University of South Africa etd B Mafa, O. (2003)

OPTIMISING MIXED-ABILITY GROUPING FOR EFFECTIVE INSTRUCTION AT THE JUNIOR SECONDARY SCHOOL LEVEL IN BOTSWANA

by

ONIAS MAFA

submitted in accordance with the requirements
for the degree of

DOCTOR OF EDUCATION

in the subject

DIDACTICS

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTER: PROF. MM NIEMAN

NOVEMBER 2003

STATEMENT OF DECLARATION

"I declare that **OPTIMISING MIXED-ABILITY GROUPING FOR EFFECTIVE INSTRUCTION AT THE JUNIOR SECONDARY SCHOOL LEVEL IN BOTSWANA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references".

_____ November 2003.

(Mr. O. Mafa)

ACKNOWLEDGEMENTS

I am indebted to the following individuals for the successful completion of this thesis; my promoter, Prof. MM Nieman, for her scholarly advice, constructive criticism, guidance and encouragement throughout the duration of the study, my wife Esther for her unwavering support, encouragement and for editing and proof reading the script, the Chief Education Officer (North), for according me permission to conduct the study in the schools in the Northern Region of Botswana and teachers who took part in the focus group interviews. I am also indebted to Ms. Jowa for her assistance in the translation of some information from Setswana into English in the focus group interview transcripts.

OPTIMISING MIXED-ABILITY GROUPING FOR EFFECTIVE INSTRUCTION AT THE JUNIOR SECONDARY SCHOOL LEVEL IN BOTSWANA

by O MAFA

DEGREE: DOCTOR OF EDUCATION

SUBJECT: DIDACTICS

PROMOTER: PROF. MM NIEMAN

Summary of the study

Mixed-ability classes are now the norm at the junior secondary school level in Botswana as a result of annexing this level to the primary school level in pursuance of the goal of basic education. This has pedagogic and didactic implications. Literature reviewed on grouping revealed that there is no consensus regarding how students of different abilities should be grouped and taught in schools. Proponents of ability grouping base their argument on academic excellence, while exponents of mixed-ability grouping draw support from egalitarian concepts of equity, equality, fairness and social justice. Their argument is that ability grouping is unfair since it denies a section of students some worthwhile educational opportunities. The reviewed literature also revealed that there is an emerging trending in the realm of education, which views learner diversity as offering teachers opportunities to bring about effective instruction. There is unequivocal evidence from research that mixed-ability grouping complemented by student-centred teaching strategies, results in improved academic, social and affective outcomes across the ability levels. The empirical phase of the investigation made use of focus group interviews, follow-up interviews and lesson observations for data collection. The major findings were that teachers are not currently optimising mixed-ability grouping for effective instruction. Frequently cited reasons by teachers were: the need to cover the syllabi before examinations, content-laden syllabi, the mode of assessment which seem to reward rote learning, lack of skills by teachers in the use of mixed-ability teaching strategies, class sizes and students' lack of proficiency in English (language of instruction). Mixed-ability grouping could be optimised through the use of teaching strategies that capitalise on students' individual differences as well as adopting the concept of differentiation in teaching.

ABSTRACT

The debate on how students of different abilities should be organised and taught is probably as old as the introduction of formal schooling. It has generated a lot of debate in the past and continues to do so in the present millennium. This debate has invariably divided the world of educational research into two distinct camps. On one hand are proponents of ability grouping who claim that this grouping approach creates homogeneity which make it possible to tailor teaching to individual needs and thus raise achievement. On the other hand, are the exponents of mixed-ability grouping, who argue that ability grouping denies equality of educational opportunities to many young people, limiting their life chances and increasing social segregation. However, there is an emerging trend which posits that teachers should view students' mixed-abilities as an asset, which if properly exploited can result in effective instruction for the benefit of all students regardless of their many individual differences. This emanates from the realisation that there are different types of intelligences, and that it is not always possible for an individual student to posses all the types of intelligences. Therefore, students from diverse backgrounds, endowed with multiple intelligences, can help one another understand the content better as they will perceive the content from their diverse experiential backgrounds.

This qualitative study concerned itself with investigating how mixed-ability grouping can be optimised for effective instruction at the junior secondary school level in Botswana. The study made use of literature study, focus groups, follow-up interviews and lesson observations. Major findings were that teachers are not optimising mixed-ability grouping for effective instruction. Instead, teachers have problems in teaching mixed-ability classes, with most of their teaching being teacher-centred. However, teachers can optimise mixed-ability grouping through the use of student-centred instructional strategies such as cooperative learning, small-group instruction, peer teaching and student research. Gifted students could be catered for through curriculum compaction, enrichment and extension work, while mentally challenged students could be offered remedial work. These cited teaching strategies are differential and they make use of the diverse abilities found in mixed-ability classes.

Key terms: optimising, grouping, mixed-ability grouping, ability grouping, effective instruction, Botswana, junior secondary schools, teaching strategies, differentiation,equality of educational opportunities.

DEDICATION

This thesis is dedicated to my wife Esther, and our children Noah, Tariro and Tatenda.

TABLE OF CONTENTS

CHAPTER		PAGE
Statement of declarartion		ii
Acknowledgements		iii
Summary of the study		iv
Abstract		v
Dedication		vi
1.0	CHAPTER ONE	1
	STATEMENT OF THE PROBLEM AND METHOD OF	
	INVESTIGATION	1
1.1	Introduction	1
1.2	Awareness of the problem	4
1.2.1	Background to the problem	4
1.2.2	Exploration of the problem in the Botswana context	8
1.2.3	Statement of the problem	13
1.3	The aim of the research	14
1.4	Method of investigation	15
1.4.1	Literature study	15
1.4.2	Empirical investigation	16
1.5	The significance of the study	18
1.6	Clarification of concepts	18
1.7	Research programme	21

2.0 CHAPTER TWO 25

THE GROUPING DEBATE 25

2.1 Introduction 25

2.2 A brief historical background to the grouping of students for instructional purposes 28

2.2.1 From ability grouping to mixed-ability grouping 28

2.2.2 Grouping and equality in education 33

2.3 The commonly used grouping practices 37

2.3.1 Whole-class instruction (Mixed-ability grouping) 37

2.3.2 Between-class grouping (XYZ skill grouping/Homogeneous grouping within grades 37

2.3.3 Within-class ability grouping (Homogeneous grouping within classes) 38

2.3.4 Cross-grade grouping (Joplin Plan/Homogeneous grouping across grades) 39

2.4 Ability grouping 39

2.4.1 Ability grouping defined 39

2.4.2 Arguments in favour of ability grouping 41

2.4.2.1 Academic achievement outcomes 41

2.4.2.2 Organisational and instructional strategies 43

2.4.2.3 Affective and social outcomes 44

2.4.3 Arguments against ability grouping 45

2.4.3.1 Academic achievement outcomes 45

2.4.3.2 Organisational and instructional strategies 48

2.4.3.3 Affective and social outcomes 51

2.5 Mixed-ability grouping 54

2.5.1 Mixed-ability grouping defined 54

2.5.2 Arguments in favour of mixed-ability grouping 56

2.5.2.1 Academic achievement outcomes 57

2.5.2.2 Organisational and instructional strategies 58

2.5.2.3 Affective and social outcomes 60

2.5.3 Arguments against mixed-ability grouping 62

2.5.3.1 Academic achievement outcomes 62

2.5.3.2 Organisational and instructional strategies 64

2.5.3.3 Affective and social outcomes 66

2.6 Problems associated with using ability as a basis for grouping students 66

2.6.1 Problems with defining ability 68

2.6.2 Grouping and gifted children 70

2.6.3 Grouping and students with special educational needs 73

2.6.4 The use of psychometric tests to group students 79

2.6.5 The use of teachers' assessments to group students 81

2.7 Deductions from the grouping debate 83

2.8 Conclusion 85

3.0 CHAPTER THREE 89

OPTIMISING MIXED-ABILITY GROUPING THROUGH THE USE OF SUITABLE TEACHING STRATEGIES 89

3.1 Introduction 89

3.2 Mixed-ability teaching defined 91

3.3 Factors affecting the choice of teaching strategies 92

3.3.1 Students' individual abilities and motivational differences 92

3.3.2 Students' learning styles 94

3.3.3 Lesson objectives to be achieved 95

3.4 Teaching strategies and their suitability for mixed-ability teaching 97

3.4.1 Teaching strategies defined 97

3.4.2 The lecture strategy 99

3.4.2.1 Advantages of the lecture strategy 100

3.4.2.2 Disadvantages of the lecture strategy 100

3.4.2.3 Evaluating the lecture strategy for mixed-ability teaching 101

3.4.3 The discussion strategy 102

3.4.3.1 Advantages of the discussion strategy 103

3.4.3.2 Disadvantages of the discussion strategy 103

3.4.3.3 Evaluating the discussion strategy for mixed-ability teaching 104

3.4.4 The demonstration strategy 105

3.4.4.1 Advantages of the demonstration strategy 106

3.4.4.2 Disadvantages of the demonstration strategy 106

3.4.4.3 Evaluating the demonstration strategy for mixed-ability teaching 107

3.4.5 The project strategy 108

3.4.5.1 Advantages of the project strategy 109

3.4.5.2 Disadvantages of the project strategy 111

3.4.5.3 Evaluating the project strategy for mixed-ability teaching 111

3.4.6 Study trips 113

3.4.6.1 Advantages of study trips 113

3.4.6.2 Disadvantages of study trips 114

3.4.6.3 Evaluating study trips for mixed-ability teaching 115

3.4.7 The discovery strategy 116

3.4.7.1 Advantages of the discovery strategy 117

3.4.7.2 Disadvantages of the discovery strategy 117

3.4.7.3 Evaluating the discovery strategy for mixed-ability teaching 118

3.4.8 The problem solving strategy 119

3.4.8.1 Advantages of the problem solving strategy 120

3.4.8.2 Disadvantages of the problem solving strategy 121

3.4.8.3 Evaluating the problem solving strategy for mixed-ability teaching 122

3.4.9 The small-group work strategy 123

3.4.9.1 Advantages of the small-group work strategy 124

3.4.9.2 Disadvantages of the small-group work strategy 124

3.4.9.3 Evaluating the small-group work strategy for mixed-ability teaching 125

3.4.10 Cooperative learning 127

3.4.10.1 Advantages of cooperative learning 128

3.4.10.2 Disadvantages of cooperative learning 129

3.4.10.3 Evaluating cooperative learning for mixed-ability teaching 131

3.4.11 Student research strategy 132

3.4.11.1 Advantages of the student research strategy 133

3.4.11.2 Disadvantages of the student research strategy 133

3.4.11.3 Evaluating student research strategy for mixed-ability teaching 134

3.5 Differentiation as a prerequisite for effective mixed-ability teaching 136

3.5.1 Differentiation defined 136

3.5.2 How to achieve differentiation 137

3.5.3 Factors that affect differentiation 138

3.6 Teaching competences needed for effective mixed-ability teaching 141

3.6.1 Understanding students 142

3.6.2 Mentoring ability 143

3.6.3 Flexibility 143

3.6.4 Developing skills that are beyond subject matter content 144

3.7 Conclusion 146

4.0 CHAPTER FOUR 149

SCHOOLING IN BOTSWANA 149

4.1 Introduction 149

4.2 The quest for educational equality: The Botswana case 150

4.2.1 The post-independent educational developments 152

4.2.2 The philosophy and general aims of education 155

4.3 The structure of the education system 158

4.3.1 Pre-primary education 162

4.3.2 Primary education 165

4.3.3 Secondary education 167

4.4 The Botswana government's position on mixed-ability grouping 170

4.4.1	Special education	172
4.5	Assessment of the junior secondary school curriculum	177
4.6	Literature review on classroom life in Botswana's secondary schools	184
4.7	Conclusion	193
5.0	CHAPTER FIVE	196
	RESEARCH DESIGN AND METHODOLOGY	196
5.1	Introduction	196
5.2	Research methodology	197
5.2.1	Advantages of qualitative research methodologies	199
5.2.2	Disadvantages of qualitative research methodologies	200
5.2.3	Justification for the adoption of a qualitative research design	202
5.3	Sampling	203
5.3.1	Justification for the sampling of the three junior secondary schools	205
5.4	Data collection	205
5.5	The researcher as instrument	206
5.6	Methods	207
5.6.1	Focus groups	207
5.6.2	Follow-up interviews	213
5.6.3	Rationale for content validation of interview guides	216
5.6.4	Lesson observations	216
5.6.5	Field notes	218
5.7	Measures to ensure trustworthiness	218

5.8 Data processing 219

5.8.1 Segmenting 219

5.8.2 Coding 220

5.8.3 Compiling a coding master list 220

5.8.4 Checking for intercoder and intracoder reliability 221

5.8.5 Enumeration 221

5.8.6 Identification of broad categories 221

5.9 Conclusion 222

6.0 CHAPTER SIX 223

RESEARCH FINDINGS 223

6.1 Introduction 223

6.2 Composition of the focus groups 223

6.2.1 Focus group one 224

6.2.2 Focus group two 224

6.2.3 Focus group three 224

6.3 Findings from the empirical phase of the study 225

6.3.1 Advantages of mixed-ability classes 225

6.3.1.1 Advantages related to the optimising of mixed-ability grouping 225

6.3.1.2 Affective and social outcomes 227

6.3.1.3 Teacher related advantages 227

6.3.2 Problems associated with the teaching of mixed-ability classes 228

6.3.2.1 Problems related to the teaching-learning process 228

6.3.2.2 Problems related to the language of instruction 229

6.3.2.3 Problems related to policy issues 230

6.3.3 Teaching strategies that are suitable for mixed-ability classes 231

6.3.3.1 Mixed-ability teaching strategies versus ability grouping teaching strategies 231

6.3.3.2 Teaching strategies that teachers claimed to be using 231

6.3.4 How teachers claimed to be differentiating instruction 232

6.3.4.1 Teaching strategies that are being used by teachers 233

6.3.4.1.1 The nature of verbal interactions during lessons 233

6.3.4.1.2 Use of textbooks and other related teaching aids 236

6.3.4.1.3 The nature of written work assigned to students 237

6.3.5 Norm referenced versus criterion referenced assessment 238

6.3.5.1 Teachers' knowledge of assessment systems 238

6.3.5.2 Teachers' views regarding the shift to criterion referenced assessment 238

6.3.5.3 Preparedness of teachers to implement criterion referenced assessment 239

6.3.6 Views of teachers on the adequacy of teachers' training 239

6.3.6.1 Views related to pre-service teachers' training 239

6.3.6.2 Views related to in-service teachers' training 240

6.3.7 Organisational and instructional competences that are needed by teachers 240

6.4 Interpretation of the findings 241

6.5 Conclusion 247

7.0	CHAPTER SEVEN	250
	SUMMARY, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS	250
7.1	Introduction	250
7.2	Summary of the study	250
7.3	Limitations of the study	254
7.4	Conclusions	256
7.4.1	Conclusions drawn from literature study	257
7.4.2	Conclusions drawn from the empirical phase of the study	259
7.5	Recommendations	263
7.5.1	Recommendations for further research	268

List of tables and figures

1.1	Primary school leaving examination results	9
4.1	The structure of Botswana's education system	160
4.2	Existing schools, units or classes for special education	173
7.1	Mixed-ability teaching model	267

BIBLIOGRAPHY 269

Appendix 1:	Focus groups interview guide	289
Appendix 2:	Follow-up interview guide	291
Appendix 3:	Interview transcripts for focus groups one and two	293

Appendix 4: Interview transcripts for follow-up interviews 350

Appendix 5: Field notes for the Science lesson 365

Appendix 6: Field notes for the Mathematics lesson 370

Appendix 7: Coding master list 373