

Enhancing the quality of performance assessment in Agriculture in Botswana schools

By

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TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
List of Tables	vi
List of Figures	ix
List of Acronyms	x
Declaration of originality	xii
Summary	xiii
Acknowledgements.....	xv

CHAPTER ONE

AGRICULTURAL PERFORMANCE ASSESSMENT IN SCHOOLS IN BOTSWANA

1.1 INTRODUCTION.....	1
1.2 BACKGROUND TO THE STUDY	1
1.3 THE PROBLEM STATEMENT AND RATIONALE.....	5
1.4 DEFINITION OF TERMS.....	7
1.5 THE RESEARCH APPROACH.....	9
1.6 THE AIM AND RESEARCH QUESTIONS.....	10
1.7 SIGNIFICANCE OF THE STUDY	12
1.8 OUTLINE OF CHAPTERS	13

CHAPTR TWO

THE CONTEXT OF BOTSWANA

2.1 INTRODUCTION.....	15
2.2 DEMOGRAPHY.....	15
2.3 LANDSCAPE AND CLIMATE.....	16
2.4 ECONOMY.....	17
2.5 BOTSWANA'S EDUCATION SYSTEM.....	18
2.5.1 <i>Structure of the Education System</i>	18
2.5.2 <i>Management of the Education Sector</i>	20
2.5.3 <i>Education and Curricular Reform</i>	20
2.6 EXAMINATION OF SENIOR SECONDARY CURRICULUM.....	25
2.7 TEACHING AGRICULTURE IN SENIOR SECONDARY SCHOOLS.....	26
2.8 ASSESSMENT IN AGRICULTURE.....	27
2.9 ASSESSMENT OF PRACTICALS IN AGRICULTURE	30
2.10 TEACHER TRAINING	32
2.11 CONCLUSION	33

CHAPTER THREE

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

3.1	INTRODUCTION.....	34
3.2	THE ORIGINS OF PERFORMANCE ASSESSMENT.....	35
3.3	CONDITIONS FOR PERFORMANCE ASSESSMENT.....	36
3.4	QUALITY ASSURANCE OF PERFORMANCE ASSESSMENT INTERNATIONALLY	42
3.5	ISSUES IN PERFORMANCE ASSESSMENT	47
3.6	THE CONDUCT OF PERFORMANCE ASSESSMENT IN BOTSWANA.....	54
3.7	VALIDITY AND RELIABILITY OF PERFORMANCE ASSESSMENT INTERNATIONALLY	58
3.7.1	<i>Validity</i>	58
3.7.2	<i>Reliability</i>	63
3.8	CONCEPTUAL FRAMEWORK OF THE STUDY	67
3.8.1	<i>System-Level Factors</i>	69
3.8.2	<i>School -Level Factors</i>	72
3.9	CONCLUSION	75

CHAPTER FOUR

RESEARCH DESIGN AND METHODS

4.1	INTRODUCTION.....	78
4.2	PARADIGM UNDERLYING THIS STUDY	78
4.3	OVERVIEW OF RESEARCH DESIGN.....	81
4.4	RESEARCH DESIGN FOR BASELINE SURVEY: PHASE ONE	84
4.4.1	<i>Research design</i>	84
4.4.2	<i>Research methods</i>	84
4.4.2.1	<i>Sample and Participants</i>	84
4.4.2.2	<i>Instrument Development and data collection strategies</i>	85
4.4.2.3	<i>Data Collection procedure</i>	87
4.4.3	<i>Data Analysis</i>	88
4.5	RESEARCH DESIGN FOR THE INTERVENTION STUDY: PHASE TWO	89
4.5.1	<i>The nature of design-based research</i>	89
4.5.2	<i>Research design</i>	94
4.5.3	<i>The research process</i>	94
4.5.4	<i>Data collection</i>	95
4.5.5	<i>Data Analysis</i>	98

4.6	METHODOLOGICAL NORMS	98
4.6.1	<i>Dependability of the Results</i>	99
4.6.2	<i>Ethical considerations</i>	100
4.7	CONCLUSION	101

CHAPTER FIVE

AGRICULTURE PERFORMANCE ASSESSMENT PRACTICES IN BOTSWANA

5.1	INTRODUCTION	102
5.2	BIOGRAPHICAL DATA	102
5.2.1	<i>Teachers' age and gender</i>	103
5.2.2	<i>Teachers' and school administrators' experience</i>	103
5.2.3	<i>Teachers' and school administrators' qualification and training</i>	104
5.2.4	<i>Class size</i>	107
5.3	PERFORMANCE ASSESSMENT PRACTICES OF TEACHERS	108
5.3.1	<i>The mode of assessment</i>	108
5.3.2	<i>Learning autonomy</i>	111
5.3.3	<i>Assessment for Learning</i>	114
5.3.4	<i>Availability of Resources</i>	117
5.3.5	<i>Monitoring and Supervision</i>	119
5.3.6	<i>Standardisation of marking</i>	122
5.3.7	<i>Attitude towards performance assessment</i>	125
5.4	DISCUSSION	127
5.5	CONCLUSION	131
5.6	IMPLICATIONS FOR DESIGN OF INTERVENTION	132

CHAPTER SIX

DESIGN, DEVELOPMENT AND EVALUATION OF THE FIRST AND SECOND PROTOTYPES

6.1	INTRODUCTION	135
6.2	PRODUCT DESIGN SPECIFICATIONS	136
6.3	DEVELOPMENT OF THE FIRST PROTOTYPE	140
6.3.1	<i>Description of tasks</i>	140
6.3.2	<i>Skills equating</i>	141

6.3.3	<i>Task Development</i>	141
6.4	FORMATIVE EVALUATION OF THE FIRST PROTOTYPE BY EXPERT GROUP	159
6.4.1	<i>Research Design</i>	159
6.4.2	<i>Participants</i>	159
6.4.3	<i>Data collection strategies</i>	159
6.5	EXPERTS' VIEWS AND EXPERIENCES WITH THE FIRST PROTOTYPE	160
6.6	CONCLUSION	164
6.7	IMPLICATIONS FOR FURTHER DEVELOPMENT	165
6.8	DESIGN OF THE SECOND PROTOTYPE - PILOT.....	166
6.9	FORMATIVE EVALUATION OF THE SECOND PROTOTYPE.....	167
6.9.1	<i>Research design</i>	167
6.9.2	<i>Participants</i>	168
6.9.3	<i>Data collection strategies</i>	168
6.10	RESULTS OF THE EVALUATION OF THE SECOND PROTOTYPE.....	171
6.10.1	<i>Lesson Observation</i>	171
6.10.2	<i>Standardising marking</i>	175
6.10.3	<i>Students' understanding of standardised assessment materials</i>	176
6.10.4	<i>Completion of the assessment instrument (Checklist)</i>	177
6.10.5	<i>Record keeping</i>	180
6.11	CONCLUSION	181
6.12	IMPLICATIONS FOR THE SUBSEQUENT DESIGN	182

CHAPTER SEVEN

DESIGN, DEVELOPMENT AND EVALUATION OF THE THIRD AND FOURTH PROTOTYPES

7.1	INTRODUCTION.....	183
7.2	DESIGN OF THE THIRD PROTOTYPE	183
7.3	EVALUATION DESIGN OF THE TRY OUT	186
7.3.1	<i>Aim and research question</i>	186
7.3.2	<i>Research design</i>	186
7.3.3	<i>Participants</i>	187
7.3.4	<i>Data Collection Strategies</i>	188
7.3.5	<i>Procedure</i>	190
7.4	FINDINGS OF THE TRY OUT	193

7.4.1	<i>Participants' experiences with the intervention</i>	193
7.4.2	<i>Lesson Observations</i>	198
7.5	CHARACTERISTICS OF A PRACTICAL QUALITY ASSURANCE SYSTEM	203
7.6	CONCLUSION	205

CHAPTER EIGHT

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

8.1	INTRODUCTION.....	207
8.2	SUMMARY OF THE STUDY	207
8.3	SUMMARY OF THE MAIN FINDINGS	208
8.3.1	<i>How is performance assessment currently conducted in Botswana schools?....</i>	208
8.3.2	<i>How does the current practice in schools compare with the policy and procedures for performance assessment?</i>	209
8.3.3	<i>How does Botswana's experience compares with the international practice? ..</i>	210
8.3.4	<i>How can quality assurance processes for performance assessment be developed to ensure valid and reliable marks?</i>	211
8.3.5	<i>What are the characteristics of an effective quality assurance system for ensuring valid and reliable performance assessment nationally?</i>	211
8.4	REFLECTIONS ON THE CONCEPTUAL FRAMEWORK	213
8.5	REFLECTIONS ON THE RESEARCH APPROACH	218
8.5.1	<i>Methodological reflections</i>	218
8.5.2	<i>Reflection on researcher's role</i>	219
8.6	CONCLUSIONS.....	220
8.7	RECOMMENDATIONS	225
8.7.1	<i>Policy</i>	225
8.7.2	<i>Training and development</i>	226
8.7.3	<i>Practice</i>	227
8.7.4	<i>Further research</i>	228
	REFERENCES	229
	APPENDICES	258

List of Tables

Table 2.1:	BGCSE curriculum subject groupings	24
Table 2.2:	Examination format for BGCSE Agriculture	29
Table 2.3:	Brief description of criteria for assessing practical tests	31
Table 3.1:	Comparison between Botswana and international practice on quality assurance processes for performance assessment	57
Table 4.1:	Sample of participants in the study	86
Table 4.2:	Administrators' and teachers' response rate for the questionnaires	89
Table 4.3:	Criteria for high quality intervention	94
Table 4.4:	Schedule of task implementation in schools	104
Table 5.1:	The response rate of respondents	107
Table 5.2:	Proportion of teachers and school administrators trained to conduct performance assessment	107
Table 5.3:	Teachers who neither received training in performance assessment nor related training in assessment (n = 57)	108
Table 5.4:	Frequency of Form four Agriculture class sizes taught by respondents	108
Table 5.5:	Summary of items and factor loadings from principal components analysis with varimax rotation for mode of assessment (N = 57)	111
Table 5.6:	Characteristics of factors for modes of assessment	112
Table 5.7:	Summary of Items and factor loadings from principal components analysis with varimax rotation for learning autonomy (N=57)	114
Table 5.8:	Variance accounted for by the two-factor solution.	115
Table 5.9:	Summary of items and factor loadings from principal components analysis with varimax rotation for assessment for learning (N=57)	117
Table 5.10:	Summary of items and factor loadings from principal components analysis with varimax rotation for availability of resources (N=57)	119
Table 5.11:	Characteristics of factors for availability of resources	120

Table 5.12: Summary of items and factor loadings from principal components analysis with verimax rotation for monitoring and supervision (N=57)	122
Table 5.13: Summary of items and factor loadings from principal components analysis with Verimax rotation for standardisation of marking (N = 57)	125
Table 5.14: Summary of items and factor loadings from principal components analysis with verimax rotation for perception towards performance assessment (N = 57)	127
Table 5.15: Characteristics of factors for perception towards performance assessment	128
Table 6.1: Performance skills and matching performance objectives	146
Table 6.2: Scoring instrument (Checklist) for the task	150
Table 6.3: Scoring instrument (Scale) for the task	152
Table 6.4: Example of summary marksheet for use by teachers	155
Table 6.5: Detailed description of marking criteria for use during field evaluation	156
Table 6.6: Sample of completed summary marksheet	159
Table 6.7: Reliability coefficients for scales of the tasks and assessment instruments	161
Table 6.8: Summary of experts views about task 1	162
Table 6.9: Summary of experts views about task 2	164
Table 6.10: Summary of experts views about task 3	165
Table 6.11: Demographic information of participants	169
Table 6.12: The tasks selected by teachers	170
Table 6.13: The extent of conducting activities by different teachers	174
Table 6.14: Knowledge of assessment displayed by individual teacher	175
Table 6.15: Availability of physical resources in schools to facilitate performance assessment	176

Table 6.16: Students' understanding of assessment practices	178
Table 6.17: An example of scoring by teachers	180
Table 7.1: Example of summary marksheet with brief notes for each criterion for field work	186
Table 7.2: Background information of respondents	189
Table 7.3: The extent to which teachers' embraced assessment for learning	201
Table 7.4: The extent of teachers' knowledge of assessment	202

List of Figures

Figure 2.1:	Map of Botswana	16
Figure 2.2:	The structure of Botswana's education and training system	19
Figure 3.1:	Factors affecting the validity and reliability of performance assessment marks	70
Figure 4.1:	The Define, Measure, Analyse, Design, Develop, Implement approach of DFSS	83
Figure 4.2:	Research design	84
Figure 4.3:	The cyclic process of design based research of the CASCADE-SEA study	92
Figure 4.4:	Tessmer's layers of formative evaluation	93
Figure 5.1:	Distribution of teachers' age (n = 57)	104
Figure 5.2:	Teachers' teaching experience (n = 57)	105
Figure 5.3:	Teachers' qualifications(n = 57)	106
Figure 6.1:	Skills equating for task 1	141
Figure 6.2:	The overall task showing each step and general criteria	143
Figure 6.3:	Pictorial presentation of the activities for each skill	144
Figure 6.4:	The occurrence of the extent of instructional behaviour	173
Figure 7.1:	Implementation Plan	193
Figure 8.1:	Characteristics and quality processes affecting validity and reliability of performance assessment marks	213

List of Acronyms

PEO	Principal Education Officer
SPBEA	South Pacific Board for Education Assessment
CRT	Criterion Referenced Testing
PSLE	Primary School Leaving Examinations
JCE	Junior Certificate Examinations
NRT	Norm Referenced Testing
BEC	Botswana Examinations Council
CD&E	Curriculum Development and Evaluation
TT&D	Teacher Training and Development
DSE	Department of Secondary Education
DPRS	Department of Planning, Research and Statistics
ARG	Assessment Reform Group
AFL	Assessment for Learning
MoE&SD	Ministry of Education and Skills Development
MLHA	Ministry of Labour and Home Affairs
MFDP	Ministry of Finance and Development Planning
MTI	Ministry of Trade and Industry
RNPE	Revised National Policy on Education
ERTD	Examinations, Research and Testing Division
CSO	Central Statistics Office
UNESCO	United Nations Educational Scientific and Cultural Organisation
NCE	National Council on Education
CA	Continuous Assessment
HIV	Human Immune Virus
AIDS	Acquired Immunity Deficiency Syndrome
UNICEF	United Nations International Children's Education Fund
CAPA	Creative and Performing Arts
CIE	Cambridge International Examinations
COSC	Cambridge Overseas School certificate

UCLES	University of Cambridge Local Examinations Syndicate
BGCSE	Botswana General Certificate of Secondary Education
CHEA	Council for Higher Education Accreditation
TDTs	Teacher Developed Tasks
CAFs	Common Assessment Frames
SBA	School Based Assessment
DFSS	Design For Six Sigma
DMADDI	Define, Measure, Analyse, Design, Develop, Implement
SPSS	Statistical Packages for Social Sciences
ANOVA	Analysis of Variance
KMO	Kaiser-Meyer-Olkin
DBRC	Design-Based Research Collective
UP	University of Pretoria
TIMSS	Trends in International Mathematics and Science Study
PIRLS	Progress in Reading Literacy Study
PISA	Progress in Student Assessment
SD	Standard Deviation
CN	Condition
CR	Criteria
QAAD	Quality Assessment and Assurance Department

Declaration of originality

I hereby do declare that this thesis, being submitted for the award of the degree of Doctor of Philosophy (PhD) in the University of Pretoria, is my independent work and it has previously not been submitted for a degree or any other examination at this or any other university.

Trust Mbako Masole

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Summary

The quality of education in Botswana is not yet up to standard as there has been emphasis on attainment of Universal Basic Education. Quality in education encompasses a number of factors such as the development of the relevant curriculum, improvement of teacher preparation, development of appropriate learning materials, and improving the methods of assessing pupils (Grisay & Mählick, 1991, cited in Kellaghan & Geaney, 2003). The quality of what is going on in the classroom is judged by the processes and outcomes that are defined qualitatively.

Assessment in Agriculture in Botswana senior schools comprises performance assessment and standardised paper-and-pencil tests. Performance assessment contributes only 20% (MoE&SD, 2001.p.6) yet it is allocated more time than paper-and-pencil tests. The aim of the study therefore was to understand and explore the characteristics and quality processes needed in the performance assessment of Agriculture Form Four students to ensure valid and reliable examinations in Botswana.

The study was guided by two research questions. The first research question was: *How valid and reliable are the performance assessment processes in Botswana schools?* This research question sought to understand how performance assessment was conducted in Botswana schools, and how it compared with the international practice. The second research question was: *How can quality assurance processes be developed in order to produce valid and reliable marks for BGCSE Agriculture performance assessment?* The intention was to develop quality processes for performance assessment in the context of Form Four Agriculture in Botswana, to ensure valid and reliable marks for certification.

A design research was employed in this study in which a baseline survey was conducted and based on the outcome, a quality assurance process was designed which included the development of standard tasks and assessment materials. During the baseline survey, teachers and school administrators completed a questionnaire and were also interviewed. Subsequently, prototypes of exemplar materials were developed iteratively in collaboration with practitioners and formatively evaluated. Feedback from evaluation was incorporated into the redesign and development of successive prototypes.

Findings from baseline survey revealed that the conduct of performance assessment in schools was not standardised, primarily due to the absence of assessment policy and procedures to guide its conduct. Implementation of performance assessment was done by teachers who had insufficient training, in large classes with inadequate resources and received very little support from supervisors both internally and externally. Despite all these, insufficient time was allocated for conducting performance assessment, resulting in teachers forming groups most of the time during the conduct of tasks and assigning a single mark for the group based on the quality of the group's product.

However, findings from the intervention study revealed that entrenching quality assurance processes in the system produced valid and reliable performance assessment marks for certification. The characteristics of a quality assurance system for implementation of performance assessment were the presence of an assessment policy; training and accrediting teachers to assess; an efficient internal and external monitoring system; the provision of adequate resources; applying multiple modes of assessment; and multiple rating of the students.

Key words: assessment, assessment for learning, authentic assessment, performance assessment, constructivism, pragmatism, validity of assessment, reliability of assessment, formative assessment, and quality assurance.

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