being the case, any other junior secondary schools could have been sampled. However, the three were sampled for the sake of convenience (Gall et al. 1996:227). The three schools were located near the researcher’s work place and the researcher was also familiar with the setting in the three schools.

5.4 Data collection

The processes of purposeful sampling, data collection and partial analyses ran simultaneously and interactively, instead of being undertaken in well defined sequential
steps as is the case with most quantitative studies. According to McMillan and Schumacher (1993:374) this is a result of the emergent design of qualitative studies, which make them circular in nature.

5.5 The researcher as instrument

The research took the form of focus group interviews and lesson observations in three community junior secondary schools in the Northeast district of Botswana. The researcher assumed the role of a moderator during focus group interviews and a non-participant observer during follow-up observations. The focus of the observations was a portrayal of the teaching-learning activities in mixed-ability classes at the junior secondary school level, to verify or negate information from the focus group interviews.

Wiseman (1999:256) points out that the involvement of the researcher in collecting data in the naturalistic setting raises a number of questions related to the validity, reliability and objectivity of the research findings. Two issues that seem to surface most frequently are: First, can the presence of an investigator alter the behaviour of those being studied? Second, can the opinions and other biases of the researcher influence the interpretations assigned to the findings?

In the present study, the researcher made attempts to minimize his presence during lesson observations through:
• The immersion of oneself into the study environment in as unobtrusive a manner as possible.

• Discounting some information because of the intrusion of the investigator within the context of the behaviour. This was achieved by not collecting data during the first few days on site.

• Refraining from treating those from which data is collected as research subjects.

5.6 Methods

The researcher made use of the following data collecting methods; focus groups, lesson observations and field notes.

5.6.1 Focus groups

The researcher made use of focus group interviews as one method of collecting data. Focus group interviews were conducted with three different groups of teachers at three different community junior secondary schools. Interviews were recorded and later transcribed. Field notes were kept, which were then analysed. According to Gibbs (1997:3) focus group interviews have the following advantages:

• The interaction between participants highlights their view of the world, the language they use about an issue and their values and beliefs about a situation. Interaction also
enables participants to ask questions of each other, as well as to re-evaluate and reconsider their own understandings of their specific experiences.

- Focus group interviews elicit information in a way which allows researchers to find out why an issue is salient, as well as what is salient about it. As a result, the gap between what people say and what they do can be better understood. If participants reveal multiple understandings and meanings, multiple explanations of their behaviour and attitudes will be more readily articulated.

Gall et al. (1996:289) point out that interviews are adaptable in that skilled interviewers can follow up a respondent’s answers to obtain more information and clarity on vague statements. Interviews can build trust and rapport with respondents, thus making it possible to obtain information that the individual would not reveal by any other data collection method.

However, Gibbs (1997:3) notes that focus group interviews have a number of limitations, inter alia:

- The researcher has less control over the data produced than in either quantitative studies or one-to-one interviewing. The researcher has to allow participants to talk to each other, ask questions and express doubts and opinions, while having very little control over the interaction other than generally keeping participants focused on the topic.
• At times individuals in a focus group will not be expressing their own definitive individual views, since they will be speaking in a specific context, within a specific culture. As a result, at times it may be difficult for the researcher to clearly identify an individual message.

• Focus groups may discourage certain people from participating, for example those who are not very articulate or confident, and those who have communication problems or special needs. The method of focus group interview may also discourage some people from trusting others with sensitive or personal information. In addition, focus groups are not fully confidential or anonymous, because the material is shared with others in the group.

The researcher was also aware that information from focus group interviews is further limited by the participants’ knowledge, memory and ability to convey information clearly and accurately and also, by how they wish to be perceived by outsiders such as researchers (Gall et al. 1996:345). Notwithstanding the cited limitations, focus group interviews were considered as the most suitable data collection method in the present study, since they are an effective approach when there is limited knowledge of a topic or group of people (Cornwall County Council 2002:1), as is presently the case regarding the phenomenon under study (mixed-ability grouping in Botswana). Triangulation and snowball sampling (which resulted in homogenising focus groups) were employed to counter some of the limiting effects of focus group interviews discussed above.
An interview guide was designed (refer to Appendix 1), which focused on participants’ opinions on advantages, disadvantages/problems of teaching mixed-ability classes, teaching strategies, assessment and the effectiveness of pre-service and in-service teachers training in the context of mixed-ability grouping. These variables were considered to be pivotal in the optimisation of mixed-ability grouping for effective instruction. Participants were asked the following six main questions:

In your opinion:

- **What are the advantages of mixed-ability classes?** Literature reviewed under 2.5.2 (Arguments in favour of mixed-ability grouping) shows that mixed-ability grouping has got a number of advantages for students of different abilities as well as for teachers. Therefore this question meant to establish whether teachers were aware of such advantages. It was also assumed that an awareness of the said advantages might result in teachers appreciating the philosophy of mixed-ability grouping and thereby end up employing mixed-ability teaching strategies, notwithstanding the constraints associated with the teaching of such classes.

- **What are the disadvantages/problems of mixed-ability classes?** This question was asked with the intention of establishing whether teachers were experiencing any problems in the teaching of mixed-ability. The assumption was that getting problems from the practitioners (teachers) could in a way assist in coming up with intervention programmes such as relevant in-service and pre-service teachers’ training to equip
teachers with relevant skills to ameliorate the problems’ confounding effects. In
addition, problems being experienced by teachers if identified may help in designing
teaching models that may circumvent the problems.

- **What would you recommend regarding the teaching of mixed-ability classes?**
  Literature reviewed under 3.4 (Teaching strategies and their suitability for mixed-
ability teaching) shows that there is a number of teaching strategies that teachers can
use when teaching mixed-ability classes. Therefore this question was aimed at
establishing whether teachers were aware of such strategies, and whether teachers
were using such teaching strategies. Where teachers were not aware of the existence
of such strategies, such lack of knowledge could be used in resourcing teachers.
However, where teachers were aware of such teaching strategies, but were not using
them, reasons could be established as to why they were not using the strategies.
Basing on the teachers’ reasons, correctional measures could then be suggested, and
teachers encouraged to employ mixed-ability teaching strategies.

- **Keeping mixed-ability classes in mind, what is your opinion on a shift from norm
  referenced to criterion referenced assessment?** Literature is replete with evidence to
the fact that norm referenced assessment is narrow and only caters for academically
inclined students (refer to section 4.5: Assessment of the junior secondary school
curriculum). Therefore, the above question was meant to elicit from teachers their
understanding of norm referenced and criterion referenced assessment, their
disposition regarding whether or not criterion referenced assessment would benefit
students of mixed-abilities, and the teachers’ readiness to implement criterion referenced assessment, since the country envisages a shift to this mode of assessment (National Commission on Education 1993:22).

- **To what extent are (a) pre-service and (b) in-service teachers trained for the teaching of mixed-ability classes?** The discussion under 4.6 (Literature on classroom life in Botswana’s secondary schools) revealed that teaching is teacher-centred. The presupposition was that most teachers may be lacking mixed-ability teaching skills. Cited sources alluded to the fact that pre-service and in-service teachers’ training are not preparing teachers adequately for mixed-ability teaching. Basing on this, the above question meant to establish the teachers’ disposition (as both products of teachers’ training institutions and beneficiaries of in-service training), on the effectiveness and adequacy of pre-service and in-service training in the context of mixed-ability grouping. Where teachers felt that both pre-service and in-service training are deficient, findings may help reorient the teachers’ training towards mixed-ability teaching.

- **Is there anything else you would like to add regarding mixed-ability classes?** This last question was included to afford respondents opportunities to come up with any other pertinent data on mixed-ability teaching, data that could not have been captured during the discussion.
In the interview guide, the researcher included the main themes that were likely to emerge in the discussion of each of the six questions. These possible themes were identified during the literature study phase (refer to Chapters Two, Three and Four). Three dates were agreed upon with the three focus groups to have the interviews. Permission was sought and granted from the three respective school heads to use school libraries as venues. The researcher served snacks as a way of expressing his gratitude at the end of each session. Each session started off with the researcher thanking participants for agreeing to take part in the interview, explaining to participants the aim of the interview and how the data were to be used, assuring participants that the information was to be accorded confidentiality and in turn requesting participants to treat discussions with confidence as well as requesting for the groups’ consent to have the proceedings tape recorded.

5.6.2 Follow-up interviews

After preliminary data analysis, it became evident that two aspects of the investigation were not adequately addressed. These two aspects are: *How teachers were optimising mixed-ability grouping for effective instruction and the specific organisational and teaching skills that teachers felt were and are not being adequately addressed by both pre-service and in-service teachers’ training.* This necessitated follow-up interviews with individual teachers. Three teachers from focus group one, and one each from focus group two and three were involved in the follow-up interviews. In order to capture the
exact data that was required, the following interview guide was constructed (refer to Appendix 2):

• What teaching strategies are you presently using in your mixed-ability classes? During focus group interviews, not enough information was gathered regarding how teachers were teaching mixed-ability classes. Discussion on classroom life in Botswana’s secondary schools (refer to section 4.6) attests to the fact that teachers use teacher-centred teaching strategies. The above question was meant to verify or disconfirm this assertion. Where teachers claimed to be using student-centred teaching strategies, the question aimed at finding how teachers were achieving this, for example, where they are using group work; how they assign students into different groups, nature of assignments given, and their opinion on the effectiveness of such teaching strategies.

• What teaching strategies do you think should be used in mixed-ability classes? Where teachers were not using mixed-ability teaching strategies, the question meant to establish whether teachers were aware of such strategies, and reasons why they were not using the strategies. Such data may assist in planning in-service teachers’ training, since some problems may be compounded by the teachers’ limited repertoire of teaching skills.

• During instruction, how are you making effective use of the students’ individual differences in order to make your teaching effective? A number of authors on
culturally responsive teaching support the premise that culturally diverse students pose opportunities instead of teaching problems (refer to section 1.2.1: Background to the problem). The above question was meant to find out whether teachers were aware of this emerging trend. If they were aware of it, how they were optimising the students’ diversity for effective instruction. In other words, the question wanted to establish from teachers whether or not they were making use of the knowledge, skills and talents inherent in all the students, including low ability students to make teaching effective. Where teachers were making use of these differences, the intention was to establish how they were achieving this.

- **What differences are there between teaching strategies for ability grouped classes and mixed-ability teaching strategies?** Some authors are of the view that teachers teaching mixed-ability classes may end up treating such classes as low-ability classes, resulting in teachers slowing down the pace of instruction, while some claim that teachers aim instruction at an imaginary average student (refer to section 2.5.3: Arguments against mixed-ability grouping). Similarly, other authors argue that ability grouping masks the problem of instructional delivery to any group of students since when grouped according to ability, teachers treat students as ‘groups’ and not as ‘individuals’ (refer to section 2.4.3: Arguments against ability grouping). With the above in mind, the question meant to establish whether in any grouping method, teachers do cater for individual differences.
• **What organisational and teaching skills do teachers need in order to teach mixed-ability classes effectively?** Data from focus group interviews did not quite establish the exact skills that teachers thought they require in order to teach mixed-ability classes effectively. Therefore, the above question meant to identify the exact organisational and teaching skills that teachers thought would make it easy for them to teach mixed-ability classes effectively. Such data may assist in pre-service and in-service teachers’ training.

• **Is there anything else that you would like to add on mixed-ability grouping and mixed-ability teaching?** This question was meant to capture any other pertinent data that could have been missed during the interview.

### 5.6.3 Rationale for content validation of interview guides

A research instrument is said to be valid if it measures what it is supposed to measure (Gall et al. 1992:250; Cohen and Manion 1989:318). In this investigation, after formulation of the interview guides, the researcher solicited for his promotor’s opinion and expert advice regarding the content validity of items which constituted the interview guides. This was to ensure that the instruments would adequately capture the data pertaining to the statement of the problem and the research questions which informed the study (refer to 1.2.3: Statement of the problem).

### 5.6.4 Lesson observations
The importance of classroom observations as a data collection strategy cannot be overemphasized. In the Botswana case, this is probably the only sure method of getting a clearer picture of what is taking place inside classrooms, due to a hiatus in literature on the phenomenon of mixed-ability grouping and the teaching of such classes. Apart from illuminating the teaching-learning process, the approach helps in identifying good practices (if there are any) that can be propagated to other schools. The approach can also help highlight the problems being encountered by teachers as well as the teachers’ own limitations in optimizing mixed-ability grouping for effective instruction in order to find solutions and suggest action plans to overcome these problems.

Three teachers were observed teaching, one was teaching Mathematics, the other one Science and the third teaching Social studies. Lessons were observed with the aim of establishing how teachers were handling mixed-ability classes at the junior secondary school level, to find out whether teachers were actually practicing what they claimed they were doing during interviews.

The researcher only observed those participants whom he identified as worth of a follow-up during focus group interviews. This was aimed at verifying information obtained during focus group interviews and from follow-up interviews. Field notes were recorded during the lesson observations (refer to Appendix 5). The three teachers who were identified for lesson observations were from the first focus group. These identified teachers had indicated that they used some mixed-ability teaching strategies such as group work, discovery strategy and demonstration strategy. The intent of the
observations was to establish whether these teachers really made use of the purported teaching strategies, how they were circumventing the disadvantages of teaching mixed-ability classes and how they were optimising mixed-ability grouping for effective instruction. Each teacher was observed three times over a period of two terms. The teachers were observed more than once to ensure that whatever observations made were not by chance. This approach is consistent with Wiseman’s (1999:257) suggestion that information gathered over a period of time is likely to be more representative of the real circumstances.

5.6.5 Field notes

Field notes were kept throughout the empirical phase of the study. These notes consisted of:

- Participants’ comments prior to and or after focus group interviews.
- Tentative interpretations made by the researcher during the data collection and analysis procedures.
- Notes made during the lesson observations.

5.7 MEASURES TO ENSURE TRUSTWORTHINESS

Whereas the verifiability of quantitative research is assessed in terms of its reliability and validity, qualitative research is perhaps more accurately assessed according to its
trustworthiness (Poggenpoel 1998:348). In this study, the researcher made use of Guba’s model for ensuring the trustworthiness of qualitative data (Poggenpoel 1998:248-350). In this model, the researcher used the following tactics: First, he used focus groups, follow-up interviews and lesson observations to triangulate the methods. Second, he obtained feedback from participants if he was uncertain about the meanings of sentences. The findings were circulated among participants so that they could confirm whether the researcher had captured their views correctly. Third, the sampling decisions were carefully done. Fourth, the researcher used a dictaphone, and transcribed the data verbatim. Fifth, the researcher analysed raw data and ensured intercoder as well as intracoder reliability with the assistance from his promoter.

5.8 DATA PROCESSING

The approach propounded by Miles and Huberman (in Johnson and Christensen 2000:425) was used for data processing. The approach involved an interim analysis, which refers to the cyclical process whereby data collected are analysed, prior to additional data collection. This approach was employed throughout the study. Use was made of memoing, which refers to reflective notes written by researchers recording ideas generated during data analysis (Johnson and Christensen 2000:425-426). All focus group and individual interviews were transcribed verbatim before data were analysed.

5.8.1 Segmenting
Segmenting involved dividing the data into meaningful analytical units. This was done by carefully reading the transcribed data one line at a time, taking cognisance of the following questions:

- Is there a segment of the text which is important for this research?
- Does it differ in any way from the text which precedes or succeeds it?
- Where does the segment begin and end? Such segments (words, sentences or several sentences) were bracketed as a way of indicating their starting and ending points.

5.8.2 Coding

According to Miles and Huberman (in Johnson and Christensen 2000:427) codes are labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Key words are attached to chunks of varying sizes - words, phrases, sentences, or whole paragraphs, these are referred to as “units of meaning”. Coding is the process of marking these units of meaning with symbols, descriptive words or category names (refer to Appendix 6: Master list). In addition to these, face sheet codes which applied to single complete transcripts and group codes were assigned to enable the researcher to search for group differences. Focus group one was coded FG1, focus group two as FG2 and focus group three as FG3. The researcher’s promoter helped with the coding, checked and ensured that coding was consistent.

5.8.3 Compiling a master list
All the category names developed, together with their symbolic codes, were placed on a master list. The codes on the master list were reapplied to new sections of text each time appropriate sections were discovered. New categories and new codes were added to the master list as the need arose (refer to Appendix 6: Master list).

5.8.4 Checking for intercoder and intracoder reliability

In order to address intercoder reliability the researcher checked for consistency in the appropriate codes between himself and his promoter. The promoter also checked the researcher’s analysis for intracoder reliability. This was meant to ensure that the researcher’s coding was consistent. The coding was thoroughly scrutinised and discussed by the researcher and his promoter and a consensus was arrived at (ref to Appendices Three, Four and Five).

5.8.5 Enumeration

The frequency with which observations were made was noted in order to help the researcher identify and take note of important ideas and prominent themes, occurring in the research group as a whole, or between different focus groups.

5.8.6 Identification of broad categories
The data from focus group interviews, individual follow-up interviews and lesson observations were then sorted into the following eight broad categories:

- Advantages of mixed-ability grouping.
- Problems associated with the teaching of mixed-ability classes.
- Teaching strategies that teachers claimed to be using in mixed-ability classes.
- Teaching strategies that are being used by teachers in mixed-ability classes.
- Norm referenced versus criterion referenced assessment.
- Views of teachers on the extent to which pre-service teachers’ training prepares teachers for teaching mixed-ability classes.
- Views of teachers on the extent to which in-service teachers’ training prepares teachers for teaching mixed-ability classes.
- Organisational and instructional competences that are needed by teachers for the effective teaching of mixed-ability classes.

Within these eight broad categories, the researcher made use of the bottom-up approach as advocated by Johnson and Christensen (2000:426-431). This approach involves beginning with the lowest level categories closest to the data as detailed in the sections below. This culminated into the broad categories being divided into subcategories.

5.9 CONCLUSION
In this chapter the empirical phase of the study was discussed, paying attention to research design, research methodology, sampling, data collection and data processing. The research findings are presented in the next chapter.
CHAPTER SIX

RESEARCH FINDINGS

6.1 INTRODUCTION

In this chapter an account is provided of the findings from the empirical phase of the investigation. The chapter begins with a discussion of the composition of the research sample, providing a description of the participants of the three focus groups. The research results, although consisting mainly of findings from the focus group interviews, also include findings from follow-up interviews and lesson observations as well as from field notes recorded throughout the investigation.

6.2 COMPOSITION OF THE FOCUS GROUPS

There were 25 participants in total, with the female (n=15) and male (n=10) participants. This represents the general trend in schools regarding the gender composition of teachers; generally female teachers are more than male teachers. The participants in all the three focus groups were drawn from teachers who were teaching the following core subjects: Mathematics, English, Setswana, Social Studies, Agriculture and Science. The participants ranged from assistant teacher to senior teacher grade 2. The three focus groups were relatively homogeneous in terms of teacher grade (none of the teachers held a post of responsibility), experience, qualifications and subjects taught. The researcher
collected the biodata of the focus group members’ during informal discussions after each focus group interview session, as he was serving snacks and drinks to focus group members. A description of the composition of each of the three selected samples follows.

6.2.1 Focus group one

The group was composed of eight participants (n=8), three male and five female teachers. The longest serving members were six years in the field, while the least experienced member was in her first year of teaching. The average teaching experience was four years. Two members were university graduates, while the rest were holders of diplomas in teaching.

6.2.2 Focus group two

The group was composed of ten participants (n=10), five male and five female teachers. Two longest serving members had been teaching at the secondary school level for more than twenty years, four had three years’ teaching experience, while four were in their first year of teaching. Three members had first degrees, while the rest were teaching diploma holders.

6.2.3 Focus group three
The group consisted of seven participants (n=7), five female and two male teachers. The longest serving participant had sixteen years of teaching experience, one had ten years of teaching experience, three had five years teaching experience, while the remaining two were in their second year of teaching. All the participants were diploma holders, although three were pursuing distance education degree studies.

6.3 FINDINGS FROM THE EMPIRICAL PHASE OF THE STUDY

After examining the segmented and coded data as discussed under Chapter Five, the processed data from focus group interviews, individual interviews as well as field notes were rearranged into eight broad categories (refer to 5.8: Data processing). Findings are thus presented and discussed under the eight broad categories and the subcategories.

6.3.1 Advantages of mixed-ability grouping

6.3.1.1 Advantages related to the optimising of mixed-ability grouping

Advantages related to the optimising of mixed-ability grouping for effective instruction include the use of peer work and arranging students into groups. Several teachers pointed out that students, especially the low achievers would benefit from such arrangements. For example one teacher remarked that:

If you have a mixed-ability class and you have students who are outstanding in that class you can always have a chance to make manageable groups in such a way that in each
group there is the leader who is outstanding there and then explain to others instead of having a class where there are no other good ones, all of them are slow learners. In that case the teacher will have to move from point to point expressing may be the same point, but if some students are bright and get the point easily, then they can explain the point to their group members while the teacher is helping others.

The following is an extract from remarks made by teachers in this regard: “Low achievers will benefit from high achievers as high achievers keep on giving answers…”; “…let us say you give them something to discuss on, the highfliers from what the slow learners have presented can improve…”; “…if we are talking about tourism, if a student has been exposed to tourism the student could use that experience to enrich others”. Teachers remarked that slow learners may be motivated by learning side by side with more able peers, and that high achievers will become role models. Some of the comments that were passed by teachers are that; “…and those ones who are slow, they will make sure that they double up their pace so that they can do what others are doing…”; “…those that are highfliers…they are likely to kind of you know, motivate and help the low performers”.

Related to the above is the issue of competition, some teachers felt that it will bring about academic competition among the students. One teacher retorted that:

To some students it brings about competition. There are those students who will feel that this time I want to surpass so and so, but say from primary you find that they are those who got As, those who got Bs and those who got Cs, and may be, I mean from those As, Bs and Cs, you may find that. . . somebody got C because of different problems that he faced by that time. Now when a situation like they are in a mixed-ability class, some people who got a C might compete with somebody who got an A, and it happens. We have had situations like that in our classrooms.
6.3.1.2 Affective and social outcomes

Several teachers were positive that mixed-ability grouping has got affective and social benefits. Some of their comments are that; “…there is no selection sort of…” “… avoids self-fulfilling prophecy”. “Mixed-ability classes also show from the beginning that people should learn to work together not despise each other”. Teachers noted that there is a relationship between self-esteem, labelling and academic achievement. For example, two teachers asserted that:

Again it boosts their esteem. Kera gore (I mean) even those who are performing low, since they are not discriminated, when they work with these intelligent people. . . they see themselves as equally important as other people and they still, the way they are being encountered in their classes. They believe that they are capable also, and they can still achieve.

I think mixed-ability grouping as compared to umm, streamed classes help also to avoid nametags being attached to the classes. If in the school they know this is a low class, e-e a class of low performers, in most cases you find that certain nametags are attached to those kids. . . that may affect them psychologically. In that way it affects their performance ultimately and they will convince themselves that they are unable, and or, will accept their lot like that.

6.3.1.3 Teacher related advantages

An appreciable number of teachers were of the view that mixed-ability grouping has advantages for teachers as well. “…it makes a teacher to do away with monotony, you don’t get bored of talking to the same level of students”, one teacher reflected. Several
others were of the view that: “The teachers will be motivated in the sense that, if you are going to teach different pupils, with different levels, you know you will prepare your best…”; “…it is a challenge, sometimes it’s very good to work in a challenging environment…”; “…brings about professional satisfaction, when at the end of it all you have a low ability child…for instance you realise that you have been successful to upgrade that child to the level of almost the one that was a highflier, as well. It facilitates a teacher to develop professionally in a holistic manner or holistic way”.

6.3.2 Problems associated with the teaching of mixed-ability classes

6.3.2.1 Problems related to the teaching-learning process

Most teachers conceded that there are a host of problems associated with the teaching of mixed-ability classes. “Preparation for mixed-ability classes is difficult,” commented one of the teachers. A good number of teachers expressed the following sentiments: “…catering for these different abilities, it takes a lot of time”; “…it is very difficult to meet each individual’s demands because of time, e-e, and sometimes it is because of too much content…”; “…if somebody was a highflier, was about to go even higher, just because you are going to reduce the content…they can also reduce”; “…it’s like the slow learners at the end they fail to cope with some teachers’ ways of teaching, and at the end, they become a problem and affect the whole class behaviour wise”; “…higher achievers will become bored…”; “…sometimes the gap is too wide and you don’t know how to tackle some issues…”; “…lack of equipment, that is teaching aids and some other resources
which we could use to demonstrate some complex concepts”. The following comment from one of the teachers captures most of the sticking problems according to several teachers:

You want to rescue the syllabus, to make sure that you complete the syllabus, meanwhile they are slow learners that need to be helped out, demanding more attention and meanwhile at the same time the size of the class may not easily permit you to really give that adequate attention to the individuals, at the same time keeping with the syllabus so that by the end of the year at least you know you have covered adequate area of the syllabus, which will see them through the exams.

6.3.2.2 Problems related to the language of instruction

Almost all the teachers unanimously echoed the sentiments that students and sometimes teachers have problems with the language of instruction (English). The following is a selection of the remarks made by teachers in this regard: “…you may find that students are not able to satisfy what the question requires them to do simply because of the language they use in the text is English…”; “…you find that a teacher fails to put across a concept in English and has to resort to vernacular to probably clarify…”; “Using vernacular is a shortcut to three or four English sentences”; “Kera gore (I mean), tota (really) reading mogobone (for them) and just communicating is a real problem and this is a national problem…”; “…only becomes a problem if one over does it or relies on vernacular, because these kids don’t write exams in vernacular”. The following comment passed by one of the teachers blames teachers for the students’ lack of English proficiency:
. . . the reason why English is a problem with students is because of us teachers. We use a lot of Setswana during our teaching. . . it happens almost in every school, that you find that most teachers use Setswana to teach subjects which are not Setswana, like in Maths you find that you explain the question to the students in Setswana.

6.3.2.3 Problems related to policy issues

Teachers felt that problems being encountered in mixed-ability classes are a result of fast tracked politically driven policies. For example one teacher remarked that:

…it is solely on the teacher, but the planners themselves. . . the syllabus planners and the like, they leave everything for the teachers, say 3 years, 3 Year JC, so it’s up to the teacher to make sure that he/she covers the whole syllabus in this time….Unfortunately when they do their planning and the amount of work to be covered, they don’t consider that problem.

Regarding the link between the policy issue and other mixed-ability teaching problems one teacher remarked that:

But I think one of the setbacks that has been there is the concept of universal education, which has been more driven by politicians than anything else. Because I think educational planners are responding more to . . . demands of politicians, whereby you find that every child is supposed to go to school, irrespective of whether they have mastered the basics that they require in order to proceed from primary to secondary school. . . . It’s not backed up with say adequate training and probably the provision of the necessary you know, materials, infrastructure to facilitate teaching, you know. I think this is what actually led to ballooning of classes resulting in teachers failing to handle the kids, not giving adequate attention to individuals.
6.3.3 Teaching strategies that are suitable for teaching mixed-ability classes

6.3.3.1 Mixed-ability teaching strategies versus ability grouped teaching strategies

Several teachers concurred that teaching strategies that are used to teach the differently grouped classes are different. They stressed that mixed-ability teaching strategies should be varied because students populating such classes have different abilities, learning styles and interests. Some of the teachers’ remarks on teaching strategies are that: “Just like the name of what, mixed-ability, you should mix the teaching approach and all the like, in order to cater for all the students”; “…if you are using one method, know that you are disadvantaging other students who are not good at listening. But if you say vary, I feel you will be catering for all the students…”; “…obviously the methods cannot be the same, because if you have got a streamed class, you may be having very good students, once you say do this in groups, automatically they are going to do what you want…”; “…they are time consuming and they need to be varied, need to use a lot of strategies to teach mixed-ability classes.

6.3.3.2 Teaching strategies that teachers claimed to be using

Teachers claimed to be using mixed-ability teaching strategies such as group work, discussion, demonstration and differentiation. For example one teacher remarked that: “…at the moment I use group discussions, lecture method and demonstration”. The other teacher explained how she uses the discovery strategy: “I use discovery method whereby
pupils, I give them some questions, they do discover for themselves, get solutions for the questions and present to the class”. Most of the teaching strategies that teachers purported to be using to teach mixed-ability classes are encapsulated in the following extracts:

. . . where we have got a mixed-ability class, you have got to vary your methods of teaching, not only methods, even the, the teaching aids, the ones you use. A-a, in some cases, there are students who like writing exercises, some like listening to you as you lecture, some like group work. So you can start off in a single lesson by giving them an exercise or by exposing, and then later on have an experiment, say in Science. In that way all of the students or most of them end up getting something.

. . . we try to vary the teaching methods, so that we discuss in case you are introducing a topic, you discuss, then later on give them to do in groups. After groups, obviously groups have to present sort of, may be discussion within the class. Then later on may be you can give them some guided discovery, still on the topic, to go and look for some information on the line of what you will be doing during the lesson, so that may be more information can be stored in the long term.

I will say to me teaching a mixed-ability class, the method is that bringing the sort of thing that they call interactive learning. In interactive learning, you will be sensitive to people who learn by doing, by seeing, investigating. . . so in most cases I do try to bring such learning because as individuals students have different learning styles. Then another method is that one of remedial teaching. I don’t know who brought it, whether it’s Brunner, kemang (who was it)? It’s a good method but it is not working in the meantime because the teaching profession is coming up with so many small things to worry teachers.

6.3.4 How teachers claimed to be differentiating instruction

Teachers pointed out that they differentiate their instruction in order to reach all students. One teacher pointed out that: “When I issue group work, I don’t give them the same kind
of work…I give them different levels of work”. Other examples of the teachers’ claims to differentiation are: “…if the ones who are fast to receive the instruction, if they finish you can give them some more work…”; “I will simplify the same topic to the level of the slow learners, not to change the main gist of the topic to be discussed”. One Mathematics teacher who claimed to be differentiating explicitly explained that:

What you can really do when you are giving students exercises, you have to give work for all the three groups (high, average and slow learners). So you know that slow learners are going to take long to finish the work, fast learners you give them extension work. . . . So when I set a test, I also include those questions that are challenging, but I know the slow learners will not get those questions.

6.3.4.1 Teaching strategies that are being used by teachers

Teachers indicated in the focus groups that they do make use of various teaching strategies, but the observations revealed a different story. The observed teaching was teacher-centred, contrary to claims of student-centred teaching approaches alluded to during focus groups.

6.3.4.1.1 The nature of verbal interactions during lessons

The teachers who were observed had claimed that they differentiate and that they employ a variety of teaching strategies to optimise mixed-ability grouping. A number of similarities were observed regarding how teachers teach mixed-ability classes. Generally, the teaching was teacher-centred, with students passively receiving the
information from the teachers and the pacing of the lessons was the same as if the teachers were teaching ability grouped classes. Teachers talking to the whole classes and students doing seatwork assigned by the teachers were the two main features of the lessons that were observed. The other major form of verbal interaction within the classrooms in addition to teacher lecturing and students listening silently was teacher questioning, to which students were providing answers. In most cases, the questions were simple, factual, recall and close ended, to which students provided single word answers.

Sirotnik (1983) (in Joyce and Weils 1986:215) affirms the above observation when stating that in most schools the majority of learning tasks are structured by teachers for students. Most interaction between teachers and students is in the pattern of recitation, the teacher directs questions about what has to be studied, calls on an individual who responds, and then affirms the response or corrects it. The claims for group work, discovery and differentiation that were raised during interviews were not substantiated.

In all the three teachers’ lessons observed, students were never heard asking questions, all the questions were from teachers and very few students were participating during the question and answer sessions. In addition, teachers used Setswana in a number of occasions to explain some concepts. During focus group interviews the use of Setswana (instead of English) by teachers during teaching was vociferously debated. The field notes below capture some of the teaching-learning transactions that are described above:
Teacher tells the class that they should know the differences between cold and warm-blooded animals. He explains something in Setswana, and goes on to ask the class the difference between warm and cold-blooded animals. Very few students raise their hands. The teacher gives students turns to name examples of cold-blooded animals. About a quarter of an hour gone since the beginning of the lesson, the teacher keeps on asking questions. Students are seen opening textbooks and notebooks, checking for the answers.

Almost thirty minutes gone since the beginning of the lesson, the teacher is still employing the question and answer strategy. A student gives what the teacher views as an incorrect answer, instead of explaining why the answer is incorrect the teacher goes on to give the students the correct answer. The teacher asks yet another question. Only one boy raises his hand. The teacher waits for about two minutes maybe to give other students time to think through the question. Apart from the single hand, no other hands are raised. Before the pending question is answered, the teacher poses yet another question. Three boys raise their hands. The teacher says something in Setswana, frowning. A student gives an answer, which the teacher does not even comment on. Instead, the teacher continues to call upon other students who do not even answer the question. Another student contributes, but again the teacher does not comment on the given answer. Yet another student gives an answer, and the teacher says ‘Ehe-e’, and proceeds to say something in Setswana, probably some form of an explanation.

It is about twenty minutes into the lesson. The teacher works out yet another example. One boy seated near the researcher is busy writing something, not paying attention. The teacher proceeds to work out another example, reads the question from the textbook and proceeds to show on the chalkboard how the question is solved, asking questions as he works through the problem, to which a section of the class provides chorus answers, at times the teacher is heard explaining some concepts in Setswana. At this juncture the teacher asks the class if there are any questions. The students do not ask questions. The teacher emphasises to the students that they should know the formula that is used for calculating simple interest.

It is about ten minutes since the beginning of the lesson. The teacher explains to the students that they will look at the objectives of Southern Africa Development Community (SADC). He informs the class that he will read a passage about SADC and then ask the class oral questions. The students are told to close their books and listen attentively. The teacher goes through the passage twice. The passage is taken from a textbook that most students have.
6.3.4.1.2 Use of textbooks and other related teaching aids

Another similarity observed was the over reliance on prescribed textbooks by the teachers, and the absence of other teaching aids to support the textbooks. For example, with more imagination and forward planning by the teachers the Science and Social studies lessons whose notes were presented above could have been easily supported by the use of teaching aids. In the Science lesson the teacher could have brought charts showing warm-blooded and cold-blooded animals, or in the absence of teacher-prepared charts, perhaps students could have been given group assignments to go and research and prepare charts on the above. Similarly, the Social studies lesson could have been made more effective by probably complementing textbooks with the map of Southern Africa showing the SADC member states. In the same vein, students could have been assigned tasks or projects on SADC member states, perhaps each group picking on a member state, drawing the map of the state, discuss it’s role in the SADC, as a way of showing interdependence between states, since it was one of the lesson objectives. Such an approach could have ended up employing more than one teaching strategy, catering for the varied learning styles prevalent in mixed-ability classes. Furthermore, students could have been afforded the opportunity to use their diversities for effective instruction, which amounts to optimising mixed-ability grouping. The following extracts from the observational notes indicate the dependence of teachers on textbooks:

It is thirty-five minutes into the lesson, teacher tells the students to open their textbooks. The teacher asks a volunteer to read the objectives of SADC from the text. In the
absence of a volunteer, the teacher picks on one student. After the student’s reading, the teacher goes over the objectives for a second time, explaining each objective in turn. The teacher instructs students to open their textbooks, page 163 and to look at an example on the calculation of simple interest. The teacher reads out the example to the class, and explains the difference between interest charged by the bank when one borrows money from the bank, and interest accruing to the customer when one deposits some money into the bank.

Students are instructed to open their textbooks and look at some pictures in the books. The teacher then proceeds to ask some questions in Setswana based on the pictures. Chorus answers are heard from various corners of the class. The teacher asks students whether they have any questions. Again, students do not ask any questions.

6.3.4.1.3 The nature of written work assigned to students

Another important observation made regarding how teachers teach mixed-ability classes was the lack of differentiation in the teaching-learning process. All the three teachers observed were teaching mixed-ability classes as though they were ability grouped classes, including the teacher for Mathematics who had indicated that he differentiates instruction during focus group interviews. The teaching rarely catered for individual differences. It’s not very clear which ability levels the lessons were targeted at. Either way, the crux of the matter is that a number of students did not benefit much from the teaching. Furthermore, the assignments that were given to the classes were also uniform in the subjects and lessons observed. It can therefore be surmised that the assignments might have been too simple for some students, just manageable for others, while the low achievers could have found them beyond their levels. The effect of such assignments on student learning and motivation is not very difficult to discern. The examples of uniformity in the assignments are aptly shown in the following observational notes:
The teacher writes on the chalkboard: *Explain four benefits of Botswana for belonging to SADC*, then tells the students to consider the aims of SADC and information from the passage read as they attempt the assignment.

It is forty minutes into the lesson, the siren rings to mark the end of the lesson. The students are assigned written work from the textbook. The teacher gives same assignment to the different ability levels.

### 6.3.5 Norm referenced versus criterion referenced assessment

#### 6.3.5.1 Teachers’ knowledge of assessment systems

Almost all the teachers confessed that they could not remember the meanings of norm referenced assessment and criterion referenced assessment. “*Kera gore* (I mean) I am quite lost, *kage kone kothlaloganya gore* criterion referenced assessment *re elibile e ntse jang* (I don’t understand how we view criterion referenced assessment)”, commented one teacher. Other examples of the teachers’ lack of knowledge about the assessment systems in question are: “*Clarify these terms…*”; “…we don’t know what norm referenced and criterion referenced assessment are…”; “*kindly explain to us the difference, maybe we will be in a position to comment later on*”.

#### 6.3.5.2 Teachers’ views regarding the shift to criterion referenced assessment

After the clarification of the two concepts, several teachers were of the opinion that the shift from norm referenced to criterion referenced assessment would be a welcome educational development in view of mixed-ability grouping. Some of the teachers views
in this regard are: “Criterion referenced assessment looks at specific items, and when you look at specific aspects, a student perfects, you get quality”; “norm referenced assessment it appears does not promote learning, so criterion referenced assessment promotes learning…”; “Criterion referenced assessment will be more objective”.

6.3.5.3 Preparedness of teachers to implement criterion referenced assessment

However, all the teachers conceded that they did not have the appropriate skills to effect criterion referenced assessment, and will therefore benefit from in-service training on criterion referenced assessment. The following quotes capture the teachers’ views on their readiness to implement criterion referenced assessment: “I think most of us will benefit from a hands-on workshop…”; “…we are not well equipped…”; “… will need a lot of guidance if it is to be properly done…”; “I don’t think we have the experience expertise to implement criterion referenced assessment”.

6.3.6 Views of teachers on the adequacy of teachers’ training

6.3.6.1 Views related to pre-service teachers’ training

Most teachers felt that pre-service training did not adequately prepare them for mixed-ability classes. One teacher pointed out that: “I wouldn’t say pre-service training is considered as adequate, it was just to serve as a basis”. Others remarked that: “ pre-service was more of theory than practical…”; “…pre-service is more like a learner driver
being taught how to drive at the driving school, the actual driving takes place on the road…”; “…it’s only a few weeks that you practice teaching, where some of us were firstly faced with this teaching of mixed-ability classes…”; “…there is a problem when it goes to teaching practice, there is too much acting, you tend to pretend, you are just after grabbing marks”; “I was not taught how to teach mixed-ability classes”.

### 6.3.6.2 Views related to in-service teachers’ training

Several teachers agreed that in-service training is inadequate, ineffective and at times a waste of time. “We have never had any workshops on teaching. . . . I am five years in this school, but we have never, only workshops about stress management and PMS (Performance Management Systems)”, commented one teacher. The other one remarked that: “As for cluster workshops, they are really a waste of time, because all we go and talk about are cluster fairs and end of term and year common tests”. Regarding the effectiveness of in-service training, one teacher asserted that:

> Sometimes we organise workshops on mixed-ability teaching, when the resource person comes, he will make it theoretical as well, and then you think that you have benefited. . . but when you go to class, it’s not going to work. You find that you are just blank again you can’t implement it properly.

### 6.3.7 Organisational and instructional competences that are needed by teachers

Most teachers pointed out that mixed-ability teaching is very difficult, and that they were deficient in certain teaching and organisational skills that are needed for effective mixed-
ability teaching. The following are some of the teachers’ comments regarding organisational and instructional competences that they need: “When teaching a mixed-ability class, you need skills such as how to actually break the content in one topic... in such a way that you cater for all the students”; “…need skills to assess the low achievers, the middle achievers and the highfliers...”; “…if I could have motivational skills, I would be a far much better teacher than I am today...”; “…to be honest with you, this thing remedial work, I know what it means in my mind, but planning for it I can’t”; “I am also not very good at organising and managing group work”. In addition teachers also pointed out that they need questioning skills and skills in setting test items.

The suggested needs by teachers clearly show that teachers have limited teaching and organisational skills. This may be partly responsible for the teachers’ failure to optimise mixed-ability grouping for effective instruction. Furthermore, while mixed-ability grouping has got genuine problems, some of the problems that were mentioned by teachers could be attributed to the teachers’ lack of organisational and teaching skills. For example, failure to cater for the different ability levels and to organise and manage group work could be simply a manifestation of the teachers’ limited ken of teaching and organisational skills. The assumption therefore is that if teachers are equipped with the prerequisite skills, they will be in a position to teach mixed-ability classes effectively.

6.4 INTERPRETATION OF THE FINDINGS
The advantages of mixed-ability grouping that were mentioned by teachers show that it is possible to optimise mixed-ability grouping for effective instruction. For example, it is logical to conclude that if low achievers benefit from peer work and group work, as well as from academic peer leadership of high achievers, mixed-ability grouping would have been optimised for effective instruction. In similar vein, the metacognitive activities that take place as high achievers explain concepts to low achievers is beneficial to high achievers as well, since it may clarify their own thinking and facilitate the transfer of information from short to long term memory for retrieval when needed. Logically such knowledge should bode well for mixed-ability teaching.

Teachers mentioned that mixed-ability teaching is associated with a number of problems. This could mean that opportunities for optimising mixed-ability grouping for effective instruction that are available in mixed-ability classes are lost. This is evidenced by the fact that most teachers mentioned comments such as “We end up rushing in order to cover the syllabus before examinations”. It could be deduced that the teachers’ adopted teaching strategies are commensurate with the need to cover the syllabi before the examinations and as a result not taking into account the students’ many differences, notwithstanding the effectiveness of the instructional approach. While mixed-ability grouping causes some genuine problems, some of the problems that were mentioned by teachers could be attributed to the teachers’ lack of organisational and teaching skills. For example, failure to cater for the different ability levels could be simply a manifestation of the teachers’ limited pedagogy repertoire in differentiating instruction. The assumption is therefore that if teachers are equipped with the prerequisite teaching
skills, they will be in a position to optimise mixed-ability grouping for effective instruction. The diversities in mixed ability classes and the different proficient levels in the language of instruction, bolster the need for differentiated instruction.

Though teachers mentioned some mixed-ability teaching strategies, from the findings it is evident that the teachers’ knowledge of mixed-ability teaching strategies is limited. This may be another explanation why teachers are failing to optimise mixed-ability grouping for effective instruction. For example, teaching strategies that were mentioned by most teachers are demonstration, discovery, group work and lecture method. Teachers did not mention methods such as problem solving, project method, student research and small-group work instruction which by design lead to greater optimisation of mixed-ability grouping for effective instruction. These strategies cater for individual differences, and if properly used allow students to manage their own learning and make it possible for students to move through the content at their own pace with the teacher assuming the mentoring and facilitation roles. Similarly, little reference by teachers to the need to motivate learners, offer remedial work to slow learners, extension or enrichment work and curriculum compaction for highfliers, varying pacing of instruction and offering scaffolding when teachers are using teaching strategies not compatible with the students’ preferred learning styles, is cause for concern. Lack of these attempts to cater for individual differences is indicative that teaching is teacher-centred as alluded to under section 4.6 (Literature review on classroom life in Botswana’s secondary schools), contrary to the teachers’ claims that they use mixed-ability teaching strategies. Basing on
this postulation, what teachers mentioned as the teaching strategies they were using, could be the strategies that they thought should be used in mixed-ability classes.

The teachers’ limited knowledge of mixed-ability teaching strategies invariably puts pre-service and in-service training under the spotlight. If the teachers’ limited knowledge of mixed-ability teaching strategies is anything to go by, then pre-service and in-service teachers’ training are not training teachers for the effective teaching of mixed-ability classes. Basing on the above, questions being raised pertaining to the suitability and effectiveness of both pre-service and in-service teachers’ training are not misplaced. It can further be surmised that presently the inclusion of mixed-ability teaching in the curriculum of teachers’ training institutions, is more of sensitising the prospective teachers on the prevalence of mixed-abilities in secondary school students, than equipping prospective teachers with necessary teaching and organisational skills that are needed for effective mixed-ability teaching. It can thus be concluded that most teachers enter the teaching field with some vague theoretical knowledge on mixed-ability teaching strategies, but devoid of the necessary organisational and teaching competences that are a prerequisite for optimising mixed-ability grouping for effective instruction.

Furthermore, uniformity of assignments given to students populating mixed-ability classes does not cater for all the ability levels. It fails to stretch the gifted students and may also result in low achievers comprehending very little information. The overall consequence will be that students of all ability levels may not develop to the limits of their academic cultivation. As rightly put in by Delisle (1999:80), one size fits all
pinches everyone where it hurts and impedes the forward progress of those whose pace is different in speed and style.

While most teachers pointed out that they use student-centred teaching strategies, further discussions revealed that in practice teachers are in fact making greater use of teacher-centred teaching strategies such as lecturing, drilling and information giving in form of notes. What this means is that teachers are not optimising mixed-ability grouping for effective instruction. Of great concern though is the teachers’ failure to differentiate instruction. This means that at any particular time during the lessons, students at both extremes of the ability continuum may not be adequately catered for. Teaching seems to be aimed at the imaginary average student as argued by exponents of ability grouping (refer to section 2.5.3: Arguments against mixed-ability grouping). In essence, this means that students who are more able are not given extension work or enrichment activities to propel them to the limit of their academic cultivation. Similarly, those students who are academically challenged are not given remedial work. They are likely to be lost in the academic maze, while those whose preferred learning styles are not congruous with the prevalent teaching strategies are not compensated through scaffolding.

While teachers blame features that are inherent in the education system for their inability to utilise mixed-ability teaching strategies, the lesson observations revealed that teachers lack the prerequisite teaching and organisational skills that will make it possible for them to optimise mixed-ability grouping for effective instruction. It is because of this
deficiency that teachers are unable to use the students’ diversities, which is the hallmark in optimising mixed-ability grouping for effective instruction. Teachers lack flexibility in their teaching, they are not capable of switching from one strategy to another or combining a number of teaching strategies in one lesson in order to make their teaching effective. While it is true that there are a number of problems that one encounters when teaching mixed-ability classes, it is equally true that skilled teachers can make effective use of the advantages of mixed-ability grouping to counter the grouping’s disadvantages; this is the ideal that the teachers observed lacked. In addition, the envisaged shift from norm referenced assessment to criterion referenced assessment should be preceded by effective in-service workshops, since teachers confessed that they are deficient in appropriate skills for effective criterion referenced assessment.

Basing on the above, it would appear therefore that a number of factors are contributory to the teachers’ failure to optimise mixed-ability grouping for effective instruction, notwithstanding the teachers’ awareness of the need to do so. Some of these contributory factors are inter alia:

- The teachers’ limited ken of knowledge on the prevalence of various learning styles in students, and lack of knowledge on the concept of multiple intelligences and its implications for instruction.
- The teachers’ limited repertoire of teaching skills, which makes it difficult for teachers to differentiate instruction through approaches such as flexible pacing, remedial teaching, scaffolding, enrichment, curriculum compaction and extension
work. This underscores the fact that the mere knowledge of mixed-ability teaching strategies is not enough for one to effectively employ such teaching strategies. Teachers need to have other teaching related and organisational competences in order to effectively make use of the various mixed-ability teaching strategies.

- There are some contributory factors that seem to be firmly embedded in the country’s education system such as the mode of assessment, the structure of the education system and the teacher-student ratio. The present mode of assessment in place (norm referenced assessment) causes teachers to employ strategies that ensure their survival in the system. This system of assessment may also be responsible for the teachers’ use of teacher-centred teaching strategies such as lecturing and drilling. It therefore appears that teachers need to be freed from the fear of not covering the syllabi before examinations. Steyn (1996:126) believes that fear needs to be replaced with sincerity, loyalty, productivity, caring respect and confidence because it is counterproductive, destructive and results in lowered performance by everyone in the school. Teachers should be convinced that even when using mixed-ability teaching strategies, it is still possible to effectively cover the syllabi in time for the examinations. Therefore there is an urgent need to devise teaching models that cater for students’ individual differences and that result in the optimisation of mixed-ability grouping for effective instruction.

6.5 CONCLUSION
This chapter presented the research findings from the empirical phase of the study. The findings indicate that teachers are aware of the prevalence of different abilities at the junior secondary school level. They are also aware of the benefits and problems of teaching such classes. Most teachers felt that the automatic progression of standard seven completers into form one is not a good policy. A good number of problems associated with the teaching of mixed-ability classes identified by teachers revolved around teaching load, teacher-pupil ratio, extra duties not teaching related, the content-laden and examination-oriented syllabi and students’ lack of proficiency in the language of instruction (English). Teachers pointed out that these problems make it difficult for them to optimise mixed-ability grouping for effective instruction. However, teachers mentioned a few teaching strategies that they thought could be used in mixed-ability classes in order to optimise mixed-ability grouping for effective instruction, this shows that teachers have a limited knowledge of mixed-ability teaching strategies.

Findings also revealed that most teachers do not know the difference between criterion and norm referenced assessment. However, from their limited understanding of these concepts, they were of the view that a shift from norm referenced to criterion referenced assessment would be most appropriate in the prevalent mixed-ability grouping climate. Furthermore, teachers indicated that there is need for in-service workshops on how to administer criterion referenced assessment. This therefore implies that concerted efforts should be spent on in-servicing teachers on this assessment method before the envisaged shift to criterion referenced assessment. Teachers were of the opinion that pre-service
and in-service teachers’ training are not adequately preparing teachers for mixed-ability teaching.

Findings from follow-up interviews and lesson observations further bolstered the position that teachers are not optimising mixed-ability grouping for effective instruction. While initially teachers indicated that they were making use of student-centred teaching strategies, further probing revealed that teachers were in fact making use of the maligned teacher-centred teaching strategies. Furthermore, they have deficiencies in some prerequisite teaching and organisational skills that are essential for success when using mixed-ability teaching strategies. Examples of such skills are differentiation skills, motivational skills, assessment skills, lesson pacing skills, remedial teaching skills, questioning skills and skills in organising and managing group work. Prolonged use of teacher-centred teaching strategies may erode the phenomenal quantitative educational gains that the country has made since independence as discussed under Chapter Four (Schooling in Botswana). Without putting a damper on some of the reasons raised by teachers as precursors for their failure to optimise mixed-ability grouping for effective instruction, basing on the findings, it could be unequivocally concluded that the teachers’ limited pedagogic repertoire is the major contributory factor.

In the next chapter, the researcher summarises the study, states the limitations of the study, presents conclusions from literature reviewed as well as the empirical phase of the study, provides recommendations basing on the conclusions and identifies areas for further research emanating from the present study.
CHAPTER SEVEN

SUMMARY, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

In this chapter, the researcher summarises the study and outlines the limitations of the study, highlights the major conclusions from the study and suggests recommendations including areas for further research basing on the findings. Under limitations, those factors limiting the generalisability of the findings are pointed out, factors that the researcher could not control during the study.

7.2 SUMMARY OF THE STUDY

The researcher set to investigate how teachers can optimise mixed-ability grouping for effective instruction at the junior secondary school level in Botswana. The main body of the study is divided into six chapters, with the seventh chapter being the concluding chapter.

In Chapter One the background to the study was discussed. Discussion entailed examining the terrain in the grouping debate, the present situation regarding the issue of grouping students for instructional purposes from the global and local (Botswana) perspective. The researcher sought to justify efforts, time and finances spent in such a
research by highlighting the awareness of the problem. The statement of the problem and the research questions that informed the study were stated in this chapter. A synopsis of the research methodology adopted in the study was also outlined. The researcher concluded the chapter by providing a working definition of recurring terms in the study as well as presenting a research programme. The definition of terms in this chapter was just meant to remove some gray areas on the concepts since detailed definitions were later provided in the main body of the investigation.

Chapters Two, Three and Four constituted the literature study. In Chapter Two, the researcher revisited the grouping debate. The discussion covered the following aspects of grouping: a brief historical background to the grouping of students for instructional purposes, factors that led to the grouping of students by ability and subsequent developments that led to some educators backtracking against the practice, opting instead for mixed-ability grouping. Grouping and equality in education were examined, with the view of attempting to establish the grouping practice resulting in providing students with access to equal educational opportunities, regardless of the learners’ individual differences. Consideration was also made of various grouping plans that were and are still in use in educational institutions, to try and solve the problems caused by having students of different abilities. The issues of grouping and the gifted, and students with special needs were discussed, considering pedagogic and didactic implications of having such students in mixed-ability classes.
The concept ‘ability’ and problems associated with defining this concept, and using the concept as a central organiser in the grouping of students for instructional purposes were examined. Arguments forwarded by proponents of ability grouping were discussed under the following subheadings: (a) academic achievements, (b) instructional and organisational benefits and (c) affective and social benefits. From the reviewed literature on ability grouping, the central argument in favour of this approach seems to have much to do with academic benefits accruing to students, though the researcher concluded that implicitly, arguments for grouping have more to do with benefits accruing more to the teachers, than to students. Examples of such benefits are; less heterogeneity makes it easier to plan and deliver a curriculum, and disciplinary problems are few.

The arguments and research reviews in support of mixed-ability grouping were discussed under similar subheadings as above. Basing on the reviewed literature, it was concluded that the case for mixed-ability grouping hinges more on social and philosophic considerations, since in most arguments the central themes are fairness, equity, equality and social justice. After a careful consideration of arguments from both camps, the it was concluded that schools could provide students with excellence and equity at the same time, without the artificial grouping of students using some subjective social construct called ability.

In the final section of the chapter, the *modus operandi* used by schools and teachers for grouping students, namely psychometric tests and teachers’ assessments were considered. It was concluded that while sources of such mechanisms differ, their biases and
limitations are the same. The suggestion arrived at was that none of these should be used for the purpose of assigning students to instructional units, since they both implicitly refer to some form of differential ability.

In Chapter Three the teaching strategies that are compatible with mixed-ability classes were discussed. This discussion underscored the realisation that mixed-ability grouping on its own does not amount to provision of equal educational opportunities, and that students have different learning styles. The assumption was that the use of different teaching strategies is likely to cater for all students with their varying learning styles. Most of the discussed teaching strategies recognise the prevalence of multiple intelligences in the students. In the same chapter, it was argued that there is need for a paradigm shift in the instructional approach, this culminated in the discussion of teaching competences that are a prerequisite for the idealised paradigm shift that will result in the optimisation of mixed-ability grouping for effective instruction.

Schooling in Botswana was discussed under Chapter Four. Most issues that were raised and discussed in Chapters Two and Three were revisited in the Botswana context. Examples of such issues are: equality, ability grouping, mixed-ability grouping, assessment and instruction. The aims, educational philosophy and the structure of the education system and their implications on mixed-ability grouping and teaching were examined. In the final section of the chapter, the literature on classroom life in Botswana was reviewed, in an attempt to find out what research says about the quality of teaching, especially at the junior secondary school level since it was assumed that this level bears
the brunt of mixed-ability grouping more than the senior secondary school level. From the reviewed literature, it was evident that most teaching is teacher-centred, and therefore is not compatible with mixed-ability grouping. It was hoped that the empirical phase of the investigation was going to confirm or disconfirm these assertions.

In Chapter Five the researcher provided details on the empirical phase of the study. Focus was on the research design, research methodology, the role of the researcher as an instrument, population characteristics, sampling and sample size, and how data were processed and analysed. In Chapter Six, the findings from the empirical phase of the study were presented.

7.3 LIMITATIONS OF THE STUDY

While the contribution of this study to knowledge on mixed-ability grouping and mixed-ability teaching cannot be over-emphasised, the universal applicability and generalisability of the findings is limited by the following factors:

- The scale of the study: Botswana is a vast country, having more than two hundred community junior secondary schools, therefore focus group interviews conducted in three junior secondary schools might not be representative of the situation prevailing in all the junior secondary schools throughout the country.
- Learners’ opinions were not investigated, i.e. how they experience learning in mixed-ability classes.
• The researcher did not have time to visit the Department of Teacher Training and Development to examine their scheme for pre-service and in-service teachers’ training.

Notwithstanding the above, findings from this study provide pertinent pointers to a number of crucial educational issues warranting careful consideration and attention from individuals and organisations having the education of all children at heart. These issues are:

• The fact that many of the local (Batswana) teachers who were part of the focus groups were trained at the same training institutions as a greater percentage of other teachers teaching in the junior secondary schools throughout Botswana, gives credibility to the study findings and conclusions arrived at. Chances are high that any observed limitations in the handling of mixed-ability classes and any views towards mixed-ability grouping held by teachers, who formed the three focus groups, are likely to be a general reflection of the situation prevailing throughout the country. This makes the generalisability of the findings transcend beyond the schools where focus group interviews and lesson observations were conducted. Furthermore, optimising mixed-ability grouping could also be tried in other similar schools.

• The continuous use of teacher-centred teaching strategies raises three issues that are a cause for great concern to anyone interested in quality education. These concerns are:

  (a) *The quality of school administration and instructional supervision*: Could it be that school heads, deputy heads, heads of departments and senior teachers
(academics) are failing in their duties to administer, manage and offer proper instructional supervision, support and direction to teachers under their supervision to enable the teachers to optimise mixed-ability grouping for effective instruction? Put in other words, are instructional supervisors in the junior secondary schools failing to advise junior teachers on the teaching models that can result in optimising mixed-ability grouping for effective instruction? (b) The quality of pre-service training: Are teachers’ training institutions providing adequate and proper training to prospective teachers, to enable such teachers to optimise mixed-ability grouping for effective instruction? (c) The in-service of serving teachers: The presence of structures to effect staff development to serving teachers is not in question. However, what is in question is the effectiveness of the staff development programmes in equipping teachers with prerequisite skills for optimising mixed-ability grouping for effective instruction. Findings from the study suggest that there is need to examine both pre-service and in-service teachers’ training in the context of mixed-ability grouping. The question to be addressed as regards pre-service and in-service teachers’ training is: What improvements should be made in the teachers’ training in order to train individuals who will be in a position to optimise mixed-ability grouping for effective instruction?

7.4 CONCLUSIONS
This section presents the conclusions from the study. These conclusions are presented in two sections: The first section chronicles conclusions drawn from literature study, while the second one highlights conclusions drawn from the empirical phase of the study.

7.4.1 Conclusions drawn from literature study

From literature study (Chapters Two, Three and Four), the following conclusions were arrived at:

- There is no consensus as regards how students of different abilities should be grouped for instructional purposes. This issue has divided the world of educational research into two schools of thought (one favouring ability grouping, and the other one mixed-ability grouping).

- The argument for ability grouping revolves around the notion of educational excellence, while the one for mixed-ability grouping hinges on egalitarian principles of equity, social justice, fairness and equality of educational opportunities. Protagonists in the grouping debate perceive the above principles, albeit from different paradigms.

- Due to individual differences inherent even in rigorously selected classes, it could be concluded that the only viable educational option to provide equity, social justice and equal educational opportunities is to provide different educational options, that are evaluated differently but having the same worth. Such an approach negates the present approach where educationists try to make use of different grouping approaches to solve a pedagogic and didactic problem.
• There is unequivocal evidence to the fact that ability grouping has no positive effects on the academic and social development of students of different abilities that are currently populating classrooms.

• Mixed-ability grouping should be viewed as offering opportunities for effective instruction, and not as a source of problems for the teachers. However, for many teachers who were used to teaching streamed classes, teaching mixed-ability is problematic.

• The teaching of mixed-ability classes is confounded by a number of problems, which can militate against effective instruction, if not addressed.

• If mixed-ability grouping is to be optimised for effective instruction, there is need to employ mixed-ability teaching strategies. Such strategies take cognisance of students’ many differences and the realisation that students possess multiple intelligences. Therefore, the more methods teachers use to teach, the more students they reach.

• There are a number of teaching strategies that are suitable for teaching mixed-ability classes. Most of these if properly used may result in high academic achievement as well as the realisation of social and affective outcomes for students of different backgrounds and different abilities.

• Teachers should adopt the concept of differentiation, regardless of any teaching strategies that they use.

• There are a number of teaching and organisational competences over and above the mere knowledge of teaching strategies that teachers require in order to optimise mixed-ability grouping for effective instruction.
• In Botswana, mixed-abilities that are prevalent at the junior secondary school level were born out of the concept of the ten-year basic education. This means that there is automatic progression of students from standard seven into form one. The issues of equity, social justice and equal educational opportunities were central in the move towards mixed-ability grouping in Botswana, in the same way they influenced the global educational thinking concerning the grouping of students for instructional purposes.

• The teaching prevailing in most junior secondary schools in Botswana is both teacher-centred and examination oriented. This is partly to do with the nature of pre-service teacher training and the mode of assessment.

• Criterion referenced assessment is suitable for mixed-ability classes since it measures students’ actual performances and not how they compare with others who will have sat for the same examinations. However, there is need to in-service teachers on this mode of assessment before the envisaged shift from norm referenced to criterion referenced assessment.

7.4.2 Conclusions drawn from the empirical phase of the study

The following are the major conclusions drawn from the empirical investigation:

• Teachers are aware of the prevalence of mixed-abilities in the junior secondary schools. They are also aware that teaching mixed-ability classes has got its disadvantages and advantages. Apart from academic benefits accruing to slow
learners, teachers pointed out that such an approach would result in desirable affective and social outcomes such as high self-esteem and good interpersonal skills. During focus group interviews, teachers indicated that they make use of student-centred teaching strategies such as group work during instruction so that slow learners can benefit from high achievers. However, lessons observed did not substantiate such claims. It can thus be concluded that the teachers’ lack of teaching skills and organisational competences is the major problem why teachers are not able to optimise mixed-ability grouping for effective instruction. In fact, teachers pointed out that they had problems with organising and managing group work. Others attempt to circumvent this problem by assigning each group member some task to no avail. It would appear as if teachers fail to come up with group tasks that will ensure that academic prowess alone is not sufficient to have the task accomplished successfully. Teachers are failing to come up with tasks which exploit the students’ multiple intelligences to bring about effective instruction.

- Teachers are not catering for the diverse students in their teaching. This situation is further compounded by the inclusion of students with special learning needs in the regular classroom.

- While most teachers are not employing mixed-ability teaching strategies, they are however aware that there is need to vary teaching strategies in order to cater for the students’ individual differences. During follow-up interviews, most teachers alluded to the fact that teaching strategies for mixed-ability teaching are different from those used for teaching ability grouped classes. They explained that this is because students populating mixed-ability classes have many differences, for example, different
abilities, different learning styles and different motivational levels. Teachers were thus of the view that varying instructional strategies may make it possible for teachers to reach many students during teaching. Teachers mentioned a number of problems why they were not employing mixed-ability teaching strategies, *inter alia*; teachers’ lack of competences needed to teach mixed-ability classes effectively, the need to cover the syllabi before examinations, teacher-pupil ratio, automatic progression of students from standard seven into form one, students’ lack of proficiency in English (language of instruction), co-curricular activities and other duties that are not necessarily related to teaching. Teachers pointed out that the stated problems make it difficult for them to optimise mixed-ability grouping for effective instruction. As a result, teachers are not optimising mixed-ability grouping for effective instruction. During follow-up interviews most teachers confessed to this reality, they pointed out that they simply end up giving students information. It can be concluded that teachers are not facilitating learning, since they are still using the transmission model. In addition, extra duties such as co-curricular activities may end up competing for teachers’ time with the teachers’ core teaching duties. This will make it difficult for teachers to prepare differentiated teaching material in order to optimise mixed-ability grouping for effective instruction.

- Teachers were not very conversant with the meanings and differences between norm referenced and criterion referenced assessment, a good number were not sure of the assessment system they were using. However, from the little they knew about these two assessment systems, teachers were of the view that criterion referenced assessment is suitable for mixed-ability classes. As discussed under Chapter Five
(Schooling in Botswana), presently norm referenced assessment is being used, but plans are underway to shift to criterion referenced assessment. However in the event of this shift, most teachers confessed that they do not know how to implement criterion referenced assessment and will thus benefit from in-service training on criterion referenced assessment.

- The pre-service and in-service training provided by the University of Botswana and its affiliated colleges of education and the Teachers’ Training Division in the Ministry of Education are not adequately preparing teachers for mixed-ability teaching.

- While opportunities for optimising mixed-ability grouping for effective instruction are available in junior secondary schools, presently teachers are not taking advantage of these opportunities. Teachers can optimise mixed-ability grouping for effective instruction through the use of student-centred instructional strategies such as cooperative learning, small-group instruction, peer teaching, student research and project method among others. When using these methods, teachers can make sure that mixed-ability is optimised by adopting the concept of differentiation, where content, pacing and assessment are commensurate with students’ individual differences.

Furthermore, since gifted students and students who may be mentally challenged will be part of the mixed-ability classes, teachers can cater for such students through adapting the curriculum, instruction and assessment through such interventions such as enrichment and extension work or accelerated programmes for the gifted, and remedial work for those who are mentally challenged. If teachers are to optimise
mixed-ability grouping for effective instruction, they should be clear about the learners’ strengths and weaknesses and use both in their teaching. They can use the learners’ strengths in such approaches as group work, the learners’ weaknesses come into focus when teachers will be using teaching styles not in accordance with the students’ learning styles. In such a situation, teachers can use scaffolding to ensure that teaching is effective. When teaching mixed-ability classes, teachers should concentrate on diverse abilities (multiple intelligences), and set tasks where such diversities should be evoked in order to get the tasks accomplished. Teachers should worry less about covering the syllabi, instead they should know how best their students learn and hone in on such learning styles so that students become responsible for their own learning, relegating the teacher’s role to that of mentoring.

7.5 RECOMMENDATIONS

This section presents the recommendations based on research questions that informed the study as well as conclusions arrived at from literature review and the empirical phase of the study.

- Teachers should be explicit when commenting on their lesson plans and schemes of work after instructional delivery. It is imperative that teachers are very clear about their students’ weaknesses and strengths, so that they can plan the next action intervention strategies based on sound data. Such an approach will make it possible for teachers to cater for students’ weaknesses and strengths, and differentiate
instruction accordingly. The approach will ensure that fast learners are not bored and held back by slow learners, in the same vein the approach ensures that slow learners are not rushed through the content devoid of any meaningful learning.

• Mixed-ability teaching should be a school-wide approach, not just being practiced by a few teachers. This means that teachers should have time to sit down together, talk about teaching strategies and how they can use them in their respective subject areas. Teachers can share their expertise, for example a Science teacher may be invited to go and present a topic on photosynthesis in Agriculture, seemingly an Agriculture teacher can also go and present a topic on soil erosion in Social Studies. If only a few teachers in a school use mixed-ability teaching strategies, students may become confused, others may conclude that teachers using child-centred approaches are lazy. In addition, teachers should open doors to their colleagues, allowing their friends to observe them teaching, and in-turn watching their friends teaching. Such an approach will open teachers to other methods of dealing with students’ diversity and how colleagues may be optimising mixed-ability grouping for effective instruction.

• Schools should have readily accessible and well-equipped libraries, having books, teaching aids, journals, periodicals, and research articles covering the whole school curricular. In addition, internet facilities should also be provided. Such facilities will enable teachers to use some of the child-centred teaching strategies such as student research, project method, problem solving and learning by discovery and to support their own teaching with other teaching aids so as to capitalise on students’ diversities. The issue of the use of teaching aids is prompted by what transpired during follow-up interviews, of the three teachers observed, none had other teaching aids apart from
textbooks which students were also having. In addition, the display boards in the classrooms were not having any stimulating information apart from cleaning duty rosters.

- Since children with special educational needs (the gifted and those having learning difficulties and disabilities) will form part of mixed-ability classes, mechanisms to ensure their effective learning should be put in place. Such mechanisms could include adjusting the curriculum, learning environment, teaching strategies and assessment procedures. Without an adjustment of the aforementioned, the ideal (achieving excellence and equality) in mixed-ability classes will remain rhetoric.

- The envisaged shift from norm referenced to criterion referenced assessment should be expedited. However, prior to this shift, there is need to in-service teachers so that they are conversant with criterion referencing and how it should be implemented.

- Educators should consider development of differentiated teaching-learning materials in the production of videos, CD-ROMS, worksheets and concept keyboards to cover all the subjects.

- Approaches that would benefit students of all ability levels such as keeping class sizes down, a greater emphasis by teachers on individualised assessment, planning and evaluation, and enriching the curriculum should be practiced in mixed-ability classes.

- Teacher education programmes need to make differentiated instruction a key component of all pedagogical and practical experiences for all prospective teachers since whatever classes teachers teach are mixed-ability classes.
• There is need to reconsider how the in-service workshops on mixed-ability teaching are conducted, addressing issues like should teachers be given literature on mixed-ability teaching or should they be exposed to demonstration lessons on mixed-ability teaching or shown films on good mixed-ability teaching. The latter approach may generate discussions among teachers, dispel the fear of failure to attempt mixed-ability teaching since demonstration lessons may convince teachers that they too can employ successful mixed-ability teaching strategies in their own teaching.

• Teacher education programmes need to ensure that prospective teachers are developing the “gross motor skills” of teaching (e.g. understanding key concepts of a discipline, developing tasks that foster student meaning-making, teacher as facilitator, on-going assessment of student understanding, reflective practice) that are most likely later to lead to the “fine motor skills” of differentiation (e.g. creating tasks at varied levels of complexity, managing multiple groups in a classroom).

• There is need for cooperation between teacher education institutions and instructional supervisors (education officers, school heads, deputies, heads of departments and senior teachers) in the development of new teachers. Such cooperation will ensure that the concerned parties share the same vision of good mixed-ability teaching as they train prospective teachers.

Basing on the reviewed literature, data from focus group interviews as well as follow-up interviews and lesson observations, the following teaching model is suggested. The model does not prescribe particular teaching strategies to be used in mixed-ability classes. Instead, it provides pointers to factors that teachers should consider when
planning lessons, choosing teaching strategies, delivering instruction, assessing learning outcomes, and how data from assessment outcomes should influence subsequent teaching-learning transactions. The model underscores the nexus between all the teaching-learning activities.
Figure 7.1 Mixed-ability teaching model

LESSON DESIGN
Background information to be used when designing lessons: individual students’ general abilities, specific strengths and weaknesses, learning styles and lesson objectives to be achieved.

WHERE LESSON OBJECTIVES HAVE BEEN ACHIEVED: Move to next part of the syllabus, basing new lesson designs on previous outcomes and background information provided under LESSON DESIGN, providing gifted students and other higher achievers with extension work.

MOVE TO FIRST PART OF THE LESSON: Using a variety of teaching strategies and specific techniques.

WHERE LESSON OBJECTIVES HAVE NOT BEEN ACHIEVED: Revisit the lesson offering scaffolding and remediation, using different teaching strategies.

CHOOSING TEACHING STRATEGIES: Back-up available: teaching-learning resources, other teachers and instructional supervisors, strategies to be chosen considering data under LESSON DESIGN. Set criterion referenced success criteria.

EVALUATING LEARNING OUTCOMES

INSTRUCTIONAL DELIVERY
### 7.5.1 Recommendations for further research

Most studies on grouping and teaching have their origins in the first world, conducted in schools having education systems that may be different from the Botswana situation. In addition, such studies were conducted using students of different cultural backgrounds, as such, while these findings are very pertinent, there is need to conduct or replicate such studies in the Botswana context. In light of the above, the following are suggested as areas for further research emanating from this present study: There is need to conduct Botswana based studies on the different child-centred teaching strategies, taking into account the country’s educational structure, teacher-pupil ratio, teaching load, involvement of teachers in extramural activities, the present curriculum and its mode of assessment. The effectiveness of instructional supervision, in-service and pre-service teachers’ training need to be investigated, with the aim of establishing problems or weaknesses of the structures, so that these could be addressed in order to help teachers optimise mixed-ability grouping for effective instruction.