

**ASSESSING AND GIVING FEEDBACK ON STUDENTS' WRITTEN WORK:
AN EXPERT-NOVICE STUDY USING VERBAL PROTOCOL ANALYSIS**

CLARENCE AK JERRY

**THESIS SUBMITTED IN FULFILMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY**

**INSTITUTE OF GRADUATE STUDIES
UNIVERSITY OF MALAYA
KUALA LUMPUR**

2012

ABSTRACT

The study aimed to examine and gain insight on how the practice of the expert raters in assessing and giving feedback on students' writing can be translated into a mental model that can be used in training to help the novice raters acquire the skill of an expert rater in assessing ESL students' writing effectively. The study was carried out in two phases. In phase one, the study contributes to the body of knowledge by uncovering the cognitive difference between the expert and novice raters while assessing and giving feedback on students' writing. The transcripts of verbal protocol Analysis (VPA) and interviews were analysed, using a coding scheme, to identify the knowledge states and conceptual operators used by the expert and novice raters, which were also their personal justification on the decision and action taken while doing the process of "thinking aloud". The findings in phase one of the study helped the researcher in understanding how an expert rater could be differentiated from the novice rater in terms of their mental cognitive processes. The lines of reasoning embedded in the expert raters' responses to students' writing were drawn from this analysis and translated into a conceptual mental model. Apart from getting a better understanding of the constructs in the mental model, phase two of the study also focused on the feasibility of using this mental model in a training/workshop to reduce the differences between the expert raters and novice raters in terms of skills in assessing and evaluating writing. Five participants out of twenty five novice raters who came for the workshop were interviewed in a preliminary probe into the usefulness of the mental model in training to help novice rater acquire the skills of an expert rater in assessing writing.

ABSTRAK

Kajian ini bertujuan mengkaji dan mendapatkan kefahaman tentang bagaimana amalan pentaksir pakar dalam mentaksir penulisan pelajar dapat diterjemahkan kepada model minda yang dapat digunakan dalam latihan untuk menolong pentaksir novis memperolehi kemahiran pentaksir pakar dalam mentaksir penulisan pelajar secara berkesan. Kajian ini telah dilaksanakan dalam dua fasa. Dalam fasa pertama, kajian menyumbang kepada badan ilmu dengan mendedahkan perbezaan kognitif diantara pentaksir pakar dengan pentaksir novis semasa dan memberi maklumbalas kepada penulisan pelajar. Transkrip analisis protokol lisan (VPA) dan temubual telah dianalisiskan, menggunakan skema koding, untuk mengenalpasti pengetahuan kerja (knowledge states) dan operator konseptual yang digunakan oleh pentaksir pakar dan pentaksir novis, yang juga adalah justifikasi peribadi mereka terhadap keputusan dan tindakan yang diambil semasa proses 'thinking aloud'. Dapatan dari fasa satu telah membantu pengkaji memahami bagaimana pakar pentaksir dapat dibezakan dari pentaksir amatir dari segi proses kognitif minda. Garis (panduan) membuat keputusan ('lines of reasoning') yang tersirat dalam respon pakar pentaksir kepada penulisan pelajar telah diperolehi dari analisis ini dan diterjemahkan kepada model minda konseptual. Selain dari memahami konstruk yang terkandung dalam model minda, fasa kedua kajian ini menfokuskan kepada kebolegunaan model minda ini dalam latihan untuk merapatkan jurang berbezaan antara pentaksir pakar dengan pentaksir amatir dari segi kemahiran mentaksir dan menilai penulisan. Lima orang peserta daripada dua puluh lima orang peserta kursus telah ditemubual penerokaan awal terhadap keberkesanan model minda dalam latihan untuk membantu pentaksir novis memperolehi kemahiran mentaksir dan menilai seperti seorang pentaksir pakar.

ACKNOWLEDGEMENT

The success of this study is the result of many individuals who have contributed their experience and selfless assistance during the course of my study. First and foremost, praise to the Almighty God for granting me the wisdom, love, inspirations and determination to overcome all obstacles in doing this study. I would like to take this opportunity to thank the participants of this study, especially the expert and novice raters, the students who have contributed their written works, and the novice raters. Without their co-operation and patience, this study would not have been completed.

My special thanks and appreciation goes to Prof. Dr. Moses Samuel, my first supervisor from the Faculty of Education at the University of Malaya. I am honoured to have been his student and enjoy the privilege of sharing his insightful thoughts. His supervisions were always a learning experience. I am still amazed by his “Zen”. His commitment and professionalism guided me through the confusing “maze” of research.

I am also thankful to Assoc. Prof. Dr. Hjh. Jariah Mohd. Jan, my second supervisor from the Faculty of Language and Linguistics, for her generosity in terms of sharing her research knowledge with me right from the proposal stage. She has never failed to render her time to help me whenever I asked for assistance. Her persistence guidance in the writing of my dissertation is indeed very much appreciated.

I also give my profound thanks to my dear colleagues for their kind words of encouragement and assistance during the course of this study. I cherish the services of Chuah Kee Man and Chandra Mohan for proof reading my thesis and providing their

invaluable comments for the betterment of this thesis. I wish to thank my dear friend, Dr. Gan Wee Ling for his advice and encouragement, and also for sharing some thoughts on my proposal and write-up. His constructive criticisms and comments have given me hope to strive forward in the initial stage of the study.

Finally, I am greatly indebted to my beloved wife, Ng Lay Chu, and my daughters, Jasmine Eva and Charmaine Grace, who are pillars of strength and inspiration as I struggled to complete this study. I treasure their support, encouragement and concern for me as I toiled at the crucial stages of my study. I am also thankful to the libraries of UM, USM and UNIMAS. Last but not least, I remain thankful to anyone whom I have unintentionally left out.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
ABSTRAK	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	vi
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF ABBREVIATIONS	xiv
CHAPTER 1: INTRODUCTION	
1.1 Chapter Overview	1
1.2 Background of the Study	1
1.3 Statement of the Problem	5
1.4 Purpose of the Study	8
1.5 Research Objectives	9
1.6 Research Questions	9
1.7 Significance of the Study	10
1.8 Limitations of the Study	11
1.9 Definition of Terms	13
1.10 Chapter Summary	16
CHAPTER 2: REVIEW OF RELATED LITERATURE	
2.1 Chapter Overview	18
2.2 Constructing a Theoretical Framework for the Study	18
2.2.1 Writing Assessment in Second Language Teaching	19
a) Holistic Scoring	21
b) Primary Trait Scoring	26
c) Analytic Scoring	29
d) Revision Analysis	31
e) Error Analysis	32
2.2.2 Overview of Assessment in Second Language Writing	36
2.2.3 Teacher Feedback in Second Language Writing	37
a) Research in Written Feedback	39
b) Types of Teachers' Written Feedback	40
c) Error Correction (EC) as Feedback in Written Work	43
d) Impacts of Teachers' Feedback	45

e)	Teachers' Role in Providing Feedback	48
2.2.4	Overview of Teacher Feedback in Second Language Writing	50
2.2.5	Evaluating Writing	50
2.2.6	Theoretical Framework of the Study	53
2.3	Literature Review Pertaining to the Variables of the Study	55
2.3.1	Cognitive Analysis of Problem-solving in Assessing Writing	55
(a)	Knowledge States	58
(b)	Conceptual Operation	58
(c)	Lines of Reasoning	64
2.4	Literature Review on Methodology	64
2.4.1	Cognitive Task Analysis	65
2.4.2	Cognitive Task Analysis Methods	66
2.4.3	Verbal Protocol Analysis	66
2.4.4	Metacognitive Strategies and Skills	72
2.4.5	Problem-solving	75
2.4.6	The Mental Model	76
2.4.7	Procedures in Analyzing Verbal Protocol Analysis	77
2.5	Chapter Summary	80
CHAPTER 3: METHODOLOGY		
3.1	Chapter Overview	82
3.2	The Research Design	82
3.3	Research Conceptual Framework and Phases of the Study	84
3.4	Sampling Method	86
3.4.1	The Sampling Size	87
3.4.2	Research Participants	88
3.5	Instrumentation	91
3.5.1	Researcher as Research Instrument	91
3.5.2	Verbal Protocol Analysis Instruction and Task	92
3.5.3	Semi-structured Interview Guidelines	94
3.5.4	Validation of Instrument	95
3.6	Pilot Study	96
3.6.1	The Instrument	96
3.6.2	Think-aloud Verbalisation	97
3.7	Procedure of the Study	98

3.7.1	Gaining Access to Study Sites	99
3.7.2	Data Collection Procedures	99
	(a) Verbal Protocol Analysis	99
	(b) Interviews	101
	(c) Field Notes and Observation	103
3.7.3	Ethical Procedures	105
3.7.4	Credibility of the Study	105
3.7.5	The Trialling of the Expert Rater Mental Model	107
	(a) Training Workshop	107
	(b) Contextual Background of Target Group	108
	(c) Aims of the Training Workshop	110
	(d) Implementation Strategies	111
	(e) Feedback on the Workshop	112
3.8	Data Analysis Procedure and Data Interpretation	113
3.8.1	Qualitative Data	113
	(a) Verbal Protocol Analysis Data	113
	(i) Knowledge States	116
	(ii) Conceptual Operation	123
	(iii) Lines of Reasoning	124
	(v) Steps in Processing the Verbal Protocol Analysis Data	124
	(b) Interview Data	128
	(c) Field Notes and Observations	129
3.8.2	Quantitative Data	130
3.8.3	Triangulation	130
3.8.4	Reporting of the Findings	132
3.9	Chapter Summary	133
 CHAPTER 4: FINDINGS AND DISCUSSION		
4.1	Chapter Overview	135
4.2	Research Findings	136
4.2.1	Knowledge States Used by the Expert and Novice Raters in Assessing and Giving Feedback on Students' Writing	136
	(a) Knowledge States Used by Expert Raters	137
	(b) Knowledge States Used by Novice Raters	141

	(c) Comparison of the Knowledge States Used by the Expert and Novice Raters	145
4.2.2	Conceptual Operators Used by the Expert and Novice Raters in Assessing and Giving Feedback on Students' Writing?	145
	(a) Conceptual Operators Used by the Expert Raters	147
	(b) Conceptual Operators Used by the Novice Raters	149
	(c) Comparison of the Conceptual Operators Used by the Expert and Novice Raters	152
4.2.3	Differences in Lines of Reasoning between Expert and Novice Raters in Assessing and Giving Feedback on Students' Writing.	154
	(a) The Expert Raters' Lines of Reasoning	154
	(b) The Novice Raters' Lines of Reasoning	161
	(c) A Comparison between the Expert Raters and Novice Raters' Lines of reasoning	167
4.2.4	The Mental Model: Interpretation of the Expert and Novice Raters' Line of Reasoning	172
4.2.5	Using the Expert Rater Mental Model in a Training Workshop: Novice Raters' Perception	177
	a) Novice Raters' Perception of the Knowledge and Skills Acquired through the Workshops	178
	b) Usefulness of Workshop	180
	c) Novice Raters' Confidence in Applying the Knowledge and Skills Acquired through the Workshops	182
4.3	Discussion on Research Findings	184
4.3.1	Research Question 1: What are the knowledge states used by the expert and novice raters in assessing and giving feedback on students' writing?	185
4.3.2	Research Question 2: What are the conceptual operators used by the expert and novice raters in assessing and giving feedback on students' writing?	186
4.3.3	Research Question 3: How does the expert raters' line of reasoning differ from the one used by novice raters to represent the knowledge states and conceptual operators used in assessing and giving feedback on students' writing?	187

4.3.4	Research Question 4: How can the expert raters' line of reasoning be interpreted in the form of a mental model that can be used to help novice raters in assessing and giving feedback on students' writing?	188
4.3.5	Research Question 5: How can the novice raters approximate the expert raters in assessment behaviour through training based on the mental model of the expert raters?	190
4.4	Chapter Summary	191

CHAPTER 5: CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

5.1	Chapter Overview	193
5.2	Overview of the Study	193
5.3	Summary of the Findings	196
5.3.1	Modelling of the Expert Rater Mental Model	197
5.3.2	Trialling of the Expert Rater Mental Model	199
5.4	Conclusion	200
5.4.1	Making Sense from Researcher's Intuition	200
5.4.2	Lessons Learned by the Researcher	201
	(a) Personal Entrapment	201
	(b) Lessons Learned from the Mapping of the Expert Rater Mental Model	202
	(c) Lessons Learned from the Trialling of the Expert Mental Model	204
	(d) Intervention: From Training to Development	205
	(e) Conducting Better Workshops	208
5.5	Implications of the Study	209
5.5.1	Policy Makers	210
5.5.2	ELT Teachers	210
5.5.3	Teacher Educators	211
5.6	Recommendations for Further Research	212
5.7	Final Thoughts	213

BIBLIOGRAPHY		215
APPENDICES		
Appendix 1	Permission to Conduct Research (MOEM)	233
Appendix 2	Permission to Conduct Research (JPN Sarawak)	234
Appendix 3	Letter to the Schools (in BM)	235
Appendix 4	Participant Consent Form	236
Appendix 5	Principal Consent Form	237
Appendix 6a	Instruction for verbal Protocol Analysis (Pilot Study)	238
Appendix 6b	Instruction for Verbal Protocol Analysis	239
Appendix 7	Interview Guidelines - Questioning Techniques	240
Appendix 8	Guidelines for Semi-Structured Interview on the Workshop	241
Appendix 9	Notes on Transcripts of Verbal Protocols and Interviews Verbatim	242
Appendix 10	Sample of Analysis of Verbal Protocol (Data Coding Stage)	243
Appendix 11	Sample of Analysis of Verbal Protocol (Drawing the Lines of Reasoning)	245
Appendix 12	Sample of Analysis of Verbal Report	247
Appendix 13	Summary of Knowledge States between Novice and Expert Raters	249
Appendix 14	Summary of Conceptual Operators between Novice and Experts Raters	251
Appendix 15	Training Materials	253

LIST OF TABLES

		Page
Table 2.1	Samples of the symbols used in the marking of students' writing	44
Table 2.2	Detailed descriptions of conceptual operations (Hassebrock and Prietula, 1992)	59
Table 2.3	Example transcript fragment and coding (Hassebrock and Prietula, 1992: p. 632)	78
Table 3.1	The pseudonym names of the schools and the data of the informants in phase 1 of the study	88
Table 3.2	The pseudonym names of the schools and the data of the informants in phase 2 of the study	91
Table 3.3	Moderated marks of the sample writings by independent raters	93
Table 3.4	Proficiency level taken from a school report card	93
Table 3.5	Students' proficiency level	94
Table 3.6	Writing knowledge used in assessing writing	117
Table 3.7	Example transcript fragment and coding of a novice rater from the pilot study	125
Table 3.8	Summary of data collection and data analysis procedures	132
Table 4.1	Knowledge states used by the expert and novice raters	138
Table 4.2	Conceptual operators used by the expert and novice raters	146
Table 4.3	Comparison of knowledge states used between expert and novice raters	167
Table 4.4	Comparison of conceptual operation used between expert and novice raters	169
Table 4.5	ER4/VP/Transcript fragment and coding	170
Table 4.6	NR1/VP/Transcript fragment and coding(a)	171
Table 4.7	NR1/VP/Transcript fragment and coding(b)	171
Table 5.1	Overview of the study	196

LIST OF FIGURES

		Page
Figure 2.1	Theoretical framework of the relationship between assessment and evaluation knowledge, and teacher skill in assessing and giving feedback on students' written work	54
Figure 2.2	Basic elements of the coding system for the analysis of medical problem-solving protocols (Hassebrock and Prietula, 1992, p. 622)	57
Figure 3.1	Research work plan	85
Figure 3.2	The coding scheme for assessing writing (adapted from Hassebrock and Prietula, 1992, p. 662)	115
Figure 3.3	Canonical mental model for assessing and giving feedback on students' writing	126
Figure 4.1	Expert rater mental model for assessing and giving feedback on students' writing	175
Figure 4.2	Novice rater mental model for assessing and giving feedback on students' writing	176

LIST OF ABBREVIATIONS

CPs	Course participants
CTA	Cognitive task analysis
EA	Error analysis
ELT	English Language teaching
EPRD	Educational Planning and Research Department
ER	Expert rater
ESL	English as a second language
ETeMS	English in the teaching of mathematics and science
HSC	High School Certificate
LoR	Line of reasoning
L1	First language
L2	Second language
MOEM	Ministry of Education Malaysia
MTDP	Malaysian Trainer Development Programme
NR	Novice rater
SMK	‘Sekolah Menengah Kebangsaan’ or National Secondary School
SPM	‘Sijil Peperiksaan Malaysia’ or Malaysian Certificate of Education
STPM	Sijil Tinggi Pelajaran Malaysia
Tr	Trainer
TL	Teaching and learning
UCLES	University of Cambridge Local Examinations Syndicate
VP	Verbal protocol
VPA	Verbal protocol analysis