High School eLearning: An investigation into the desirable and workable features of an Internet eLearning resource to sustain high school learning communities

by

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High School ELearning

Abbreviated Extract

Title High School ELearning

An investigation into the desirable and workable features of an Internet eLearning resource to sustain

high school learning communities

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Abstract

eLearning is rapidly spreading into the high school learning environment. This research attempts to find desirable and workable features of an eLearning resource that would sustain high school learning communities. The basis of the instrumental case study was the Cambridge International Examination course offered by an eLearning institution over a period of two and a half years. Data was gathered by means of various questionnaires, focus groups, interviews and quantitative analysis of computer log files of activity. Content analysis was performed by comparing research data with information (such as various eLearning models) obtained from the literature review. Similarities and differences were found in the way eLearning is used by high school learners and teachers versus university students and lecturers. Desirable and workable features were identified and the reasons for these explored. A number of suggestions are made that would contribute to sustaining eLearning for high school learners.

Keywords

ELearning, online learning, web learning, virtual school, high school, K-12, MOODLE, open source, Learner management system, content management system, eLearning, web learning, Internet, Internet learning



Abbreviated Table of Contents

1.	CHAPTER PROBLEM.	1 INTRODUCTION, BACKGROUND AND RESEAR	
	1.1.	Introduction	34
	1.2.	Background	35
	1.3.	Problem identification	38
	1.4.	Purpose and objectives of study	38
	1.5.	Relevance of and need for the research	39
	1.6.	Research question	42
	1.7.	Research context	49
	1.8.	Rationale and background for the study	49
	1.9.	Uniqueness of the study	5 1
	1.10.	Purpose statement	52
	1.11.	The scope of the study	53
	1.12.	Related research	54
	1.13.	Research approach	56
	1.14.	Research design	57
	1.15.	Value of the research and beneficiaries	62
	1.16.	Overview of the research report	63
2.	CHAPTER	2 LITERATURE REVIEW	75
	2.1.	Structure and principles of this literature review	75
	2.2.	The eLearning landscape and models	83
	2.3. resource	Theme 1 – Pedagogical theories that inform an eLearning 148	ing

	2.4.	Theme 2 – A learning community 191
	2.5.	Theme 3 - Communicative, collaborative and social issues. 220
	2.6.	Theme 4 - Issues of technology and the interface 275
3.	CHAPTE	R 3 RESEARCH DESIGN AND METHODOLOGY 308
	3.1.	Introduction
	3.2.	Research problem and motivation for the study 309
	3.3.	Research questions309
	3.4.	Research paradigm 311
	3.5.	Research approach 313
	3.6.	Research strategy317
	3.7.	Research design 319
	3.8.	Research methodology and data collection 323
	3.9.	Implementation of the case study342
	3.10.	What does the eLearning environment look like 345
	3.11.	Limitations and delimitations of the study 347
	3.12. trustwor	Issues of validity, reliability, procedures of authenticity and thiness
	3.13.	Summary350
4.	CHAPTE 353	R 4 ANALYZING THE CASE, EVIDENCE AND DISCUSSIONS
		Answering sub-question 1 : To what extent do certain ical theories and eLearning theories inform a high school g resource?
		Answering sub-question 2 : Why do certain community in an eLearning resource contribute to creating and high school learning?
		Answering sub-question 3 : In what way and why do communication, collaboration and social elements influence a collebearning resource?

		Answering sub-question 4 : How and why do certain ogical aspects and instructional design issues affect a high eLearning resource?410
5 .	CHAPT	ER 5 CONCLUSION AND RECOMMENDATIONS 425
	5.1.	Introduction425
	5.2.	Summary425
	5.3.	The answers to the subsidiary questions 427
	5.4.	Discussion435
	5.5.	Recommendations:463
	5.6.	Conclusion470
6.	REFER	ENCES472
7	ΔΡΡΕΝΙ	DICES 503



Table of Contents

1.	CHAPTER PROBLEM.	1 INTRODUCTION, BACKGROUND AND RESEARCH34
	1.1.	Introduction
	1.2.	Background351.2.1.eLearning has seen a remarkable growth351.2.2.Setting of this study37
	1.3.	Problem identification
	1.4.	Purpose and objectives of study
	1.5.	Relevance of and need for the research 39
	1.6.	Research question
	1.7.	Research context
	1.8.	Rationale and background for the study
	1.9.	Uniqueness of the study51
	1.10.	Purpose statement
	1.11.	The scope of the study



Theoretical framework		1.12.	Related	research The research context in South Africa	
The research approach		1.13.	Researc	h approach	56
1.14. Research design				The research approach	56
1.14. Research design					
1.14.1. Type of study				Sampling	5/
1.14.2. The subject and participants of the study		1.14.			
Why I chose his case study					
1.14.3. Research methodology 59			1.14.2.		
1.14.3. Research methodology 59 1.14.3.1. Research method 59 1.14.3.2. Data collection methods 59 1.14.3.3. Matrix of research questions and methods - The Intellectual Puzzle 60 1.14.4. The researcher and his position in the study 60 1.15. Value of the research and beneficiaries 62 1.16. Overview of the research report 63 2. CHAPTER 2 LITERATURE REVIEW 75 2.1. Structure and principles of this literature review 75 2.1.1. Introduction 75 2.1.2. Grand structure of the literature review 75 2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 Funnel approach 78 Reference approach 78 Reflections and significant implications 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school 80 eLearning - 80 Desirable features - 80 Workable features - 81 an eLearning resource 81 suelearning communities - 81 2.2. The eLearning landscape and models 83 2.2.1.1. Literature on eLearning definitions 83 Literature on high school eLearning is scarce 84 Literature on high school eLearning is scarce 83 Literature on high school eLearning is scarce 84 Literature on high school eLearning is scarce 84				Why I chose this case study	58 50
1.14.3.1. Research method			1 14 3	0 1	
1.14.3.2. Data collection methods					
1.14.3.3. Matrix of research questions and methods – The Intellectual Puzzle 60 1.14.4. The researcher and his position in the study 60 1.15. Value of the research and beneficiaries 62 1.16. Overview of the research report 63 2. CHAPTER 2 LITERATURE REVIEW 75 2.1. Structure and principles of this literature review 75 2.1.1. Introduction 75 2.1.2. Grand structure of the literature review 75 2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 Funnel approach 78 Reference approach 78 Reflections and significant implications 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school 80 Learning - 80 Workable features 81 Sustain 81 2.2.1. What is eLearning 45 Literature on high school elearning is scarce 84			_		
Puzzle					
1.15. Value of the research and beneficiaries 62 1.16. Overview of the research report 63 2. CHAPTER 2 LITERATURE REVIEW 75 2.1. Structure and principles of this literature review 75 2.1.1. Introduction 75 2.1.2. Grand structure of the literature review 75 2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 7 Furnel approach 78 Reference approach 78 Reference approach 78 Reference approach 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school 80 etearning 80 Workable 61 Bustain 81 Sustain 81 Sustain 81 Sustain 81 Sustain 81 Sustain 83 Sustain 83 Sustain <				•	noncotaar
1.16. Overview of the research report 63 2. CHAPTER 2 LITERATURE REVIEW 75 2.1. Structure and principles of this literature review 75 2.1.1. Introduction 75 2.1.2. Grand structure of the literature review 75 2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 Funnel approach 78 Reference approach 78 Reflections and significant implications 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school 80 eLearning 80 Workable features 80 Workable features 81 Sustain 81 Sustain 81 Sustain 81 Sustain 81 Sustain 83 2.2.1 What is eLearning 83 2.2.1.1 Literature on eLearning definitions 83			1.14.4.	The researcher and his position in the study	60
2.1. Structure and principles of this literature review		1.15.	Value of	the research and beneficiaries	62
2.1. Structure and principles of this literature review		1.16.	Overviev	v of the research report	63
2.1.1. Introduction 75 2.1.2. Grand structure of the literature review 75 2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 Funnel approach 78 Reference approach 78 Reflections and significant implications 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school - 80 eLearning - 80 Workable features - 81 an eLearning resource - 81 Sustain - 81 eLearning communities - 81 2.2.1. What is eLearning 83 2.2.1. Literature on eLearning definitions 83 Literature on high school eLearning is scarce 83 eLearning is a new science 84	2.	СНАРТЕ	ER 2 LITEF	RATURE REVIEW	75
2.1.1. Introduction		2.1	Structur	o and principles of this literature review	75
2.1.2. Grand structure of the literature review		2.1.	2 1 1		
2.1.3. The literature review process 76 2.1.4. Principles adhered to during the literature review process 77 Funnel approach					
2.1.4. Principles adhered to during the literature review process 77 Funnel approach					
process 77 Funnel approach 78 Reference approach 78 Reflections and significant implications 79 The method I used to conduct the literature review 79 2.1.5. Theoretical construct of the title 80 High school - 80 eLearning - 80 Desirable features - 80 Workable features - 81 an eLearning resource - 81 Sustain - 81 eLearning communities - 81 2.2.1. What is eLearning 83 2.2.1.1. Literature on eLearning definitions 83 Literature on high school eLearning is scarce 83 eLearning is a new science 84					
Funnel approach				·	ieview
Reflections and significant implications			p	Funnel approach	78
The method I used to conduct the literature review					
2.1.5. Theoretical construct of the title. 80 High school					
High school			215		
ELearning			2.1.5.		
Desirable features -					
an eLearning resource					
Sustain					
2.2. The eLearning landscape and models. 83 2.2.1. What is eLearning. 83 2.2.1.1. Literature on eLearning definitions 83 Literature on high school eLearning is scarce 83 eLearning is a new science 84				•	81
2.2.The eLearning landscape and models.832.2.1.What is eLearning.832.2.1.1.Literature on eLearning definitions.83Literature on high school eLearning is scarce.83eLearning is a new science.84					0.1
2.2.1.What is eLearning.832.2.1.1.Literature on eLearning definitions83Literature on high school eLearning is scarce.83eLearning is a new science.84				eLearning communities	
2.2.1.1. Literature on eLearning definitions		2.2	The eller		81
Literature on high school eLearning is scarce		2.2.		arning landscape and models	81 83
eLearning is a new science		2.2.	2.2.1.	arning landscape and models What is eLearning	81 83
		2.2.	2.2.1.	what is eLearning. Literature on eLearning definitions	83 83 83
the relative hereing of the term of earling minimum minimum of		2.2.	2.2.1.	what is eLearning. Literature on eLearning definitions. Literature on high school eLearning is scarce.	83 83 83



	Essential differences between distance learning, eLearning and open-
	learning
	General definitions and opinions
	Perhaps the most widely used definition of distance education that is also
	relevant to eLearning, is that of Keegan
	In spite of the comprehensiveness of Keegan's definition, we find a more
	appropriate, flexible, useful and current definition in that of Ally90
2.2.1.2.	Implications and value of an investigation into how definitions of
eLearning h	ave a bearing on this research
3	The definitions that I adduced above ranged from simple statements to
	complex reflections
	On the basis of the critical examination of the literature that I investigated, I
	venture the following definition of high school eLearning
2.2.2.	General issues in eLearning 92
2.2.2.1.	Literature about different issues in eLearning
2.2.2.1.	eLearning trends in Europe by Le Roux (Le Roux, 2003)
	1. The effect of technological limitations on the infrastructure
	2. Financial constraints
	3. Human resources 93
	4. Learner-student acceptance 93
	5. Lecturer acceptance 93
	The nature of the new networked society and the kind of new skills that are
	required by the workplace and eLearning
	Why eLearning ventures and strategies fail
	Issues that determine success or failure in the eLearning market
	The importance of online learning
	Boud's four questions for determining quality in eLearning
	Barriers to distance education: the perceptions of educators
2222	Barriers to distance education: the perceptions of educators
2.2.2.2.	Implications and value of general issues in eLearning for this
2.2.2.2. research.	Implications and value of general issues in eLearning for this 101
	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications
research.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study
research.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. 101 Historical phases and trends in distance education
research. 2.2.3. leading to	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. 101 Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education Learning. 104
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. 101 Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education Learning. 104
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. 101 Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present the emergence of "technopoly" 104 Moving from the industrial to (post)modern era – a warning against extreme
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. The relationship between human beings and technology until the present – the emergence of "technopoly". Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003)
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109
research. 2.2.3. leading to 2.2.3.1.	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109 The third phase in models of eLearning (according to Engelbrecht 2003) is
research. 2.2.3. leading to 2.2.3.1. leading to e	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109 The third phase in models of eLearning (according to Engelbrecht 2003) is concerned with learning communities. 110
research. 2.2.3. leading to 2.2.3.1. leading to e	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109 The third phase in models of eLearning (according to Engelbrecht 2003) is concerned with learning communities. 110 Implications and value of Iterature on historical phases and
research. 2.2.3. leading to 2.2.3.1. leading to e	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. Literature on historical phases and trends in distance education Learning. 104 Literature on historical phases and trends in distance education Learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109 The third phase in models of eLearning (according to Engelbrecht 2003) is concerned with learning communities. 110 Implications and value of Iterature on historical phases and stance education that led to eLearning for this research. 111
research. 2.2.3. leading to 2.2.3.1. leading to e	Implications and value of general issues in eLearning for this 101 The issues that I extracted from the literature have the following implications for this study. Historical phases and trends in distance education eLearning. 104 Literature on historical phases and trends in distance education learning. 104 The relationship between human beings and technology until the present – the emergence of "technopoly". 104 Moving from the industrial to (post)modern era – a warning against extreme positions. 105 Present day technology – five levels of web use in education. 105 Engelbrecht (Engelbrecht, 2003) conceptualises the evolution of eLearning in three distinct phases. 107 The first phase in models of eLearning (according to Engelbrecht 2003) was concernd with content, service to the customer (user), and content and technology. 108 The second phase in models of eLearning (according to Engelbrecht 2003) concerned instructional design models. 109 The third phase in models of eLearning (according to Engelbrecht 2003) is concerned with learning communities. 110 Implications and value of Iterature on historical phases and

		In this section I will investigate models that attempt to understand the most characteristic features of eLearning
		The constant emergence of new eLearning models
		Theories and models that need to be investigated
	2.2.4.2.	Demand-driven Learning Model explained
	2.2.4.3.	The ELearning P3 model (People-Process-Product)
	2.2.4.4.	The Online Course Design Maturity Model (Maturity Model) 121
	2.2.4.4. 2.2.4.5.	The community of inquiry model developed by Garrison and
	2.2.4.5.	Anderson
	2.2.4.6.	Palloff and Pratt's – community-central model
	2.2.4.0. 2.2.4.7.	
		Anderson's Model of eLearning – learner, teacher, content 127
	2.2.4.8.	Merrill's First Principles of Instruction
	2.2.4.9.	Van Merriënboer's 4C/ID four component model for complex
		learning
		Van Merriënboer (Van Merrienboer, 2004) proposes an instructional design model for complex learning
		Two pedagogical models that are consistent with van Merriënboer's 4c/ID are
		Case-Based Teaching and Project-Centred Learning
	2.2.4.10.	Models on information behaviour - Wilson, Ingwersen and
		others
	2.2.4.11.	Cognitive theory of Multimedia learning
		Sweller (Sweller, 1988) was the first researcher to propose a cognitive load
		theory
		Mayer (Mayer, 2001a) continued to undertake research in this area 144
	2.2.4.12.	The value and implications of the literature on eLearning models
		for this research
		101 tilis 1030d1011
2.3.	Theme 1	 Pedagogical theories that inform an eLearning
2.3.	resource	- Pedagogical theories that inform an eLearning
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning 148
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning 148 eLearning is rooted in Distance Education. 149
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning 148
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	- Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning eLearning is rooted in Distance Education. 149 Since more and more private businesses are entering the eLearning domain, they might be tempted to bypass considerations of design and create "instant" eLearning environments without properly grounding them in sound pedagogical principles. 150 Instructional theory acknowledges the importance of sound pedagogical
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
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2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning
2.3.	resource 2.3.1.	Pedagogical theories that inform an eLearning 148 Literature that describes how eLearning is grounded ogical thinking and learning theory. 148 Theories that describe how people learn are still vitally important in eLearning

	These "opposites" are two different constructs, with different outcomes 154 The following assumptions of cognitive learning are adapted from Merrill (1991), an exponent of radical constructivism
	How can educationists reconcile the application of constructivism, behaviourism and cognitivism for learners in schools
	It was Bruckman's experience (Bruckman, 2003) that she had to use
	traditional external motivation to scaffold constructionist courses
2.3.2.	Behaviourism
2.0.2.	Behaviourist learning theory asserts that learning outcomes are demonstrated
	by observable measurable behaviour
	The eLearning Guild (E-learning_Guild, 2004) describes behaviorism as a
	learning theory
2.3.3.	Cognitive learning theories – Hexa C + Meta Model.
	159
2.3.4.	Hexa C Meta Model - Cognitive learning 160
	As a result of the major weaknesses of behaviorism,
	Paradigm shift from teacher focus to medium of instruction
	De Villiers (De Villiers, 2002) positions constructivism and pragmatic instructionism (which evolved from cognitive learning) within the cognitive
	family as two opposing polarities
	In the following items, I discuss what the literature says about cognitive
	learning and eLearning as it manifests in practice
	Graff (Graff, 2003) found that cognitive style and segmentation had an effect
	on learning
	Children demonstrate meta cognition in an online project
	Open-ended assignments leads to higher-order thinking
	Reflecting on performance by means of weblogs helps students and teachers
	to see the links between theory and practice
	Weblogs and discussions are pedagogically significant because they break
	down the walls that surround the classroom
005	Superficial eLearning in the form of rote memorization
2.3.5.	Hexa C Meta Model – Control Content (Component
Display)	167
2.3.6.	Hexa C Meta Model – Constructivism
	Constructivism orginates from Bruner's theoretical framework for instruction.
	Development of cognitive structures
	Constructing one's own reality
	Learning is an active process
	Intrinsic motivation, cognitive readiness, and the social negotiation of
	meaning
	De Villiers (De Villiers, 2002) condensed the general features and
	characteristics of constructivism as follows:
	constructivist learning in the literature
	Jonassen's (Jonassen, 1999) approach in his Constructivist Learning
	Environments emphasizes the necessity of progression in the solving of
	problems
	Some students resist constructivist approaches and prefer traditional
	approaches
	Some learners prefer face-to-face conflort zones father than offiline courses.
	The brightest and most independent students benefit from constructivist
	approaches
	фргосолоз

	When constructivist courses are difficult to implement, they should be augmented with guided construction.	17/
	Online courses require more creative imagination and skill than	1/4
	conventional instruction.	175
	Dick and Carey (Dick, 1996) argue that "boring instruction" is the product	of
	approaches that are inherent limited in scope and flexibility	175
	The computer can act as an "over-the-shoulder" guide to learners	
	Online learning must be anchored, contextualised and useful in practice.	176
	Psychological motivation includes attention, relevance, confidence and	17/
0.0.7	satisfaction.	
2.3.7.	Hexa C Meta Model – Creativity and motivation	
	Motivation and creativity are strongly related	1// n
	stealth education with games (interesting learning environments based of stealth educational principles) increase the effectiveness and power of the	e
	learning experience.	
	Experiences of success and positive emotions increase motivation	178
2.3.8.	Hexa C Meta Model – Customization	178
	Flexible learning and customization	
2.3.9.	Hexa C Meta Model - Collaboration and coopera	tive
	learning	
	Difference between collaborative and cooperative learning	179
	Key elements in cooperative and collaborative learning	
	Nelson's (Nelson, 1999) theory of collaborative problem solving	
	The following paragraphs present what the literature says about the prac	
	application of collaborative learning	
	learners explain and justify their points of view	
	When children learn together in network of science clubs, they learn muc	
	more than science.	
	Children succeed in the social dimension of learning online	
	Students in online learning environment write four times more than others	
		100
0.0.40	do not have access to an online cooperative learning project	
2.3.10.	An add-on to the Hexa C Meta Model	_
2.3.10.	An add-on to the Hexa C Meta Model Companionship	– 184
2.3.10.	An add-on to the Hexa C Meta Model Companionship	– 184 s or
2.3.10.	An add-on to the Hexa C Meta Model Companionship	– 184 S or 184
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he face.	- 184 s or 184 inds
2.3.10.	An add-on to the Hexa C Meta Model Companionship	- 184 s or 184 inds 184
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible.	- 184 s or 184 inds 184 185
2.3.10.	An add-on to the Hexa C Meta Model Companionship. I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor.	- 184 s or 184 inds 184 185 It the 185
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor	- 184 s or 184 inds 185 185 it the 185
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed.	- 184 s or 184 inds 185 tt the 185 in 185
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend	- 184 s or 184 inds 185 it the 185 in 185 ed to
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more.	- 184 s or 184 inds 185 it the 185 in 185 ed to 185
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that learning the literature in general is very clear about importance of the role of a facilitator or a moderator. The facilitator's/moderator's role.	184 s or 184 inds 185 it the 185 o in 185 ed to 185 186 arning
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and face-	184 s or 184 inds 185 it the 185 o in 185 ed to 185 186 irning to-
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he find the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and face-face contact.	-184 s or 184 inds 185 t the 185 ed to 185 186 rrning to 186
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and face-face contact. The most advanced stage of skill development is found in Aristotle's notice.	- 184 6 or 184 inds 185 t the 185 t in 185 186 186 186 186 on of
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he find the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and faceface contact. The most advanced stage of skill development is found in Aristotle's notic practical wisdom.	-184 6 or 184 inds 184 185 t the 185 ed to 185 186 rrning to 186 on of 187
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and face-face contact. The most advanced stage of skill development is found in Aristotle's notice.	- 184 s or 184 inds 185 t the 185 t in 185 ed to 185 186 on of 187 stage
2.3.10.	An add-on to the Hexa C Meta Model Companionship I add "companionship" as a significant possible contributor to the success failure of learners involved in online high school learning. Harris (Harris, 1995) bases his ideas of companionship on principles he fin the Bible. A companion is more than a facilitator or a moderator. Closely related to this concept, the literature in general is very clear about importance of the role of a facilitator, moderator or mentor. In the paragraphs that follow, the practical applications of companionship the literature are discussed. Students who were preparing for SATS and who appointed mentors tend view more and study more. The facilitator's/moderator's role. Dreyfus (Dreyfus, 2001), in Le Grange(Le Grange, 2004), argues that lead is a profoundly social process that requires expenditure of time and face-face contact. The most advanced stage of skill development is found in Aristotle's notic practical wisdom. Embodied presence is essential if skill development is to go beyond the stage of the stage	- 184 6 or 184 inds 185 t the 185 t in 185 ed to 185 ed to 186 on of 187 stage 188

2.4.	Theme	2 – A learning community 191
		What is a learning community?
	2.4.1.	Definitions of an eLearning community
		The difference between a community of learning and a community of practice
		What is a social community –one in which communication takes place? 191
		Analyzing the word "community"
		Some definitions of a learning community
		The origins of the virtual or online community can be traced to the Electronic
		Information Exchange System (EIES) implemented in 1976
		According to Baten (Baten, 2004), a learning community in general might best be described by what it "looks like" in practice
		A learning community comes into being when a curriculum is deliberately
		restructured to link relevant coursework in a particular way
		Penn State's College of Education
		Cascadia Community College (Cascadia, 2004) describes a learning
		community as a variety of learning strategies designed around a common
		theme or question
	2.4.2.	Characteristics of an eLearning community 194
		One cannot produce a workable and desirable eLearning resource merely by
		moving education and learning online
		Learning communities are communities in which participants help and support
		one another in their learning
		indispensable components of the online experience
		Learning communities are communities in which there is a subtle shift away
		from individual performance towards a community knowledge that is jointly
		constructed
		Learning communities are communities in which the most valuable advantage
		is the generation and sharing of ideas that are of value to the whole
		community rather than to single individuals
		Learning communities are communities where teaching and learning are
		interchangeable; everyone is always involved in both;
		learning community and a learning community is indispensable to online
		learning
		Learning communities are communities in which there is a common sense of
		purpose
		Learning communities are communities in which independent research is
		important
		Improving online support by creating learning communities at Unisa 198
		Learning communities are communities in which entrenched patterns of thought are challenged with a view to constructing a more viable kind of
		understanding
		Shared activities lead to shared understanding
	2.4.3.	Taxonomy of an eLearning community
	2.4.4.	The role of online instructors in a learning
	2.4.4.	community
		Cavanaugh's meta-analysis accords a critical role to online teachers in high
		school eLearning
		Andersons three critical roles of an online teacher 202
		Facilitating discourse is a key task of the facilitator
		The successful facilitation of discourse requires hard work
		Teachers feel that their hard work goes unnoticed
		The implications of the different roles for the online facilitator – an online
		facilitator should not lecture online

		Practical suggestions for facilitators
		An eLearning teacher should first establish trust by making optimal use of
		introductory comments
		The lack of contact and feedback from teachers becomes a precursor of
		failure
	2.4.5.	User and personality issues in a learning community. 209
	2.4.5.1.	Gender differences in a learning community
		Gender differences are already detectable in the type of games built by boys
		and girls in a controlled learning project
		Gender differences were found in how different genders search the web 210
		Males are abstract, logic and rule driven, and females are concrete, bottom-
		up thinkers
	2.4.5.2.	Multiple intelligences, learning styles, mind styles, thinking styles
	and perso	nality types in a learning community211
	•	Seven multiple intelligences – Gardner
		Mind Styles (cognitive styles)
		David Kolb's (Kolb, 1983) Learning Style Model
		Sternberg's 1988-1997 theory of thinking styles
		The Myers-Briggs Type Indicator (Myers, 2004), which is based on the work
		of Carl Jung, identifies sixteen different personality style. These styles are
		based on: 214
		A number of studies reported positive effects when they took these perceptual
		modalities into account
		Some studies, however, reported that approaches to learning styles makes no
		difference
	2.4.5.3.	Motivational issues in a learning community
		If children are allowed to create their own environment, they will become
		motivated
		Attention and motivation should be benchmarks in the creation of intrinsically
		interesting learning environments for children
	2.4.6.	Implication of literature on learning communities in
	this rese	earch
2.5.		3 - Communicative, collaborative and social issues.
	220	
	2.5.1.	The tools of online communication 220
	2.5.2.	Face to face versus online learning
		Hong Kong school learners prefer fae-to-face learning to online learning 222
		Learners who expressed a preference for group work in discussions said that
		they would like to engage in group work again
		Solving problems through online discussions is more rewarding than face-to-
		face discussions and fower massages are generated
		face discussions and fewer messages are generated
	2.5.3.	The nature of online discussions
	2.5.3.	
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions
	2.5.3.	The nature of online discussions

	Personalization effect – better learning with conversational style	
	The difference between debate and dialogue – dialogue being the preferre	
	mode in online discussions	
	Text-based discussion has its own specific dialect which is colloquial	
	The communication setting and the type of task has an influence on result	
	Students prefer summarised feedback from online facilitators: expectations	
	and value by students. Students want summaries.	226
	New creative ideas (such as audio emails) are needed to entice students t	
	participate	
	New "voice" for teachers and learners in an online environment	
2.5.4.	What worked in online communication according	to
	the literature	227
	Eleven strategies to promote online discussions	
	Only the course calendar, posted lecture notes and guizzes improved course	
	involvement	
	Delport (Delport, 2003) found that if lecturers interact frequently with	
	discussions, email, contact, etc., learners perceive the learning environme	ent
	to be varied and challenging.	
	Benefits of discussion forums with threaded discussions	229
	Increased social presence leads to more communication, and privacy bring	
	comfort online.	
	Setting goals for a conversation and using supportive and probing comme	
	add to the success of discussions.	
	Good teacher communication designs lead to more frequent use of tools	
	Abbott's factors that make e-communication projects work	230
	A successful online instructor should be a "reflective colleague"	230
	Adapting asynchronous communication to meet the seven principles of	
	effective teaching	230
	A lively conversational group helps to create a community through	
	relationships and interactions.	
	Students who prefer a face-to-face class also to have an online componer	
		231
	Discussions have a positive outcome in final examinations in research by	
	Althaus	231
	After participating online, an improvement in the quality of comments is	
	experienced	
2.5.5.	What did NOT work in online communicat	ion
	according to the literature	232
	Research on asynchronous and synchronous communication is lacking	
	Learners did not develop a significant degree of discussion.	
	Competition does not promote cooperation	
	Users in chat rooms do not want to be recorded.	
	Female learners requested more information but did not like to explain iss	
	in online discussions.	
	Worrying aspects of online discussions in reality	233
	Learners spend most of their time in forums socialising and not on tasks	
	Discussions centred on sharing and comparing information rather than on	
	constructing knowledge.	
	Students do not automatically take to discussions (positive and negative	
	aspects of online discussions)	234
	Simply making discussion forum available is not enough to motivate usage	Э.
		234
	When students are forcced to participate in discussion forum, unnecessar	
	communications are generated.	
	Learners misuse guest lecturers for their own interests.	
	Computer communications undermine the enjoyment of good stories	



		collaborative pr				
		discussion – the				
2.5.6.	Lurking					237
	The top five re	asons for lurkin	g			237
	Discussion for	ums allowed stu	udents to	ask questions	they would no	t normally
	Wenger (Weng	ger, 2004) talks	about b	ig lurking group	os and small co	re groups
		involving large				
2.5.7.	General	findings	in	literature	about	online
2.0.7.		ation				
		ation between o				
		e and discussion wers inhibitions				
		communications ss online discus				
		vity due to onlin				
		d for sophisticat				
		ferencing is mo				
		rs dominated so				
		bilityand asyncr				
		gagement seem				
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		ows an increase				
		JMS				
		finding that the				
		s or increase pe				
2.5.8.		ns to ent				
2.5.0.						
		and the soul of the state of				
		s should includ				
		are drawn to co				
		or more product				
		fluence success				
		ssaging may ov				
		discussions				
		discussions are				
		ng				
	Feedback play	rs a critical role	in the di	alogue betwee	n online tutors	and
	learners – diffe	erent perspectiv	es on fe	edhack	ir orimio tators	243
		uild a learning o				
		chronous tools				
	A strategy to p	rompt students	in discu	ssions – summ	narise a few po	stings and
	ask a question					244
2.5.9.		- blogs and				
2.0.0.). Because they				
		ng them				
		d either in priva				
		cal significance				
		cal significance				
		around the cla				
		are used with re				
		ised to expose				
		creators of kno				
		s the standard				
	00 0					



2.5.10.	Instant messaging250
2.5.11.	Journals251
2.5.12.	Collaborative issues
2.5.12.1.	The nature of collaboration in literature
	Successful collaboration is more than just group interaction
	Collaboration energises learners
	Because of the lack of non-verbal cues, specific attention must be given to
	expressions in online environments
2.5.12.2.	
	Reaching understanding collaboratively in an online forum led to much deeper
	understanding
	essential
	It is important for collaboration tohave a real purpose
2.5.12.3.	What did NOT work in collaboration according to the literature
2.0.12.0.	255
	Merely listening is not considered sufficient in the online environment 255
2.5.12.4.	General findings in terms of collaboration in the literature 256
2.0.12.1.	Children learn together in a network of science clubs
2.5.12.5.	Suggestions about collaboration in the literature
2.01.12.01	Discussion is always a vital feature in defining an online learning community.
	Project-based learning activities with feedback are essential
	Feedback must be timeous and promote higher order learning
	The recommended class size is no more than 20 to 30. Small and big groups
	are both necessary
	Internet
	Recording why a student exits from a communication session
	If collaboration is not accompanied by clear guided assistance, the time taken
	to collaborate may discourage activity
	Serim (Serim, 1996) feels that the Internet will help more student's to have
	their work published
0.5.40	Learning is situated, embedded in activity, context and culture
2.5.13.	Social issues
	Learning may best be achieved through social construction
	Online learning means more than "pressing keys". It also means social and
	cognitive engagement
	Students expect active and challenging media
	Fisher is of the opinion that online courses should always commence with a
	face-to-face contact session
	Czerniewicz (Czerniewicz, 2001) argues (as many others do) that, wherever
	possible, online courses should include a face-to-face component
	A network course with no face-to-face contact may leave participants feeling isolated
	Online learning in isolation by means of a resource whose design makes no
	allowance for social interaction may engender student dissatisfaction and
	unhappiness
	If one wants to act correctly towards other people, one first has to get to know
	them
	Appropriately descriptive personal profiles of participants in a course are a
	significant aid to socialisation and communication in a course
	occur on the basis of information that was not available in the personal
	profiles of participants
	The state of the s

		challenge.	264
		Personal absences from online discussions should be visible to other	204
		participants.	265
		Online social identities and online presences need attention to be succ	essful.
	2.5.14.	Social and community elements	
		Set roles ensure proper functioning	
	0 = 4 =	Mind-body separation (as a result of new technology) may be problema	
	2.5.15.	Games, fun and learning	
		Children are nearly always eager to interact with media when they have personalised and when they are intuitive and enjoyable to work with	
		Combining eLearning with entertaining activities	
		Children obviously prefer games to schoolwork	
		Games are played for social reasons.	268
	2.5.16.	Implications and value of literature	on
		communicative, collaborative and social issue	
		this research.	
		Communication issues	
		Collaborative issues	
		Social issues	272
2.6.		4 - Issues of technology and the interface	
	2.6.1.		
	2.6.2.	Setting up an eLearning resource - Choosin	_
	eLearnin	ng interface – objectives	
	2.6.2.1.	and the state of t	
		Open source platforms and the choice of MOODLE	
	2.6.2.2.	J	
	2.6.3.	eLearning applications – an overview of features	
	capabilit	ies	
		Synchronous and asynchronous communication in eLearning resource	s 277
		Types of online activities in an eLearning resource – as described by	070
		Heydenrych (Heydenrych, 2001)	278
		Important characteristics of eLearning resources summarised in the Edutools.info Project	282
		Communication tools should aid "awareness".	
		Interface design for digital courses – principles	
		Tabbers (Tabbers, 2004) suggests principles for designing digital cours	ses.284
		Richard Mayer's work on cognitive load and multimedia learning	285
		Mayer's ten research-based principles for the design of multimedia	207
		instructional messages.	
	2.6.4.	Basic principles of instruction – Merrill's "First principles" Student experiences and evaluations of eLear	
	2.0.4.	289	ming.
		What surveys reveal about student experiences	200
		Hara and Kling (Hara, 2000) also quote some positive comment, which	
		not be ignored. They include:	
		Pincas (Pincas, 1998) offers some reasons for the unfortunate	
		In evaluating WebCT, students found the following:	291
	2.6.5.	Costs and cost-effectiveness of eLearning	
		Eight propositions to lower the cost of eLearning	
		Cost-effectiveness under the spotlight	
		The cost of one online course is \$100 000	293

		2.6.6.						eLearning
		resource	impleme	ntations				294
								gnificantly 294
								at most calls do
								294
								294
								295
								296
				ig multimedia,				
								n an eLearning
								296
				trategies that s				
								297
				quired is open-				
			Critical thin	King	orning on dro	nn ont		298 298
								of senses that
								299
								299
								301
								et a number of
								ne 301
				nay sometimes				
			nothing mo	ore				302
				rning response				
								302
				azenby, 2002				302
								302
		2.6.7.						about the
								305
		technolog	jicai con	iponenta c	JI IIIIS IES	saicii		303
3.	CHAPTER	3 RESEAF	RCH DE	SIGN ANI	METHO	DOLOG	Y	308
	3.1.	Introduct	tion					308
	3.2.	Research	n proble	m and mo	otivation	for the s	tudy	309
		Danasas						200
	3.3.	Research	1 questi	ons			•••••	309
	2.4	Danasask						244
	3.4.	Research						311
								adigm 312
			11115 16564	ICH IANS IIIO U	le interpretivis	ı quauranı		313
	3.5.	Posparch	annros	ach				313
	3.3.	Researci						314
			THE HUILD	or quantative	study			
	3.6.	Research	n strated	IV				317
								319
					, , , , , , , , , , , , , , , , , , , ,	· J		
	3.7.	Research	n design	١				319

	3.7.1.	A summary of the research design for this st	
	•	below	
	3.7.2.	Research design - the case study of this res 321	
	3.7.2.1.	The case study group and background	
	3.7.2.2.	The eLearning program used	322
	3.7.2.3.	The process	
	3.7.2.4.	The samples	
3.8.		methodology and data collection	
	3.8.1.	Research method.	
	3.8.2.	Data collection methods	
	3.8.3.	Matrix of research questions and methods	- The
	Intellectua	ıl Puzzle	325
	3.8.4.	Observation	327
	3.8.5.	Electronic messages	329
		Advantages and distadvantages of textual documentation	
	3.8.6.	Literature review	
	3.8.7.	Questionnaires.	331
		Questionnaire design	334
		Questionnaire 1 – personality type indicator – students	335
		Questionnaire 2 – students	
		Questionnaire 3 – subject advisers	
	3.8.8.	Sampling procedure with questionnaires	
	3.8.9.	Analysys of questionnaires	
	3.8.10.	Computer generated log files and database co	ontent.
	3.8.10.1.	The webserver logs	337
	3.8.10.2.	The eLearning resource log files.	
		Acquiring the online data from the eLearning database	
	3.8.11.	Interviews.	
	3.8.11.1.	Focus groups	340
		3 - 1	
0.0		station of the case study	0.40
3.9.	Implemer 3.9.1.	ntation of the case study Setting up the system - Choosing an eLe	
3.9.	3.9.1.	Setting up the system - Choosing an eLe	arning
3.9.	3.9.1.	Setting up the system - Choosing an eLe - objectives.	arning 342
3.9.	3.9.1.	Setting up the system - Choosing an eLe	arning 342
3.9.	3.9.1.	Setting up the system - Choosing an eLe - objectives. Platform used	arning 342 342 arched 343
3.9.	3.9.1.	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i	arning 342 342 earched 343 nside
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject.	arning 342 342 arched 343 nside 343
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used	arning 342 342 arched 343 nside 343
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used	arning 342 342 arched 343 nside 343 ftware
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used	arning 342 342 arched 343 nside 343 ftware
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject. Implementation the basic hardware and so 344 Webserver. Webserver hardware (2004,2005)	arning 342 342 arched 343 nside 343 ftware 344 344
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject. Implementation the basic hardware and so 344 Webserver Webserver hardware (2004,2005). Webhosting.	arning 342 342 arched 343 nside 343 ftware 344 344
3.9.	3.9.1. interface -	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject. Implementation the basic hardware and so 344 Webserver Webserver hardware (2004,2005) Webhosting. Setting up the system - course materials.	arning 342 342 earched 343 nside 343 ftware 344 344 344
3.9.	3.9.1. interface – 3.9.2. systems. 3.9.3.	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject. Implementation the basic hardware and so 344 Webserver Webserver hardware (2004,2005). Webhosting. Setting up the system - course materials. Available materials ported to the eLearning interface.	arning 342 342 .arched 343 nside 343 ftware 344 344 344
3.9.	3.9.1. interface – 3.9.2. systems. 3.9.3. 3.9.4.	Setting up the system - Choosing an eLe - objectives. Platform used. Aims and purpose of implementing the eLearning platform in the rese organisation. Pedagogical and educational aims of the system were taken care of i each subject. Implementation the basic hardware and so 344 Webserver Webserver hardware (2004,2005) Webhosting. Setting up the system - course materials.	arning 342 342 343 nside 343 ftware 344 344 344 users,

	Training session with studentsFace-to-face meetings	
3.9.5.	Accessing course content	345
3.10. What do	oes the eLearning environment look like	345
3.11. Limitati	ions and delimitations of the study	347
trustworthiness	of validity, reliability, procedures of auth	349
3.13. Summa	nry	350
CHAPTER 4 ANAL 353	YZING THE CASE, EVIDENCE AND DI	SCUSSIONS
333	Introduction	
	Structure of Chapter 4	353
4.1.2.1. science ir 4.1.2.2. in the eLe 4.1.2.3. Display T 4.1.2.4. in the eLe 4.1.2.5. motivatior 4.1.2.6.	The views of learners and subject advisers about rning resource	about cognitive
4.1.2.7.	374	companionship.
4.1.2.7. 4.2. Answer elements in an sustaining high scl	374 ring sub-question 2 : Why do certain eLearning resource contribute to contribute t	companionship. community reating and
4.1.2.7. 4.2. Answer elements in an sustaining high scl 4.2.1.	374 ring sub-question 2 : Why do certain eLearning resource contribute to c	companionship. community reating and 379 s of learners
4.1.2.7. 4.2. Answer elements in an sustaining high scl 4.2.1.	ring sub-question 2 : Why do certain eLearning resource contribute to composite to the contribute of an analysis of the opinions arious aspects of community in the eLearn	companionship. community reating and



		Personality profile of learners
		A member-check form was designed for this personality profile
	4.2.3.	Patterns of online activity by the learners 385
	4.2.4.	Patterns of online activity of the subject advisers. 387
	4.2.5.	Ratio of subject advisers to learners390
		The average class size is calculated here as 57 learners in 2004 and 62
		learners in 2005
4.3.	Answerir	ng sub-question 3: In what way and why do
certain con	nmunicati	on, collaboration and social elements influence a
		ng resource?394
	4.3.1.	Did the learners adequately exploit the opportunities
	for comm	unication inherent in the eLearning resource? 394
	4.3.2.	Reachability and preferences of learners in terms of
		cation?
	4.3.2.1.	How do learners prefer to be contacted?
	_	·
	4.3.2.2.	I I
	4.3.2.3.	J
	4.3.3.	How did the learners use the chat facility of the
	_	g resource?
	4.3.3.1.	Chat data is mostly of social nature
		Learners were frustrated when they went online but there was no one
		there
		talking
	4.3.3.2.	Analysis of CHAT data in terms of gender, totals and averages.
	7.0.0.2.	401
	4.3.4.	How did the learners use the discussion forums
		the eLearning resource?
	lacility of	Learners felt that the feedback from subject advisers and on forums
		should be faster
		Private emails and discussions 405
	4.3.5.	Learners that were active or were isolated? 405
	4.3.6.	Learners that "lurked" (i.e. were learners who never
		r posted replies in forums)?
	oriation of	In 2004 42% of learners neither chatted nor posted any reply
		A large percentage of learners lurked
		Than go porcontage of loan or a tantour
4.4.	Answerir	ng sub-question 4: How and why do certain
technologic		ts and instructional design issues affect a high
		source?410
3011001 020	4.4.1.	Computer skills and attitudes of learners and subject
		•
	advisers	410 Both subject advisers and learners reported very high levels of computer skills
		(90% and 98%)
		Connectivity, cost and speed
		The learners felt that it was important for course material to be provided
		on CD and not just on the Internet
		Video clips and videos of face-to-face workshops were important to the
		learners



	4.4.2.	What was found in the implementation of the ba	1510
	hardware	e and software systems4	114
		Webserver hardware and software.	414
		Web speed comparison between international and local internet services.	
	4.4.3.	Setting up the system - course materials4	116
		Available materials ported to the eLearning interface	416
		Uploading to the eLearning resource – useful information extracted The figures for March 2004 showed the peak caused by the uploading of	
		course material in that month.	417
		How the denial of service (DoS) attack created abnormal bandwidth	11-
		usage and disruption Creating the user interface in the courses	
		Customized course creation	
		Development costs of the course material.	
		My estimate is that, in real terms, the minimum development cost in South Africa would be around R20 000 or (US\$3 000) per course	
	4.4.4.	Setting up the system - Users and Facilitators 4	
		Enrolment prerequisite for learners: the necessity to have both Internacess and email.	net
		Number of users on the system	
		The personal data captured in learners' personal profiles are made up of a	
		number of entries. These included	422
		The number of learners who added a picture of themselves (customisation).	400
CHAPTE	R 5 CONCL	USION AND RECOMMENDATIONS4	125
CHAPTE 5.1.		USION AND RECOMMENDATIONS 4	
5.1.	Introduc		125
5.1. 5.2.	Introduc Summar	y4	125 125
.1. .2.	Introduc Summar The ans	ry4 wers to the subsidiary questions4	125 125 127
5.1. 5.2.	Summar The ansi 5.3.1.	wers to the subsidiary questions	125 125 127
.1. .2.	Summar The ans 5.3.1. eLearnin	wers to the subsidiary questions	125 127 127 and ce?
5.1. 5.2.	Summar The ans 5.3.1. eLearnin 5.3.2.	wers to the subsidiary questions	125 127 and ce?
5.1. 5.2.	Summar The ans 5.3.1. eLearnin 5.3.2. resource	wers to the subsidiary questions	125 125 127 and ce?
5.1. 5.2.	Introduction Summar The ansi 5.3.1. eLearnin 5.3.2. resource learning?	wers to the subsidiary questions	125 127 and oce?
5.1. 5.2.	Introduction Summar The ansi 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3.	wers to the subsidiary questions	125 127 127 and ce? ing
5.1. 5.2.	Summar The ansi 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3. collabora	wers to the subsidiary questions	125 127 127 and ce? ing
5.1. 5.2.	Introduction Summar The ansi 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3. collabora eLearnin	wers to the subsidiary questions	125 125 127 and oce? iing ioo
5.1. 5.2.	Introductors Summar The ansi 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3. collabora eLearnin 5.3.4.	wers to the subsidiary questions	125 127 127 and ce? iing oo on oo 132 ica
5.1. 5.2.	Introductors Summar The ansisted 5.3.1. eLearnin 5.3.2. resource learning 5.3.3. collabora eLearnin 5.3.4. aspects	wers to the subsidiary questions	125 125 127 and ce? iing ioo
5.1. 5.2. 5.3.	Introduction Summar The ansisted 5.3.1. eLearnin 5.3.2. resource learning 5.3.3. collabora eLearnin 5.3.4. aspects eLearnin	wers to the subsidiary questions	125 127 127 and ce? iing ioo 132 ica
5.1. 5.2. 5.3.	Introductors Summar The ansisted 5.3.1. eLearnin 5.3.2. resource learnings 5.3.3. collabora eLearnin 5.3.4. aspects eLearnin Discuss	wers to the subsidiary questions	125 127 127 127 127 127 132 132 133 135
5.1. 5.2. 5.3.	Introduct Summar The ans: 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3. collabora eLearnin 5.3.4. aspects eLearnin Discuss 5.4.1.	wers to the subsidiary questions	125 127 and ce? iing ioo 132 ica ioo 133 135
	Introductors Summar The ansisted 5.3.1. eLearnin 5.3.2. resource learnings 5.3.3. collabora eLearnin 5.3.4. aspects eLearnin Discuss	wers to the subsidiary questions	125 127 and ce? ion 132 ion 133 135 135 136
5.1. 5.2. 5.3.	Introduct Summar The ans: 5.3.1. eLearnin 5.3.2. resource learning? 5.3.3. collabora eLearnin 5.3.4. aspects eLearnin Discuss 5.4.1.	wers to the subsidiary questions	125 127 and ce? ion 132 ion 133 135 135 136 438

		Creativity – motivation
		Customization
		Community aspects
		Communication
		Learners did not utilise the communication potential of the elearning
		to the full.
		The substance of learner communications
		Active and isolated learners and the phenomenon of lurking
		Modes of communication and preferences Technological considerations
		The intellectual puzzle for this study together with findings, links to
		implications
	5.4.3.	Scientific reflection
		Recapitulation: the highlights and main findings of the research
5.5.	Recom	mendations:
	5.5.1.	For policy & practice
		Strategic
		Tactical
		Operational (functional)
	5.5.2.	Recommendations for further research
		Fundamental research
		Applied research Recommendations for further development v
-		
	Conclu	
	Conclu	
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools.
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchronocommunication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchronc communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware File transfers Simulations E-mail Newsgroups Discussion forums Biographical and general information Personality indicator questions Overall satisfaction questions Subsidiary question 1 – Pedagogical – Cognitive Subsidiary question 1 – Pedagogical – Customization Subsidiary question 1 – Pedagogical – Customization Subsidiary question 1 – Pedagogical – Challenge – Creativity and
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware File transfers. Simulations. E-mail. Newsgroups. Discussion forums Biographical and general information. Personality indicator questions. Overall satisfaction questions. Subsidiary question 1 – Pedagogical – Cognitive. Subsidiary question 1 – Pedagogical – Customization. Subsidiary question 1 – Pedagogical – Challenge – Creativity and
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware File transfers. Simulations. E-mail. Newsgroups. Discussion forums Biographical and general information. Personality indicator questions. Overall satisfaction questions. Subsidiary question 1 – Pedagogical – Cognitive. Subsidiary question 1 – Pedagogical – Customization. Subsidiary question 1 – Pedagogical – Challenge – Creativity and Subsidiary question 1 – Pedagogical – Collaborative. Subsidiary question 1 – Pedagogical – Collaborative. Subsidiary question 1 – Pedagogical – Companionship.
REFERI	Conclu	Heydenrych (Heydenrych, 2001) outlines the following synchrono communication tools. Asynchronous tools described by Heydenrych (Heydenrych, 20 Groupware

Instrument 2 – Student Questionnnaire 2 : Educational	597
nherent trustworthiness check on questionnaire 2	597
The relationship between Subject Advisor questionnaire questions an	
research questions	676
Subject Advisor questionnaire results in general	681
Pedagogical section – Cognitive science (questions :subject advisors :	
10, 33, 34, 35, 36, 37, 38, 39, 40, 41 Students 24,40,41)	681
Pedagogical section – Constructivist (subject advisors questions 46, 47	¹ , 48,
49, 50, student questions: 44, 45, 46, 47, 67)	682
Pedagogical section – Component display (questions : subject advisors	s : 60,
61, 62, 63, 65, 69, students: 52, 53)	683
Pedagogical section – Customization (questions: subject advisors: 51	, 52,
53, 54, 55, 56, 57, 58, 59, students: 48, 49, 50, 51)	683
Pedagogical section – creativity, motivation and challenge (question : s	ubject
advisors: 20, 21, 42, 43, 44, 45, students: 30, 42, 43, 66)	684
Pedagogical section: Collaboration (questions: subject advisors: 64, 6	65, 66,
67, 68, students: 54, 55, 56, 57, 58, 59, 60, 61)	685
Pedagogical section – companionship (questions : subject advisors : 14	4, 15,
62, 70, 73, 74, and students: 25, 26, 27, 28, 62, 63, 64, 65, 70, 83)	686
Pedagogical section: Community aspect and Communicational aspect	687
Pedagogical section: Technological aspects (subject advisors question	าร : 1,
2 12 14 22 24 25 26 27 students 19 31 32 34)	687

Table 1 : Research context and subsidiary questions43
Table 2 : Related Research Search Results Summary Grid55
Table 3 : Data collection instruments60
Table 4: Hammon & Jones: Five levels of web use in education106
Table 5 : Questions to determine level of web usage107
Table 6 : Elements in the meta-study by Cavanaugh (Cavanaugh, 2004a) - linked to eLearning models in this research
Table 7 : Neuhauser's Online Course Design Maturity Model with pathway grid and process areas
Table 8 : How this research correlates with Wilson's intervening variables (Wilson, 2000)
Table 9: Elements in Ingwersen at al.'s Cognitive Model of Human Information Behaviour compared to elements covered in this research . 143
Table 10 : Pedagogical polarities or dimensions as set out by Reeves and Hammon (1996)
Table 11 : Common elements from the literature that describe a learning community201
Table 12: Computer-supported communication and collasboration tools located according to public-private and synchronous-asynchronous dimensions
Table 13 : Comparison of class size and teacher-student ratios – Korea (KNOU)and this study258
Table 14 : Top 15 important characteristics in 45 eLearning resources 283
Table 15 : Awareness elements listed by Gerosa and availability of the same type of service in the eLearning resource of this research284
Table 16 : The intellectual puzzle applicable to this study in terms of the schema set out by Mason (2002)
Table 17: Research paradigm312
Table 18 : Characteristics of qualitative research316
Table 19 : Special features of a case study319
Table 20 : Research design for this study320

	collection instruments	343
Table 22 : Sumi	marized Intellectual Puzzle for this research / The Research	
Table 23: Typo	ology of participant observation researcher roles	328
Table 24 : Writte	en (typed) text used in this research	329
Table 25 : Dis	sadvantages of using textual documentation and its measures in this study	_
Table 26 : Types	s of questionnaires	331
Table 27 : Disac	dvantages of questionnaires and measures to compensat disadvantages (Creswell, 1998, McNamara, 2004a)	
Table 28 : Quest	tionnaire data summary	334
Table 29 : Exam	ple of statistics on the webserver	338
Table 30 : Exam	ple of the eLearning program logfiles	339
Table 31 : An ex	cample of data extracted from the eLearning database, with	n SQL340
Table 32 : Focu	us group interviews for this research - a graphical depic researcher	•
Table 33 : Overv	view of online resource capabilities	347
Table 34 : Learn	ner performance 2000 to 2005	361
Table 35 : Data	table of academic results of Cambridge students in th	is research
		is research
Table 36 : Overa	2000-2005	is research 361 362
Table 36 : Overa	2000-2005all pass percentage of the group 2000 to 2005	is research 361 362 2004384
Table 36 : Overa Table 37 : Perso Table 38 : Memb	2000-2005all pass percentage of the group 2000 to 2005	is research 361 362 385 385
Table 36 : Overa Table 37 : Perso Table 38 : Memb Table 39 : Patter	2000-2005	is research 361 362 2004384 385 ng interface 385
Table 36 : Overa Table 37 : Perso Table 38 : Memb Table 39 : Patter Table 40 : Chat a	2000-2005	is research 361 362 385 385 385 385 386
Table 36 : Overa Table 37 : Perso Table 38 : Memb Table 39 : Patter Table 40 : Chat a	2000-2005	is research 361 362 385 385 386 388
Table 36 : Overa Table 37 : Perso Table 38 : Memb Table 39 : Patter Table 40 : Chat a Table 41 : Patter	2000-2005	is research 361 362 385 385 386 388 388



Table 45 : Comparison of online activity times : students vs subject advisers	390
Table 46 : Calculating average class size	. 391
Table 47 : Preferred contact methods of students 2004 2005	. 395
Table 48: Contact preferences of older and younger students (2004 and 200	5)396
Table 49 : Success rate in sending SMS messages to students 2004	. 397
Table 50 : Cell phone number stability	. 398
Table 51 : Email delivery success rate in 2004	. 399
Table 52 : Example of chat room data analysed	. 400
Table 53 : Gender differences in chat summary (2004 and 2005): females total and averages	
Table 54: Example of discussions in a discussion forum	. 403
Table 55 : Chat, forum posts and forum replies: summaries for 2004 and 200	5403
Table 56: Posts by learners in discussion forums of academic nature 2005	. 404
Table 57: The categorisation of learners in this research as active contri isolated learners according to Leionen's categories	
Table 58: Learners who were "lurkers" (i.e. those who never chatted or replies in forums)	
Table 59 : Hardware upgrade path for the computer equipment of the eresource server	_
Table 60 : The table shows the various updates performed on the software the eLearning resource in this study	
Table 61: Internet speed comparison - international vs local web hosting	. 416
Table 62: Usage summary for brainonline.com for the year 2004	. 417
Table 63 : Customized course creation: manual course setup versus prog course setup time and costs	
Table 64 : Calculation course development costs	. 421
Table 65: Analysis of learners supplying representations of themselves	. 423
Table 66 : The intellectual puzzle for this study together with findings, links and implications	
Table 67: Summary of Research findings	. 461



Literature review NEGATIVE pointers

Literature	review	NEGATIVE pointer 1: Constraints such as technological infrastructure, finances, human resource, learner acceptance as well as lecturer acceptance may restrict growth in eLearning (2.2.2.1)
Literature	review	NEGATIVE pointer 2: eLearning ventures fail because CONTENT is not engaging, not well orgaised and of inferior quality. Although online experiences need to be striking, interactive and effective, they are frequently not so96
Literature	review	NEGATIVE pointer 3: eLearning environments, driven by quick profit taking but without proper grounding in pedagogical principles, may create short-term solutions but sacrifice long-term benefits. 150
Literature	review	NEGATIVE pointer 4: Behaviourism's major weakness is that because it ignores mental activities, it is unable to explain or facilitate every kind of learning. (2.3.2)
Literature	review	NEGATIVE pointer 5: S tudents may resist a constructivist approach in favour of being "spoon-fed" in a more conventional lecturing situation. Some students do not like to be disturbed in their face-to-face "comfort-zones". (2.3.6)
Literature	review	NEGATIVE pointer 6: Bright and independent learners seem to benefit more from constructivist approaches online. (2.3.6) 174
Literature	review	NEGATIVE pointer 7: Constructivist online courses are difficult to implement online because of time contrants in building relationships. (2.3.6)
Literature	review	NEGATIVE pointer 8: Designing online courses may require more imagination and skill than traditional courses. (2.3.6)
Literature	review	NEGATIVE pointer 9 : The online facilitator should NOT lecture online. (2.4.4 Learning community – instructor)
Literature	review	NEGATIVE pointer 10 : Lack of interaction and feedback are common problems in eLearning resources
Literature	review	NEGATIVE pointer 11: Mayer (Mayer, 2005) who has been active in research for two decades in educational psychology, concludes that learning styles research has not yet produced any noteworthy results. Like Mayer, I also found no definite direction in the results



Literature review	NEGATIVE pointer 12: Too many new topics could unintentionally shift the attention away from important topics in online discussions. (2.5.2 Communication)
Literature review	NEGATIVE pointer 13 : Competition does NOT benefit inter-group cooperation. (2.5.5 Communication)
Literature review	NEGATIVE pointer 14: Learners spent more time socializing in discussion forums than on focusing on the tasks at hand. (2.5.5 Communication)
Literature review	NEGATIVE pointer 15: Online interaction centered around information rather than constructing knowledge. (2.5.5 Communication)
Literature review	NEGATIVE pointer 16: Simply making a discussion forum available does not motivate students to use it properly. (2.5.5 Communication)
Literature review	NEGATIVE pointer 17: The top five reasons for lurking (being present but never responsive) are: there is no need to respond, students are unacquainted with the group, help is available without posting, software problems, an acvtive dislike of the group. (2.5.6 Communication-lurking)
Literature review	NEGATIVE pointer 18: If collaboration serves no real purpose, learners will end up learning in isolation. (2.5.12.2 Collaboration)255
Literature review	NEGATIVE pointer 19: A network course with no face-to-face contact may leave participants feeling isolated. (2.5.13 Social)262
Literature review	NEGATIVE pointer 20: Children prefer computer games to school work. Their preferred choice of media is entertainment. (2.5.15 Games)



Research findings

Research findir	ng 1 : The overall academic performance was favourable 360
Research find	ing 2: Cognitive science theory elements are supported by the eLearning resource
Research findir	ng 3: Constructivist learning theory elements play a crucial role in the eLearning resource
Research finding	ng 4: The learners expressed themselves as being quite certain that the eLearning system was workable and desirable in terms of Component Display Theory elements
Research findi	ng 5: While customization was regarded as important, the eLearning resource only permitted a limited amount of customization. 369
Research finding	ng 6: The eLearning resource made allowance for personal creativity and provided an environment that challenged learners to develop and nurture their own motivation. This effect of the resource suited those learners who were more independent and mature than the average
Research findi	ng 7: While learners appreciated the value of collaboration, they preferred to work alone rather than together372
Research finding	ng 8: Companionship (i.e. other human beings) is the most important element in the eLearning resource
Research findir	ng 9: Learners experienced an increased sense of community between the first year and the second year
Research findir	ng 10: The learners have strong individualistic inclinations 380
Research findir	ng 11: Peer pressure does not play a role in the lives of these learners. 380
Research findir	ng 12: Learners do not prefer group work 380
Research findir	ng 13: Learners do not like competition380
Research findi	ng 14: The learning community creates a feeling of safety, care and openness
Research findir	ng 15: This type of community makes it possible for learners to have a wider range of friends
Research findi	ng 16: Face-to-face meetings enhance a sense of community and serve to bind the community together
Research findi	ng 17: The personality types are more or less balanced, with no particular trait dominating. The "Thinking" (71%) and "Perceiving"



	(68%) traits are the only ones indicated by around two thirds of the learners
Research finding	18: The pattern of study activity among learners was similar to patterns found in a "normal" school in 2004 (the first year of implementation), but changed in 2005 to a pattern of more activity in the afternoons and evenings
Research finding	19: Subject advisers worked mostly in the mornings in the first year of implementation (2004) but then changed to working mostly in the evenings in the second year (2005)
Research finding	20: The online activity of learners and subject advisers follows an asynchronous pattern, with the learners either being active in the mornings or afternoons, while subject advisers are most active in the evenings
Research finding	21: The average class size was 57 and 62 learners per class in 2004 and 2005 respectively
Research finding	22: The ratio of learners per subject adviser was 223 to 1 390
	23: Less than half the learners said that they adequately exploited the possibilities for communication inherent in the eLearning resource
	24: Learners mainly preferred to be contacted by means of email for purposes of learning. Fewer preferred to be contacted by means of a conventional (landline) telephone, and an increasing number preferred to be contacted on their mobile telephones.395
Research finding	25: While 83% of learners had a cell phone, only 56% could be reached by means of an SMS despite the fact that approximately 80% agreed that their numbers had not changed
Research finding	26: Almost all emails (92-94%) were successfully mailed. But this high delivery rate does not mean that they were read 398
Research finding	27: Learners used chat rooms mostly to socialize399
	28: Female learners chatted to a far greater extent than did their male counterparts (approximately 50% more). Averages: Female chat volume was 73% in 2004 and 63% in 2005 – as opposed to male chat volume which was 27% in 2004 and 37% in 2005.401
Research finding	29: Analysis showed that only about one third of the discussions were about academic-related matters (1008 out of 2741 = 37% in 2005)

Research T		participation is about equal (50%-50%) — dissimilar to chat activity where female learners contributed most of the traffic volume.404
Research fi		31: On average, learners contributed 174 chat posts per year, around 14 forum posts per year, and approximately 9 forum replies per year
Research fir	_	32: Approximately half of the learners were active contributors and half were isolated learners406
Research fi		33: The percentage of learners who "lurked" was about 40% initially, but this percentage decreased in the two-year period (42% in 2004 became 32% in 2005)
Research fi		34: Both learners and subject advisers were highly computer- literate and displayed positive attitudes towards both the medium itself and the eLearning resource
Research fir		35: Because constant updating is necessary, it is necessary to have the kind of reliable technical expertise that will enable one to upgrade continuously
Research fi	_	36: Web servers inside the local country usually provide better speeds
Research fir		37: The average size of a file of course material was 72 kilobytes. It took 5,5 hours to upload 1.1 gigabytes of data in 16 000 lessons in South Africa in 2005
Research fi	_	38: Hack attacks and viruses can waste large amounts of bandwidth and increase running costs
Research fir		39: Automated course creation of 74 courses saved approximately 1300 hours of human labour and around US\$11 000 in South Africa in 2005. The automation used US\$500 versus manual creation of US\$11 000
Research fir		40: Course development costs in the researched institution were significantly cheaper than international costs – US\$3 000 in South Africa as opposed to US\$88 000 in the United States 420
Research fir		41: It is necessary to set certain minimum hardware requirements for those who enrol
Research fir		42: Only about one third of the learners added a photograph or a symbolic image (icon) of themselves to their profiles