FINAL REPORT AN INVESTIGATION OF MULTIGRADE CLASSROOM PRACTICES IN THE FREE STATE PROVINCE OF SOUTH AFRICA

1998

Project undertaken by the Human Sciences Research Council (HSRC)

Group: Education, Unit for Education and Training Systemic Studies,

for the Joint Education Trust (JET) in the President's Education Initiative (PEI).

Project team:

Dr A.W. Drost, Dr L.T. Magau, Ms J.N. Mdekazi.

Project administrator: Mrs D. Sefanyetso

Project leader: Dr I. Ural.

Pretoria, February 1999

Multigrade classes at farm schools in the Free State province of South Africa: Living examples of effective and meaningful education with limited resources

AN INVESTIGATION OF MULTIGRADE CLASSROOM PRACTICES IN THE FREE STATE PROVINCE OF SOUTH AFRICA, 1998

PHASES OF THE RESEARCH PROJECT

PHASE 1: PREPARING FOR THE RESEARCH: RESEARCH BRIEF AND PROJECT PLAN

PHASE 2: REPORT ON FIELDWORK AND PRELIMINARY FINDINGS

PHASE 3: COMPLETE DATA ANALYSIS AND FINAL CONCLUSIONS

CONTENTS

PHASE 1: PREPARING FOR THE RESEARCH: RESEARCH BRIEF AND PROJECT PLAN

1.1	Research brief: An investigation of multigrade classroom practices in the Free State province of South Africa	1
1.1.1	Introduction	1
1.1.2	Some evidence from earlier SA literature on multigrade classes	2
1.1.3	Multigrade classroom practices in historically disadvantaged communities	4
1.2	An investigation of classroom organization and the use of resources in multigrade classes in the Free State	4
1.2.1	The problem	4
1.2.2	Aims of the project	5
1.2.3	Research design	5
1.2.4	Project phases	6
1.2.5	Selecting schools to participate in this project	6

CONTENTS, PHASE 1 OF RESEARCH (Continued)

1.3	Selecting schools to investigate	8
1.4	FSDoE prescriptives for research in schools	9
1.5	The survey instruments	9
1.6	Proposed research strategy	
1.6.1	Approval of instruments	12
1.6.2	Project team	13
1.7	The way forward .	13
1.8	Budget (as planned during Phase 1).	14
1.9	References	15

CONTENTS, PHASE 2:

REPORT ON FIELDWORK AND PRELIMINARY FINDINGS

2.1	Introduction	16
2.2	Description of the fieldwork	17
2.2.1	Response to invitation to participate	17
2.2.2	Arranging to visit schools	17
2.2.3	Successful visits	18
2.3	Data analysis and interpretation	18
2.3.1	Confidentiality of participating schools	18
2.3.2	Sample size	19
2.3.3	Composition of observed multigrade classes	19
2.3.4	Multigrade classroom practices	20
2.3.4.1	Background	20
2.3.4.1.1	Teacher training for multigrade classroom strategies	24
2.3.4.1.2	Classroom management strategies for multigrade classes	24
2.3.4.1.3	Assigning learners to groups in multigrade classes	27

CONTENTS, PHASE 2 OF RESEARCH (continued)

2.3.4.1.4	Utilisation of resources for multigrade classes	28
	(a) Utilisation of time	28
	(b) Utilisation of infrastructures	30
	(c) Utilisation of equipment	30
2.3.4.2	Practices discussed in questionnaires for teachers	31
2.3.4.2.1	Factors teacher consider crucial for successful teaching and learning in multigrade classes	31
	(a) The availability of learning materials	31
	(b) Repetition and revision	32
	(c) Co-operation between teachers	33
	(d) Group work and peer tutoring	33
	(e) Adequate facilities	34
2.3.4.2.2	Factors mentioned by teachers to improve teaching and learning in multigrade classes	35
	(a) Improvement of facilities	35
	(b) Adequate learning materials	36
	(c) In-service training	37
2.3.4.2.3	Comment on teachers' views	37
2.3.4.3	Multigrade classroom practices observed in classes .	38
2.3.4.3.1	Blackboards on every wall	38
2.3.4.3.2	Flexible arrangement of desks	39
2.3.4.3.3	Group work under a tree	40
2.3.4.3.4	Differentiated tasks and responsibilities	40
2.3.4.3.5	Reflection on sound educational practice	41
2.3.4.4	The management of schools with multigrade classes	43
2.3.4.4.1	Management of teaching strategies	43
2.3.4.4.2	Peer tutoring	43
2.3.4.4.3	Involvement of parents	
2.3.4.4.4	Creative sharing	
2.3.4.4.5	Discipline of learners	44
2.3.4.4.6	Time management	44
2.3.4.4.7	Teacher intervention	45

CONTENTS, PHASE 2 OF RESEARCH (continued)

2.3.4.4.9	Coping with the lack of training	45
2.3.4.4.10	Coping with the lack of resources	46
2.3.4.4.11	Comments on the OBE model	46
2.3.4.4.12	Principals' general comment on multigrade classes	46
2.3.4.5	Multigrade classroom practices in context of background data	47
2.3.4.6	Further data analysis	47
2.4	Preliminary findings and conclusions	50
2.5	Lessons learnt and implications for research	52
2.5.1	Lessons learnt during the planning of the project	52
2.5.2	Lessons learnt during field work	52
2.6	Income and expenditure statement for the project	53

CONTENTS, PHASE 3:

COMPLETE DATA ANALYSIS AND FINAL CONCLUSIONS

3.1	Introduction.	54
3.2	Quantitative data analysis	54
3.2.1	Needs and resources at farm schools	55
3.2.2	Comment on the needs and resources at farm schools	61
3.2.3	Teacher background information	61
3.2.4	Discussion of the teacher background information	63
3.2.5	Sizes of multigrade classes and age ranges of learners	63
3.2.6	Discussion of class sizes and age ranges.	66

CONTENTS, PHASE 3 OF RESEARCH (continued)

3.2.7	Teachers' attitudes towards multigrade classes	66
3.2.8	Discussion on teachers' attitudes towards multigrade classes	69
3.2.9	Availability of learning materials and textbooks	69
3.2.10	Discussion about the availability of learning materials and textbooks	73
3.2.11	Teachers' experiences, preferences and opinions about multigrade classes	73
3.2.12	Discussing experiences, preferences and opinions about multigrade classes	77
3.2.13	Classroom observation schedules	77
3.2.14	Result of the multigrade classroom observation schedule (MuGCOS)	79
3.3	Qualitative data analysis	79
3.3.1	Qualitative report of an independent researcher	79
3.3.2	Contexts in which multigrade teaching takes place	79
3.3.3	Managing multigrade schools	80
3.3.4	Teaching in multigrade classes	81
3.3.5	Conclusions of the independent researcher	83
3.4	Final conclusions and recommendations.	84
3.4.1	Summary	84
3.4.2	Conclusions	85
3.4.3	Recommendations	87
LIST OF	TABLES	viii
LIST OF	MAPS	ix
LIST OF	PHOTOGRAPHS	ix
LIST OF	ACRONYMS USED IN THIS REPORT	x
LIST OF	APPENDICES	xi
ABSTRACT		xii
ACKNOWLEDGEMENTS .		xiv

LIST OF TABLES

Table 1.1:	Schools in randomly selected districts, with multigrade classes including Grades 4-6	10
Table 2.1:	Numbers of learners currently taught in each grade of the senior multigrade class of the visited schools	21
Table 2.2:	Needs related to the supporting infrastructure	48
Table 2.3:	Needs related to school buildings	48
Table 2.4:	Needs related to consumable material and equipment in the classroom	49
Table 2.5:	Needs related to the availability of electricity	49
Table 3.1:	Data on needs and resources at the school	56-60
Table 3.2:	Teacher background information	62
Table 3.3a:	Number of children currently taught in each grade of the visited multigrade classes	64
Table 3.3b:	Age ranges in each grade in the visited schools	65
Table 3.4:	Teacher attitudes towards multigrade classroom practices	67-68
Table 3.5:	Availability of learning materials and textbooks	70-72
Table 3.6:	Experiences, preferences and opinions about multigrade classes	74-76
Table 3.7	Frequencies reported in the classroom observation schedule	78

LIST OF MAPS

Map 1.1: Geographic spread (9 zones) map grid, based on initial discussions with the FSDoE and RIEP 7

Map 1.2: Spread of schools in randomly selected districts, with multigrade classes including Grades 4-6 11

LIST OF PHOTOGRAPHS

Photo 1: The two-classroom building of a typical farm school in the Free State 20

Photo 2: A typical junior multigrade class can have pupils ranging from Grades 1 to 3 or 4 22

Photo 3: A typical senior multigrade class can have pupils ranging from Grades 4 or 5 to 7 22

Photo 4: Many multigrade classrooms have a blackboard in every corner 38

Photo 5: The arrangement of desks can change frequently in a multigrade classroom 39

Photo 6: Small group quiz-sessions, facilitated by group leaders 40

Photo 7: Group leaders, learning to share the responsibility for the development of people who are not as far advanced as you are yourself 42

LIST OF ACRONYMS USED IN THIS REPORT

EMIS: Education Management Information System

FSDoE: Free State Department of Education

HSRC: Human Sciences Research Council

ISP: Interview schedule for principals

ITMuG: Interviews with teachers of multigrade classes

JET: Joint Education Trust

MuCOS: Multigrade classroom observation schedule

MuGC(s): Multigrade class(es)

PEI: President's Education Initiative

PPQP: Preliminary postal questionnaire to principals

QTMuG: Questionnaire for teachers of multigrade classes

RIEP: Research Institute for Education Planning

LIST OF APPENDICES

APPENDIX A:

Information document: Free State Department of Education (FSDoE), Subdirectorate: Education Planning 90

Attachments to appendix A:

Documents to be submitted to the Subdirectorate: Education Planning . . 93

APPENDIX B:

Survey instruments: Multigrade classroom practices, 1998 100

Includes:

PPQP: Preliminary posted questionnaire to principals 101
QTMuG: Questionnaire for teachers of multigrade classes 105
ITMuG: Interviews with teachers of multigrade classes 117
ISP: Interview schedule for principals 1 i9

MuCOS: Multigrade classroom observation schedule 121

APPENDIX C:

Record layout for the data analysis..... 125

APPENDIX D:

Verbatim quotes of responses to open questions, with allocated codes. . 139

AN INVESTIGATION OF MULTIGRADE CLASSROOM PRACTICES IN THE FREE STATE PROVINCE OF SOUTH AFRICA

A.W. Drost, L.T. Magau, J.N. Mdekazi, I. Ural

Human Sciences Research Council (HSRC)

ABSTRACT

Research objectives

Learners in different year-grade levels receive instruction in a multigrade classroom. This research project aims at investigating case studies of multigrade classes, in order to analyse multigrade classroom strategies in the current educational dispensation in South Africa.

Research design and methodology

In order to establish trends in multigrade classroom implementation in South Africa, with special reference to remote rural areas and historically disadvantaged communities, selected schools in the Free State province were investigated on the basis of two questionnaires, two interview schedules and an observation schedule.

A letter of invitation to participate in this research project was posted in August 1998 to 31 appropriate schools on a list supplied by the Free State Department of Education (FSDoE). This letter included a response form for the schools to indicate their willingness to participate in the research and also an abbreviated version of the questionnaire for principals. Altogether 21 of the schools responded to this letter and returned the completed questionnaire.

On the basis of the telephonic contact, combined with the responses to the postal questionnaires a list of 24 willing schools was eventually compiled. This list was then divided among the team of five observers who had four cars at their disposal. The first car visited schools in the north-western region, the

second car schools in the north-eastern region, the third took the south-western region and the fourth car the south-eastern region. The five observers each made appointments to visit three of the listed schools in their allocated region during the week of 14 to 18 September 1998. They succeeded in eventually visiting twelve schools.

Main findings

A two-roomed school building is typical of the multigrade class schools encountered in the Free State. In such a school there are usually two teachers, one taking the junior grades (Grades 1 to 4) and the other the senior grades (Grades 5 to 7). Revision and repetition are inherent elements of multigrade classroom teaching and learning. These two factors support the reinforcement of basic concepts, especially in the subjects of reading, writing and arithmetic. Peer tutoring and delegation of responsibilities are standard practices in multigrade classroom teaching and learning. These two features have the added benefit of the development of social responsibility from a very early stage in the child's education.

Most of the teachers did not have any special training for multigrade teaching in rural environments. Their coping ability could largely be linked to their attitudes of accepting the challenge due to their dedication to education. More learning materials and in-service training programmes need to be developed for teachers of multigrade classes.

If the cultivation of responsible citizenship is seen to be the ultimate aim of education, then multigrade classroom teaching/learning indeed proves to be sound educational practice.

ACKNOWLEDGMENTS

This research is one of the projects in the President's Education Initiative (PEI), launched in 1997 with President Mandela's personal appeal to several foreign heads of government for assistance in developing teacher skills in South Africa. The PEI research programme is managed by the Joint Education Trust (JET) and funded by the Danish International Agency (DANIDA).

The research was undertaken in accordance with the requirements of the Free State Department of Education. The HSRC research team wishes to extend special thanks to Mr W.B. van Rooyen (Sub Directorate: Educational Planning) for his assistance in the planning of the research, and to Mr F. Kok (Education Management Information Services) for supplying the data needed to select rural schools with multigrade classes.

The HSRC research support team is also thanked for their contribution:

Language consultant:	Mr T.W. Steward.
Word-processing consultants:	Mrs R.M. Pretorius and Mrs M. Swardt.
Data analysts	Mrs E.J. Venter and Mr J. Makgopa.
Qualitative analysis consultant:	Mrs A.J. Meyer-Weitz

AN INVESTIGATION OF MULTIGRADE CLASSROOM PRACTICES IN THE FREE STATE PROVINCE OF SOUTH AFRICA

1. PHASE 1: PREPARING FOR THE RESEARCH

1.1 RESEARCH BRIEF

1.1.1 Introduction

A multigrade classroom is defined as a classroom where children in different year-grade levels receive instruction in the same classroom.

In rural areas, where the population density is very low, it is common for a group of 20 or 30 children, with ages ranging from 6 to 12 years, to receive their first few years of education from a single teacher in a so-called "one-room schoolhouse".

This research project on multigrade classroom practices commences by analysing theoretical models and case studies of multigrade classrooms, in order to ascertain the viability of implementing multigrade classroom teaching as an option in the current educational dispensation in South Africa.

A report on an exploratory literature survey on teaching trends in multigrade classes was completed by Penny Vinjevold of the Joint Education Trust (JET) and Jennifer Schindler (Edusource) in May 1997. They highlighted the following points:

1. The "multigrade classroom" is an international phenomenon.
2. It can be very successful if teachers are correctly trained for it, totally dedicated and well equipped. In addition, teachers need special preparation to cope with multigrade classes in isolated rural areas.
3. Special resources are essential to equip teachers for multigrade classes.
4. The centralized production of resources for multigrade classrooms is essential.

5. Attitudes towards multigrade teaching are of paramount importance for success.

6. Research indicates that multigrade classes as learning environments can be just as effective as monograde classes.

7. If the system is administered correctly, children from multigrade classes develop higher levels of social skills, better acceptance of responsibility for successful learning, and more supportive attitudes towards younger and less advanced people. They also achieve higher levels of independent study habits.

The above points confirm that multigrade classroom teaching is a meaningful, viable and worthy form of providing education, and should therefore be taken seriously by education departments and other providers of education.

William G. Spady (1994:4) lists "one-room schoolhouses" as a typical example of an "outcome-based model". It is therefore logical to conclude that it would be appropriate to revisit the practice of multigrade classrooms as a viable strategy for providing education in South Africa within the current national policy framework of outcomes-based education.

1.1.2 Some evidence from earlier SA literature on multigrade classes

Multigrade classrooms is not a new phenomenon in South Africa. Periodicals on education in South Africa during the past few decades have yielded significant evidence that the virtues of the "one-room schoolhouse" have not been forgotten by educationists. The following two examples (Henn, 1989 and Van Aswegen, 1987) from the 1980s highlight some aspects of recent multigrade classroom practices in South Africa.

According to Henn (1989), training for multigrade classes has been largely absent in the syllabus of teacher training in South Africa. In his own teaching experience in multigrade classes he found that time management is a serious problem for the teacher of a multigrade class. He quotes an example of a small rural school where the same teacher had to teach four different grades (Std 2, 3, 4 and 5) in the same classroom, requiring a total of 103 hours of learning material

to be prepared for each 26-hour school week. The following three strategies were successfully applied to cope with multigrade classes at the Breerivier primary school in the Cape Province:

(a) the orientation of pupils towards meaningful self-learning activities;

(b) the application of audiovisual aids such as sound-slide projectors and videos;

(c) utilizing recurring elements in the syllabus.

Van Aswegen (1987) also lists some typical examples of multigrade classes in the South African context. These included rural schools where the same teacher had four different grades in one class, and had to use two different languages of instruction. The only way the teacher could cope with such a large variety in one class was to manage effective self-study by the pupils. One successful method of self-study was to prepare an indexed box with written assignments for each grade level. At the beginning of each class period each child was given an assignment number, and had to work through it independently, with applicable textbooks and reference works readily available. Individualized teacher and peer support was supplied where appropriate. Timetable strategies are also mentioned. Some pupils left the class during periods for art, handwork, singing and physical training in groups, while the teacher remained behind to give individual attention to other pupils. Instead of using an overhead projector (which would attract the attention of all pupils in the class), only the transparencies were given to small groups, who put them up against a window in a small corner of the classroom and had group discussions about them.

In certain subjects, like religious instruction, the syllabus of the dominant grade level was followed, eventually covering all levels in every four-year cycle, with different methods of evaluation for each grade level. Oral and written composition were taught during double periods. The first part of the period was used for a group discussion involving all grades, and then the work was split into appropriate assignments for each grade level.

All the above methods worked successfully in classes with fewer than 20 pupils,

and left the teacher with ample time for individual interaction with each pupil. The teachers, however, needed to spend many hours outside class time to prepare appropriate materials.

1.1.3 Multigrade classes in historically disadvantaged communities

It has not been possible to compile a history of multigrade classroom practices in schools for historically disadvantaged sectors of the South African population. There seems to be ample evidence that the serious lack of facilities for education in distant rural communities would have necessitated multigrade classroom practices. When implemented out of sheer necessity, without the essential resources and without experience and knowledge of the true potential of multigrade classrooms, it is likely that multigrade classroom practices in disadvantaged South African communities had very limited success.

1.2 AN INVESTIGATION OF CLASSROOM ORGANIZATION AND THE USE OF RESOURCES IN MULTIGRADE CLASSES IN THE FREE STATE

1.2.1 The problem

Currently the organization of the schools in South Africa is built around the idea of learners being placed into grade levels and being passed or failed on the basis of these. Only in the rural areas and in farm schools has multigrade implementation taken place, owing more to a lack of teachers and resources than to deliberate design. Teaching multigrade classes in isolated rural areas poses a unique set of problems. The observation and monitoring of multigrade teaching routines can establish trends and provide data to enable educators and policy makers to consider the potential of multigrade classroom teaching as one possible solution for some of the current problems experienced in providing education in South Africa.

1.2.2 Aims of the project

The investigation of multigrade classroom practices in this project focuses on * multigrade teaching routines

* classroom organization

* resources.

The aim was to observe and analyse multigrade classroom practices in eight or ten primary schools in the Free State, with special attention to schools in historically disadvantaged rural communities.

1.2.3 Research design

Schools in which multigrade classroom practices can be observed, was selected using the following specifications:

Schools: Two- or three-teacher schools, with grades ranging from 0 to 7

Pupils: Between 40 and 100 pupils per school.

To establish trends in multigrade classroom implementation in South Africa, with special reference to remote rural areas and historically disadvantaged communities, the selected schools in the Free State province was observed on the basis of the questionnaires and observation schedule attached as Appendix B.

1.2.4 Project phases

Phase 1: The first report explains the basis and mechanism of selecting schools for observation, as well as the instruments developed to collect data from the selected schools in the Free State. The draft of the first report was delivered to the JET Offices early in September 1998.

Phase 2: The second report was submitted in draft in November 1998, after which it was to be revised and finalized, for handing over to JET by 15 December 1998.

Phase 3 In response to the second report, JET requested a complete data analysis, which is presented as Phase 3 in the final report.

1.2.5 Selecting schools to participate in this project

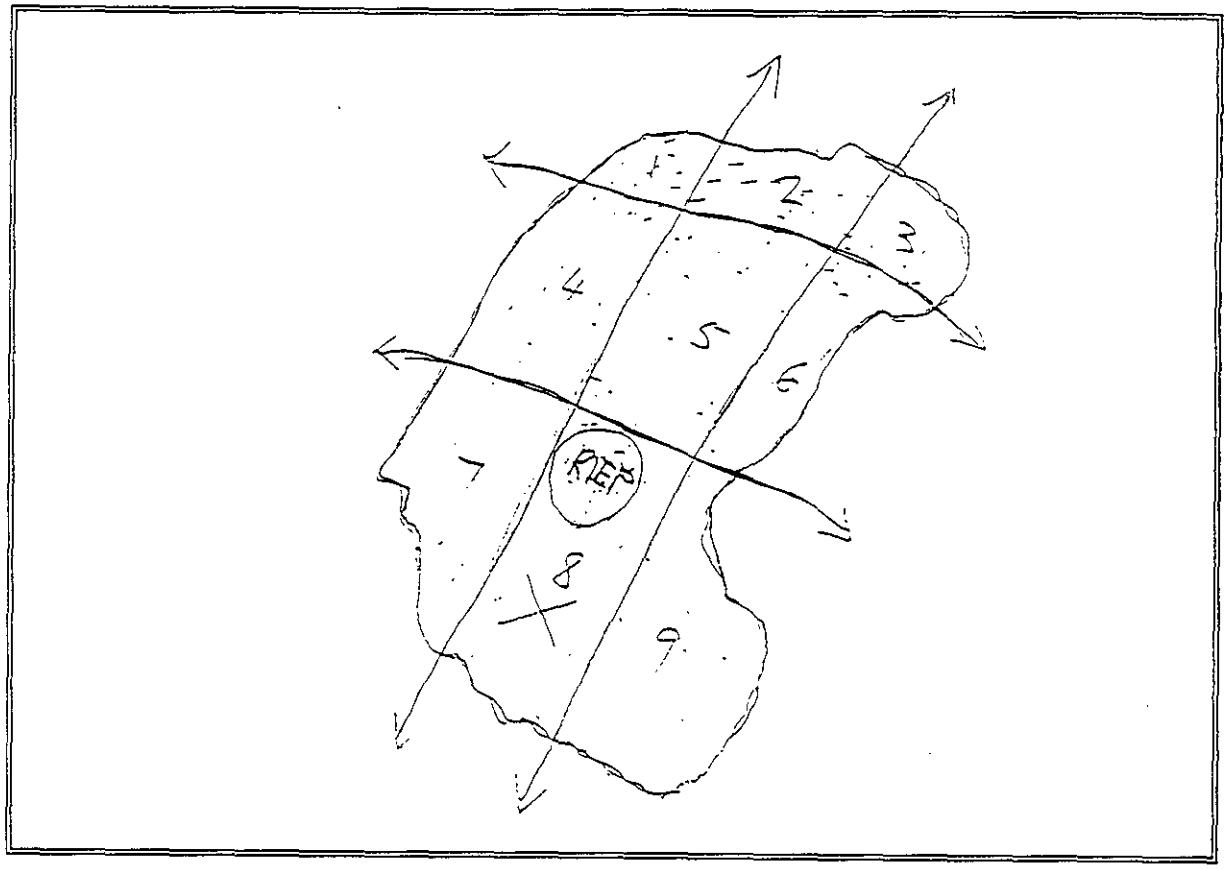
Any access to schools in the Free State falls under the jurisdiction of the Free State Department of Education (FSDoE). Any research project in schools in this province would also require collaboration and coordination with the educational research unit of the University of the Orange Free State (UOFS), known as the Research Institute for Education Planning (RIEP).

Before selecting schools for this research project, one of the members of the HSRC project team visited the FSDoE and RIEP. During initial discussions with Prof. Japie Strauss at RIEP, it was decided to exclude schools in the immediate vicinity of Bloemfontein from this project since those schools are constantly being drawn into research projects by UOFS. Involvement by researchers has resulted in various support initiatives in many of the schools in the Bloemfontein region, and these schools are considered to be enriched with research and good educational resources.

In a subsequent discussion with an official of the FSDoE, Mr Bouwer van Rooyen, it was decided to divide the Free State into nine regions in a symmetrical geographical spread, and then select suitable schools to participate in this project. The HSRC official was referred by Mr Van Rooyen to the

FSDoE's Education Management Information System (EMIS). On 27 May 1998 a discussion with Mr Frans Kok at EMIS resulted in a preliminary selection of potential multigrade classroom schools with between 60 and 120 pupils, and less than five teachers to teach all pupils, from Grade 0 to 7.

To sample the region geographically, two vertical and two horizontal lines were drawn across a large map of the Free State, dividing it into nine geographical zones:



Map 1.1: Geographic spread (9 zones): Map grid.
Based on initial discussions with the FSDoE and RIEP.

The table and the map (see copies on pp. 10 and 11) were made available by EMIS. The table (p.10) indicates the numbers of pupils in each grade and the numbers of teachers in each of the schools indicated on the map (p.11). The physical address, postal address and telephone number of each of these schools are also available.

1.3 SELECTING SCHOOLS TO INVESTIGATE

Statistics for all schools in the Free State are constantly updated by EMIS. Schools for the observation of multigrade classroom practices were then selected as follows:

One magisterial district was randomly selected in each geographic zone. A first database search was then done in each selected district for schools with between 60 and 100 pupils and with one, two or three teachers. This first search yielded 69 schools in the nine selected districts, but there were insufficient suitable schools (including pupils in Grades 4-6) to select from in some districts.

A second database search was then done for schools with between 40 and 100 pupils, listing the numbers of pupils in Grades 4, 5 and 6. This search yielded 168 schools in the nine selected districts. A list of about 20 suitable schools in each geographic zone could then be supplied. The Bloemfontein zone was then excluded in order not to interfere with RIEP's project, and the Bothaville district was doubly sampled because there was a high concentration of farm schools with between 40 and 100 pupils. Some of the sparsely populated districts were supplemented with schools from neighbouring districts. The list resulting from this search was then studied by the HSRC official during the evening of 27 May 1998, to select schools with significant numbers of pupils in Grades 4-6.

A second visit to EMIS on the morning of 28 May, resulted in selecting three suitable schools in each of the eight remaining zones, with an extra three schools from Bothaville district to compensate for the exclusion of Bloemfontein. If any of these schools did not have a telephone, it was replaced by another one from the previous search list, until at least three suitable schools which could also be contacted by telephone, were listed in each geographic zone. A final list of 31 schools suitable for observing multigrade classroom practices in Grades 4 to 6 was then compiled.

This list (see table on p.10) was submitted to the research project approval committee of the FSDoE as the suggested regional sample. The approval

committee was requested to allocate the final eight or nine schools (one per geographic zone) which they considered appropriate to include in this project. Alternatively, questionnaires could have been taken to all 31 schools, and then the most suitable schools could be selected on the basis of this questionnaire delivery-visit and information obtained from responses to the questionnaires. The map that follows shows the distribution of the 31 selected schools, in which the number of pupils in Grades 0 - 7 in proportion to the number of teachers in those schools necessitates the use of multigrade classes for Grades 4-6.

1.4 FSDoE PRESCRIPTIVES FOR RESEARCH IN SCHOOLS

Since permission for access to schools in the Free State falls under the jurisdiction of the FSDoE, there are written requirements to which all research projects have to adhere. These requirements are listed in Appendix A

1.5 THE SURVEY INSTRUMENTS

Copies of the questionnaire for teachers of multigrade classes, the questionnaire to principals of schools with multigrade classes, the interview schedules and the observation schedules in multigrade classes are attached in Appendix B at the end of this report.

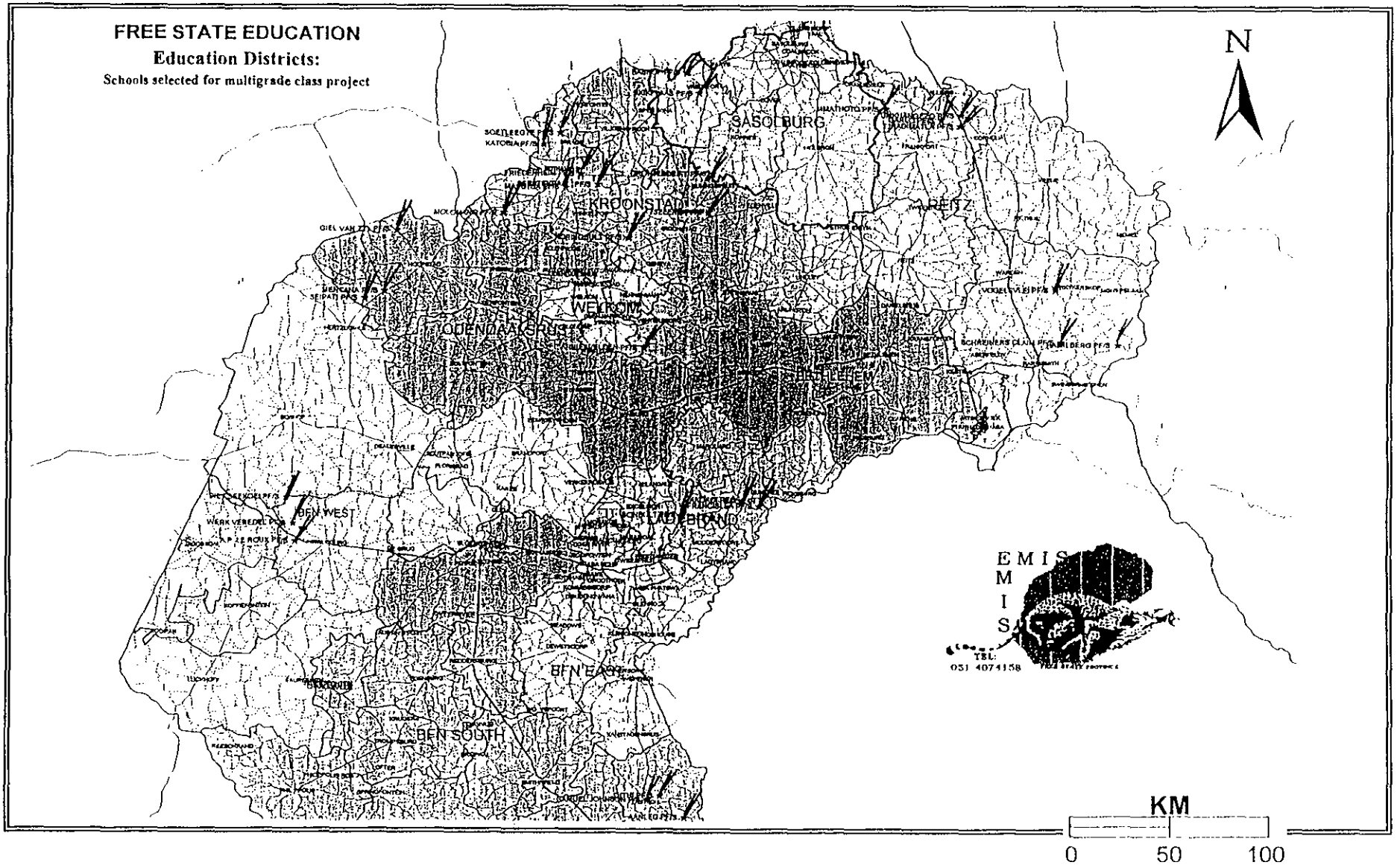
TABLE 1.1

SCHOOLS IN RANDOMLY SELECTED DISTRICTS, WITH MULTIGRADE CLASSES INCLUDING GRADES 4-6

Magisterial	*EDUC DIST*	*School Name:*	*Tel Code:*	*Tel No:*	*Address1:*	*Town:*	*Code:*	*Street Address*	*Geographical*
BOTHAVILLE	KROONSTAD	MASUTSA PF/S	0565	4594	PO BOX 1053	BOTHAVILLE	9660	TWEEFONTEIN FARM	
	KROONSTAD	SOETLEEGTE PF/S	0565	3582	PO BOX 513	BOTHAVILLE	9660	SOETLEEGTE	BOX 513
	KROONSTAD	MOLOHANG PF/S	0565	4159	PO BOX 236	BOTHAVILLE	9660	SANS SOUCI	MOLOHANG
	KROONSTAD	KATOBIA PF/S	018	4411139	PO BOX 451	BOTHAVILLE	9660	JT COETZEE	KRUGERSKRAAL
	KROONSTAD	BEESTEKRAAL PF/S	0565	3392	PO BOX 1149	BOTHAVILLE	9660	BEESTEKRAAL-NOORD	
	KROONSTAD	FRIEDENHEIM PF/S	0565	2505	PO BOX 413	BOTHAVILLE	9660	HARTEBEESKUIL	
CLOCOLAN	LADYBRAND	MAKOADI PF/S	051943	0273	PO BOX 79	CLOCOLAN	9735	MAKOADI	
	LADYBRAND	SONBULT PF/S	051932	2840	PO BOX 85	CLOCOLAN	9735	SONBULT FARM	
	LADYBRAND	FRANCISLEA PF/S	051932	3503	PO BOX 334	CLOCOLAN	9735	MAUNTAIN VIEW	
FRANKFORT	REITZ	CARLO PF/S	0588	33752	PO BOX 153	FRANKFORT	9840	CARLO	
	REITZ	TJHADIMATLA PF/S	0588	31499	PO BOX 503	FRANKFORT	9830	BETHANIE	
	REITZ	MMATHOTO PF/S	05889	30090	PO BOX 333	FRANKFORT	9830	VREDE FARM	
	REITZ	UMKHANGEZO PF/S	058	8210139	PO BOX 140	VILLIERS	9840	UITZICHT	
HARRISMITH	HARRISMITH	SCHREINERS CLAIM PF/S	05861	32668	PO BOX 246	HARRISMITH	9880	SCHREINERS CLAIM	HARRISMITH
	HARRISMITH	HAMILBERG PF/S	0361	23489	PO BOX 601	LADYSMITH	3370	HAMILBERG	
	HARRISMITH	VOGELSVLEI PF/S	05861	23442	PO BOX 335	HARRISMITH	9880	VOGELSVLEI	
HOOPSTAD	ODENDAALSRU	GIEL VAN ZYL PF/S	01802	41682	PO BOX 281	HOOPSTAD	9479	DOORNHOEK	HOOPSTAD
	ODENDAALSRU	MENTANA PF/S	01802	41659	PO BOX 82	HOOPSTAD	9479	VRYHEID	HOOPSTAD
	ODENDAALSRU	SEIPATI PF/S	053402	9365	PO BOX 233	HOOPSTAD	9479	KAREEBOOMVLAKTE	HOOPSTAD
KROONSTAD	KROONSTAD	TSELENG PF/S	0562	23076	PO BOX 507	KROONSTAD	9500	KLIPFONTEIN	
	KROONSTAD	ANNIESVELDEN PF/S	05777	4683	PO BOX 88	VENTERSBURG	9450	ANNIESVELDEN	
	KROONSTAD	KORINGBULT PF/S	0562	24006	PO BOX 1023	KROONSTAD	9500	SPRINGBOKLAAGTE	
PETRUSBURG	BFN WEST	WERK VEREDEL PF/S	053572	2203	PO BOX 128	PETRUSBURG	9932	EMMAUS	PETRUSBURG
	BFN WEST	A.P. LE ROUX PF/S	05282	1302	PO BOX 222	PETRUSBURG	9932	SPITSKOP	
	BFN WEST	PIET SEEKOEI PF/S	53572	1840	PO BOX 188	PETRUSBURG	9932	MR CG JACOBS	BANKSDRIFT FA
VREDEFORT	SASOLBURG	SKIKPLAAS PF/S	016022	3231	PO BOX 147	VREDEFORT	9595	SKIKPLAAS	
	SASOLBURG	CRONJESDRIFT PF/S	056	3431100	PO BOX 190	VILJOENSKROON	9520	CRONJESDRIFT	BOX 190
	SASOLBURG	BASKOP PF/S	016022	1261200	PO BOX 266	VREDEFORT	9595	DEELFONTEIN	VREDEFORT
ZASTRON	BFN SOUTH	AANLEG PF/S	05542	1121	PO BOX 168	ZASTRON	9950	PIETRUSRUST	
	BFN SOUTH	SAMUEL JOHNSON P/S	051	6731295	PO BOX 141	ZASTRON	9950	MATLAKENG	ZASTRON
	BFN SOUTH	QITHI PF/S	05542	2803	PO BOX 191	ZASTRON	9950	WEGKOP	ZASTRON

MAP 1.2

SPREAD OF SCHOOLS IN RANDOMLY SELECTED DISTRICTS, WITH MULTIGRADE CLASSES INCLUDING GRADES 4-6



1.6 PROPOSED RESEARCH STRATEGY

1.6.1 Approval of instruments

As soon as the project plan and survey instruments had been approved by JET, the research application was submitted to the FSDoE. The preliminary visit of 27-28 May 1998 to this department confirmed that, if there were no objections from any members of the research project approval committee, it might be possible to visit schools by September 1998. The guidelines for submission of requests for research projects in schools in the Free State (see Appendix A) stipulate that it could, however, take as long as three months for research requests to be approved:

> "4.13 Applications should allow reasonable time for the Department to consider applications: At least three months before action in the schools may commence"

As soon as the FSDoE approved the research application and the strategy for selecting schools, letters of invitation were posted to the 31 selected schools. These schools will then have the option to participate in the research project or not. Only after the school principal had declared that he/she was willing to let the school participate in the research project, were arrangements made for visits to fill in the questionnaires. After the responses to the questionnaires for teachers and for principals had been analysed, the final set of twelve schools was selected for visits by trained observers (see observation schedule, Appendix B).

Each of these twelve schools were then visited by a trained observer for at least one full school day. During a normal school day, the trained observer had to sit in one corner of a multigrade classroom, and make notes according to the observation schedule. Interviews with teachers of multigrade classes was then conducted in order to discuss teaching routines, classroom organisation and the utilisation of resources. Interviews with principals of these schools were conducted to discuss resource-management styles appropriate for these schools.

1.6.2 Project team

(1) Dr 1. Ural is the project leader.

(2) Dr L.T. Magau, the project co-leader, is responsible for co-ordinating data collection and the training of field workers.

(3) Dr A. W. Drost is responsible for the selection of schools and the planning and execution of the fieldwork.

(4) Ms J.N. Mdekazi (a member of the HSRC's Unit for Assessment Studies) assists with instrument development and the execution of the field work.

(5) Ms D. Sefanyetso is the project administrator.

Attachment A (contained in Appendix A) of the document prepared for submission to the FSDoE contains more information about the project leader and each member of the research team, including their telephone numbers during office hours.

1.7 THE WAY FORWARD

After the selected schools had been visited, the data from the questionnaires, interviews and observation schedules was analysed and .collated, and also integrated with information gathered from an ongoing literature study. The results of the research project was then summarised in a second report, according to the requirements of JET.

1.8 BUDGET (As presented during Phase 1 of the project)

First phase August 30, 1998			
Labour:	Per hour	# of hours	Total
Project Leader	R 320.00	25	R 8 000.00
Researchers	R 232.00	120	R 27 840.00
Administrative staff	R 87.00	20	R 1 740.00
		Total labour, Phase 1:	**R 37 580.00**
Variable costs:			
Trip to Free State: 2 days accommodation + 1920km @ 56c/km			**R 1 675.00**
		Total cost, Phase 1:	**R 39 255.00**

Second phase November 30, 1998			
Labour:	Per hour	# of hours	Total
Project Leader	R 320.00	20	R 6 400.00
Researchers	R 232.00	200	R 46 400.00
Administrative staff	R 87.00	25	R 2 175.00
		Total labour costs, Phase 2:	**R 54 975.00**
Variable costs:			
Photocopying of questionnaires: @ R5 each, 4 types x 40 copies			R 800.00
Publication of the reports: R2/page, 10 copies x 150 pages			R 3 000.00
Travel: 56c per km, 1500 km/researcher x 3 researchers			R 2 520.00
Accommodation: R300 per day, 6 days/person x 3 persons			R 5 400.00
Editing of the documents: R5 per page x 150 pages			R 750.00
Postage, telephone, fax and courier costs			R 750.00
		Total variable costs, Phase 2:	**R 13 220.00**
		Total costs, Phase 2:	**R 68 195.00**
		Total, Phases 1 + 2:	**R 107 450.00**

Summary of budget:

Total cost, Phase 1:	R 39 255.00
Total cost, Phase 2:	R 68 195.00
Total, Phases 1 + 2:	R 107 450.00
The grant amount:	R 107 450.00

1.9 REFERENCES

Henn, L.D. Die kleiner skool - 'n groter uitdaging. Die Unie, Jun. 1989:343-344. [The smaller school - a bigger challenge]

Spady, W.G. 1994. Outcome-based Education: Critical Issues and Answers -. American Association of School Administrators. (No place indicated.)

Van Aswegen, H.A. Gekombineerde klasse. Die Unie, Aug. 1997:40. [Combined classes]

Vinjevold, P. & Schindler, J. 1997. Teaching in multigrade classes: A literature study commissioned by the Joint Education Trust, Johannesburg: JET.

REPORT ON PHASE 2 OF THE RESEARCH:

FIELDWORK TO INVESTIGATE MULTIGRADE CLASSROOM PRACTICES IN THE FREE STATE PROVINCE OF SOUTH AFRICA

2.1 INTRODUCTION

This is the report on the second phase of the investigation into multigrade classroom practices in the Free State province of South Africa. A school with multigrade classes is a school where the small number of teachers in the school, in relation to the number of pupils in each grade, are required to teach more than one grade (year-level) in the same classroom. Multigrade classrooms were frequently encountered in the past, especially in remote rural areas. In the current climate of outcomes-based education, educationists all over the world are taking a new interest in multigrade classes as a possible way to promote accelerated learning, to encourage peer tutoring and to improve basic education through increased repetition and revision.

The first phase of the research (August 1998) included a report on the research brief, provided information from earlier SA literature on multigrade classes, and references to historically disadvantaged communities. It stated the research problem and indicated the aims of the project, the research design and the project phases. It explained the method of selecting schools to participate in this investigation. It also provided copies of the survey instruments and the list of schools in randomly selected districts, which have multigrade classes that include Grades 4 to 6. It also included a map indicating the location of the selected schools.

The proposed research strategy, method of approval of research instruments, particulars about the project team, the envisaged way forward and the budget for the project were all included in the first report.

According to the research contract between the Joint Education Trust (JET) and the Human Sciences Research Council (HSRC), this second phase of the report should include

* a description of the fieldwork,

* the data analysis and interpretation,

* the main findings and conclusions,

* a discussion of lessons learnt and implications for research, an income/expenditure statement for the entire project.

The remaining part of this report on the second phase of the research covers the above mentioned aspects of the research in the same order.

2.2 DESCRIPTION OF THE FIELDWORK

2.2.1 Response to invitation to participate

A letter of invitation to participate in this research project was posted in August 1998 to all 31 schools in the list supplied by the Free State Department of Education (FSDoE). This letter included a response form for the schools to indicate their willingness to participate in the research and also an abbreviated version of the questionnaire for principals. Altogether 21 of the schools responded to this letter and returned the completed questionnaire. With seven of the 31 schools, attempts to make contact by mail or by telephone/telefax were not successful within the given time constraints. All the schools successfully contacted were willing to participate in this research project.

2.2.2 Arranging to visit schools

It was planned that observers would eventually visit and conduct interviews at least eight of the 31 schools on the list of sampled schools. In the first and second weeks of September 1998, the research team tried to telephone the farm

managers and principals of the 31 schools in order to determine their willingness to participate. The 24 the schools that were successfully contacted, were all willing to participate.

On the basis of the telephonic contact, combined with the responses to the postal questionnaires a list of 24 willing schools was eventually compiled. This list was then divided among the team of five observers who had four cars at their disposal. The first car visited schools in the north-western region, the second car schools in the north-eastern region, the third took the south-western region and the fourth car the south-eastern region. These observers each made final appointments to visit three of the listed schools in their allocated region during the week of 14 to 18 September 1998.

2.2.3 Successful visits

Tentative arrangements for visits were made with 15 schools, and the observers eventually succeeded in visiting 12 of them. The car with two observers concluded five visits, the fieldworker in the second car concluded three, and the fieldworkers in the other two cars each concluded two visits. The failure to find three of the schools in the remote areas can be ascribed to the lack of a cellular telephone in one car and a lack of GIS tracking devices in two of the other cars.

2.3 DATA ANALYSIS AND INTERPRETATION

2.3.1 Confidentiality of participating schools

The research agreement with the FSDoE does not permit publication of the names of the schools that were visited. Code numbers were accordingly allocated to schools that were visited or responded to the postal questionnaire. It was also part of the research agreement to supply the FSDoE with the list of

schools that eventually participated. This list has already been posted (by registered mail) to the FSDoE, together with the only copy of the key that links school names to school codes. In the research reports, schools will be referred to by code number only, as stipulated in the research agreement with the FSDoE.

2.3.2 Sample size

The magnitude of this research project (12 schools visited) falls below the threshold of any formal quantitative statistical analysis. The possibilities of two qualitative data analysis packages are being explored and will be reported in the final report. This second report will now describe the preliminary (manual) analysis of the data collected in the 12 visited schools, supplemented with data gathered from the additional nine questionnaires returned by mail. The first round of data analysis is treated as case studies of farm schools in the Free State, with special emphasis on multigrade classroom practices.

2.3.3 Composition of observed multigrade classes

The numbers of children currently being taught in each grade in the senior class of the observed multigrade classes are summarised in Table 1.

2.3.4 Multigrade classroom practices

2.3.4.1 Background

A typical environment where multigrade classroom practices take place in the Free State province of South Africa, is indicated in Photos 1 to 3. These photos were scanned from photographs taken at schools visited in September 1998. It shows atypical example of the buildings at a two-roomed school house. In such a school there is usually two teachers, one taking the junior grades (Grades 1 to 4) and the other the senior grades (Grades 5 to 7). The numbers of learners in each grade in the senior multigrade class of the visited schools are indicated in Table 2.1

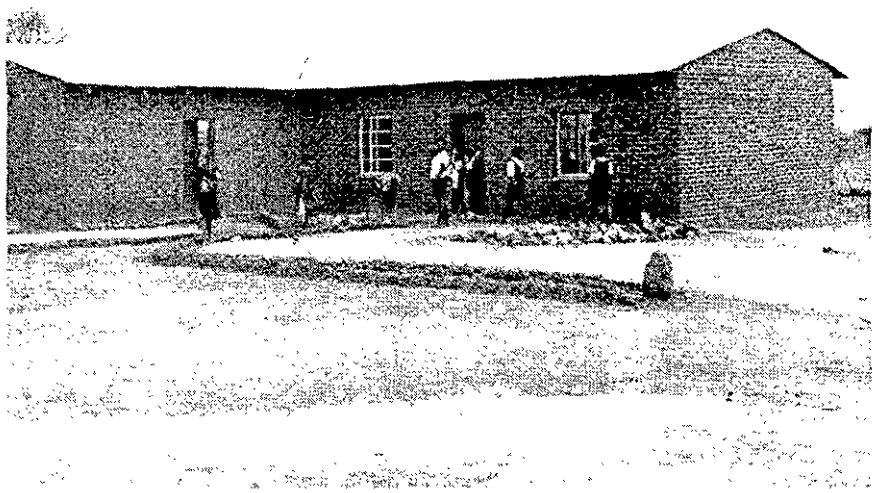


Photo 1: The two-classroom building of a typical farm school in the Free State

Table 2.1: Numbers of learners currently taught in each grade in the senior multigrade class of the visited schools

School / Grade	001	003	004	007	008	012	015	021	023	027	029	032	Average
Gr. 4	6	11	5	11	0	0	0	0	5	11	12	9	70/12 = 5,8
Gr. 5	3	2	4	9	9	4	7	8	4	8	11	3	72/12 = 6,0
Gr. 6	4	5	4	12	5	5	10	14	3	0	11	3	76/12 = 6,3
Gr. 7	0	0	4	10	2	4	11	10	4	0	7	8	60/12 = 5,0
Total in class	13	18	17	42	16	13	28	32	16	19	41	23	278/12 =23,2

SOME MULTIGRADE CLASSES OBSERVED ON FARM SCHOOLS, FREE STATE PROVINCE OF SOUTH AFRICA, 1998

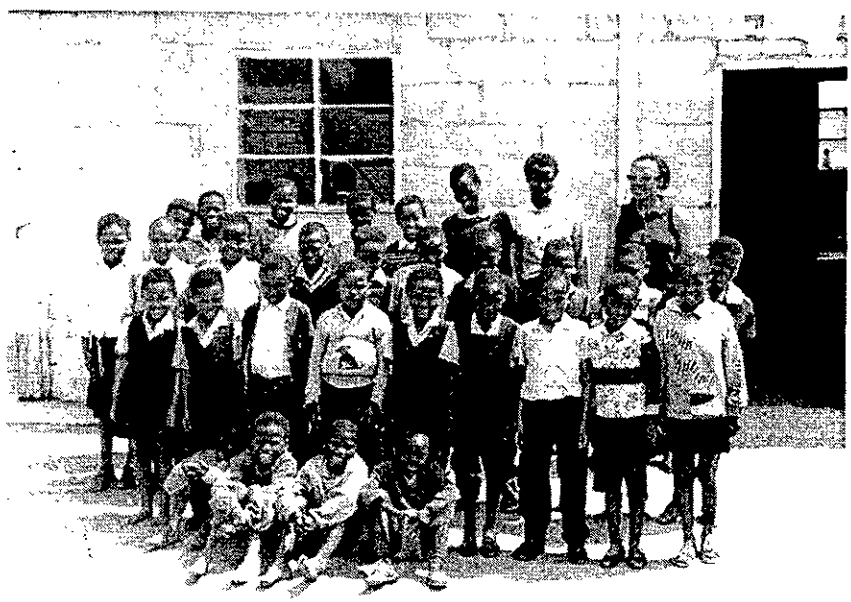


Photo 2: A typical junior multigrade class can have pupils ranging from Grades 1 to 3 or 4
(This case: *Front row = Gr.1, second row = Gr.2, third row = Gr.3, back row = Gr.4*)

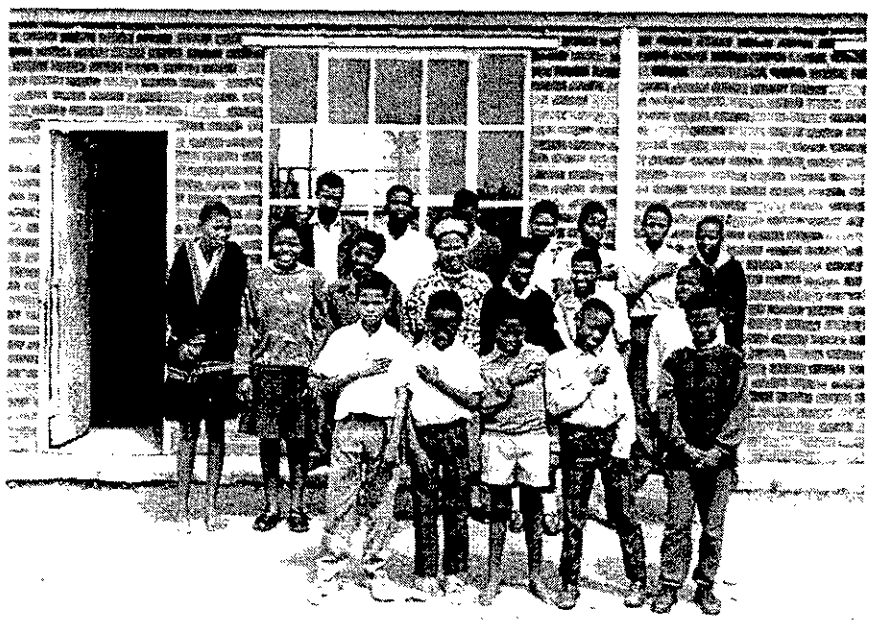


Photo 3: A typical senior multigrade class with pupils ranging from Grades 4 or 5 to 7
(This case: Front row = Gr.5, second row = Gr.6, back row = Gr.7)

The issue of multigrade classroom practices was specifically raised in three of the research instruments, namely

* the interview schedule with teachers,

* the questionnaire addressed to teachers,

* the classroom observation schedule.

The results of these will be discussed in Paragraphs 2.3.4.1 to 2.3.4.3.

The management of schools with multigrade classes was discussed in the interviews with principals. The results of these interviews will be dealt with in Paragraph 2.3.4.4.

Paragraph 2.3.4.5 will integrate the findings of the preceding four sections of 2.3.4 with the background data collected in the questionnaires for teachers and principals.

Multigrade classroom practices were discussed in interviews with teachers. The teachers were interviewed on the basis of four open questions after the children had been dismissed on the day of the visit by the observer. The responses of the teachers in respect of multigrade classroom practices will now be discussed in the following four categories:

* teacher training,

* classroom management strategies,

* assigning learners to groups,

* utilisation of resources.

2.3.4.1.1 Teacher training for multigrade classroom strategies

Teacher-training programmes do not meet the special needs of small rural schools. To make matters worse, in-service training is more difficult for rural teachers to obtain. The specific characteristics of rural schools and the special needs of their teachers are often not taken into account in teacher-training curricula. From the teachers' reports, teacher training neither prepares new teachers adequately for the challenges of teaching in a multigrade school, nor does it help practising teachers struggling with the complexities of teaching two or more grades.

Eleven of the 12 respondents at visited schools supplied data about their teacher training. Data indicate that 9 of the teachers received a two-year full-time training at colleges. One teacher had a three-year training course and another a total of five years teacher training.

Six of the teachers indicated that they were trained to cope with teaching conditions in a multigrade class, while four teachers indicated that their training did not help them to cope with multigrade classes. One teacher was not sure whether such training helped her to cope with a multigrade setting.

Five of the 11 teachers who responded to the questionnaire said that teacher training did not provide them enough skills to teach multigrade classes, while two were uncertain. Only three of the teachers indicated that teacher training courses equipped them with skills to teach in multigrade settings.

2.3.4.1.2 Classroom management strategies for multigrade classes

For many of the teachers the ability to manage their classes was seen as a problem. In most of the schools visited one teacher had to teach four or more

grades in the same class. It was observed that most of the teachers organised the learners in such a way that they became independent learners who could work on their own while the teacher was working with other grade levels. Also commonly observed was that the teachers generally placed Grade 5 learners with Grade 6 learners to make them a more homogeneous group.

When asked what examples there were of the strategies/mechanisms that worked well, most of the respondents mentioned co-operative learning and peer support. They also said that they found separating grade groups within the class for instruction, direct teaching and whole-class instruction, was an effective way of teaching multigrade classes.

Most of the respondents felt that teaching in multigrade classrooms provided more opportunity for teachers to be innovative. The following are common strategies that most of the teachers used in multigrade classes:

- whole-class teaching
- direct instruction for teaching a certain activity
- individualisation of instruction so that the teacher can give individual attention to each learner
- integrating subjects under themes
- peer-tutoring strategies
- co-operative learning strategies among learners
- self-directed learning

It was discovered that in all the schools visited, the teacher played a dual role, that of a teacher and principal. Typically, one classroom was organised to accommodate at least 3 different grades. Six of the teachers taught grades five and six the same syllabus, while grade four was occupied with a another task. A typical seating arrangement in a class in all the schools visited was to divide learners into different groups. For example, in one school Grade 4 learners were

seated in groups of four or five around two small tables pushed together. The same applied with grades five and six. Another interesting arrangement was a school that had one teacher table, four students per table, two fixed chalkboards, some loose chalkboards with easels, and three project tables strategically placed at the back or sides of the classroom. The class was decorated with project work. In another class Grades 5 and 6 were divided into groups of five, doing work of matching pictures, while Grade 4 pupils interacted with the teacher discussing a picture and pupils writing sentences about it. In one school Grades 4-7 were writing the same language test. In another school Grades 4 to 6 were listening to a presentation by the teacher while Grade 7 learners were independently working on a written task.

When asked what they did to achieve success in multigrade settings, the teachers made the following comments:

Teachers quoted on multigrade classroom strategies

I prepare my lesson very well just as if I am teaching a mono grade class (003)

I show appreciation for what they do every time (003)

I am very friendly with them so that they can be free to talk or ask questions (003)

Teachers quoted on multigrade classroom strategies (continued)

I use both teacher-centred and learner-centred approach (007)

The teacher should prepare adequate work for pupils to do (008)

When asked to provide examples of the strategies/mechanisms that worked well in multigrade classes, some of the teachers mentioned creative ways of preparing appropriate materials after school hours. A common strategy used by most of the teachers was to group the learners for conversation and talk less themselves. Most of the teachers used magazines, newspaper and pictures to help pupils in their learning tasks (003).

2.3.4.1.3 Assigning learners to groups in multigrade classes

The majority of the teachers who were interviewed thought that learners should be placed in homogeneous groups on the basis of two learner characteristics: independence and ability.

The teachers were asked what strategies teachers should use to assign learners to combination classes and what strategies they actually used. Most of the teachers observed and interviewed said dividing pupils into flexible groups was crucial. A strategy some teachers employed with multigrade classes was to divide the learners into small groups and to give the groups a task to discuss and work on in a corner of the classroom.

The approaches used by the teachers are illustrated by their comments quoted below:

Teachers quoted on multigrade classroom strategies

They must be grouped according to their abilities. Have a teaching corner (029)

I group them according to their need (003)

I divide them into groups when dealing with the activities (007)

I share my time dealing with different groups (007)

I use the group work when I'm busy with other grades, other grades are given work to do with the help of the group leader. I make sure that different grades start simultaneously to participate. The process continues in the same way up to the last period (008)

I group other classes and give them something to do, using group leaders (boy and girl). Groups also have scribes, secretaries and reporters. Children learn to care for and to help each other (021) (029)

2.3.4.1.4 Utilisation of resources for multigrade classes

(a) Utilisation of time

Time management was cited as a serious problem for most of the multigrade teachers. These included how to assess and manage transitions between

activities, groups and strategies. At the same time the teacher had to teach the class. Most of the teachers spoke about the extra work multigrade classes required: "I find it difficult sometimes because I don't have enough time for each grade. Pupils just receive little and have to move on to the next grade because time is going on very fast (015)."

Another teacher said: "At the beginning teaching a multigrade class can be very difficult. With time you manage (027)."

Comments such as "You are busy all the time", "It's very difficult because you have to teach two different curricula at the same time", and "Teaching multigrade classes is very hard" were common.

The most common way the teachers dealt with the tight timetable was to allow some of the learners to leave the class during periods for reading and written work, while the teacher remained behind to give individual attention to the weaker learners. The first part of the period was used by some of the teachers for group discussions involving all the grades, followed by giving appropriate assignments for each grade level, as illustrated in the following quote:

Teachers quoted on multigrade classroom strategies

The day begins by putting one group to work, for example with a written assignment, and then present a whole group lesson to the other group. This pattern is continued throughout the day. Oral work and poetry can be done with the entire class (023).

(b) Utilisation of infrastructures

At a two classroom school in a remote rural district of the Free State Province, there were no libraries and centres for curriculum support, thus contributing to the professional isolation of the teachers. The physical resources, including the school buildings, were outdated. There were no taps with running water or toilets. There was also the problem of transportation and the distance learners and teachers had to travel to get to school. Although the teachers at the schools received support from their colleagues, pedagogical support from school officials and curriculum experts was scarce because of the distances involved.

(c) Utilisation of equipment

Observations indicated that the tasks carried out by the teachers in multigrade settings involved few resources other than the teacher and textbooks. One teacher, for example, used two sets of chalkboards. Space in some of the classroom are also very limited. At one school the Grade 5 and 6 learners had to go outside to learn while younger ones (Grade 4) complete a test.

A major concern was the absence of curricular materials designed specifically for multigrade classes. There were no libraries, no teaching aids, no electricity and no audio-visual materials such as overhead projectors, transparencies, etc. Teaching resources frequently used with multigrade classes included textbooks, creating small spaces for groups of learners, and exercise books. Some of the less-used resources were science kits, teacher manuals, student workbooks and laboratory equipment.

2.3.4.2 Practices discussed in questionnaires for teachers

2.3.4.2.1 Factors teachers consider crucial for successful teaching and learning in multigrade classes

In their questionnaire the teachers were requested to write down the factors they considered important for the success of teaching and learning in multigrade classes. From their responses the following five factors seemed to be crucial. Each identified factor is supported with some quoted responses:

(a) The availability of learning materials

Teachers quoted on multigrade classroom strategies

* *Available learning activities can highly improve the success.*

* *Suitable learning material to be supplied.*

* *Enough textbooks.*

* *Enough teaching materials.*

* *Adequate supply of equipment and textbooks.*

* *More teaching material.*

(continued)

Teachers quoted on multigrade classroom strategies

* *If enough learning material is available, individual attention can be given to each student.*

* *Resources: textbooks, aids, for example, maps, science kits, etc.*

* *Enough teaching aids.*

(b) Repetition and revision

Teachers quoted on multigrade classroom strategies

* *The lower class know the work of the higher classes and when they get to the high classes they revise what they learnt.*

* *Repetition and revision are the two keywords for success.*

(c) Co-operation between teachers

Teachers quoted on multigrade classroom strategies

* *Co-operation of teachers of multigrade classes as far as their problems are concerned.*

* *Give educator a problem to solve it for themselves.*

* *Discuss things with other people, e.g. how they manage their work, how you do yours.*

(d) Group work and peer tutoring

Teachers quoted on multigrade classroom strategies

* *Children-centred approach can lead to the success of multigrade classes.*

* *Pupils should learn how to work in groups.*

(continued)

Teachers quoted on multigrade classroom strategies

* *There should be group leaders for different subjects.*

* *The teacher should see to it that learning is taking place by moving around the groups to help those that need his/her help.*

* *Pupils learn easily from others.*

* *Group work, learners helping each other.*

* *Group leaders to support discipline and time management.*

* *Pupils should have the full time for every period.*

(e) Adequate facilities

Teachers quoted on multigrade classroom strategies

* *The classroom should be large enough (space).*

* *Water taps should be working.*

2.3.4.2.2 Factors mentioned by teachers to improve teaching and learning conditions in multigrade classes

(a) Improvement of facilities

Teachers quoted on multigrade classroom strategies

* *We need bulletin boards.*

* *Not enough cupboards with locks.*

* *Toilets and buildings need improvement.*

* *The distance for those who travel for hours should be solved.*

* *More pupils are in need of transport.*

(b) Adequate supplies of learning materials

Teachers quoted on multigrade classroom strategies

* There should be enough material for each educator and educand.

* Enough scissors and glue for the junior class.

* Enough textbooks.

* Enough teaching materials.

* The supply of learning materials like apparatus sfor science and calculators for mathematics.

* Farm schools do not have enough supplies such as textbooks, colouring pencils, photocopied lesson material and teaching aids.

* Enough supply of resources.

* Adequate supplies of teaching aids make the work easier.

* More reading books needed at farm schools.

* Pupils need pocket c alculators.

(c) In-service training

Teachers quoted on multigrade classroom strategies

* *Weekly or monthly courses of OBE to the teachers.*

* *In-service training.*

* *Good in-service training.*

* *Not sure how to handle the less gifted (disadvantaged) children.*

2.3.4.2.3 Comment on teachers' views

It seems that the teachers were not explicitly aware that the multigrade classroom strategies they apply are crucial to successful teaching and learning. They would probably agree, if this were mentioned to them, but from their own point of view the importance of their role may not be obvious.

2.3.4.3 Multigrade classroom practices observed in classes

2.3.4.3.1 Blackboards on every wall

While visiting multigrade classrooms as observers, it was noted that most classes have blackboards against each wall. The teachers use these to write assignments for different grades. These chalkboards are also used during group activities and peer tutoring.

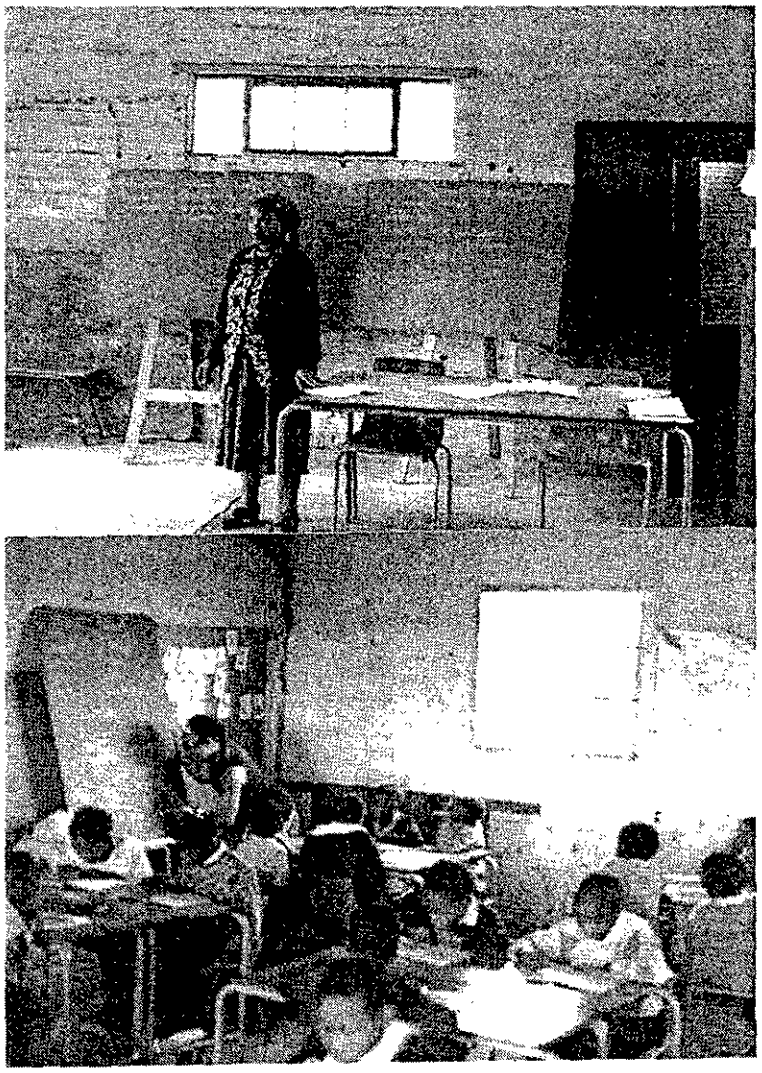


Photo 4: Many multigrade classrooms have a blackboard in every corner

2.3.4.3.2 Flexible arrangement of desks

During the observations it was noted that the arrangement of the desks frequently changed during the course of the day in a multigrade class. This was because of changing needs arising from different teaching and learning techniques, ranging from common lecture activities to differentiated group work and peer tutoring.

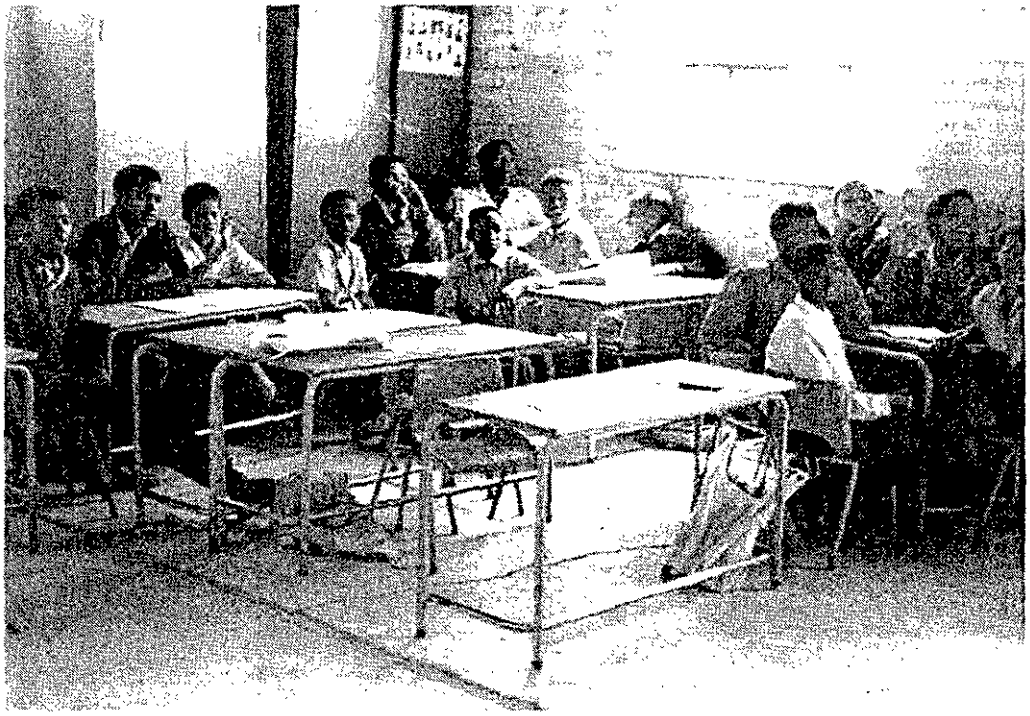


Photo 5: The arrangement of the desks can change frequently in a multigrade classroom

2.3.4.3.3 Group work done under a tree

At one school it was observed that the Grade 5 and Grade 6 learners moved outside the classroom for small group quiz-sessions, facilitated by group leaders, as a preparatory session while the teacher was writing a test for each group on separate blackboards.

Photo 6: Small group quiz-sessions, facilitated by group leaders

2.3.4.3.4 Differentiated tasks and responsibilities

After a common session, where all the grades listened to the same lecture by the teacher, the classwork assignments were differentiated as follows:

The Grade 5 learners had to copy a series of key words from the blackboard, and check the meanings in a dictionary. The Grade 6 learners had to write a

sentence using each of the key words. The Grade 7 learners had to write a paragraph involving each key word, and recite their written paragraphs to other members of the group who would comment in group discussions.

2.3.4.3.5 Reflection on sound educational practice

If we define education as the cultivation of habits and attitudes conducive to responsible citizenship, then the observations made in the multigrade classrooms in farm schools in the Free State confirm that sound education is indeed taking place there. People who attended such farm schools during their early childhood, were exposed to opportunities for peer tutoring from a very early stage. Peer tutoring provides a basis for sharing responsibility for the development of people who are not as advanced as you are yourself. Many world leaders and celebrities have attributed their successful careers to habits and attitudes developed during their early childhood education in multigrade classes on farm schools.

At the farm schools visited during September 1998, the team of observers reported evidence of the development of leadership from a very early stage. Even in the junior multigrade classes it was common to find group leaders taking responsibility for managing the completion of assignments involving the coordination of many individual contributions.

Photo 7: Group leaders, learning to share the responsibility for the development of people who are not as far advanced as you are yourself.

In the senior multigrade classes (usually combining Grades 4 to 6 in the same class) various portfolios (duties) were assigned to members of each group. Some groups, for example, had group leaders, time managers, secretaries, reporters and scribes. Each portfolio holder had well-defined tasks to perform during the course of each day's lessons. It was evident that the learners in these multigrade classes were beginning to take responsibility for their own learning and for the progress of their peers - all learning to cope responsibly with the limited resources at their disposal.

2.3.4.4 Management of schools with multigrade classes

Aspects of the school management of schools with multigrade classes were discussed with principals when the team of observers visited farm schools in the Free State province during September 1998. The opinions they expressed are listed under a series of categories gleaned from the interview reports.

2.3.4.4.1 Management of teaching strategies

Principals recommend the following strategies to improve teaching and learning in multigrade classes:

Principals quoted on multigrade classroom strategies

* *The teacher should restructure the syllabi to suit the multigrade class.*

* *More attention should be given to the lower grades and slow learners*

* *One principal commented that before managing the staff and the learners, a principal should be able to manage herself or himself.*

* *Principals should be well disciplined and show initiative.*

* *Principals and the teachers should be willing to learn from one another and there should be mutual understanding between them.*

2.3.4.4.2 Peer tutoring

Principals at schools with multigrade classes believe that when learners are grouped together they communicate freely and effectively. Learners support each other. One principal commented: Ask a strong learner to support a weaker one and you will see how they both benefit from the interaction.

The learners should be grouped into small groups and in some cases they may be grouped according to their abilities. Each group has its own leader who is responsible for the group. S/he decides what is to be done when the

2.3.4.4.3 Involvement of parents

A few principals mentioned that it is important to get parents involved if you want the school management to run smoothly.

Parents help and guide their children and participate in school activities. One principal confessed that at one stage he failed to manage his school properly because he did not give sufficient attention to parent involvement

2.3.4.4.4 Creative sharing

To be successful in managing a multigrade school one should be committed, devoted, dedicated and be willing to work with other staff members. Satellite schools should meet monthly if possible to discuss the progress in their schools.

Principals emphasized the need for teamwork, collaboration between teachers and the sharing of ideas and resources.

2.3.4.4.5 Discipline of learners

Prefects should be elected to help with the disciplining, supervising and supporting of other learners.

To keep the learners busy, tasks should be delegated to them.

There should be a governing body to help the principal take decisions concerning the learners.

Principals should be strict with late comers and groups of learners who frequently cause trouble.

Teachers should be aware of learners who pretend that they are working, when in reality they are playing or being naughty.

2.3.4.4.6 Time management

In some cases the principal and the staff arrive 30 minutes before the school

starts to discuss their plans for that particular day.

Teachers frequently go home late after they have prepared the lessons for the next day.

Teachers should prepare in advance and plan ahead. Proper planning makes things easier.

The timetable should be planned to accommodate all the activities in the school.

Each grade should be given enough time and attention.

Teachers should be available after school to help and support learners. There is never really enough time to cater for individual differences

2.3.4.4.7. Teacher intervention

Although learners should work on their own, there should be regular intervention from the teacher.

One principal maintained: It does not work to give a group of students an assignment without giving them intermittent support.

Teaching should not be teacher centered. All the learners should be actively involved in the learning activities.

2.3.4.4.8 Motivation

Good work should be appreciated and the teachers should support and motivate the learners in every respect.

It is not only the teachers who support the learners - there is also peer support

2.3.4.4.9 Coping with the lack of training

Most of the principals mentioned that they had never been trained to manage multigrade classes. Most of them requested guidance in school management.

2.3.4.4.10 Coping with the lack of resources

All learners should have their own learning books. There should be enough chalkboards in a multigrade class.

To get more information, teachers at farm schools should make regular use of libraries and resource centres at town schools.

There is an urgent need for duplicating machines or photocopiers and electronic teaching media at farm schools.

2.3.4.4.11 Comments on the OBE model

Learners should be given tasks while the teacher acts as a facilitator. Teachers should take their time when teaching. They should not rush to finish the syllabus. The needs of the learners and not the syllabus should dictate the

2.3.4.4.12 Principals' general comments on multigrade classes Principals quoted on multigrade classroom strategies

* Teaching multigrade classes is very strenuous - it requires dedication and enough time. The lack of time is a major problem. Time is needed for planning and for catering for individual differences.

* Teachers have to work hard to cope with a multigrade class and be conversant with all the different syllabi taught in the school.

* On farm schools there should always be a good working relationship between the principal and the farm manager.

2.3.4.5 Multigrade classroom practices in context of background data At this stage it is not clear whether it would be meaningful or even possible to do a complete analysis of the teachers' views and the observations made in relation to the teaching/learning conditions at each school. The idea is to feed all the collected data into some qualitative data analysis packages and to re-explore the outcomes in terms of the objectives of this research project.

At this stage some urgent needs at farm schools, as mentioned in responses to the postal questionnaires can be listed. In the 22 responses to the open questions in the questionnaire that was posted to 31 schools, four categories of urgent needs could be compiled, indicated in Tables 2 to 5.

2.3.4.6 Further data analysis

In order to expand the analysis of the open-question responses of teachers and principals in the context of the background data supplied in the written questionnaires and collected with the observation schedules, all elements of responses to questionnaires and interviews are captured as data units. A data coding format has been worked out for the total set of questionnaires, observations and interviews from all the schools involved. By making use of a programme called CHAID and some qualitative data analysis programmes, possibilities of relationship patterns between data elements are being explored. The results of this exploration will be reported on in the final report of this project, envisaged for December 1998.

Table 2.2: Needs related to the supporting infrastructure

Needs mentioned	No. of respondents mentioning item
Electricity supply ..... *****	5
Water supply ..... ****	4
Telephone ..... **	2
Fence and poles ..... **	2
Transport ..... **	2
Postal service ..... *	1
Grocery shop ..... *	1
Sports facilities ..... *	1

Table 2.3: Needs related to the school buildings

Needs mentioned	No. of respondents mentioning item
Classroom ..... ***	3
Chalkboard ..... **	2
Toilet ..... *	1
Light in classroom ..... *	1
Flooring ..... *	1
Roofing improvement ..... *	1
Fire stove ..... *	1
Cupboards ..... *	1
Office ..... *	1

Table 2.4: Needs related to consumable material/equipment in the classroom

Needs mentioned	No. of respondents
Pocket calculators ..... ****	4
Typewriter ..... ***	3
Tape recorder ..... ***	3
Radio ..... ***	3
Duplicating machine ..... **	2
Library books ..... **	2
Scissors ..... **	2
Charts ..... *	1
Teaching aids ..... *	1
Toilet paper ..... *	1

Table 2.5: Needs related to availability of electricity

Needs mentioned	No. of respondents
TV ..... *****	5
Photostat machine ..... ****	4
Video ..... ****	4
Overhead projector ..... ***	3
Computer ..... ***	3
Fax ..... **	2
Computer printer ..... *	1
Hot water ..... *	1

2.4 PRELIMINARY FINDINGS AND CONCLUSIONS

2.4.1 It can be concluded that the practice of multigrade teaching is indeed conducive and supportive to the ideals of outcomes based education, especially concerning peer tutoring and the potential to improve basic education. Revision and repetition are inherent elements of multigrade classroom teaching and learning. These two factors support the reinforcement of basic concepts, especially in the subjects of reading, writing and arithmetic.

2.4.2 Peer tutoring and delegation of responsibilities are standard practices in multigrade classroom teaching and learning. These two responsibilities have the added benefit of the development of social responsibility from a very early stage in the child's education.

2.4.3 In the Free State province of South Africa, many of the visited farm schools are still beyond the reach of existing networks of electricity and public water supply. Their ability to cope with the challenges of education in the face of the lack of these two basic amenities are of special significance for developmental research. Some of the very important human qualities, which are cultivated in the farm school environment with limited resources, are exactly those qualities which favour sustainable living. With the increasing realisation of the importance of sustainability as one of the priority challenges confronting humanity in the new millennium, it seems evident that the learning culture at farm schools, delivered by means of multigrade classroom strategies and within the constraints of limited resources, are of special significance to educational planners and policy makers, not only in South Africa, but also on a global scale.

2.4.4 Attitudes of teachers are of utmost importance in determining the success of multigrade classroom teaching. If the teacher has an attitude of taking the lack of resources as a challenge, and seriously seeks solutions, they seem to find many creative ways, as can be gathered in the impressions captured in a series of photographs collected at farms schools. On the other hand, if teachers and principals are keen to find excuses for not achieving their goals, the multigrade teachers on farm schools have so many excuses available that they need never do any teaching. Fortunately, however, such an attitude was not encountered in any of the visited schools. The importance of attitude formation in teacher training programmes should be highlighted by this point. Most of the teachers did not have any special training for multigrade teaching in rural environments. Their coping ability could largely be linked to their attitudes of accepting the challenge due to their dedication to education.

2.4.5 Some basic technical coping skills are essential in the training programmes for teachers. During the observations it was evident that the teachers who had some previous exposure to technical training (a basic knowledge of building, sanitation and mechanics) are better equipped to cope with the challenges of multigrade teaching in rural environments.

2.4.6 Within the global culture of multigrade teaching, there is a special culture of education associated with the so-called one room school house. Prominent contemporary scholars, who are known to have received their early childhood education in multigrade classroom settings, exhibited adequate coping skills in the current technologically dominated academic environment. This supports the conclusion that the phenomenon of multigrade classroom practice is indeed sound educational practice if the

ultimate aim of education, responsible citizenship, is kept clearly in focus.

2.5 LESSONS LEARNT AND IMPLICATIONS FOR RESEARCH

2.5.1 Lessons learnt during the planning of the project

Prior to the commencement of the research, two days were spent negotiating with the FSDoE and RIEP, the educational research unit at the University of the Orange Free State. These negotiations provided a clear background to the researchers to prepare them adequately for the field work. Perhaps this was a key factor supporting the eventual success of the field work: In order to reach the targeted eight schools, tentative visits were planned to 16, and 12 of them eventually realised.

2.5.2 Lessons learnt during field work

2.5.2.1 GIS-tracking devices are essential when working in rural areas.

2.5.2.2 A cellular telephone a necessity for any field worker.

2.5.2.3 Fieldworker teams preferable to individuals.

2.5.2.4 A camera can be useful to collect visual documentation.

2.5.2.5 Checklists and questionnaires have limitations, but these can be overcome when multiple instruments complement each other.

2.5.2.6 A small slip of note paper, kept in a pocket with a pen or pencil, can be an invaluable tool to record first-hand experiences and observations.

2.5.2.7 Water is scarce in remote regions. A field worker should carry ample supplies of drinking water for him/herself, and even some to spare for the people he/she will be visiting.

2.6 INCOME AND EXPENDITURE STATEMENT FOR THE PROJECT

Budget

Second phase

Labour				
	Per hour	Per day	# of hours	Total
Project Leader	R 320.00	R 2560.00	20	R 6 400.00
Researchers	R 232.00	R 1856.00	210	R 48 720.00
Administrative staff	R 87.00	R 696.00	25	R 2 175.00
			Total	**R 57 295.00**

Variable costs				
Photocopying of the questionnaires	R 4 per questionnaire	4 types	500 questionnaires	R 2 000.00
Travel	56c per km.	1 600 km. Per motorcar	3 motorcars	R 2 688.00
Accommodation	300 per day	5 days	5 researchers	R 7 500.00
Editing of the documents	5 per page		40 pages	R 200.00
Postage, phone, fax and courier				R 800.00
Variable				**R 13 188.00**
Labour				**R 57 295.00**
Total for the Second Phase				**R 70 483.00**

Summary of expenses

The first phase:	R 37 580.00
The second phase:	R 69 870.00
The grand total:	R 107 450.00
The grant amount:	R 107 450.00

PHASE 3: COMPLETE DATA ANALYSIS AND FINAL CONCLUSIONS 3.1 INTRODUCTION

The report on Phase 2 of the research was based on a manual analysis of the data contained in the responses of the 12 schools that were visited by the team of observers during September 1998.

Phase 3 now provides a complete computerised account of all the data collected, including the 12 schools visited as well as the additional ten sets of postal questionnaires received from schools in the original list of 31.

Paragraph 3.2 provides a quantitative account of the frequencies of the different options in all structured questions in the five data-collecting instruments.

Paragraph 3.3 provides a qualitative analysis of responses received to the open questions in the data-collecting instruments.

The following abbreviations are used in the tables to identify each of the five instruments used to gather the data:

PPQP = Preliminary postal questionnaire to principals

ISP = Interview schedule for principals

QTMuG = Questionnaire for teachers of multigrade classes

ITMuG = Interviews with teachers of multigrade classes

MUCOS = Multigrade classroom observation schedule

Clean copies of each of these instruments are supplied in Appendix B.

3.2 QUANTITATIVE DATA ANALYSIS

The complete set of responses to all the questions was captured on a computer datafile according to the record layout given in Appendix C. A complete frequency analysis of all responses to structured questions follows in Tables 3.1 to 3.7. The tables contain a brief summary of each question. and should be read in conjunction with the full copies

of each of the instruments, which are supplied in Appendix B.

3.2.1 Needs and resources at farm schools

Tables 3.1(a) to 3.1(e) list the numbers of teachers, learners, resources, etc.. These numbers were provided by principals of schools with multigrade classes in response to Questions P1 to P36 of the preliminary postal questionnaire to principals (PPQP, 22 respondents) and in Questions P37 to P49 of the interview schedule for principals (ISP, 12 respondents) . Appropriate number categories (e.g. less than 10, 11-20, 21+) are provided with each question according to the range of the numbers supplied by the respondents at each question. The first question (P1) in Table 3.1 (a) serves as an example of how to read Tables 3.1 (a)-(e): Question P1 (in PPQP): "n Teachers in school" shows the number (n) of teachers in the schools. The numbers 1, 2 and 3 in the adjacent three columns (top row) indicate the number categories (1=1 teacher, 2=2 teachers and 3=3 teachers in a school). The numbers 1, 18, 3 and 0 in the second row adjacent to Question P1 indicate frequencies: one school has only one teacher, 18 of the schools have two teachers and three of the schools have three teachers. The 0 under "no data" indicates that there were no missing data for this question. The frequencies of responses shown in Table 3.1 (a) indicate the type of school participating in the survey. At Question P1 (number of teachers in school) it is shown that 18 of the 22 responding schools had two teachers, one school had only one teacher and three schools had three teachers. The frequencies at Question P2 indicate that one school had fewer than ten learners while ten of the 22 schools had between 30 and 50 learners. The remaining 11 of the 22 responding schools had between 51 and 96 learners The remaining Questions (P3 to P49) of the PPQP are treated in a similar way in Tables 3.1(a) to 3.1(e). Three different number categories (applicable to the availability of resources dealt with in each particular question) are shown in the top row adjacent to each question and the frequency of responses to each number category is shown in the bottom row adjacent to each question. The "no data" column indicates the number of respondents who did not provide data for a given question. The reader is recommended to browse through Tables 3.1 (a) to (e) to get a broad idea of the serious lack of resources at these farm schools.

TABLE 3.1 (a): DATA ON NEEDS AND RESOURCES AT THE SCHOOL

Questions P1 to P10 in the **PPQP** (22 respondents) are reported in four number categories:
Number categories 1-3 divide the number range of responses into three groups, appropriate for each particular question.
Category 4 indicates the number of non-responses (cases of data not provided)

Question No. and topic of question	Number categories				Question No. and topic of question	Number categories			
	Frequencies					Frequencies			
P1 n Teachers in school	1	2	3	No data	P6 n Electric plugs/class	0	1-2	3	No data
	1	18	3	0		14	6	2	0
P2 n Learners in school	< 10	30-50	51-96	No data	P7 n Offices	0	1		No data
	1	10	11	0		19	3		0
P3 n Water taps	0	1	2+	No data	P8 n Electric plugs/office	0	1	2	No data
	10	7	5	0		17	4	1	0
P4 n Classrooms	1	2	3+	No data	P9 n Hot water taps	0			No data
	3	13	6	0		21			1
P5 n Chalkboards	0	1-3	4-9	No data	P10 n Flush toilets	0	4-6	8	No data
	1	11	10	0		19	2	1	0

TABLE 3.1 (b): DATA ON NEEDS AND RESOURCES AT THE SCHOOL *(continued)*

Questions P11 to P20, in the **PPQP** (22 respondents) are reported in four number categories:
Number categories 1-3 divide the number range of responses into three groups, appropriate for each particular question.
Category 4 indicates the number of non-responses (cases of data not provided)

Question No. and topic of question	Number categories				Question No. and topic of question	Number categories			
	Frequencies					Frequencies			
P11 n White boards	0	3		No data	P16 Km to petrol stn.	0-10	14-26	30-40	No data
	20	1		1		6	9	6	1
P12 Km to railway stn.	0-10	15-30	35-50	No data	P17 Km to sleep-address (furthest child)	0-5	6-10	30-40	No data
	6	9	6	1		7	10	4	1
P13 Km to post office	1-10	12-30	38-52	No data	P18 Distance (in metres) (nearest child)	0-500	900-1200	4000	No data
	5	11	5	1		17	3	1	1
P14 Km to grocery shop	1-10	14-30	38-40	No data	P19 Distance to furthest teacher (km)	0-6	13-25	29-39	No data
	6	11	3	2		11	6	4	1
P15 Km to bus stop	0-5	6-10	15-40	No data	P20 Distance to nearest teacher (m)	0-500m	900-2000	5000-8000	No data
	8	6	6	2		15	3	2	2

TABLE 3.1 (c): DATA ON NEEDS AND RESOURCES AT THE SCHOOL (continued)

Questions P21 to P30 (22 respondents) in the **PPQP**, are reported in four number categories:

Number categories 1-3 divide the number range of responses into three groups, appropriate for each particular question.

Category 4 indicates the number of non-responses (data not provided)

Question No. and topic of question	Number categories				Question No. and topic of question	Number categories			
	Frequencies					Frequencies			
P21 n Families with children in school	12-20	21-30	37-60	No data	P26 n Video players	0			No data
	6	9	7	0		22			
P22 n Active parents	0	1-15	23-49	No data	P27 n Pocket calculators	0	1-2	8	No data
	2	14	6	0		19	2	1	0
P23 n Radios	0	1		No data	P28 n Typewriters	0	1		No data
	20	2		0		21	1		0
P24 n Tape recorders	0	1		No data	P29 n Computers	0	1		No data
	21	1		0		21	1		0
P25 n TV sets	0			No data	P30 n Computer printers	0	1		No data
	22			0		21	1		0

TABLE 3.1 (d): DATA ON NEEDS AND RESOURCES AT THE SCHOOL (continued)

Questions P31 to P36 (22 respondents) in the **PPQP**, and P37 to P40 (12 respondents) in the **ISP** are reported in four number categories:
Number categories 1-3 divide the number range of responses into three groups, appropriate for each particular question.
Category 4 indicates the number of non-responses (cases of data not provided)

Question No. and topic of question	Number categories			
	Frequencies			
P31 n OHPs	0	1		No data
	19	3		0
P32 n Telephones	0	1		No data
	20	2		0
P33 n Fax machines	0			No data
	22			0
P34 n Duplicating machines	0			No data
	22			0
P35 n Library books	0	20-100	103-200	No data
	8	9	5	0

Question No. and topic of question	Number categories			
	Frequencies			
P36 Km to regional office of DoE	0 km	38-65	87-230	No data
	1	8	12	1
P37 Km to nearest media resource centre (MRC)	20-50	87-111	230	No data
	4	3	1	14
P38 n Hours/previous week in MRC	0 hrs.	1	4-5	No data
	1	1	3	17
P39 n Hours/previous month in MRC	0 hrs.	2-4		No data
	1	3		18
P40 n Hours/previous year in MRC	0 hrs.	48		No data
	1	1		20

TABLE 3.1 (e): DATA ON NEEDS AND RESOURCES AT THE SCHOOL (continued)

Questions P41 to P49 in the **ISP** (12 respondents) are reported in four number categories:
Number categories 1-3 divide the number range of responses into three groups, appropriate for each particular question.
Category 4 indicates the number of non-responses (cases of data not provided)

Question No. and topic of question	Number categories			
	Frequencies			
P41 Km to nearest available InterNet	0 km	40		No data
	1	1		20
P42 n Hours/week beyond school hrs. preparing lessons	2-5	10	12	No data
	8	1	1	12
P43 n Hours/week beyond school hrs. correcting books	0 hrs.	2-4	12-15	No data
	1	6	4	11
P44 n Hours/month beyond school hrs. preparing lessons	2-5	20-100	100+	No data
	5	4	1	12
P45 n Hours/month beyond school hrs. correcting books	2-5	16-60	100+	No data
	3	6	1	12

Question No. and topic of question	Number categories			
	Frequencies			
P46 n Hours/day teaching time	5	6-8	>10	No data
	5	5	1	11
P47 n Hours/week teaching time	2-6	25-40	50	No data
	4	6	1	11
P48 n Periods/school day	3-5	8-11	>12	No data
	4	6	1	11
P49 n Periods/school week	1	5	20-54	No data
	1	1	8	12

3.2.2 Comment on the needs and resources at farm schools

From Tables 3.1(a) to 3.1(e) it is evident that most of the farm schools have only limited resources. At the time of the survey only one of the 22 responding farm schools had electricity supply. The visits to 12 of these schools, however, revealed that effective teaching and learning are taking place in the multigrade classes at these schools. The low response rate to the question about a regional media resource centre indicates that this is not a common concept among rural teachers.

The postal questionnaire on the availability of resources at the farm schools placed emphasis on what was NOT available. In sharp contrast with the serious lack of resources at the farm schools, the actual visits to 12 of the schools provided overwhelming evidence that effective teaching and learning are taking place in the multigrade classrooms. Before reflecting on the lack of resources at these schools, the frequencies of the responses to the different categories of questions in the other four research instruments will first be dealt with.

3.2.3 Teacher background information

Table 3.2 gives a complete account of the responses to Section A of the questionnaire which was filled in by the teacher of the senior multigrade class (including learners from Grades 4 to 7) at the visited schools.

The presentation of data in Table 3.2 follows a pattern similar to that of Tables 3.1 (a)-(e): Three different number categories (applicable to each particular question) are shown in the top row (three columns) adjacent to each question and the frequency of responses to each category in the bottom row (three columns) at each question. The "no data" column indicates the number of

TABLE 3.2: TEACHER BACKGROUND INFORMATION

Questions A1 to A12 in the **QTMuG** (12 respondents), reported in four categories as indicated for each question on the questionnaire.

Question No. and topic of question	Number categories				Question No. and topic of question	Number categories			
	Frequencies					Frequencies			
A1 Gender of teacher	Male	Female		No data	A7 n Years ABET done	0 yrs.	1-2	3-5	No data
	3	7		2		3	3	3	3
A2 Age (in years)	20-30	31-50	50+	No data	A8 n Years full time T-training completed	0-2	3		No data
	3	6	3	0		5	4		3
A3 n Years teaching experience	0-5	6-15	16+	No data	A9 n Years part time T-training completed	0-2	5		No data
	2	7	3	0		7	1		4
A4 n Years in current school	0-5	6-15	16+	No data	A10 n Years full time U-study completed	0-2			No data
	6	3	3	0		5			7
A5 n Years teaching multigrade classes	0 yrs.	1-5	6+	No data	A11 n Years part time U-study completed	0-2			No data
	1	2	9	0		5			7
A6 n Years high school completed by T	0-2	3-4	5	No data	A12 n Years left before pension	3-5	6-10	10+	No data
	1	2	5	4		1	3	8	0

3.2.4 Discussion of the teacher background information

The incomplete responses to the questions about the teachers' own high school education and their subsequent teacher training are due to the fact that many teachers who teach at farm schools do not have a simple history of going straight through secondary school and then into full-time teacher training. The exact history of each teacher could not be discussed during the interviews because teachers' qualifications are considered to be strictly confidential according to the rules of the Education Department (see Appendix A). Some of the teachers did, however, spontaneously mention that they completed secondary school education through private study and then did part-time teacher training courses which eventually enabled them to become teachers - a cherished ideal in their lives. This explains why these farm school teachers are so dedicated to their work and why they are so successful in their multigrade teaching situations despite the lack of many resources which urban teachers would have taken for granted.

3.2.5 Sizes of multigrade classes and age ranges of learners

Table 3.3(a) reflects the data collected on the numbers of learners taught by each teacher in the visited schools. Table 3.3(b) shows the age ranges of the

TABLE 3.3(a): NUMBER OF CHILDREN CURRENTLY TAUGHT IN EACH GRADE OF THE MULTIGRADE CLASS

(as provided by 12 visited teachers in Section B of the **QTMuG**)

School code and learners boys+girls per grade	001 B+G =T	003 B+G =T	004 B+G =T	007 B+G =T	008 B+G =T	012 B+G =T	015 B+G =T	021 B+G =T	023 B+G =T	027 B+G =T	029 B+G =T	032 B+G =T
Grade 0									1+4			
Grade 1						5+4			1+2			
Grade 2						4+5			2+2			
Grade 3						3+3		6+2	8+2		7+6	
Grade 4	3+3	9+2	3+2	6+5		1+3	3+4	8+6		6+5	7+5	5+4
Grade 5	1+2	1+1	2+2	6+3	2+7	3+2	2+8	3+7		3+3	0+0	2+1
Grade 6	3+1	2+3	3+1	4+8	3+2	1+3	9+2			0+0	0+0	3+0
Grade 7	0+0	0+0	2+2	6+4	0+2	0+0				0+0	0+0	3+5
Total learners in senior MuGC of the school	7+6 =13	12+6 =18	10+7 =17	22+20 =42	5+11 =16	17+20 =37	14+14 =28	17+15 =32	12+10 =22	9+8 =17	14+11 =25	13+10 =23

TABLE 3.3(b): AGE RANGES IN EACH GRADE IN THE SCHOOL

(as supplied in Sections B and C of the **QTMuG**)

Grade	Age ranges of learners reported per grade in the visited schools			
	Youngest boy	Oldest boy	Youngest girl	Oldest girl
0	6	6	6	6
1	6	10	6	9
2	7	10	7	10
3	8	16	8	15
4	9	17	8	15
5	9	18	10	16
6	11	17	11	17
7	14	19	13	19

3.2.6 Discussion of class sizes and age ranges

In five of the visited schools there were fewer than 20 learners in the senior multigrade class. Such a small number of learners makes it possible for a teacher to cope with the variety of tasks in a multigrade classroom. If the numbers increase to between 20 and 30 learners in the same multigrade class, the teaching becomes more difficult, as noticed in four of the 12 schools visited. In three of the visited schools there were more than 30 learners in the same multigrade class. This poses tremendous challenges to the teacher, forcing him/her to rely heavily on peer-teaching strategies.

As far as the age ranges in the different grades are concerned, it is evident that they spread out in the higher grades. This is presumably due to candidates who enter school at a belated age and others who fail grades. A broad age range in a multigrade classroom requires special sensitivity from the teacher since learners aged 12 are for example at a different stage in their physical and emotional development than learners aged 17 or 19.

3.2.7 Teachers' attitudes towards multigrade classes

Section D of the questionnaire (QTMuG), which was filled in by the teacher of the senior multigrade class in each of the visited schools, was designed to assess the teachers' attitudes towards teaching in multigrade classes. It was accepted that these attitudes would be shaped by each teacher's individual history, ranging as far back as his/her own childhood education, which could possibly have been in a multigrade class farm school,

The frequencies of the responses to the different categories in the questions of Section D of the QTMuG are shown in Tables 3.4(a) and 3.4(b).

TABLE 3.4(a): TEACHER ATTITUDES TOWARDS MULTIGRADE CLASSROOM PRACTICES

Questions D1 to D16 (12 respondents) reported in five categories: **Yes, No, Uncertain, Not applicable (N/A), Missing** (No data)

Question no. and topic of question		Frequencies					Question no. and topic of question		Frequencies				
		Y	N	Unc.	N/A	No data			Y	N	Unc.	N/A	No data
D1	T. satisfied with his/her own teacher training	9	1	1	1	0	D8	Dept. info provided to manage MuGCs	7	3	2	0	0
D2	Trained to cope	5	6	1	0	0	D9	Dept. provides enough materials for MuGCs	0	10	2	0	0
D3	Experienced to cope	11	1	0	0	0	D10	Teacher happy in current class	9	1	2	0	0
D4	Good methods from experience	11	1	0	0	0	D11	Teacher prefers monograde class	6	5	1	0	0
D5	Shares MuG-skills with other teachers	10	2	0	0	0	D12	Teacher prefers urban school	5	6	1	0	0
D6	Training provides enough MuG-skills	3	6	2	1	0	D13	Teacher wishes to teach in city	2	9	1	0	0
D7	Listens to others for advice about MuGCs	10	2	0	0	0	D14	Teacher happy in rural area	8	1	3	0	0

TABLE 3.4(b): TEACHER ATTITUDES TOWARDS MULTIGRADE CLASSROOM PRACTICES (continued)

Questions D15 to D25 (12 respondents) reported in five categories: **Yes, No, Uncertain, N/A, Missing** (No data)

Question no. and topic of question	Frequencies				
	Y	N	Unc.	N/A	No data
D15 Class size seen as problem	7	4	0	0	1
D16 Teacher prefers monograde class	7	3	2	0	0
D17 T. can find time to prepare MuGC-lessons	6	5	1	0	0
D18 Children under 10 happier in MuG-class	7	2	2	1	0
D19 **Urban** children under 10 happier	6	4	2	0	0
D20 Teacher prefers multigrade class	4	6	2	0	0
D21 Teacher prefers large urban school	6	4	2	0	0
D22 Teacher seen as main resource in MoGC	2	10	0	0	0
D23 MuGC forces variety of resources	11	0	1	0	0
D24 Multigrade teaching too slow	11	1	0	0	0
D25 Multigrade seen as supporting OBE	10	2	0	0	0

TABLE 3.4(b): TEACHER ATTITUDES TOWARDS MULTIGRADE CLASSROOM PRACTICES (continued)

Questions D15 to D25 (12 respondents) reported in five categories: **Yes, No, Uncertain, N/A, Missing** (No data)

Question no. and topic of question	Frequencies					Question no. and topic of question	Frequencies				
	Y	N	Unc.	N/A	No data		Y	N	Unc.	N/A	No data
D15 Class size seen as problem	7	4	0	0	1	D21 Teacher prefers large urban school	6	4	2	0	0
D16 Teacher prefers monograde class	7	3	2	0	0	D22 Teacher seen as main resource in MoGC	2	10	0	0	0
D17 T. can find time to prepare MuGC-lessons	6	5	1	0	0	D23 MuGC forces variety of resources	11	0	1	0	0
D18 Children under 10 happier in MuG-class	7	2	2	1	0	D24 Multigrade teaching too slow	11	1	0	0	0
D19 **Urban** children under 10 happier	6	4	2	0	0	D25 Multigrade seen as supporting OBE	10	2	0	0	0
D20 Teacher prefers multigrade class	4	6	2	0	0						

3.2.8 Discussion on teachers' attitudes towards multigrade classes

It is interesting to note that seven of the teachers indicated that the size of the multigrade class was a problem, and that seven of the visited classes had more than 20 learners. Therefore it seems evident that 20 learners per multigrade class (spread over three different grades in the same class) is about the maximum one teacher can handle.

The general impression gained from Tables 3.4(a) and 3.4(b) is that the teachers in the visited schools have a positive attitude towards teaching in multigrade classes and that they are convinced that effective teaching and learning can take place in such classes.

3.2.9 Availability of learning materials and textbooks

The first section of the preliminary postal questionnaire to principals of multigrade class schools (PPQP, Questions P1 to P49) focused on the general infrastructure and equipment available at each farm school. Section E of the questionnaire for teachers of multigrade classes (QTMuG) dealt with the availability of textbooks and consumable materials in the multigrade classes.

TABLE 3.5(a): AVAILABILITY OF LEARNING MATERIALS AND TEXTBOOKS

Questions E1 to E16 (12 respondents) are reported in four categories: **Enough for each learner; A little, but not enough; None at all; Missing**
= Enough = Some = None = No data

Question No. and topic of question	Frequencies				Question No. and topic of question	Frequencies			
	Enough	Some	None	No data		Enough	Some	None	No data
E1 Learners' writing books	7	4	1	0	E9 Advanced readers 1st Lang.	3	3	5	1
E2 Pencils	9	3	0	0	E10 Advanced readers 2nd Lang.	3	2	6	1
E3 Ballpoint pens	5	4	2	1	E11 Advanced readers 3rd Lang.	2	5	4	1
E4 Erasers	5	5	2	0	E12 Mags to enrich jr reading, 1st Lang.	1	3	7	1
E5 Scribble paper	6	2	3	1	E13 Mags to enrich snr reading, 1st Lang.	0	2	7	3
E6 1st Lang. readers (junior grades)	4	4	3	1	E14 Mags to enrich jr reading, 2nd Lang.	0	2	8	2
E7 2nd Lang. readers (junior grades)	3	6	2	1	E15 Mags to enrich snr reading, 2nd Lang.	0	0	9	3
E8 3rd Lang readers (junior grades)	1	1	7	3	E16 Mags to enrich jr reading, 3rd Lang.	1	1	8	2

TABLE 3.5(b): AVAILABILITY OF LEARNING MATERIALS AND TEXTBOOKS (continued)

Questions E17 to E32 (12 respondents) are reported in four categories: **Enough for each learner; A little, but not enough; None at all; Missing**
= Enough = Some = None = No data

Question No. and topic of question	Frequencies				Question No. and topic of question	Frequencies			
	Enough	Some	None	No data		Enough	Some	None	No data
E17 Mags to enrich snr reading, 3rd Lang.	0	1	9	2	E25 Textbooks 1st Lang. Gr.7	2	2	2	6
E18 Old mags to cut up	0	7	5	0	E26 Textbooks 2nd Lang. jr grades	2	6	2	2
E19 White chalk	3	6	3	0	E27 Textbooks 2nd Lang. Gr.4	4	5	2	1
E20 Coloured chalk	2	7	3	0	E28 Textbooks 2nd Lang. Gr.5	4	5	2	1
E21 Textbooks, 1st Lang, jr grades	2	4	4	2	E29 Textbooks 2nd Lang. Gr.6	3	6	2	1
E22 Textbooks, 1st Lang. Gr.4	2	7	2	1	E30 Textbooks 2nd Lang. Gr.7	3	2	3	4
E23 Textbooks, 1st Lang. Gr.5	1	8	2	1	E31 Textbooks 3rd Lang. jr grades	2	2	5	3
E24 Textbooks, 1st Lang. Gr.6	2	7	2	1	E32 Textbooks 3rd Lang. Gr.4	3	4	4	1

TABLE 3.5(c): AVAILABILITY OF LEARNING MATERIALS AND TEXTBOOKS (continued)

Questions E33 to E45 (12 respondents) are reported in four number categories: **Enough for each learner; A little, but not enough; None at all; Missing**

= Enough = Some = None = No data

Question No. and topic of question	Frequencies			
	Enough	Some	None	No data
E33 Textbooks 3rd Lang. Gr.5	3	4	4	1
E34 Textbooks 3rd Lang. Gr.6	3	4	4	1
E35 Textbooks 3rd Lang. Gr.7	2	3	3	4
E36 Textbooks Maths, jr grades	0	4	5	3
E37 Textbooks Mathematics, Gr.4	1	6	4	1
E38 Textbooks Mathematics, Gr.5	2	7	2	1
E39 Textbooks Mathematics, Gr.6	2	8	1	1
E40 Textbooks Mathematics, Gr.7	3	3	2	4
E41 Textbooks Science, jr grades	0	1	8	3
E42 Textbooks Science, Gr.4	2	4	5	1
E43 Textbooks Science, Gr.5	4	6	1	1
E44 Textbooks Science, Gr.6	6	4	1	1
E45 Textbooks Science, Gr.7	4	2	2	4
TOTALS:	117	182	168	73
% of 540*	21,6%	33,7%	31,2%	13,5%

*For 12 respondents x 45 questions a total of 540 responses could be collected, spread over four possible categories (enough, some, none, no data).

3.2.8 Discussion on teachers' attitudes towards multigrade classes

It is interesting to note that seven of the teachers indicated that the size of the multigrade class was a problem, and that seven of the visited classes had more than 20 learners. Therefore it seems evident that 20 learners per multigrade class (spread over three different grades in the same class) is about the maximum one teacher can handle.

The general impression gained from Tables 3.4(a) and 3.4(b) is that the teachers in the visited schools have a positive attitude towards teaching in multigrade classes and that they are convinced that effective teaching and learning can take place in such classes.

3.2.9 Availability of learning materials and textbooks

The first section of the preliminary postal questionnaire to principals of multigrade class schools (PPQP, Questions P1 to P49) focused on the general infrastructure and equipment available at each farm school. Section E of the questionnaire for teachers of multigrade classes (QTMuG) dealt with the availability of textbooks and consumable materials in the multigrade classes.

TABLE 3.6(a): EXPERIENCES, PREFERENCES AND OPINIONS ABOUT MULTIGRADE CLASSES

Questions F1 to F16 (12 respondents) are reported in four categories: Yes; No; Not applicable (N/A); Missing (No data).

Question No. and topic of question		Frequencies				Question No. and topic of question		Frequencies			
		Yes	No	N/A	No data			Yes	No	N/A	No data
F1	T. attended farm school as child him/herself	5	7	0	0	F9	Has experienced difficulties in MuGCs	11	1	0	0
F2	Attended multigrade classes as child	6	6	0	0	F10	T's own child is happy in a MuGC	7	4	1	0
F3	T. has an own child in a multigrade class	5	7	0	0	F11	Experienced in MuGCs at farm school	10	2	0	0
F4	Success experienced in teaching MuGCs	11	1	0	0	F12	Children in MuGCs learn from each other	11	1	0	0
F5	Failure experienced in teaching MuGCs	2	10	0	0	F13	Multigrade class means extra work	7	4	0	1
F6	Enjoys teaching multigrade classes	10	1	0	1	F14	Experienced MuGCs with < 20 in class	6	6	0	0
F7	Enjoys teaching monograde classes	2	5	3	2	F15	Experienced MuGCs with 20-30 in class	9	3	0	0
F8	T. received special training for MuGCs	2	10	0	0	F16	Experienced MuGCs with > 30 in class	8	4	0	0

TABLE 3.6(b): EXPERIENCES, PREFERENCES AND OPINIONS ABOUT MULTIGRADE CLASSES (continued)

Questions F17 to F32 (12 respondents) are reported in four number categories: Yes; No; N/A; Missing.)

Question No. and topic of question	Frequencies				Question No. and topic of question	Frequencies			
	Yes	No	N/A	No data		Yes	No	N/A	No data
F17 Shares MuGC material with neighbour school	6	6	0	0	F25 Older children develop social skills in MuGCs	9	2	1	0
F18 Collaborates with neighbour school to prepare for MuGCs	6	6	0	0	F26 Older children benefit int. from teaching younger ones	9	2	1	0
F19 Children younger than 10 happier in MuGCs	7	2	2	1	F27 More co-operation than competition in MuGCs	9	3	0	0
F20 Children older than 10 yrs happier in MuGCs	4	4	3	1	F28 More co-operation than competition in MoGCs	1	6	3	2
F21 MuGCs succeed when material is adequate	9	2	1	0	F29 Advanced learners eager to learn with other	10	1	1	0
F22 Exchanges MuGC material with neighbours	5	6	1	0	F30 Succeeded in encouraging advanced learners to help	12	0	0	0
F23 T. supplies MuGC learning material to DoE on exchange	3	7	2	0	F31 Less talk by T. in MuGCs results in better learning	10	2	0	0
F24 Younger children can learn successfully from older ones	10	2	0	0	F32 More talk in MoGCs results in better learning	0	8	2	2

TABLE 3.6(c): EXPERIENCES, PREFERENCES AND OPINIONS ABOUT MULTIGRADE CLASSES (continued)

Questions F33 to F48 (12 respondents) are reported in four categories: Yes; No; N/A; Missing.)

Question No. and topic of question	Frequencies				Question No. and topic of question	Frequencies			
	Yes	No	N/A	No data		Yes	No	N/A	No data
F33 Good textbooks ensure success in MuGCs	12	0	0	0	F41 Grade-specific teachers' manuals enhance MuGCs	10	1	0	1
F34 Computers with good software enhance MuGCs	6	1	4	1	F42 Science kits disrupt MoGCs	1	4	3	4
F35 Computers without good software disrupt MuGCs	3	3	6	0	F43 Science kits enhance MoGCs	5	0	3	4
F36 Science kits disrupt MuGCs	1	8	2	1	F44 Computers with good software enhance MoGCs	4	1	6	1
F37 Science kits support MuGCs	10	0	2	0	F45 Computers without good software disrupt MoGCs	1	4	6	1
F38 Younger benefit from exposure to olders' work	12	0	0	0	F46 Older children benefit from helping younger in MuGCs	11	1	0	0
F39 Student workbooks enhance MuGCs	11	1	0	0	F47 Younger understand much of senior work in MuGCs	10	2	0	0
F40 Grade-specific teachers' manuals disrupt MuGCs	1	9	1	1	F48 Children benefit from peer tutoring in MuGCs	10	1	1	0

3.2.12 Discussing experiences, preferences and opinions about multigrade classes The distribution of the responses reflected in Tables 3.6(a) to 3.6(c) reveals that the teachers have learnt to cope with the challenges of multigrade class teaching through experience and co-operation with colleagues and neighbouring schools.

At item F9, 11 of the 12 teachers indicated that they have experienced difficulties in multigrade classes, but nevertheless, 10 of them said that they enjoy teaching in a multigrade class. Despite the serious lack of resources in the classroom, as indicated in Tables 3.5(a) to 3.5(c), it is evident that the teachers are dedicated people who do not choose to use the lack of resources as an excuse for non-performance. Instead, the overall impression from Tables 3.6(a) to 3.6(c) is that they prefer to see the lack of resources as a challenge to their own creativity and problem-solving abilities (read verbatim quotes in response to questions F49 and 1750, as listed in Appendix D (pp. 145-146).

3.2.13 Classroom observation schedules

The classroom observation schedules were designed to identify evidence of successful teaching and learning in a classroom. Every "yes" response in the first ten observation items (G1 to G10) is considered to be evidence of effective teaching and learning in a multigrade classroom situation. Similarly, every "yes" response in the second set of ten observation items (G11 to G20) is considered to be evidence of unsuccessful classroom practices.

A lack of observed positive evidence ("No" marked at items G1-G10) will be considered as negative evidence against multigrade classes. Vice versa, a lack of observed negative evidence ("No" marked at items G11-G20) will be considered to be positive evidence in favour of multigrade classes.

TABLE 3.7: FREQUENCIES REPORTED IN THE CLASSROOM OBSERVATION SCHEDULE

Positive evidence observed (in favour of MuGCs)
Questions G1 to G10 (n=12) reported in three categories:
Yes (observed to occur); No (observed **not** to occur);
N/O (not observed/not mentioned/observation missing).

Negative evidence observed (not in favour of MuGCs)
Questions G11 to G20 (n=12) reported in three categories:
Yes (observed to occur); No (observed **not** to occur);
N/O (not observed/not mentioned/observation missing).

Quest. No.		Yes	No	N/O	Quest. No.		Yes	No	N/O
G1	Teacher marking books, children work 100%	8	1	8	G11	Teacher calls group to order	7	2	6
G2	T. speaks quietly to individuals	7	3	8	G12	Teacher rebukes individual	8	1	7
G3	T. speaks to small group in a corner	9	4	7	G13	Individual waits too long for help	0	7	8
G4	Learners in a small group interact well	18	2	5	G14	Young child bullied by older one	4	3	8
G5	Younger ones receive good peer tutoring	7	3	8	G15	Child observed being bored/idle	5	2	8
G6	Older ones help young who raise hands	1	8	9	G16	Children wait too long for next task	3	6	7
G7	Learners work independently with resource material	16	3	7	G17	Late entries after break	0	8	7
G8	Learners work actively on individual targets	18	1	7	G18	Late arrivals in morning	4	3	8
G9	Evidence of a child completing a task	19	1	8	G19	Class skipping observed	0	8	7
G10	One child corrects another's work	14	0	6	G20	Teacher stress observed	0	8	7
	TOTAL POSITIVE EVIDENCE	117	26	73		TOTAL NEGATIVE EVIDENCE	31	50	73

Total events observed: 117+26+31+50 = 224.
In favour of MuGCs: 117+50 = 167 (74,6% of 224); Against MuGCs: 31+26 = 57 (25,4% of 224). MuGCs score win: 110 points.

3.2.14 Result of the multigrade classroom observation schedule (MuGCOS)

The outcome of the MuGCOS adds up to 110 points in favour of MuGCs. Table 3.7 indicates 117 "yes" at Gl-G10 plus 50 "no" at G11-G20, adding up to 167 observations in favour of MuGCs, opposed to 57 observations against MuGCs (26 "no" entries at G1-G20 plus 31 "yes" entries at GI I-G20). This is considered to be evidence that the majority (167 = 74,5%) of 224 observed teaching/learning moments in multigrade classrooms on farm schools in the Free State province of South Africa were rated to be successful.

3.3 QUALITATIVE DATA ANALYSIS

3.3.1 Qualitative report of an independent researcher

The exact wording and placement of all the open questions in the questionnaire and the interview schedules with teachers and principals were copied into a typed file. A verbatim transcription of all the collected responses to the open questions was then added to each question and the resulting file was saved on computer disk. A copy of all the open questions and the complete set of verbatim responses (see Appendix D) was then handed to an independent researcher (Mrs A. Meyer-Weitz) who had access to a Qualitan computer-assisted qualitative data analysis support package. She was requested to compile a brief qualitative report on the basis of the trends she could observe with tae support of the Qualitan package. Before the formulation of the final conclusions, the verbatim quotation of her qualitative report will now be presented (in italics) as a summary to verify the qualitative observations reported in Phase 2 of this research:

3.3.2 Contexts in which multigrade teaching takes place

"Teaching in multigrade schools is constrained by limited infrastructure, human and financial resources as well as personal problems (such as lack of adequate transport) experienced by the teachers.

The limited infrastructure and financial resources result in serious inadequacies regarding the

availability of textbooks, workbooks, basic learning materials, equipment and learning aids. It was mentioned that limited space in classrooms hampered multigrade teaching and that some buildings were in need of renovation. Lack of access to tap drinking water and toilets posed health problems to learners. Lack of transport to and from the schools also seemed to be problem for both the teachers and the learners. These limiting factors are compounded by the uncertain future faced by many teachers in the current education situation in the country and by the complex nature of teaching in multigrade schools. Teaching in multigrade classes was described by the teachers as being "tough ", "demanding ", "strenuous ", requiring special management and teaching skills as well as "commitment" and "perseverance". Despite these difficulties the commitment to learners in rural areas was expressed in the following comment: "... do not desert farm school children in favour of township teaching. "

The teachers perceived themselves to have limited skills regarding managing and teaching in multigrade schools and reported that they often have to consult with "old teachers who know multigrade classes ". It was clear that their basic training did not prepare them adequately for their daunting task, and an urgent need for in-service training was expressed with specific reference to weekly or monthly courses in outcomes based education (OBE). Those who had received training in OBE seemed to have more confidence in teaching multigrade classes, as expressed by one teacher: "Children have a greater understanding of my teaching ideas which 1 learnt from OBE workshops and implement. " The implementation of OBE strategies, however, was also experienced in some instances as difficult and time consuming.

It was observed that the lack of textbooks for the new syllabi made the teachers uncertain and undermined their confidence".

3.3.3 Managing multigrade schools

"Participatory management characterized by learner centredness on the one hand and strong discipline in terms of enforcing school rules and policies on the other was described as a successful management style for multigrade schools. Five key management areas were identified by the teachers/principals:

* management of the buildings and grounds
* management of the community (through involvement)
* management of learners.

From the research data it emerged that co-operation from colleagues in the same region and from neighbouring and larger town schools formed part of a vital support network in the management of schools with multigrade classes. Support takes the form of the exchange of ideas about problems and possible solutions, and of materials and learning aids where and when available. The collaboration that exist between schools was initiated to alleviate the difficulties of teaching in multigrade schools by sharing and exchanging ideas, and to overcome the limitations posed by inadequate financial resources and infrastructure in these schools.

Support through a school-governing body that included parents and farm owners was seen as essential in the management of multigrade schools. The fostering of good interpersonal relationships (such as mutual respect and appreciation) between the different stakeholders within the school setting was considered crucial to the successful management of multigrade schools. In this regard specific reference was made to the relations between the principal and the teachers and between the teachers and the learners.

Frequent meetings between staff as a way of supporting each other and of planning together was also seen as vital for the successful management of multigrade schools. It was suggested that a meeting (lasting about 30 minutes) should be held every morning before the commencement of classes and that another meeting should be held after school in order to plan and prepare for the next day ".

3.3.4 Teaching in multigrade classes

"Apart from the problems caused by limited infrastructure and financial resources, the difficulty of teaching in multigrade classes also arises from the differences among the learners in terms of developmental and knowledge levels, abilities and the attention required from the teacher in the learning situation. The teachers in the survey felt that this often resulted in limited time for teaching and the consequent neglecting of specific grades and subjects and

even learners with specific problems. A general consensus seemed to exist among teachers that it is not possible to rigorously follow the syllabus. The existing syllabus should rather be adapted in order to meet time limitations and the individual needs of the learners within this complex learning situation. Careful time management and proper preparation were seen as essential in teaching effectively in multigrade classes.

The need for specific attention to the junior and senior pupils in the school was mentioned. It was argued that during the first year in the school many skills and concepts have to be internalized. This requires more time and attention from the teachers than in the case of learners in the middle grades. The learners in the highest grade also require more attention because they have to prepare for secondary school and consequently have to achieve a level of performance at a specific standard.

Four management styles were suggested by the teachers as a way of coping with the demanding task of teaching in multigrade classes:

1. To teach one grade while making sure that the other grades were kept busy with individual work such as reading and class work until it was their turn for a lesson. It was added that not too much work should to be given at one time as the learners might feel overwhelmed and not work constructively. Caution was expressed not to rely too much on individual learning activities that did not enhance learning. The inclusion of group work was therefore seen as essential.
2. To teach the same lesson to the different grades with some variation to ensure that the more advanced pupils could benefit from the inclusion of more information and more complex concepts.
3. To divide each grade into homogenous groups according to their ability and needs. The teachers would then be able to give more attention to "slow learners" while providing for 'fast learners" by giving them more complex learning activities to do on their own.
4. To divide each grade into heterogenous groups with stronger and weaker learners in each group, and then to select a group leader for each group and for each subject.

Such grouping would facilitate peer communication, peer support and peer education. Peer education was viewed as an important strategy to be employed in the multigrade learning situation, as illustrated by the following comments:

"Ask children to assist each other when one of them does not understand the teacher. " "Use pupils to help one another because pupils learn better from other pupils. " Individual and group learning tasks were given within this context . The assignment of tasks was facilitated for instance by the use of task cards, work sheets, pictorial material, other reading material such as magazines and newspapers, and by small group activities. Croup work was highly valued because "group work makes children grow and mature". The learners are encouraged to develop critical thinking abilities and to ask questions. The use of concrete learning aids was recommended to stimulate "learning while playing". The provision of continuous feedback to learners was seen as an important strategy to motivate them and to monitor their progress. It was said that "neglecting to appreciate and acknowledge good work done by pupils" could jeopardize their progress.

The role of the teacher was defined as that of a facilitator of learning activities rather than that of a supplier of knowledge, as illustrated by the comment "... talk and chalk does not encourage active participation ". It was argued that an interactive learning approach would facilitate learning as a consequence of improved communication between peers, increased support between them, and more learner involvement in the learning process. One teacher provided the following quote to illustrate the importance of learner involvement in the learning process: 'Tell me I forget, show me I remember, involve me, I understand'. "

3.3.5 Quoted conclusions based on Qualitan analysis

"The success of teaching in multigrade schools seems to largely depend on the availability and use of learning materials, aids and equipment. The teachers made an urgent plea for adequate textbooks, workbooks, worksheets, easels, chalk and chalk boards, scissors and glue (for the juniors), basic equipment to teach science and access to audio-visual equipment to support their teaching. It was suggested that facilities should be developed or improved to give teachers easy access to learning materials, learning aids, photocopies, etc at specific centres or town schools in the area in order to enhance teaching in multigrade classes.

The potential success of teaching in multigrade classes is reflected in the following response: " ... if there can be enough textbooks, teaching materials and some refresher courses, teaching in multigrade classes can be successful. "

Despite the problematic and complex nature of the multigrade class situation some of the advantages to learners in this situation was pointed out. It was stated for example that learning is enhanced through increased "repetition and revision" of the same information in subsequent years and that multigrade classes seemed to "improve social skills and develop leadership abilities ".

3.4 SUMMARY, FINAL CONCLUSIONS AND RECOMMENDATIONS

3.4.1 SUMMARY

The major purpose of this investigation was to identify trends in multigrade classroom practices in the Free State province as an example of current multigrade classroom teaching in South Africa. From the preliminary literature study in Phase 1 of the research, it was evident that teachers' training, their attitudes and the resources at their disposal are crucial factors determining the success of multigrade classroom teaching and learning. The grouping of learners and peer tutoring were identified as important strategies for influencing success in multigrade classes.

The data supplied by 22 farm schools with multigrade classes, in response to postal questionnaires to principals were combined with the data collected in four additional instruments applied during visits to 12 of these schools. A preliminary investigation of the data was reported on in Phase 2 of the research.

Phase 3 of the research included computerised data capturing of all the responses to all the items in the five research instruments. A copy of each research instrument is provided in Appendix B of this final report. Although the size of the sample of surveyed farm schools falls below the threshold of any formal statistical analysis, complete frequency tables of the responses to all the structured questions are included in the report on Phase 3 of the research. As a means of verifying the preliminary conclusions formulated during Phase 2 of the

research, the complete set of verbatim responses (see Appendix D) to all the open questions were analyzed by an independent researcher who made use of a Qualitan qualitative data analysis support package.

The final set of conclusions and recommendations in Paragraphs 3.4.2 and 3.4.3 are based on a combination of Phases 1, 2 and 3 of the research.

3.4.2 CONCLUSIONS

3.4.2.1 Conclusions on resources at farm schools

Resources at farm schools are severely limited. Summarised from Table 3.1, for example, it can be seen that of the 22 schools participating in the survey,

* only six had some electricity infrastructure;
* ten had no water taps;
* nineteen did not have flushing toilets; none had a hot water supply.

No photocopy machines or alternative duplicating devices were available in any of the 22 schools (according to responses to Item P34 of the PPQP).

From Table 3.5 it is clear that of the 12 schools visited,

* only four had enough reading books in the learners' first language, four had some but not enough, three had none at all, and one did not supply data (Item E6);
* two had enough textbooks for Mathematics in Grade 6 (item E39), while eight had some but not enough, one had none at all, and one did not supply data;
* four had enough textbooks for Science in Grade 7, two had some but not enough, two had none at all, and four did not supply data.

If the responses of the 12 respondents to the 45 items about the availability of learning materials and textbooks (Section E of the questionnaire to teachers) are added in the different categories of adequacy of supplies, it can be seen that only 117 responses (21,6% of a

possible 12x45 = 540 responses) fall in the category "enough for each learner". The category "some, but not enough for each learner" drew 182 responses (33,7%) and the category "none at all" drew 168 responses (31,2% of the possible 540 responses). All together 73 responses (13,5% of 540) were in the "no data" category.

3.4.2.2 Conclusions on MuGC strategies

The benefits of peer tutoring (evident from the preliminary literature survey) were confirmed by the visits to the farm schools. Peer tutoring develops social responsibility and reinforces basic knowledge through repetition and revision. It inspires learning through doing.

3.4.2.3 Conclusions on teacher training

According to the responses to Item D6, six of the 12 visited teachers said that their training did not provide them with specific training for MuGCs. Yet nine of these teachers said that they were satisfied with the teacher training they had received. The teachers learnt to cope with the challenges of multigrade class teaching through experience and collaboration with colleagues at neighbouring schools.

Training for MuGCs and rural education has not been part of normal teacher training programmes in the past. A major error in 20th century education has been to educate people predominantly for urban living. Such education has stimulated urbanisation and harmed rural living.

3.4.2.4 Conclusions on the success of MuGC teaching

Despite a serious lack of resources, there was ample evidence of effective education at the visited schools. Children were observed being meaningfully occupied in activities generating life-skills. Becoming involved in the improvement of one's own living conditions is the essence of empowerment. This empowerment starts with the formation of attitudes of accepting challenges in spite of a lack of external and artificial resources. The formation of such attitudes as a crucial element of effective education was observed at the visited farm schools.

3.4.3 RECOMMENDATIONS

3.4.3.1 Recommendations about resources at farm schools

it was inspiring to observe how well these schools could cope under severe limitations of resources. It is therefore not recommended that long lists of supplies needed by farm schools should be compiled. Instead, a focus on alternative and sustainable solutions to cope with limited resources should be cultivated and respected by everybody as essential for survival. The wealth of the country (and the entire world) has been exploited in an unsustainable manner in the past. In future we will all have to learn to share preserve resources. The future quality of life will depend on our ability to educate our youth to share and preserve all resources carefully,

3.4.3.2 Recommendations on MuGC strategies

To ensure effective multigrade classroom teaching, some small-scale duplicating methods/devices are needed. Where electricity is not available, wax-sheet duplicators or alternative duplicating methods (e.g. old-fashioned jelly pan and spirit duplicators that can produce up to 30 copies) should be tried. If these alternative duplicating methods/devices are not feasible, the involvement of learners as scribes to produce lesson materials and wallcharts could be a valuable but time- consuming educative experience. If these materials could be exchanged with neighbouring schools the value would be increased. For the sake of effective time utilisation, lesson materials for multigrade classes should be centrally duplicated and distributed to rural schools in exchange for the master copies of original multigrade class lesson materials produced by the schools themselves. Support from the regional Department of Education to facilitate the exchange of lesson materials should be of benefit to all.

3.4.3.3 Recommendations on teacher training

Farm school teachers should be used as role models at teacher training colleges to inculcate in prospective teachers the value of positive attitudes, dedication and diligence! The enriching experience of multigrade classroom practices should be incorporated into all teacher training programmes. Travelling in-service training facilities (e.g. a well-equipped bus to train

teachers in OBE) should be provided for rural teachers.

3.4.3.4 Recommendations on improving MuGC teaching

If the number of learners in a multigrade class increases to between 20 and 30, the teaching becomes more difficult, as noticed in four of the 12 schools visited. In three of the visited schools there were more than 30 learners in the same multigrade class. This poses tremendous challenges to the teacher, and leads to excessive stress, especially if there is a lack of appropriate learning materials.In five of the visited schools there were fewer than 20 learners in the senior multigrade class. Such a small number of learners makes it possible for a teacher to cope with the variety of tasks in a multigrade classroom. It is therefore recommended that the practice of multigrade teaching should be encouraged, but on condition that there should not be more than 20 learners in a multigrade class. If the teacher has to cope with larger numbers of learners in the same class, it is the joint responsibility of the parent community and the local Department of Education to supply appropriate support and learning materials to the teacher.

Greater public awareness of the needs of rural schools could inspire affluent communities to establish networks for distributing redundant resources such as old magazines, scrap paper, cardboard, timber and metal off-cuts to rural schools, which could use it as raw materials for multigrade classroom learning activities.

More research is needed on how to apply MuGC strategies to urban education in order to improve the culture of learning in urban schools. Methods should be investigated on how the cultivation of social responsibility and the benefits of repetition and revision of basic concepts gained through peer tutoring could be used in urban schools to support the ideals of OBE.