

CHAPTER 3

Research methodology

3.1 INTRODUCTION

Chapter 3 is the description of the project aimed at discovering the implications of computer-integrated Theme Days for learners at St Alban's College. This chapter discusses the research project. The first part of this chapter describes the research context, which is St Alban's College and its Connected Learning Community (CLC) committee. The second part of the chapter discusses the research methodology used during the research for this study.

3.2 THE INTRODUCTION OF THEME DAYS AT ST ALBAN'S COLLEGE

Learners, educators, pedagogical and technological aspects form an integral part of the process, and without these four aspects, a computer-integrated Theme Day for learners at St Alban's College will be futile. Group work and the way in which the learners behaved in their groups will be discussed in chapter 4.

The aim of the Theme Day is to equip learners entering the job market with the necessary cross-curricular skills to cope in a technologically advanced world. The learners and the educators of St Alban's College, as well as the pedagogical and technological aspects, have an influence on the success and outcome(s) of a Theme Day. Aspects such as the context, inputs, processes, outcome(s) and feedback of St Alban's Theme Days will be discussed in part one of Chapter 4.

The introduction of Theme Days at St Alban's College in 1999 is but one component of the development of a Connected Learning Community (CLC) committee, which strives to make essential learning connections (Beyers, 2003). The emphasis at St Alban's College is the development of skills in a competitive environment, to help the

learners cope with the demands of a modern and technologically advanced society. A small committee of learners, the CLC team, is also provided with the opportunity to assist in the development and management of stimulating learning opportunities such as Theme Days. Barriers between subjects are broken down and the use of resources in solving a common problem is highlighted.

Group work is part of the Theme Day concept and at the commencement of each Theme Day; the learners are reminded of its importance. The entire form group is divided into smaller randomly generated groups. A competitive element is always built into the tasks, with tasks assessed throughout the day and scores presented online, which led to an increase in the level of commitment from most of the learners. Only one form group participates in a Theme Day. The remaining forms follow the usual timetable. The reason for this is that the resources at the StaTech centre cannot accommodate learners of two form groups concurrently.

The computer literacy level of the St Alban's learners is high. Computer training as such does not form part of the curriculum, the reason being that computers are integrated into the learners' daily activities and learning processes.

Assessment of Theme Days is not based on formal assessment criteria, and the drafting of the assessment criteria is a responsibility of the CLC committee. This project is a subset of the CLC project, which emphasises the connectedness of learners in a vibrant community. Theme Day assessment criteria vary from task to task and from Theme Day to Theme Day, depending on the nature of the task and not necessarily according to the assessment criteria of outcomes-based education (Beyers, 2003). The outcome of assessment is to determine an eventual 'winner' for the day, although everyone is a winner at the end of the day. The reason why the assessment of Theme Day tasks is not necessarily according to OBE criteria, is that it is about providing a real learning experience to the St Alban's learners, be it the participants or the CLC team who managed the Theme Day.

The CLC committee will be discussed in the following section.

3.2.1 The Connected Learning Community (CLC) committee

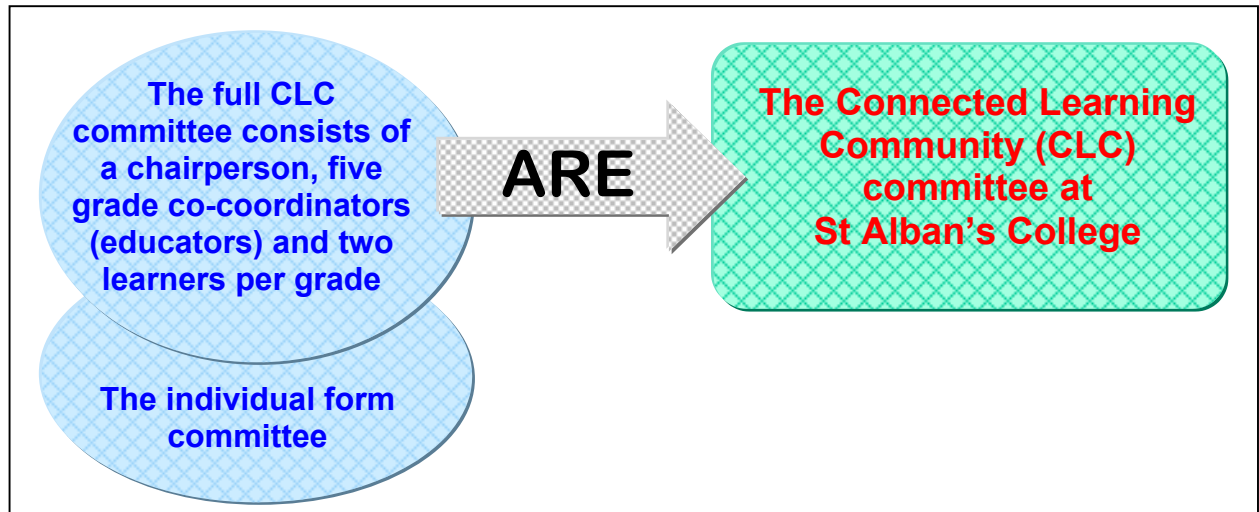
3.2.1.1 The original CLC

According to Beyers (1999b:1), a Connected Learning Community (CLC) is a new concept in South Africa. The CLC has its origins in a collaborative venture between Microsoft, the Council for Scientific and Industrial Research, Gauteng Schools Network, SchoolNet South Africa and St Alban's College. St Alban's has been experimenting with new methodologies and technologies in an attempt to come to terms with a paradigm shift in education towards an outcomes-based approach to education. According to Beyers (2003), there is a subtle change between the CLC as described in this paragraph and the existing CLC of St Alban's College as described in the following paragraph.

3.2.1.2 The difference between the original and the St Alban's CLC committee

The existing Connected Learning Community committee of St Alban's College should not be confused with the original Connected Learning Community that was established in a collaborative venture between Microsoft, the Council for Scientific and Industrial Research (CSIR), Gauteng Schools Network, SchoolNet South Africa and St Alban's College (Beyers, 1998a:1).

Beyers (2003) identifies the differences between the original CLC and the St Alban's CLC. St Alban's College made subtle changes to the original CLC and the 'St Alban's Model' emerged from it. The principles of the St Alban's CLC committee remain the same as those of the original CLC, but there will be further changes in the future. The St Alban's CLC committee is a way of providing the learners with an opportunity to contribute to the bigger picture where the 'form CLC' is merely a subset of the committee, which is a subset of the whole College. This study focuses mainly on the CLC committee's function and its involvement in computer-integrated Theme Days at St Alban's College. A CLC, as it is presently being implemented and utilised at St Alban's College, can be visualised by making use of Figure 3.1.

Figure 3.1 The St Alban's CLC committee

The foundations for the CLC project was laid approximately nine years ago when St Alban's was wrestling with the issues of developing an information warehouse. According to Beyers (1999b:5), the Internet provided the medium to achieve the information warehouse and the St Alban's intranet was conceived. The intranet serves as an information warehouse for St Alban's educators to develop courses customised for the learners. The learners, trained in elementary web page design and Hypertext Markup Language (HTML) coding, provided a significant contribution to the intranet. Equipped with new skills, the learners were given the freedom to explore their creativity within the context of new learning environments. Learners working in cooperative teams were assigned to do research, data analysis, and HTML coding to mention just a few. This flow of events eventually gave way to the introduction of Theme Days at St Alban's College in 1999.

3.2.1.3 *The CLC form committee*

The full CLC committee at St Alban's consists of the chairperson, the CLC secretary, five form coordinators (educators) and two learners per form. Each form has an individual CLC committee consisting of the form coordinator (educator) and a number of learners depending on their commitments. Only two learners attend the College CLC meetings (Beyers, 2003). They form the working committees for the development and management of the Theme Days. The form committees are also collectively responsible for the development and maintenance of material for the

Connected Learning Community (CLC) committee web pages via the subject departments. A individual form CLC committee consisting of one form coordinator, i.e. an educator per form, two form learners and the CLC coordinator meets to approve the topic (St Alban's CLC web page, 2003). A form at St Alban's College is the equivalent of a grade in the South African public schools.

The structure of a Theme Day, previous Theme Day topics and the method of presentation will be described in the following section.

3.2.2 The structure of a Theme Day

Theme Days at St Alban's College generally conform to the structure as tabulated in Table 3.1.

Table 3.1 Theme Day structure

Item of the day	When is the item taking place
Introduction	At the commencement of a Theme Day.
Programme for the day	The programme is online available for the duration of a Theme Day.
Group work with specific tasks set	The group work starts as soon as the topic and Theme Day's tasks are announced.
Presentation of findings	After all the activities and/or tasks have been completed.
Announcing the winners of the Theme Day	At the conclusion of a Theme Day.

3.2.3 Previous Theme Day topics

Previous topics for Theme Days at St Alban's College included –

- Wine production (Business Management).
- Murder mystery (Interactive on-line subject based learning).
- Formula One.
- Colonisation of Mars.
- Forensic Entomology.

- Egypt, a virtual reality experience using 3DML.
- Entertainment.
- The Pressure of Diving (St Alban's, 2003).

3.2.4 The method of presentation

The method of presentation of a computer-integrated Theme Day includes –

- Web pages.
- 3DML virtual reality.
- Lectures by experts in their field.
- Visual Basic Scoring programs.
- Video presentations (St Alban's, 2003).

Research methodology, research approach and data collection instruments will be discussed in part two of this chapter.

3.3 RESEARCH METHODOLOGY

The qualitative research approach, data collection instruments, validity and reducing researcher biases of data, and the target population of this study will be discussed in the paragraphs to follow.

3.3.1 Qualitative research approach

A qualitative research approach was utilised for this dissertation. According to Holloway & Wheeler (2002:3) qualitative research is a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live.

A quantitative research approach was not applied in this study. Reasons for this are that data collection instruments, the research method and the method applied to analyse the data according to the quantitative approach were not suitable for the

target population and focus of this study. Quantitative research aims at testing a hypothesis; the approach is context free, and research is often conducted in an artificial or laboratory setting. Data collection methods include questionnaires and standardised interviews, and the outcomes of the research have measurable results (Creswell, 2002:62-63; Holloway & Wheeler, 2002:16).

The quantitative approach, as described in the aforementioned paragraph, was not used for this study. The focus of this study was the qualitative approach, researching the implications of computer-integrated Theme Days for learners at St Alban's College. Furthermore, the data collection methods, the aim of research and the outcome of these qualitative research results have no measurable results, as they thus differ for example from that of a quantitative approach. The CLC committee and the behaviour of the Theme Day participants were observed while they were working in groups on their tasks. The outcome of their behaviour is not predictable, nor measurable by means of statistics. The setting where the learners were observed was the St Alban's StaTech centre and not an artificial setting or laboratory.

In the following section, a theoretical description of interviews and observations as data collection instruments as well as the two main data collection instruments utilised during computer-integrated Theme Days at St Alban's College, will be discussed.

3.3.2 Data collection instruments

The two main threats to the validity of *observation* and interview studies are according to Gay & Airasian (2003:213) the observer bias and the observer effect. *Observer bias* refers to invalid information that results from the perspective a researcher brings to a study. It occurs when a researcher consciously or unconsciously interprets data based on attitudes or beliefs held prior to the research. All researchers must try to avoid to be biased, as no research can be totally unbiased. The *observer effect* occurs when a researcher's presence leads participants to behave atypically. Gay & Airasian (2003:224) suggest that the way to

handle the observer bias and observer effect is to make observers aware of it so that they can attempt to be as inconspicuous as possible.

According to Gay & Airasian (2003:224) an *interview* is a purposive interaction between two or more persons, with the one (the researcher) trying to obtain information from the other (participants or educators). Interviews permit a researcher to obtain information that cannot be obtained from observations. Qualitative interviews are free flowing and open ended, with the interviewer probing to clarify and extend the participants' comments. Gay & Airasian (2003:224) strongly encourage transcribing, as transcripts are the interviewer's field notes and become the data a researcher will analyse. This researcher made field notes during Theme Days, and these notes proved to be valuable information which was used to describe the implications of computer-integrated Theme Days for learners at St Alban's College. The information in the field notes were also analysed to answer the dissertation's research questions.

According to Cohen, Manion & Morrison (2000:305), unstructured observations are used when the researcher is less clear on what he or she is looking for. Researchers will therefore have to go into a situation and observe what is taking place before deciding on its significance for the research. Holloway & Wheeler (2002:101) are of the opinion that the observer as participant is an observer who participates only by being in the location rather than working there, and is only marginally involved in the situation. The advantage of this type of observation is the possibility of asking questions and being accepted as a researcher but not called upon as a member of the work force.

The researcher initially observed the Theme Day participants from the back of StaTech 1. As the day progressed, the researcher's role as observer changed to that of participatory observer by being present in the StaTech complex. This was the case during the five computer-integrated Theme Days. The participants were observed, and the researcher did not participate in any of their group activities or render any advice to a specific group that might eventually have benefited the participants of that group. Theme Day observations were unstructured, as the

researcher attended the five Theme Days mainly to obtain information for this dissertation. Aspects such as the participant behaviour; participation cooperation in groups; participants and their use of technology were observed. The educators, the CLC committee and the roles they fulfilled, and the processes in which they were involved during Theme Days were observed as well.

The researcher interviewed the participants by asking them questions whenever a specific incident arose or when the researcher identified the need to obtain data regarding one of the research aspects. Information obtained during interviews was transcribed in field notes. These notes, as in the case of observations, were used to describe the implications of computer-integrated Theme Days for learners at St Alban's College, as well as to answer the research questions as described in Chapter 4 of this dissertation.

A few interviews for this study were conducted after the five Theme Days took place, and are thus considered as *post facto* interviews. These interviews took on the form of e-mail interviews with the Director of Technology at St Alban's College. These e-mails were sent weeks and even months after the five Theme Days, the reason being that when data was analysed, limitations of certain aspects were identified.

The researcher used two data collection instruments while attending the five Theme Days at St Alban's College. The key role-players were *observed* and *interviewed* to collect data for this research project. The researcher moved freely between the computer labs in the StaTech complex where interviews were conducted with the key role players. The learners never viewed the researcher as an intruder and were always eager to answer all the researcher's questions. The methods used to collect data at a Theme Day are tabulated in Table 3.2.

Table 3.2 Data collection instruments at a Theme Day

Interview(s)	<ul style="list-style-type: none"> ▪ Interviews were conducted with Connected Learning Community (CLC) Committee team members to elaborate on their involvement in computer-integrated Theme Days. ▪ Key role players interviewed during Theme Days are: <ul style="list-style-type: none"> ○ The learners. ○ The Director of Technology. ○ The educators. ○ The CLC team members. (Each form group has its own CLC team) ○ The secretary of the Director of Technology. ○ The network manager. ▪ The interviews were mainly conducted in StaTech 1, StaTech 2 and at the workstations while the learners were working on their tasks.
Observation(s)	<ul style="list-style-type: none"> ▪ The learners were observed by walking around in the StaTech computer centre, and the events were then documented. ▪ The learners were observed at five Theme Days, and the observation period stretched over a period of approximately 17 months. ▪ The key role players were observed during each Theme Day. ▪ The use of technology and in specific the use computers and the functioning of cooperative groups were observed.

The systems approach will be described in the following section.

3.3.3 The systems approach

The systems approach was utilised in this study to provide a structure and layout for this dissertation. The theoretical aspects of the systems approach are described in more detail in paragraph 1.9.1 of Chapter 1. According to Gillies (1994:60), a systems approach is especially necessary for the planning and control functions of management. Gillies (1994:66-67) furthermore identifies the five elements of a classic system, i.e. the context, input, process, outcome(s) and feedback. These five elements were used throughout the dissertation and are referred to as research aspects. The three key aspects investigated for this study are the learning community aspects, pedagogical aspects and the technological aspects.

In this study, the context, input, process, outcome(s) and feedback of aspects such as the St Alban's College learning community, pedagogy and technology are discussed. Chapter 4 contains a detailed description of the learning community context, inputs, processes, outcome(s) and feedback. The implications of these aspects for the St Alban's learners, educators, pedagogy and technology are furthermore discussed in the second part of chapter 4.

The activities of a Theme Day, the planning, the management and key role players are described in order to answer the main research question and sub research questions relating to the aspects under investigation in this study. Table 3.3 tabulates the research aspects under discussion in this study.

Table 3.3 Research aspects under discussion in this study

The five aspects under consideration in this study	At each Theme Day, the following key aspects were under investigation in order to answer the sub-research questions.
<ul style="list-style-type: none"> ▪ Context. ▪ Input. ▪ Process. ▪ Outcome(s). ▪ Feedback. 	<ul style="list-style-type: none"> ▪ The learning community, i.e. the learners, educators and the CLC committee. ▪ Pedagogical aspects. ▪ Technological aspects.

3.3.4 Ethical considerations

Ethical considerations such as the photos displayed in chapter 4, were considered during observations of computer-integrated Theme Days at St Alban's College. The Director of Technology announced at the commencement of all five Theme Days that a researcher of the University of Pretoria is present to conduct research. The learners at St Alban's were aware that photos were taken of them while participating in Theme Day activities. They had no objections to the photos being used in the research for this study.

Research validity and methods to reduce researcher biases will be discussed in the following section.

3.3.5 Validity and reducing researcher bias of data

According to Gay & Airasian (2003:214), data collected from and about participants in qualitative research studies are voluminous, non-quantitative and rich in detail. Qualitative data extend far beyond superficial issues because each researcher brings his or her own perspective and bias to a study. Gay & Airasian (2003:215, 224) suggest a number of strategies that can be used to improve validity and reduce researcher bias (Cohen, Manion, & Morrison, 2000:281; Holloway & Wheeler, 2002:256-257). A researcher can strive to

- obtain a participant's trust,
- recognise his or her own bias,
- use verbatim observation, and
- triangulate varied data sources.

The Director of Technology at St Alban's College welcomed and introduced a guest speaker(s) to the participants at the commencement of a Theme Day. Furthermore, the Director informed the learners that a researcher from the University of Pretoria was going to observe and interview them for the duration of the day. This was the case at the commencement of the five Theme Days where key role-players were observed and interviewed to obtain information for this study.

The target population of this study will be described in the following section.

3.3.6 Target population

The target population for this research is the St Alban's College learners, who are all males. The *Top Secret Theme Day* of 29 September 2002 was an exception. A few learners of St Mary's Diocesan School for Girls were selected to participate in this Theme Day. St Mary's DSG is a private school situated in Hillcrest, Pretoria, and the learners of St Mary's are all females.

The ages of the learners participating in the five Theme Days ranged between 14 and 17 years. The only exception is a few CLC team members. They are in form 5 and fall in the age group of 17 to 18 years. The remainder of the form 5 learners didn't participate in any Theme Day activities during 2002. The academic year of the Form 5 group is too short and their final year at the College is mainly dedicated to tutoring and preparations for the mock exams in August and the Independent Examination Board's (IEB) exam that started towards the end of October 2002.

3.4 SUMMARY

The introduction of Theme Days at St Alban's College, the CLC committee, the structure of Theme Days and the target population interviewed and observed in this study was described in the first part of this chapter. The difference between the original CLC committee and the St Alban's CLC committee was highlighted to avoid confusion. The research methodology discussed in the second part of this chapter described the methods utilised to collect information. The reasons why a qualitative research approach was selected for this study instead of a quantitative approach, were described, as the main reasons are the data collections methods and the outcome of this study. Chapter 4 contains the discussion of the project findings, as well as the result of an analysis of five computer-integrated Theme Days at St Alban's College.