

***The implications of computer-integrated
Theme Days for learners at St Alban's College***

a dissertation by

Marlene Viljoen

submitted in partial fulfilment of the requirements for the degree

Magister Educationis

with specialisation in

Computer-Assisted Education

in the Department of Teaching and Training Studies
of the Faculty of Education

University of Pretoria

Supervisor: Prof Dr JC Cronjé

July 2003

This dissertation is dedicated to my children

Charlé and Elani Viljoen

Brief Table of Contents

1. Introduction	1
2. Literature survey	23
3. Research methodology	48
4. Findings	61
5. Conclusions and recommendations	106
Detailed table of contents	i
List of Figures	viii
List of Tables	ix
List of Appendices	x
List of Abbreviations	xi
Abstract	xii
Acknowledgements	xiv
Definition of Terms	xv
Bibliography	115
Appendices	122

Detailed Table of Contents

Brief Table of Contents	i
Detailed table of contents	ii
List of Figures	viii
List of Tables	ix
List of Appendices	x
List of Abbreviations	xi
Abstract	xii
Acknowledgements	xiv
Definition of Terms	xvi

Chapter 1: Introduction

1.1	INTRODUCTION	1
1.2	BACKGROUND TO THIS STUDY	2
1.2.1	St Alban's College: local background	2
1.2.2	National Education background	4
1.2.3	International background	5
1.3	RESEARCH PROBLEM	6
1.4	AIM OF THE RESEARCH	7
1.5	OBJECTIVES OF THE RESEARCH	8
1.6	RESEARCH QUESTION	10
1.7	PREVIOUS RESEARCH	11
1.8	VALUE OF RESEARCH	12
1.9	RESEARCH METHODOLOGY	13
1.9.1	The systems approach	13
1.9.2	Research design	15
1.9.3	Data collection methods	15
1.9.3.1	<i>Observations</i>	16
1.9.3.2	<i>Interview(s)</i>	16
1.9.4	Use of the first person	18
1.10	OUTLINE OF THE DISSERTATION	19

1.11	DEMARCATION, INCLUSIONS AND EXCLUSIONS FROM THIS STUDY	20
1.12	LIMITATIONS OF THIS STUDY	21
1.13	SUMMARY	22

Chapter 2: Literature survey

2.1	INTRODUCTION	23
2.2	LEARNING COMMUNITY	23
2.2.1	Learner characteristics of the Net Generation	24
2.2.2	New-generation and the media	25
2.2.3	Learner characteristics of the <i>digital child</i>	26
2.2.4	The impact of the computer on the learner in a digital environment	27
2.2.5	New-generation educators	30
2.2.5.1	<i>From educator centred to learner-centred education</i>	31
2.2.5.2	<i>From the educator as transmitter to the educator as facilitator</i>	31
2.3	PEDAGOGY	32
2.3.1	New-generation learning	33
2.3.2	What is cooperative learning?	33
2.3.3	Cooperative learning: a historical perspective	34
2.3.4	Defining cooperative learning	34
2.3.5	Essential elements/components of cooperative learning	35
2.3.5.1	<i>Positive interdependence</i>	36
2.3.5.2	<i>Face-to-face promotive interaction</i>	36
2.3.5.3	<i>Individual accountability and personal responsibility</i>	36
2.3.5.4	<i>Interpersonal and small-group skills</i>	37
2.3.5.5	<i>Group processing</i>	38
2.3.6	Cooperative learning groups	38
2.3.7	Size of the groups	39
2.3.8	Cross-curriculum	39
2.4	TECHNOLOGY	40
2.4.1	The digital divide	41
2.4.2	Technology today	42
2.4.2.1	<i>The school's local area network (LAN)</i>	42

2.4.2.2	<i>The Intranet</i>	44
2.4.2.3	<i>The Internet</i>	45
2.4.2.4	<i>The bandwidth</i>	46
2.4.3	The history of the StaTech centre at St Alban's College	46
2.5	SUMMARY	47

Chapter 3: Research methodology

3.1	INTRODUCTION	48
3.2	THE INTRODUCTION OF THEME DAYS AT ST ALBAN'S COLLEGE	48
3.2.1	The Connect Learning Community (CLC) committee	49
3.2.1.1	<i>The original CLC</i>	50
3.2.1.2	<i>The difference between the original and the St Alban's CLC committee</i>	50
3.2.1.3	<i>The form CLC committee</i>	51
3.2.2	The structure of a Theme Day	52
3.2.3	Previous Theme Day topics	52
3.2.4	The method of presentation	53
3.3	RESEARCH METHODOLOGY	53
3.3.1	Qualitative research approach	53
3.3.2	Data collection instruments	54
3.3.3	The systems approach	57
3.3.4	Ethical considerations	58
3.3.5	Validity and reducing researcher biases of data	59
3.3.6	Target population	59
3.4	SUMMARY	60

Chapter 4: Findings

4.1	INTRODUCTION	61
	PART ONE: DISCUSSION	62
4.2	THE ST ALBAN'S COLLEGE CONTEXT	62
4.2.1	Vision, mission and context of St Alban's College	62
4.2.2	The learners of St Alban's College	64
4.2.3	The educators of St Alban's College	64
4.2.4	Pedagogical aspects	65
4.2.5	Technology at St Alban's College	65
4.2.6	St Alban's College: outreach projects	66
4.3	INPUT	66
4.3.1	The planning of a Theme Day	67
4.3.2	The Connected Learning Community (CLC) committee	69
4.3.2.1	<i>The role of the CLC committee team</i>	69
4.3.2.2	<i>CLC form committee inputs for Theme Days</i>	69
4.3.2.3	<i>Requirements for learners to become a member of the CLC form committee</i>	70
4.3.3	Pedagogical inputs	71
4.3.3.1	<i>Assessment criteria</i>	71
4.3.3.2	<i>Assigning learners into groups</i>	72
4.3.3.3	<i>The design and arrangement of a classroom</i>	72
4.3.4	Technological inputs	73
4.3.5	Programme for the Theme Day	74
4.4	PROCESS	75
4.4.1	To do on the Theme Day	75
4.4.2	The learners of St Alban's	76
4.4.2.1	<i>Group behaviour and discipline</i>	76
4.4.2.2	<i>Establishing the Head Quarters (HQ)</i>	77
4.4.3	What is the educator doing?	78
4.4.3.1	<i>The educator's role on a Theme Day</i>	78
4.4.3.2	<i>Resistance towards change</i>	78
4.4.4	Pedagogical aspects	79

4.4.4.1	<i>Assessment of Theme Day tasks</i>	79
4.4.4.2	<i>Learners and group work</i>	80
4.4.5	How is technology used during the Theme Day?	82
4.5	OUTCOME(S)	84
4.5.1	The day after the Theme Day	84
4.5.2	The learners of St Alban's College	85
4.5.3	The outcome(s) and the educator	86
4.5.4	Pedagogy	86
4.5.4.1	<i>Cross-curricular activities</i>	86
4.5.5	The role of technology	87
4.6	FEEDBACK	88
4.6.1	The loop was completed: Feedback	88
4.6.2	The learners and pedagogical aspects	88
4.6.3	Failures at Theme Days – isolated incidents	89
4.6.4	Technological aspects	89
4.6.5	Long-term feedback	89
	PART TWO: RESEARCH RESULTS	90
4.7	ANSWERS TO THE RESEARCH QUESTIONS	90
4.7.1	What is the institutional and contextual influence of computer-integrated Theme Days?	91
4.7.1.1	<i>The learning community aspects</i>	91
4.7.1.2	<i>Pedagogical aspects</i>	93
4.7.1.3	<i>Technological aspects</i>	93
4.7.2	What inputs are required from the educators, the CLC committee and learners?	94
4.7.2.1	<i>The learning community aspects</i>	94
4.7.2.2	<i>Pedagogical aspects</i>	95
4.7.2.3	<i>Technological aspects</i>	95
4.7.3	What processes occur during computer-integrated Theme Days?	96
4.7.3.1	<i>The learning community aspects</i>	96
4.7.3.2	<i>Pedagogical aspects</i>	97
4.7.3.3	<i>Technological aspects</i>	98

4.74	What outcome(s) do educators, the CLC committee and learners achieve?	98
4.7.4.1	<i>The learning community aspects</i>	99
4.7.4.2	<i>Pedagogical aspects</i>	100
4.7.4.3	<i>Technological aspects</i>	100
4.7.5	How is the feedback/loop completed to ensure sustainability?	101
4.7.5.1	<i>The learning community aspects</i>	101
4.7.5.2	<i>Pedagogical aspects</i>	102
4.7.5.3	<i>Technological aspects</i>	103
4.8	SUMMARY OF THE THEME DAY RESULTS	103

Chapter 5: Conclusions and recommendations

5.1	INTRODUCTION	106
5.2	SUMMARY	106
5.2.1	Findings supporting the literature survey	106
5.2.2	Findings that differ from the literature	108
5.3	RECOMMENDATIONS	110
5.3.1	Recommendations for the implementation of computer-integrated Theme Days	110
5.3.2	Recommendations for future research	112
5.3.3	Research limitations of this study	113
5.4	A FINAL WORD ON COMPUTER-INTEGRATED THEME DAYS	114
	Bibliography	115

List of Figures

Figure 1.1	Diagram of the systems approach to determining the implications of Theme Days	7
Figure 1.2	The St Alban's College Learning Community	8
Figure 1.3	Overview of the study	9
Figure 1.4	Outline of the dissertation	19
Figure 2.1	Baby Boom Echo becomes the <i>Net Generation</i>	25
Figure 2.2	The essential components of cooperative learning	35
Figure 2.3	A local area network (LAN) for a computer centre	43
Figure 2.4	A intranet and firewall of a computer centre	45
Figure 3.1	The St Alban's CLC committee	51
Figure 4.1	Images of St Alban's College logo and McRobert boarding house	63
Figure 4.2	Images of the entrance to StaTech complex and the participants at workstations in StaTech 4	66
Figure 4.3	The planning of a Theme Day	68
Figure 4.4	Images of the Earthly Aliens and the <i>Insects Theme Day</i> home pages	70
Figure 4.5	Layout of a cooperative computer centre	73
Figure 4.6	The planning of the actual Theme Day	75
Figure 4.7	The role of the learner during Theme Days	76
Figure 4.8	Images of the CLC committee in the Head Quarters	78
Figure 4.9	Images of presentations and assessment at the end of a Theme Day	80
Figure 4.10	Images of group work during computer-integrated Theme Days	82
Figure 4.11	The Internet as a collection of computer networks	83
Figure 4.12	The day after the Theme Day	84
Figure 4.13	Aspects contributing to the answers in the sub-research questions	91

List of Tables

Table 1.1	Traditional method versus the Theme Day method of instruction	3
Table 1.2	Theme Days observed during the period May 2001 to October 2002	11
Table 1.3	Related research topics	11
Table 1.4	Data collection methods/Matrix of research questions and methods	18
Table 1.5	Outline of dissertation	20
Table 2.1	Generation category	24
Table 2.2	Characteristics of the <i>digital child</i>	26
Table 2.3	Communication skills, social problems, ergonomic risks and computer anxiety in a digital environment	28
Table 2.4	Possible solutions to communication skills, social problems, ergonomics risks and computer anxiety in a digital environment	30
Table 3.1	Theme Day structure	52
Table 3.2	Data collection instruments at a Theme Day	57
Table 3.3	Research aspects under discussion in Chapter 4	58
Table 4.1	Programme for the day: <i>Early Aliens Theme Day</i> of 31 May 2001	74
Table 4.2	Tasks of the <i>Earthly Aliens Theme Day</i>	79
Table 5.1	Recommendations for the implementation of a computer-integrated Theme Days	111

List of Appendices

Appendix 1	Letter to the Headmaster of St Alban's College	122
Appendix 2	Example of an email sent to St Alban's College	124
Appendix 3	Theme Day Checklist	125

List of Abbreviations

CAE	Computer-Assisted Education
CIE	Computer-Integrated Education
CLC	Connected Learning Community (at St Alban's College)
HTML	Hypertext Markup Language
ICT	Information and Communication Technology
IEB	Independence Examination Board
ISP	Internet Service Provider
LAN	Local area network
N-Gen	Net Generation
PC	Personal Computer
OBE	Outcomes-Based Education
StaTech	St Alban's Technology Centre
UP	University of Pretoria
URL	Uniform Resource Locator
WWW	World Wide Web

Abstract

Candidate: Marlene Viljoen
Leader: Prof Dr Johannes Cronjé
Department: Teaching and Training Studies
Faculty: Education
Degree: MEd (Computer-Assisted Education)
Title of dissertation: *The implications of computer-integrated Theme Days for learners at St Alban's College*

This essay reports on an investigation of an integrative solution to facilitating cooperative learning for net generation learners in a technology-rich environment. Of specific interest is the changing roles of learners and educators as well as the enabling role of technology. The case study investigated and utilised to compile this dissertation is the *Earthly Aliens Theme Day*. Data obtained by interviewing and observing Theme Day participants is utilised to support the answers of the research questions.

The research results of this study have shown that St Alban's College successfully managed to implement computer-integrated Theme Days. The College broke the barriers between subjects; learners participated in a learning experience that is closer to reality than just another 'typical' educational experience during a normal day at school. The concept of group work has been introduced to learners, and they are allowed to be creative, lateral thinkers and problem solvers.

A small committee of learners gained managerial skills, while College graduates who are entering the job market are equipped with the necessary cross-curricular life skills to cope in today's technological advanced world.

Keywords

- Learners
- Educators
- Connected Learning Community (CLC) committee
- Pedagogy
- Cooperative learning
- Technology
- Computer-integrated Theme Day

Acknowledgements

I wish to express my sincere gratitude to the following persons. Without their support, encouragement and motivation, the completion of this dissertation would never have been possible.

- I would like to thank my supervisor, professor Johannes Cronjé for his support, never ending patience and encouragement. Thank you for introducing me to this exciting Masters in Education (Computer-Assisted Education) degree.
- I would like to thank all my colleagues at the Student Administration, Faculty of Education and the Faculty of Health Sciences who worked so hard in my absence while I was doing research for and writing my dissertation.
- Mr Tom Hamilton, Headmaster of St Alban's College. Thank you for granting me your permission and consent to conduct my research at St Alban's College.
- Ron Beyers of St Alban's College, thank you for your support, advice and input.
- I would also like to thank St Alban's College who made their facilities available to me, the staff members as well as all the learners who assisted me in my research.
- Thank you to all the staff members of the Academic Information Service centres at the Merensky and the HW Snyman Building who were always willing to assist me.
- My special friends in the Master's degree class, thank you for all your support, assistance and advice on difficult technical and educational matters.
- My parents, sisters and brother, thank you for your never-ending support, encouragement and motivation.
- My two very special children Charlé and Elani. Thank you for all your support, encouragement and endurance while I was writing this dissertation.
- I would like to thank my Heavenly Father for providing me with the ability, knowledge and wisdom to complete this dissertation.

Definition of Terms

Bandwidth

The difference between the highest and lowest frequencies available for a network signal. A measure of information-carrying capacity of a transmission wire or the range of transmission frequency that a network can use (Schrum & Berenfeld, 1997:162). The wider the bandwidth the more information it can carry.

CD-ROM

Digitally encoded information permanently recorded on a compact disc. Information can be accessed very quickly.

Download

Standard method of moving files across the Internet. Files are transferred from a personal computer to an Internet server making use of FTP.

Email (Electronic mail)

A network application for exchanging mail messages over various types of networks using various network protocols. A messages can be addressed to an individual or a to a large number of people.

ERIC

Acronym for Educational Resources Information Centre. A United States funded information system that provides access to education related information.

Firewall

Intranet software that prevents external users from accessing a proprietary network, while allowing internal users such as the learners from St Alban's College access to external networks.

Homepage

The introductory first or main page of a Web site to which other pages or sites are linked. The home page *URL* is usually the Web address of the individual or company.

Information and Communication Technologies

Information and communication Technologies is the convergence of microelectronics, computers and telecommunications, which enable the transmission, and reception of digital data signals, including text, video and audio. ICTs incorporate the technologies such as storage e.g. CD-ROMs; networks e.g. fixed, wireless and satellite telecommunications broadcasting; and processing e.g. application software (Morgan, 2001:vii).

ITFORUM

ITFORUM is a list that discusses theories, research, new paradigms and practices in the field of Instructional Technology (<http://it.coe.uga.edu/itforum/home.html>).

Local area network (LAN)

A network linking computers over a short distance. LANs facilitate communication and sharing of computer resources such as printer.

Search engine

A type of software that facilitates locating files and information based on keywords and descriptions. Examples of popular international search engines are Altavista.com., Yahoo.com or a local search engine such as Ananzi.com.

Service provider

An organisation or network that offers connectivity to telecommunication services.

Technology

Technology is the application of science through the use of tools. Throughout this study, the important educational technology is taken to be computers and ICTs.

URL

The acronym for Uniform Resource Locator or an electronic address on the WWW. URL's define the domain name of the Web server where a resource resides and the directory path to access a named Web file or resource.

Web

Refer to World Wide Web.

Web pages

Files coded in the HTML language and accessible as part of a Web site.

Web site

The World Wide Web is often referred to as "the Web" or WWW. A large-scale, interlinked global system of distributed hypermedia resources with a graphical interface that can be accessed and from which information can be selected for retrieval to a local computer.

World Wide Web

The World Wide Web is often referred to as "the Web" or WWW. A large-scale, interlinked global system of distributed hypermedia resources with a graphical interface that can be accessed and from which information can be selected for retrieval to a local computer.

WWW

Refer to *World Wide Web*.