THE CHALLENGE OF THE NEW

A STUDY OF THE IMPACT ON TEACHERS OF AN EXTERNALLY MANDATED SYSTEM WIDE CURRICULUM CHANGE

BY

DAVID ADAMSON


A thesis submitted in fulfilment of the requirements for the degree of Master of Education
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Faculty of Education
University of Melbourne
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<table>
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<th>Abbreviation</th>
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<tr>
<td>AST</td>
<td>Advanced Skills Teacher</td>
</tr>
<tr>
<td>CAT</td>
<td>Common Assessment Task</td>
</tr>
<tr>
<td>CDSM</td>
<td>Course Development Support Material</td>
</tr>
<tr>
<td>DSE</td>
<td>Department of School Education</td>
</tr>
<tr>
<td>ELIC</td>
<td>Early Literacy Inservice Course</td>
</tr>
<tr>
<td>EMIC</td>
<td>Exploring Mathematics in Classrooms</td>
</tr>
<tr>
<td>FOSC</td>
<td>Field of Study Committee</td>
</tr>
<tr>
<td>FTUV</td>
<td>Federated Teachers Union of Victoria</td>
</tr>
<tr>
<td>HSC</td>
<td>Higher School Certificate</td>
</tr>
<tr>
<td>IEA</td>
<td>Institute of Educational Administration</td>
</tr>
<tr>
<td>PEP</td>
<td>Participation and Equity Program</td>
</tr>
<tr>
<td>RIME</td>
<td>Reality in Mathematics Education</td>
</tr>
<tr>
<td>RMIT</td>
<td>Royal Melbourne Institute of Technology</td>
</tr>
<tr>
<td>SRP</td>
<td>School Responsibility Position</td>
</tr>
<tr>
<td>STC</td>
<td>Schools' Year 12 and Tertiary Entrance Certificate</td>
</tr>
<tr>
<td>T12</td>
<td>Technical Year 12 Certificate</td>
</tr>
<tr>
<td>TOP</td>
<td>Tertiary Orientation Program</td>
</tr>
<tr>
<td>TTUV</td>
<td>Technical Teachers Union of Victoria</td>
</tr>
<tr>
<td>VASS</td>
<td>Victorian Administrative School System</td>
</tr>
<tr>
<td>VCAB</td>
<td>Victorian Curriculum and Assessment Board</td>
</tr>
<tr>
<td>VCE</td>
<td>Victorian Certificate of Education</td>
</tr>
<tr>
<td>VISE</td>
<td>Victorian Institute of Secondary Education</td>
</tr>
<tr>
<td>VSTA</td>
<td>Victorian Secondary Teachers Association</td>
</tr>
<tr>
<td>VTAC</td>
<td>Victorian Tertiary Admissions Committee</td>
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GLOSSARY OF TERMS

AST  A series of promotion positions created as part of a career restructure negotiated between the teaching unions and the state government.

CAT  An externally set task to be attempted by all students studying a particular subject. It may be assessed internally by the teacher at the school or externally by VCAB.

DSE  Ministerial department responsible for administering education in all government schools in Victoria. Formerly known as the Ministry of Education.

FOSC  A sub-committee of VCAB set up for each group of subjects, for example Science, Mathematics, English. Their role was to determine course structure and content for each VCE study.

HSC  The certificate awarded to a large majority students completing their secondary education. Assessed by externally set examinations and some school based tasks.

PEP  Federal Government funded program aimed at schools from socially and economically deprived areas.

Secondary Schools  Majority of schools were of this type. Provided a general education aimed at preparing students for university and employment.

SRP  Administrative positions filled by teachers in schools, such as Faculty Co-ordinators.

STC  Alternative certificate to the HSC, based on school based negotiated curriculum and not assessed by externally set examinations.

T12  Alternative certificate to the HSC, offered only in Technical Schools, school based as for STC.
<table>
<thead>
<tr>
<th><strong>Technical Schools</strong></th>
<th>Schools similar to secondary schools but with a strong technical component to the curriculum. Prepared students for technical occupations and apprenticeships</th>
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<tr>
<td><strong>TOP</strong></td>
<td>Alternative program to the HSC, school based as for STC.</td>
</tr>
<tr>
<td><strong>VASS</strong></td>
<td>A computerised administrative system used to transfer data on students and results to the central VCAB computer.</td>
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<tr>
<td><strong>VCAB</strong></td>
<td>Controlling body of the VCE set up to replace the VISE.</td>
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<td><strong>VISE</strong></td>
<td>An independent body charged with the responsibility of administering the HSC.</td>
</tr>
<tr>
<td><strong>VSTA</strong></td>
<td>Teachers union representing a majority teachers in secondary schools.</td>
</tr>
<tr>
<td><strong>VTAC</strong></td>
<td>Independent body responsible for allocating students who have completed their VCE into tertiary courses.</td>
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DECLARATION OF ORIGINALITY

This thesis contains no material which has been accepted for any other degree in any university. To the best of my knowledge and belief, this thesis contains no material previously published or written by any other person, except where due reference is given in the text.

Signed: D. Adamson

D. ADAMSON

Date: 24/1/1995
ACKNOWLEDGEMENTS

I would like to acknowledge the work of my supervisor, Dr. Neville Johnson. His patience, ability to keep me motivated, depth of knowledge, enthusiasm for my work and general support over the long period of this study are greatly appreciated. He was also able to assist me in setting goals, that were achievable in a context of part time study, and make certain I met them. Also to Mr. Bill Stringer who stepped in while Dr. Johnson was on leave. His critical comments, attention to detail and objectivity assisted greatly in the writing of the literature review particularly. I wish to express my appreciation for the co-operation of the members of the Mathematics Faculty at Niddrie High School who gave up their time to answer my questions and fill out my surveys. I would also like to thank my wife, Ms. Robin Adamson, for her support, willingness to discuss ideas and honesty in appraising my work.
This study aimed to examine aspects of the introduction, in the state of Victoria, Australia, of an externally mandated, system wide, curriculum change, the Victorian Certificate of Education (VCE). More specifically, the emphasis was on changes to the study of Mathematics. Three questions were investigated. How did the teachers respond to this change? What was the influence of the extensive public debate that arose over the VCE? What were the factors which helped or hindered the implementation of this change?

The investigation was a longitudinal study taking place over the four year period from 1989 to 1992. The focus was on the changes to Mathematics, seen through the lens of a group of teachers in a school charged with implementing the change through a series of phases. Qualitative methodological techniques were used to gather data. These included a case study approach collecting data from the school where I, as a researcher, took the position of a participant observer. In addition a content analysis of published articles in the popular press and official publications was undertaken.

The study found that the VCE was successfully implemented due to its adoption by teachers and their willingness to work hard to ensure its success which arose from a commitment to their students. Also that two of the underlying tenets of the VCE remained intact, despite other changes. These tenets were that the VCE remained a single certificate and that a breadth of subject choice for students was available. Factors which hindered the successful implementation were the lack of professional development, funding, resources, support and consultation, while at the same time teachers were expected to carry a significantly increased workload. The public debate over the introduction of the VCE, set in the context of an impending election, was a major influence in causing changes to some aspects of the VCE. Changes which occurred in consultation with teachers tended to aid implementation while other imposed changes tended to hinder or slow implementation.

An unpredicted outcome of the introduction of the VCE was that the work requirement approach to teaching was accepted as a valuable process and was incorporated into lower levels in schools.
CHAPTER 1.

INTRODUCTION

A. PURPOSE OF THE STUDY

The purpose of this study is to carry out an investigation into the area of teachers and change. The focus of the study will be a group of practising teachers in a school attempting to implement the introduction of the Victorian Certificate of Education (VCE) and more specifically the changes to the study of Mathematics. A number of specific questions will be addressed:

1. Given that the introduction of the VCE was largely imposed on teachers as an externally mandated change, how did teachers respond in their role as the practitioners charged with implementing the change?

2. The introduction of the VCE became set within a context of a vigorous public debate over the successes and failures of the new VCE. The debate focused on issues directly associated with implementation. The two major issues were:
   
   a) teacher and student workload
   b) cheating, assessment and the verification process

Therefore the question of the influence of the public debate, on implementation of the change, became an area of investigation. Two questions will be posed:

i) Was the implementation of the new VCE effected by being set within the context of a vigorous and lengthy public debate over, the VCE in general, and implementation issues in particular?

ii) If the debate did influence implementation, what were the reasons for this and how did it effect implementation?

3. Given that the introduction of the VCE was a major curriculum change, what were the factors which helped or hindered the implementation of this change?
B. THE TYPE OF STUDY

The introduction of the VCE was planned to occur over a number of years as it was phased in through a series of stages. Consequently this study of the implementation of the VCE will be a longitudinal study, designed to map the progress of implementation over the four year period from 1989 to 1992. This longitudinal study will be carried out using a range of qualitative techniques designed to describe the implementation process at a number of levels. These include the individual teacher, the school, the education system and the community. The combination of the longitudinal and qualitative aspects of the study should allow the reader to form a picture of the complex processes and developments that occurred over the time of the study. This study may then be able to make a contribution to further understanding the processes of educational change by linking the experiences of the VCE with other experiences and the theories of change.

C. THE INTRODUCTION OF VCE

In 1989, in Victoria, Australia a statewide compulsory curriculum change was instituted for the final two years of secondary education. The change was to be phased in over a four year period from 1989 to 1992 and was to be known as the Victorian Certificate of Education (VCE). This title referred to the single certificate that was available to students who completed the two year course and was to replace a multiplicity of certificates available prior to 1989. The introduction of the VCE was a change which was more extensive and involved greater change than had ever been attempted in Victoria before. Consequently there was some public controversy and a range of “teething problems”. The teachers involved in implementing the VCE were introducing new subjects (known as studies), a new structure to the final years of schooling, new assessment and reporting procedures and new strategies of teaching and learning.

This study will investigate the range of issues involved in the implementation of this far reaching, externally mandated educational change.
i. **BACKGROUND TO THE INTRODUCTION OF THE VCE**

Much of the impetus for change, in the post-compulsory years of Victorian schools, in the decade from 1982 to 1992 arose out of the publication, by the Ministry of Education, of two sets of documents. The first of these were Ministerial Papers 1 to 6, published between 1982 and 1984. Ministerial Paper no. 6 put forward the twin concepts of 'access and success' where all students should have equal access to all aspects of the curriculum and should experience success in their learning.

The publication in 1985 of the report from the Ministerial Review of Postcompulsory Schooling, under the chairpersonship of Dr. Jean Blackburn, and subsequently known as the 'Blackburn Report', gave rise to the concept of the Victorian Certificate of Education (VCE).

The review was commissioned by Education Minister, Robert Fordham, in June 1983 and was opened in April 1984 with the publication of a discussion paper which:

"...analysed the existing patterns of educational provision and proposed general directions for change in the curriculum, credentials and structures of schooling" (Blackburn, 1985, p. 1).

Wide ranging consultation within the education community took place including public meetings and the submission of almost 400 written responses. At the same time collaborative arrangements between schools and the Technical and Further Education (TAFE) system were being extended. The Victorian Institute of Secondary Education (VISE) was recommending a series of changes to the Higher School Certificate (HSC), including less emphasis on external examinations and more on teacher assessed work. Some tertiary institutions were reassessing their selection procedures and the Commonwealth Participation and Equity Program (PEP) guidelines noted the need for:

"...system wide action to support the development of curriculum appropriate to the upper secondary level, changes in Year 12 certification and the structures of schooling" (Blackburn, 1985, p. 2).

Thus there was pressure for change from many different sources.

Why were changes necessary? McRae (1986) identified four reasons:
a) There did not exist a system of post-compulsory education which catered for a rapidly expanding group of students as retention rates were increasing due to unemployment and the need for higher credentials.

b) There did not exist an effective credentialling system. Three different authorities were responsible for a range of certificates and students were studying over 2000 different units throughout the state.

c) There were no clear or coherent pathways nor a systematic means of providing information for tertiary selection. The different credentials available were treated differently by different tertiary institutions.

d) There did not exist an effective system of administrative support for schools which were consequently unable to give accurate advice to their students about the plethora of confusing options open to them.

The 'Blackburn Report' subsequently made forty five recommendations in order to set a new direction for postcompulsory schooling in Victoria. The major recommendations, which have an impact on this study, were:

a) By 1995 retention rates be increased to 70 per cent (Recommendation 1)

b) Year 11 and 12 courses only be run by the Education Department and funding for TAFE providers be frozen at present levels (Recommendation 3)

c) Courses at Years 11 and 12 be organised over two years in semester length units (Recommendation 4)

d) All students should have access to a comprehensive curricular range of studies (Recommendation 5)

e) All students should study over Years 11 and 12 at least one three unit sequence of study in each of the areas of arts/humanities, science/technology and mathematics (Recommendation 6)

f) The study of work in society occupy two compulsory and sequential units (Recommendation 13)

g) A single certificate named the Victorian Certificate of Education (VCE) be introduced in 1987 (Recommendation 18)

h) All units within the VCE be accredited by a central agency which would also oversee assessment procedures (Recommendation 19)

i) The new certificate be fully operational by 1990 (Recommendation 24)

j) Eligibility for admission to tertiary institutions be established by completion of the VCE (Recommendation 28)
k) The Victorian Curriculum and Assessment Board (VCAB) be established with overall responsibility for the development and accreditation of curricula and for certification at the senior secondary level (Recommendation 29)

VCAB was established on July 1 1986 and a timetable for implementation was set up to introduce the VCE over a four year period using three overlapping phases:

**Phase 1 (1989-91) Australian Studies, English and Mathematics.**

1989 - Pilot schools (fifty) introduce the three studies at Year 11.

1990 - Pilot schools introduce the three studies at Year 12. Non-pilot schools introduce the three studies at Year 11. Final accreditation of study designs.

1991 - Non-pilot schools introduce the three studies at Year 12.

**Phase 2 (1990-91) All other VCE studies.**

1990 - In service activities for all schools to prepare for the introduction of Phase 2 studies at Year 11 in 1991.

1991 - Introduction of Phase 2 studies at Year 11.

**Phase 3 (1991-92)**

1991 - In service activities for all schools to prepare for the introduction of Phase 2 studies at Year 12 in 1992.

1992 - Introduction of Phase 2 studies at Year 12.

It was planned to introduce the changes "gradually and collaboratively" (Emmett 1986) with an intention to provide teachers with appropriate in service training.

**Features of the VCE**

The main features of the VCE included:

1. One certificate for all students, regardless of future pathways

2. A two year certificate
3. Breadth: All students were required to select as part of their VCE program
- 4 units of Maths, Science or Technology
- 4 units of Humanities, 2 of which were to be Australian Studies Units 1 & 2
- 4 units of English

4. Depth: In order to successfully complete their VCE students had to satisfy the work requirements in
- a minimum of 16 units; including
  - 3 sequences of Units 3 & 4 and
  - 3 units of English

5. Flexibility: Students were to have access to a wide range of units where
- there were to be no prerequisites for Units 1, 2 or 3. Units 3 & 4 were designed to be sequential
- part time students and those returning to school were able to complete post-compulsory schooling

6. Commonality: All students were required to select as part of their VCE program
- 2 units of Australian Studies, units 1 and 2
- 4 units of English

ii. AIMS AND STRUCTURE OF VCE MATHEMATICS

The new VCE Mathematics courses were defined in a set of two complementary booklets, published by VCAB, to be used as working documents by teachers. They were entitled ‘Mathematics - study design’ and ‘Mathematics - course development support material’. All VCE studies had a similar set of documents. The study design prescribed the areas of study, work requirements and Common Assessment Tasks (CATs) and provided the structure for the development of detailed courses by schools. The Course Development Support Material (CDSM) was prepared to assist in the process of course development, in conjunction with
the study design. Schools, while encouraged to consider the advice in the CDSM, were free to adopt alternative approaches provided they were consistent with the study design.

The aims of VCE Mathematics were to enable students to:

1) develop mathematical knowledge and skills
2) apply mathematical knowledge to analyse, investigate and solve problems in a variety of situations, ranging from well defined and familiar situations to unfamiliar and open situations" (Mathematics - Study Design, 1990, p. 1).

The courses were designed to:

"... provide access to worthwhile and challenging mathematical learning in a way which takes into account the needs and aspirations of all students... promote students' awareness of the importance of mathematics in everyday life in an increasingly technological society, and confidence in making effective use of their mathematical knowledge and skills" (Mathematics - Study Design, 1990, p. 1).

Three kinds of learning activities were defined as the basis for the Work Requirements:

1) Carrying out investigation projects.
2) Solving problems of an unfamiliar and non-standard kind, using mathematical modelling as a tool in applying mathematical knowledge to real-world situations.
3) Learning and practising skills and applying them in standard situations” (Mathematics - Study Design, 1990, p.1).

These were referred to by teachers as Projects, Problem Solving and Modelling, and Skills and Standard Applications. Each Work Requirement was assessed Satisfactory (S) or Not Satisfactory (N). Students had to receive an ‘S’ for all Work Requirements to satisfactorily complete a unit of the VCE.

In Mathematics students were also required to complete four CATs in units 3 and 4. These comprised two test CATs and two verified CATs which were graded ‘A’ to ‘E’, the results of which could be used to apply for entrance into tertiary institutions. The first verified CAT consisted of a project which was set by VCAB and administered to students over a ten week period in unit 1. The second verified CAT was again set by VCAB but was a problem solving exercise administered to students over a two week period in unit 4. Both CATs were then assessed using the verification process. The two test CATs were assessed by externally set and marked examination.

This process was reduced to one verified CAT and two external CATs in 1992.
Content was to be drawn from nine areas of study; algebra, arithmetic, calculus, coordinate geometry, geometry, logic, probability, statistics and trigonometry.

**TABLE 1 : SUMMARY OF COURSE CONTENT IN VCE MATHEMATICS UNITS**

<table>
<thead>
<tr>
<th>UNIT NAME</th>
<th>CONTENT</th>
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<tbody>
<tr>
<td>Space and Number (S&amp;N)</td>
<td>Arithmetic, Geometry, Trigonometry, Algebra</td>
</tr>
<tr>
<td>Change and Approximation (C&amp;A)</td>
<td>Coordinate Geometry, Calculus, Algebra</td>
</tr>
<tr>
<td>Reasoning and Data (R&amp;D)</td>
<td>Probability, Statistics, Logic, Algebra</td>
</tr>
<tr>
<td>Extensions (S&amp;N)</td>
<td>Arithmetic, Geometry, Algebra One of Probability, Statistics, Logic, Calculus</td>
</tr>
<tr>
<td>Extensions (C&amp;A)</td>
<td>Coordinate Geometry, Calculus, Algebra One of Probability, Statistics, Arithmetic, Trigonometry</td>
</tr>
<tr>
<td>Extensions (R&amp;D)</td>
<td>Probability, Statistics, Algebra One of Calculus, Arithmetic, Geometry</td>
</tr>
</tbody>
</table>

(Adapted from Mathematics - Study Design, 1990, p. 68)

Extensions units only ran at Unit 3 and 4 level and were designed to extend students who wished to pursue the study at a more advanced level.

*****

Chapter 1 has outlined the purpose of this study, which is to examine the changes which occurred over the four years of the phased introduction of the VCE, to focus on its impact on teachers and to determine the factors which influenced the change and its degree of success or failure. The qualitative and longitudinal nature of the study was also outlined. In addition the history of the introduction of the VCE was reviewed along with its major aims and the aims of the new Mathematics courses.

Any major curriculum reform, such as the introduction of the VCE, requires documentation and analysis. The significance of this study will be in its contribution to the recording of the implementation process and the analysis of the impact of the change at both a local and statewide level. At a future date this thesis will be available for inclusion as part of the body of knowledge used in any meta-analysis of curriculum reforms or in the planning of new initiatives.
In order to be able to fulfill the aims of this study a theoretical knowledge is needed, based on the published literature. The literature review which follows outlines the broad theoretical basis for this study, grounded in the literature regarding change theory. This includes a general overview of the literature, a discussion of the impact of change on the individual teacher, an outline of the factors effecting implementation of change and sections on coping with change and planning for change. Throughout the literature review a series of questions will be posed in an attempt to link the key issues, identified in the literature, with the experience of the introduction of the VCE.

The second section deals with the published reports from a parallel study of the introduction of the VCE, the ‘Northfield Reports’. While this study is not designed to be comparative the ‘Northfield Reports’ provide useful information from a statewide context, especially with regard to the Case Study data.
CHAPTER 2.

REVIEW OF THE LITERATURE

This review will focus on published literature, setting a theoretical background relevant to the aims of this study, and will be broken into two sub-chapters. The introduction of the VCE was a significant change for teachers. The first section of the literature review will focus on the process of change, especially with regard to teachers and externally mandated change. It begins with an overview of the literature on change theory. The literature concerning the impact of change on the teacher and the factors contributing to teacher receptivity to change is then examined. The range of factors effecting implementation are considered in detail and the responses of those charged with implementing change are outlined. The problems associated with planning, elements of good planning and reasons for the failure of planning are finally discussed.

The ‘Northfield Reports’ provide a local point of comparison to this study. The ‘Northfield Reports’ take a similar longitudinal approach to documenting the introduction of the VCE, but draw from a broader base than this study. The second sub-chapter highlights the major findings of the ‘Northfield Reports’ to provide a statewide background to the findings of this study.

A. CHANGE THEORY: TEACHERS AND CHANGE

i. OVERVIEW

When studying the introduction of an externally imposed educational change, such as the introduction of the VCE, the response of teachers to the reform must be considered. They are the group charged with implementing the change and the success or failure of the initiative rests with them:

"Teacher resistance to change is not a problem at all. Teachers change practices all the time. Getting teachers to do what someone else wants them to do may be a problem, and very often there is good reason for resistance to this type of change. Externally mandated or proposed changes do not always make sense in a particular context... The belief... that the way to improve teaching is to mandate and standardise practices will have to change... Change is not worthwhile unless it is thoughtful, and... thoughtful change is a long and sometimes painful process" (Richardson, 1991, in Johnson, 1993, p. 17).
Fullan, a major writer in the area of change, has identified four phases in the:

"...evolution of the study and practice of planned educational change”
(1991, p. 5).

which have occurred in the USA and Canada since 1960. These phases are applicable to Australia, although the timing may be a little behind the dates set down by Fullan.

Phase 1 - Adoption (1960’s)
Phase 2 - Implementation Failure (1970-77)
Phase 3 - Implementation Success (1978-82)

However it is the fourth phase which is of relevance to this study of the VCE.

Phase 4 - Intensification vs restructuring (1983-90) : The direction of change took two forms. Intensification involved increased definition of the curriculum, mandated textbooks, standardised tests tightly aligned with the curriculum, specification of teaching and administrative methods backed up by evaluation and monitoring. Restructuring lagged slightly behind involving school based management, enhanced roles for teachers in instruction and decision making, integration of multiple innovations, restructured timetables supporting collaborative work cultures, reorganisation of teacher education, changes to teacher leadership arrangements, developing a shared mission and school’s goals by the whole school community. Both these waves of reform were intended to bring about systematic change despite being diametrically opposed.

The role of teachers in this type of change is central:

"However noble, sophisticated, or enlightened proposals for change and improvement might be, they come to nothing if teachers don't adopt them in their own classrooms and if they don't translate them into effective classroom practice”
(Fullan and Hargreaves, 1991, p. 13).

"The worth of particular policies or innovations cannot be taken for granted, because we cannot be sure about the purposes, possibilities of implementation, or actual outcomes of proposed changes” (Fullan, 1991, p. 28).

These quotes relate directly to the purpose of this study as the worth of the VCE cannot be judged until after it has been put into practice by the teachers.

Fullan (1991) identified two types of changes:

First order - improve the efficiency and effectiveness of what exists without disturbing the basic organisational features or the performance of roles by teachers and students.
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Pullan (1991) identified two types of changes:

First order - improve the efficiency and effectiveness of what exists without disturbing the basic organisational features or the performance of roles by teachers and students.
Second order - try to alter the fundamental ways in which organisations are constructed and operate. They largely fail.

Regardless of the type of change, however, real change:

"... represents a serious personal and collective experience characterised by ambivalence and uncertainty; and if change works out it can result in a sense of mastery, accomplishment and professional growth" (Fullan, 1991, p. 32).

This goes to the heart of the first question to be examined in this study on the teacher's response to the change.

Fullan (1991) identified three dimensions of change:

1. The possible use of new or revised resources - this is the most visible aspect of change and the easiest to employ.

2. The possible use of new teaching approaches - this is more difficult if new skills must be acquired.

3. The possible alteration of beliefs - this is the most difficult as core values may be challenged and previously unstated beliefs openly discussed.

Flowing from these are three lessons about change:

1. It is multidimensional varying within the individual and the group.

2. People's basic conceptions of education and skills are involved and thus it is crucial that individuals develop a sense of meaning about change.

3. Change consists of a sophisticated but unclear dynamic relationship of the three dimensions of change and the fundamental problem is whether or not people develop meaning in relation to all three aspects.

The introduction of the VCE embodies all of these six points as it evolved from being an externally mandated change into one that involved considerable input from teachers. Fullan and Hargreaves (1991) identified six basic problems encountered by teachers in coping with the simultaneous bottom up and top down tension in current reforms, all of which have relevance in the introduction of the VCE:
1. Overload

2. Isolation

3. “Groupthink”

4. Untapped Competence (and the neglect of incompetence)

5. Narrowness in the teacher’s role (and the role of leadership)

6. Poor Solutions and Failed Reform.

In attempting to explain the dynamic and complex nature of change Pullan has further developed:

"... eight basic lessons arising from the new paradigm of dynamic change” (1993b, pp. 21-22).

Lesson 1: You can't mandate what matters - the more complex the change the less it can be forced.

Lesson 2: Change is a journey not a blueprint - it is non linear, loaded with excitement and sometimes perverse.

Lesson 3: Problems are our friends - they are inevitable and learning cannot occur without them.

Lesson 4: Vision and strategic planning come later - premature visions and planning blind. More lasting good is done by concentrating on building collaborative cultures rather than forcefully pushing heavy agendas for change (Pullan, 1992b).

Lesson 5: Individualism and collectivism must have equal power - there are no one sided solutions to isolation and groupthink. Productive educational change is a process of overcoming isolation while not succumbing to groupthink, that is building collegiality and collaboration (Pullan and Hargreaves, 1991).

Lesson 6: Neither centralisation nor decentralisation works - both top down and bottom up strategies are necessary.

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Lesson 7: Connection with the wider environment is critical for success - the best organisations learn both externally and internally.

Lesson 8: Every person is a change agent - change is too important to leave to the experts, personal mindset and mastery is the ultimate protection. Because teaching is at its core a moral profession teachers must:

"... combine the mantle of moral purpose with the skills of change agency" (Fullan, 1993a, p. 12).

The success of an innovation could be measured against these lessons and in the discussion section of this study the eight lessons will be used to evaluate the degree of successful implementation of the VCE.

In order to study an educational change, it is important to understand the change process. Fullan and Pomfret (1977) wrote that a distinction must be made between the adoption of a change (the decision to use) and the actual implementation of that change (actual use). Fullan (1991, pp. 47-48) refined this into three phases of the change process.

Phase I: Initiation (mobilisation, adoption) - the process that leads up to and includes a decision to adopt or proceed with a change.

Phase II: Implementation (initial use) - the first experiences of attempting to put an idea or reform into practice.

Phase III: Continuation (incorporation, routinisation, institutionalisation) - the change either gets built in as an ongoing part of the system or is discarded or disappears through attrition.

The three phases are interconnected and the events of one phase can effect another phase through feedback, which may alter the decisions made in that phase. At the end of the process must be some outcome. While this study is primarily concerned with implementation, issues of initiation and continuation are considered briefly in this review because of their interconnection with implementation. As Fullan says:

"... change is a process, not an event - a lesson learned the hard way by those who put all their energies into developing an innovation or passing a piece of legislation without thinking through what would have to happen beyond that point" (1991, p. 49).
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"...change is a process, not an event - a lesson learned the hard way by those who put all their energies into developing an innovation or passing a piece of legislation without thinking through what would have to happen beyond that point" (1991, p. 49).
Figure 1 provides a general view of the process.

![Initiation → Implementation → Continuation → Outcome](image)

**Figure 1**: A Simplified Overview of the Change Process (From Fullan 1991, p. 48).

### (a). INITIATION


Changes fail because they are adopted for symbolic or opportunistic reasons, they are too large or too vague, they are narrow, prescriptive and constrain the curriculum, they lack definition or support, or are imposed and without meaning for teachers. Successful initiations are those that combine strong advocacy, need, active initiation and a clear model for proceeding. Participation by large groups in the early stages may be counter productive but should begin to occur in the early stages of initiation and grow through the implementation phase. Fullan (1991) identified relevance, readiness and resources as the keys to initiation.

These considerations are summarised in Figure 2.

![Relevance, Readiness, Resources](image)

**Figure 2**: Considerations in Planning for Adoption (From Fullan, 1991, p. 63).
(b). CONTINUATION

Once implementation has occurred continuation may or may not follow irrespective of whether the change was internally or externally initiated. Continuation depends on embedding the change into the structure of the school, generating a skilled group within the school committed to the change and establishing procedures for continuing assistance, especially for those new to the program as one of the most powerful factors preventing continuation is staff turnover. However mere institutionalisation of an innovation is not enough and improvement of practice should be:

"... a continuous process of renewal ... school effectiveness projects are in the business of institutionalising the long term capacity for continuous improvement"

(c). IMPLEMENTATION

The crux of change involves the development of meaning in relation to a new idea or program, but it is individuals who have to develop this new meaning and they are insignificant parts of a gigantic, complex and loosely organised system. Effective implementation depends on the combination of all the factors and themes outlined above and implementation makes policy rather than simply putting predefined policy into action. Not all change is progress and sometimes faithful implementation is undesirable, or impossible or unforeseeable.

As implementation is the major theme of this study it is considered in more detail later in this review.

In summary Pullan (1991) sees four important insights into the change process; Active Initiation and Participation, Pressure and Support, Changes in Behaviour and Belief, Ownership.

ii. THE INDIVIDUAL TEACHER

One of aims of this study is to examine the response of the individual teacher to the externally mandated changes wrought by the VCE. What are the factors which contribute to making teachers receptive to change and able to successfully implement a change?
Waugh (1983) and Waugh and Punch (1985) studied teacher receptivity to a system wide change in Western Australia. They found that situation variables, such as organisational factors associated with the school, are not important influences on teacher receptivity. Instead factors relating to teachers' self concepts, the educational merit of the innovation and teacher participation in the processes of change were identified as important for adoption by the teacher.

While Fullan and his colleagues initially considered change from an organisational perspective, recently they have placed more emphasis on the individual within the organisation. For change to occur the organisation must be set up to allow that change. However, without individuals within the organisation using the new structures to implement the change, change will not occur. Fullan (1993a) identified four core capacities required for building greater change capacity that links the personal with an institutional counterpart. This is shown in Table 2.

**TABLE 2 : COMPARISON OF PERSONAL AND INSTITUTIONAL CAPACITIES REQUIRED TO INCREASE THE CAPACITY TO CHANGE.**

<table>
<thead>
<tr>
<th>PERSONAL CAPACITY</th>
<th>INSTITUTIONAL CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>personal vision building</td>
<td>shared vision building</td>
</tr>
<tr>
<td>inquiry</td>
<td>organisational structures, norms and practices of inquiry</td>
</tr>
<tr>
<td>mastery</td>
<td>development of increased repertoires of skills and know how among organisational members</td>
</tr>
<tr>
<td>collaboration</td>
<td>collaborative work cultures</td>
</tr>
</tbody>
</table>

Fullan, Bennett and Rolheiser-Bennett (1990), developed a framework to explain the processes of classroom and school improvement which involved three components; classroom improvement, teacher as learner and school improvement. Johnson (1989, 1993) approaches change from the second of these, the impact upon teachers of change proposals. Johnson identified three factors which consistently appeared in the literature in relation to teacher's response to a change proposal (1989, p. 1).

A) The nature of the change proposal

B) Teachers as learners

C) Schools as organisations
The relationship of these factors is summarised in Figure 3.

(a) **THE NATURE OF THE CHANGE PROPOSAL**

Johnson (1989) outlined five factors worth considering when examining the nature of a change proposal all of which relate to the teacher response to the introduction of the VCE.

1. **The Source of the Proposals**

"Pressure for change may come from outside or inside the school and change-information may have as its source research and development and/or the knowledge-in-use/craft knowledge of practitioners" (Johnson, 1989, p. 3).

Huberman (1983) identified that the types of knowledge that teachers tend to use are drawn from their peers and immediate surroundings rather than from journals or different sources. Teachers then modify these ideas to suit their own practices and focus in on classroom and immediate problems. Teachers are more interested in solutions to classroom problems rather than broader educational ideas and thus information not derived from within the classroom, such as research findings, is likely to be discredited. In the conflict between classroom pressures and external demands the classroom wins. Johnson (1989) identified a 'hierarchy of desirability' in this source of pressure for change. Where did the VCE fit in this hierarchy?
2. Purpose of the Proposal

"Change proposals have the potential to lead to 'instrumental' (action-oriented) and/or 'conceptual' (aimed at informing and enlightening individuals) outcomes" (Johnson, 1989, p. 3).

In order for a teacher to change the first step is for that individual to make the decision to change. This decision is based on the availability of conceptual knowledge, that is knowledge which enlightens and informs. However in order for the second step, that is the carrying out of the change, to occur, instrumental knowledge must be available which provides clear guidelines for action. While both types of knowledge must be present for change to occur Doyle and Ponder believe:

"... the practicality ethic is a key link in the knowledge utilisation chain in schools" (1977, p.1).

Teachers will include ideas for change into their plans if they see them as practical. Did teachers view the VCE as being practical?

3. The Form of the Proposal

"Change proposals come in a number of forms including theoretical principles or paradigms, findings that have direct application, packaged products and collections of activity ideas" (Johnson, 1989, p.4).

Huberman writes that teachers are:

"... more concerned with operational (the how) than with conceptional (the why) uses of knowledge" (1983, p. 480).

While there is a considerable body of theoretical knowledge teachers would prefer change proposals that take the form of packaged products that can be adopted or adapted in their implementation. These packages would display six characteristics which would make them attractive to teachers to use; rapidity of payoff, instrumentality, craft legitimisation, local adaptiveness, availability and inspirational thrust (Johnson, 1989). The danger is that the principles underlying the change are not apparent to the teacher or that the change has deserted the principles.

4. The Level of the Change Required by the Proposal

"Change proposals involve 'administrative' change of the organisation of the school and/or 'pedagogical' change in terms of the teacher and student actions, lesson content and classroom organisation" (Johnson, 1989, p.5).

Brown and McIntyre identified two categories of curriculum innovations; organisational and pedagogical. Organisational innovation requires:
"... some sort of corporate action or adjustment, but does not necessarily imply any change in the content or method of teaching" (1978, p. 20).

Pedagogical innovations:

"... imply that teachers are being asked to change the behaviour, lesson content or organisation that goes on in the privacy of their own classroom. The decision to implement or not belongs to the individual teacher" (1978, p. 20).

Brown and McIntyre believed that the latter is very difficult to bring about due to the autonomy of teachers in the classroom, the lack of pressure on teachers to make decisions regarding the adoption of innovations and the tendency for teachers to be more interested in course content and objectives, rather than the adoption of new ideas. Brown and McIntyre (1978, p. 22) suggested five general principles to be adopted in the introduction of any innovation:

a) Conceptual clarity be established for the meaning of an innovation and a shared understanding of this meaning be ensured

b) The innovation be perceived as valuable by planners and teachers

c) Account be taken of whether the change is organisational or pedagogical

d) Clear guidelines be provided about changes in procedures resulting from the change

e) No assumptions be made about the part school departments can play in influencing teachers.

Fullan and Pomfret (1977, p. 367) reduced to four the main factors which are determinants of implementation:

A) Characteristics of the Innovation - explicitness, complexity

B) Strategies - in-service training, resource support, feedback mechanisms, participation

C) Characteristics of the Adopting Unit - adopting process, organisational climate, environmental support, demographic factors

D) Characteristics of Macro Sociopolitical Units - design questions, incentive system, evaluation, political complexity.

Because policy makers emphasise adoption of innovation, at the expense of implementation, the second factor tends to be focussed on. Fullan and Pomfret make the point that explicitness of plans for innovation is crucial to its implementation. This is summarised in Figure 4.
Hill and Marsh writing of the Australian experience concurred, arguing that the degree of acceptance of an imposed innovation partly depends on the:

"... degree of explicitness with which the decision making unit communicates the innovation ..." (1979, p. 32).

This is a crucial issue to be examined in this study of the implementation of the VCE.

5. The Breadth of the Teacher Change Required by the Proposal

"Change proposals differ in the change they may require of teachers. They either require a teacher to polish or 'fine tune' existing skills and methods, or involve the mastery of significantly different teaching strategies or 'new repertoire'" (Johnson, 1989, p. 5).

"The more complex the change, the less you can force it" (Fullan, 1993b, p. 22).

While fine tuning of a teacher's current repertoire can be achieved it is much more difficult to implement a change which requires substantial changes in a teacher's behaviour, attitudes or range of strategies.

Hill and Marsh (1979), in their study of externally imposed innovation in Western Australia, found that in order for high levels of adopter acceptance to occur there needed to be the opportunity for adaptation and accommodation of the ideas by the system and the individual and for the flexibility and freedom of the individual to develop his or her own approach to the innovation within a broad framework.

Guskey (1986, 1990) wrote that teachers often need more than one year to feel comfortable with a change, spending that time experimenting and learning, especially if the change is complex or unfamiliar. If support is withdrawn before the teacher has incorporated the change into his or her normal means of operating the change may be abandoned as 'just another fad'.

Joyce and Showers (1982) support these views and identify two stages in the process of teachers incorporating changes: development of a skill and transfer of that skill into their active repertoire. The regular use of the new approach will not occur unless additional information and further coaching is provided. Therefore to make major curriculum changes large amounts of time, money and energy must be injected into professional development programs.
Johnson concludes:

"... major change proposals over the past decade appear to possess few of the characteristics that would make them appealing to teachers" (1989, p.6).

The introduction of the VCE was exceptionally complex, so the issue of complexity is of major importance in understanding the degree of successful implementation of the innovation.

(b) TEACHERS AS LEARNERS

The introduction of the VCE required significant teacher learning in a wide range of areas. Because teachers are individuals who learn in different ways and who respond differently to change it is important to examine the factors associated with teachers as learners. Johnson (1989, 1993) identified seven factors associated with teacher response to change proposals and the professional development implications of these responses.

Factor 1

"Teachers are good learners who can fine-tune existing ways of working or master new approaches and implement these in classrooms, if a number of learning conditions are present in their inservice education. Unfortunately it is seldom that all of these conditions are present" (Johnson, 1989, p.7)

To virtually guarantee the successful implementation of an innovation Joyce and Showers (1982) identified four crucial elements that must be present in training programs:

a) Provision of a theoretical basis for the innovation and therefore a rationale for change

b) Demonstrations of the innovation by experts

c) Practice of the innovation and structured feedback in a non-threatening environment

d) Coaching as the innovation is put into practice in the classroom so that the innovation becomes part of the teachers repertoire.

The coaching aspect is thought to be the most important because it enables teachers to practice the new skills and receive feedback on their performance (Sparks-Langer, 1983). Teaching practice will not permanently change until this collegial support occurs. Professional development for teachers needs to be ongoing, 'one-off' approaches are not generally successful as they do not provide teachers with the time they need to try new approaches or to reflect upon and discuss with
colleagues their successes and failures (Owen, et al, 1988, Fullan 1991). Joyce, Murphy, Showers and Murphy (1989) also identify the importance of collegial support and stress the need to change the workplace to make cooperative behaviour the norm. Wildman and Niles (1987) identify three conditions essential for professional growth of teachers; autonomy, collaboration and time.

Crandall (1983) believed that teachers will emulate exemplary behaviour given early success and ongoing support and successfully implement programs without altering them. With clear direct leadership, training by a credible person in the use of a practice that was known to be effective and continued support teachers try new practices and develop a sense of ownership with little or no early involvement in the innovation.

The processes of teacher learning take time as it appears that teachers improve through a number of stages. Johnson (1989, 1993) identified five stages:

a) Recognition of existing teaching repertoire
b) Refinement of existing repertoire
c) Re-examination of existing repertoire
d) Renovation of existing repertoire
e) Renewal where re-evaluation of the nature extent and use of repertoire occurs and necessary additions are planned.

Johnson (1989) asserted that while in service programs tend to present the theory effectively the other elements of effective training programs are often missing, especially the aspect of classroom follow-up.

This issue of professional development is critical in examining the introduction of the VCE. For successful implementation of the range of new ideas contained in the VCE teachers would require appropriate professional development. It is important therefore to consider what elements are required to make up an effective professional development program.

Guskey (1986,1990), Joyce and Showers (1982) and Connors (1991) all stressed that professional development programs should not only teach or develop skills, based on relevant theory, but that it should be ongoing and supportive. Teachers should be given time to practise their skills, receive feedback, and further coaching, and be given time to reflect (Smyth, 1982, 1984, 1985) and gradually incorporate the new skills into their repertoire.

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Johnson (1988) translated these ideas into the Australian context when he wrote that over the last decade three distinct approaches to professional development have emerged:

i) **Outside Expert Interventionist**: Innovations resulting from educational research and development are disseminated to practitioners for their use.

ii) **Inside Collaborative**: The most effective avenue for teacher improvement and change is cooperative study by teachers themselves into problems and issues arising from their attempts to make their practice consistent with their educational values.

iii) **Partnership Innovation - Focused**: Based on the work of Fullan (1985), this approach promotes change by offering for teacher consideration 'exemplary practices' and a coordinated set of strategies including professional development.

Johnson wrote:

"The position taken in recent successful attempts to improve teaching is that elements of both inside collaborative and partnership innovation-focused professional development approaches are needed for the effective and lasting implementation of new ways of teaching and learning" (1988, p.10).

Citing examples of such professional development programs, Johnson argues:

"They encourage teachers to collaboratively engage in reflection and problem solving as well as providing more structured learning experiences when a teacher wishes to extend his/her repertoire of teaching skills" (1988, p.10).

Johnson argued that each approach implies a particular source of educational knowledge, suggests a design for learning and has been found to have a certain impact on changing teacher practice. A summary of these approaches is in Table 3.
Factor 2

"Change strategies should be varied according to the individual behaviours and images of teachers. However, most teachers have been socialised to a 'practicality ethic' where survival concerns dominate and change in classroom practice and attitudes to teaching and learning must take this concern for the practical into account" (Johnson, 1993, p. 6).

Doyle and Ponder (1977) identified three images of teachers which had appeared in the change literature at that time; the Rational Adopter, the Stone-age Obstructionist and the Pragmatic Sceptic. While all three types existed, most teachers were classified as Pragmatic Sceptics who believed in the uniqueness of their own classroom and whose acceptance of an innovation depended on its practicality, the amount of available information and support and whether
substantial change was required. Are these images still accurate today in relation to implementing the VCE?

Doyle and Ponder (1977) identified three criteria used by teachers to decide whether a proposal is practical and should therefore be considered for adoption; Instrumentality, Congruence and Cost. Guskey (1985, 1986) summarised the position of the Pragmatic Sceptic when he wrote that teachers' attitudes and beliefs change significantly only after they begin to use new practices successfully and see changes in student learning. His model of the process of teacher change is outlined in Figure 5.

Figure 5: A New Model of Teacher Change
(From Guskey 1985, p. 58, 1986, p. 7)

**Factor 3**

"Individual teachers exhibit different growth states, and different appetites for learning; thus they differ in their availability for learning" (Johnson, 1989, p.10, 1993, p. 7).

Joyce, Bush and McKibben (1982) devised five categories to describe this variability amongst teachers; Omnivores, Active Consumers, Passive Consumers, Entrenched and Withdrawn.

As few teachers will actively seek out and embrace change, introducing a change will take a long time and require large amounts of energy. It might be more efficient and effective to aim inservice programs at the Omnivores and Active Consumers who will act upon the proposal and provide leadership in their schools, rather than catering for the majority who may be threatened by training that they perceive to be unnecessary. However, care must be taken not to label teachers too rigidly as this may prejudice the design of professional development programs. Were the professional development programs run for the VCE developed with the variability of teachers in mind?
Factor 4

"Teachers implement change in ways and rates different from one another" (Johnson, 1989, p. 11, 1993, p. 8).

Hall (1980) argued that there were two dimensions which needed consideration when examining the ways and rates at which teachers, when faced with a change carry out the implementation.

a) Stages of Concern - includes concerns that are personal, related to the task or related to the impact on others of the change.

b) Level of Use - some teachers are satisfied with routine use of the curriculum while others try to refine, extend and challenge the curriculum.

These are two components of the Concerns Based Adoption Model of in service education which suggests that professional development programs must specifically address the needs of the individual teacher.

Factor 5

"Teachers respond to change proposals in highly personal ways and their learning has to do with issues of collaboration, guided reflection, and the search for meaning, all of which occur over extended periods of time" (Johnson, 1989, p. 12, 1993, p. 10).

Did the introduction of the VCE provide the time that was needed by teachers?

Sparks-Langer and Colton wrote:

"... professional knowledge is seen as coming both from sources outside the teacher and from the teachers' own interpretations of their everyday experiences" (1991, p. 37).

Thus reflective thinking by teachers is important in their development and ability to respond to change by becoming critical of their work and examining the social and political context in which they operate.

Smyth (1982, 1984, 1985) advocated reflective practice suggesting that teachers should become:

"... actively involved in the reflexive process of analysing and theorizing about their own teaching, its social antecedents, and possible consequences" (1984, p. 426).

Teachers should be continually searching for meaning in their work and constantly involved in dialogue and sharing with their colleagues. They should constantly be asking questions like:

"What am I doing ? What are my reasons ? What effects do my actions have on my students ?" (1985, p. 1).
In doing this teachers become empowered over their own teaching and will be more likely to trial external change proposals before adding them to their teaching practices. Smyth wrote:

"...teachers should be involved as full partners in their own professional development" (1982, p. 340).

In the area of the cognitive level at which teachers operate Johnson summarised the current picture:

"... less cognitively complex teachers process experience differently, may not do well in certain in service education contexts, may require extra support during training and transfer stages of learning, and may be less interested in reflecting upon their teaching" (1989, p. 13).

Teachers make sense of innovation proposals in relation to existing goals, technologies and social relationships:

"They look for familiar elements in the innovation, which they then construe to be like what is already well known. ... they use familiar constructs in order to translate change elements into a workable teaching system" (Johnson, 1989, p. 14).

Teachers pre-existing experiences and attitudes influence their approach to professional development so that they are more likely to accept a change proposal if they feel their needs are met. Consequently providers of in service education should:

a) Recognise that teachers are motivated to achieve, have influence over their own destinies and to experience affiliation with others.

b) Provide more than just new understanding and skills but also opportunities to integrate, in new ways, knowledge and skills already in existence.

c) Consider a change proposal as a stimulus to shift the teacher's orientation to a new set of unclear meanings rather than merely to elicit adoptive behaviour.

d) Act as colleagues and work with teachers supporting them and acknowledging and using their extensive knowledge.

Sikes (1992, in Johnson, 1993) believed that change is necessary to move forward and sometimes changes must be imposed. She sets down five considerations for those responsible for imposing change which support Johnson's four points above.

a) Consult with practitioners to find out what the change means for teachers and schools.

b) Be sensitive to the personal and professional needs and interests of the teachers.
c) Adequately resource changes.

d) Provide adequate in-service education and continuing support.

e) Treat teachers as autonomous and capable professionals and trust their ability.

**Factor 6**

"Teachers are more likely to change the way they work in classrooms if they are supported in their own working environment by a group of colleagues who engage in co-operative/collaborative professional development activities" (Johnson, 1989, p.15, 1993, p. 13).

Guskey (1986, 1990) identified three implications for professional development programs for teachers to institute change proposals.

a) Change is a gradual and difficult process.

b) Teachers must receive regular feedback on student learning progress.

c) Continued support and follow up must occur after initial training.

Without adequate training new skills are not acquired and without adequate follow up implementation does not occur.

Conners (1991) identified three functions for professional development:

a) Establishing - supports the introduction of a new program or innovation.

b) Enhancement - performance is enhanced by the improvement of existing skills and increasing teacher's knowledge of new developments.

c) Maintenance - maintains those condition necessary for the continued effective operation of a program.

Glatthorn (1987) takes up the issue of follow up and support in his discussion of 'Co-operative professional development':

"... a process by which small teams of teachers work together, using a variety of methods and structures, for their own professional growth" (1987, p. 31).

Co-operative professional development can take many forms, such as, shared talk, joint preparation, informing, in-service with reporting, interschool joint preparation and social contact (Duignan and Johnson, 1984) or professional dialogue, peer supervision, curriculum development and action research (Glatthorn, 1987) or peer coaching (Glatthorn, 1987, Joyce and Showers, 1982). Was there sufficient follow up and support for teachers implementing the VCE?
There appear to be a series of broad patterns in the ways in which teachers respond to the work of teaching which roughly correspond with age and experience. There should be an appreciation of teachers changing characteristics and needs over the course of their careers (Johnson, 1993, p. 9).

Johnson (1993) summarised the general phases in career development and their relationship to the availability and willingness of teachers to undertake new learning. He produced five categories; Career Entry, Beginning Teacher, Stabilised Teacher, Mid-career and Veteran.

These categories are broad generalisations and teachers are affected by a wide range of influences from within and outside of teaching. Teachers are not a homogeneous group and their individual differences must be taken into account when considering their response to a change proposal.

(c). FACTORS RELATED TO THE SCHOOL AS AN ORGANISATION

Teachers cannot effectively implement change proposals in a vacuum. The school must not only be supportive of the teachers but must also have organisational arrangements in place to facilitate the change. Johnson (1989) identified five elements in schools that impinge on the implementation of change.

Element 1

"Schools are distinguished from other organisations by certain features such as teacher isolation, vague and diverse goals, loose coupling, poorly developed incentive structures, and vulnerability to system and community pressures. These features of school organisations often make the implementation of a change proposal difficult" (Johnson, 1989, p. 16).

Miles (1981) mapped the common properties of schools and Schmuck and Runkel (1984) examined organisational development in schools. Miles (1981) identified seven special properties of educational systems which lead to organisational ill health and consequently problems with the implementation of change. Johnson (1989) summarised their findings into six features that distinguish schools from other organisations.

a) Schools have vague, abstractly stated and diverse goals, the achievement of which are difficult to measure (goal ambiguity).

b) Teachers seldom see themselves as organisational members and there is little demand by the school for teachers to collaborate (low interdependence).
c) Schools have loose and permeable boundaries that make them vulnerable to their environments, there is wide variation in input from the environment (vulnerability, input variability).

d) Schools deal in information, skills and values which are not 'products' in a commercial sense.

e) Schools are composed of loosely connected units, processes, actions and individuals rather than being tightly connected organisations. The performance of individuals is largely invisible and there are problems with the input of lay people (role performance invisibility, lay-professional control problems)

f) Incentive structures are poorly developed and inappropriate.

Miles (1981) also identified low investments in technology as a further problem for the successful implementation of change.

Consequently the use of traditional planning systems and interventions to ensure the implementation of change can have problems due to these unique features of schools. Was this the case with the VCE?

Element 2

"Schools can be classified according to their effect on the professional development of the individuals that work within them" (Johnson, 1989, p. 18).

The climate of the school can greatly influence the professional development of teachers. Johnson (1989) ties together the work of Joyce, Bush and McKibbon (1982) in classifying schools and their teachers. Three types of school environments are identified; Depressant, Maintenance Oriented and Energising. The case study school may fit into one of these categories. Which category would effect the success of implementation.

Element 3

"Each school has established its own norms, roles and procedures. A change proposal usually impacts on an organisation challenging its goals and procedures, raising problems and sometimes sparking conflict. Different schools respond differently to such pressures, but all can be helped to cope" (Johnson, 1989, p. 19).

In the implementation of a change proposal it is important to develop a strategy, which takes into account that the school is an organisation in which individuals interact. Any change which is introduced will effect both the individual teachers in the school and the organisation of the school itself. A school climate should be established in which school improvement is continuous through professional development as problems are caused by the nature of organisational structures as much as by teachers and their problems in coping with change. Hirsh and Ponder
believe that permanent changes in the functioning of schools will only occur when new school cultures are evolved with the development of long range plans allowing for the creation of visions, identification of goals and the development of processes for achieving the goals. New skills and understandings must be developed by teachers and administrators to achieve change.

Fullan, Miles and Taylor (1980) suggested that Organisational Development is a change strategy that could be used for organisational self development and renewal.

Element 4

"Effective teacher change involves the development of both individual and organisational meaning associated with change. The question is not 'do teachers and principals require support from outside consultants in their curriculum, professional and organisation development?'; rather it is a question of 'when, how, how much and by whom?'" (Johnson, 1989, p. 20).

Consultants are routinely used in schools to assist in the implementation of change and to help teachers change their practices. The consultant operates most effectively in support of the implementation phase and therefore works best in an ongoing role, as implementation takes time to occur. The assistance may take the form of providing information, helping teachers collect information, demonstrating, advising, guiding, listening and discussing teaching practice. The consultant must understand the change process and act as a link person between individuals involved in implementation:

"A system of consultancy which works hard to have a school or classroom innovation 'adopted' but fails to support the 'implementation' and 'continuation' phases does little to help lasting change to occur in schools and classrooms" (Murdoch and Johnson, 1994, p. 5).

The lack of availability of consultants became a major factor during the implementation phase, of the VCE, due to reductions in the education bureaucracy.

Element 5

"The classroom environment is demanding and complex. Teacher response to a change proposal is greatly influenced by classroom level constraints such as the need for immediate, concrete decision making; the requirement to carry on a variety of operations simultaneously; the challenge of input instability and outcome indeterminacy; and the extremely personal and interactive nature of the involvement" (Johnson, 1989, p. 22).

Huberman (1983) called this collection of constraints the classroom 'press' and identified the interacting forces within the classroom by the term classroom 'ecology'. Huberman defined four dimensions which characterise the nature of the classroom; Immediacy (concreteness), Multidimensionality (simultaneity), Unpredictability and Personal Involvement.
Pullan (1991) drew together the work of Huberman (1983) and Crandall et al (1982) in his explanation of the ‘classroom press’ as drawing a teacher’s focus to day to day effects, isolating them from other adults, exhausting their energy, limiting their opportunities for sustained reflection and increasing their dependence on experiential knowledge at the expense of sources of knowledge beyond their classroom experience. Once implementation of the VCE was underway the ‘classroom press’ would be significant in determining the success of the innovation.

iii. FACTORS AFFECTING IMPLEMENTATION

The factors effecting implementation will now be considered in detail. Kritek defined implementation as:

"... the fate of proposals for educational innovation when attempts are made to put these proposals into practice in real life settings" (1976, p. 86).

Further that:

"... programs cannot be faulted for failing to achieve intended outcomes if, in fact, they have not been successfully implemented" (1976, p. 87).

Pullan (1991, p. 18) identified four possible outcomes in the attempt to implement an adopted change.

Type I: The actual implementation of a quality program that is valued.

Type II: A valued, technically sound program is not implemented for certain reasons.

Type III: A change that is not technically well developed or is not valued is put into practice.

Type IV: A poorly valued or poorly developed change is not put into practice.

Which type is the VCE?

Fullan (1991) developed a system of variables which interact to determine the success or failure of the implementation process. This system could be used to judge the success or failure of the implementation of the VCE and is outlined in Figure 6.
The following is a summary of the major aspects of each factor affecting implementation.

(a). FACTORS RELATED TO THE CHARACTERISTICS OF THE CHANGE

1. Need - teachers frequently do not see the need for an advocated change, especially when overloaded with improvement agendas. The 'fit' between a new program and the schools needs may not become entirely clear until implementation is underway. Early rewards and tangible successes are critical incentives during implementation.

2. Clarity - the more complex the reform, the greater the problem of clarity. Diffuse goals and unspecified means of implementation are major problems. Policy makers tend to:

   "...write vague and abstract statements of a program's goals and of the means towards these goals" (Kritik, 1976, p. 88).

   Teachers find that it is unclear as to what the change means in practice. Clarity is accomplished or not depending on the process.
3. **Complexity** - the difficulty and extent of change required of the individuals responsible for implementation. The magnitude of the change depends on the starting point of the individual, so simple changes may be easier to carry out but not make much of a difference. Complex changes promise to accomplish more but demand more effort and failure takes a greater toll. Kritek (1976) wrote that the failure of proposals to deal with complexity can lead to unanticipated consequences that can cause the program to fail.

4. **Quality and Practicality of Program** - changes which are merely practical may be trivial or offensive, while complex changes may not be practically worked out. Adoption decisions may be more important than implementation therefore there is inadequate preparation and/or follow up. Ambitious programs are nearly always politically driven and so time lines are too short to ensure quality. This coincides with Doyle and Ponder's (1977) 'Practicality Ethic'.

(b). **LOCAL FACTORS**

The individual school is the unit of change even though the change may be a system initiative based on strategies and supports offered by the larger organisation:

"The uniqueness of local circumstances, in many cases, can best be served by some modification of the standard procedures" (Kritek, 1976, p. 95).

5. **The School District** - most attempts at collective change fail.

Teachers are sceptical about the purposes and implementation support for educational change. Support of central administrators is critical for change in district practice and teachers do not take change seriously unless central administrators demonstrate through actions that they should. A degree of centralisation is necessary for implementing comprehensive change across schools.

6. **Community** - the community and school boards are often ignored but their role can vary from apathy to active involvement. This active involvement can vary from conflict to cooperation.

7. **Principal** - strongly influences the likelihood of change but most do not play change instructional or change leadership roles. Principal's actions legitimise whether a change is to be taken seriously and support teachers psychologically and with resources. The principal can create the
organisational conditions necessary for success even though he/she may not play an active role in implementation. Kritek (1976) believes that the principal's role is to maintain motivation of staff and help staff deal with problems.

8. Teacher - both teachers as individuals and as a group effect implementation. Their psychological state, the proportion in the school predisposed towards change and the culture of the school all play a role. However it is the actions of the individuals and their relationship with peers that has the most influence. The quality of working relationships is strongly related to implementation.

(c). EXTERNAL FACTORS

Implementation of changes in schools takes place in the context of the broader society. The relationship of the school to outside agencies is complicated and must be understood as they impinge on schools and teachers. Implementation depends on the congruence between the reforms and local needs and how the changes are introduced and followed through.

9. Government Agencies - are preoccupied with policy and program initiation at the expense of implementation. The relationship between internal and external groups is characterised by misinterpretation, attribution of motives, feelings of being misunderstood and disillusionment on both sides.

While these factors accurately describe the general situation they are also directly relevant to the introduction of the VCE.

In addition to these factors Fullan argues that a number of key themes in the implementation phase have emerged which give a more complete picture of the change process. There are six key themes represented in Figure 7 which Fullan (1991) has developed from the work of Louis and Miles (1990). Fullan believes that for change to occur all six themes must work together.
1. **Vision Building**

Vision is constantly changing and can take two forms; the shared vision of what the school should look like and the shared vision of the change process needed to get there. It is not well understood as it is highly sophisticated and dynamic and few organisations can sustain the process. An:

"... alternative approach to vision driven reform is one in which the principal pursues promising visions provisionally, learning as well as leading through collaboration" (Fullan, 1992b, p. 20).

2. **Evolutionary Planning**

Once implementation has begun plans are adapted to improve the fit between the change and conditions in the school and to take advantage of unexpected developments and opportunities. Planners must:

"... be ready to adapt their program to the environment if any implementation is to be expected ... planning that stops short of forging the link between program objectives and actual practice is defeating its own purpose" (Kritek, 1976, pp. 90-91).

3. **Initiative Taking and Empowerment**

Although initiative can come from different sources power sharing is crucial in the implementation phase. Developing a collaborative work culture reduces professional isolation, allows for the codifying and sharing of successful practices, raises morale and enthusiasm, increases experimentation, increases a sense of efficacy and provides the support and pressure necessary to achieve implementation.
4. Staff Development and Resource Assistance

Staff development is central to assist teachers in the learning of new ways and to avoid ad hoc approaches. One shot approaches and outside consultants are usually ineffective. Teachers claim to learn best from other teachers but rarely interact enough to do so. Concrete and skill specific training can be effective in the short term while most in-service training is not ongoing, interactive or cumulative and therefore does not provide the learning necessary to develop new conceptions, skills and behaviour. Most importantly, in-service must occur during implementation. It must combine concrete, teacher specific training activities, ongoing continuous assistance and support and regular meetings with peers and others. Sustained interaction and staff development are crucial and the more complex the change the more interaction is required during implementation. Program planners and implementers must be realistic in setting objectives tailored to the available resources or scale down their endeavour (Kritek, 1976).

5. Monitoring Problem Coping

Monitoring the process of change is just as important as measuring outcomes. Monitoring provides a control system by making available information on innovative practices and exposing new ideas to scrutiny helping to eliminate mistakes and further develop promising practices. Monitoring results and gathering data are crucial as all improvement programs have problems and successful implementation requires deep problem solving and an interweaving of accountability and improvement. Good change processes therefore require the development of trust, relevance and the desire for better results, which is sophisticated and difficult.

6. Restructuring

Structural change can be conducive to improvement by providing new foundations upon which a change can be built. The long term effects of restructuring have yet to be documented. However Deal (1990) points out that the assumption made in much restructuring assumes that old patterns must be changed and that this may not be the best strategy. Schools need to be transformed to overcome deep structures and practices but that first a look backwards at the wisdom of the past should occur before the old patterns are let go and the new ones adopted. Joyce (1991) believes that restructuring is another term for school improvement and he outlines ways in which this can be
achieved. His main point is the need for inclusion of teachers at all levels of the change process and to remember the five aspects of school culture that are important; collegiality, research, site specific information, curriculum initiatives and instructional initiatives.

How did these six themes apply to the introduction of the VCE?

iv. COPING WITH CHANGE

How then do those charged with implementation cope with change? The first step is to make a critical assessment of whether the change is desirable and implementable. If the response is positive and the innovation is not rejected the next step is planning and implementation. Fullan (1991, pp. 105-107) outlines ten assumptions that are basic to a successful approach to educational change. Again, the success of the implementation of the VCE could be measured against these ten assumptions.

1. Do not assume that your version of what the change should be is the one that should or could be implemented. Instead assume that one of the main purposes of the process of implementation is to exchange your reality.

2. Assume that any significant innovation, if it is to result in change, requires individual implementers to work out their own meaning. Effective implementation is a process of clarification which is likely to come in large part through practice.

3. Assume that conflict and disagreement are not only inevitable but fundamental to successful change.

4. Assume that people need pressure to change, but it will be effective only under conditions that allow them to react, to form their own position, to interact with other implementers, to obtain technical assistance, etc.

5. Assume that effective change takes time. It is a process of development in use.

6. Do not assume that the reason for lack of implementation is outright rejection of the values embodied in the change, or hard core resistance to all change. Assume there are a number of possible reasons.

7. Do not expect all or even most people or groups to change. It is impossible to bring about widespread reform in any large social system. Progress occurs when we take steps that increase the number of people affected.

8. Assume that you will need a plan that is based on the above assumptions and addresses the factors known to affect
Evolutionary planning and problem coping models based on knowledge of the change process are essential.

9. Assume that no amount of knowledge will ever make it totally clear what action should be taken.

10. Assume that changing the culture of institutions is the real agenda, not implementing single innovations.

v. PLANNING FOR CHANGE

Once these assumptions have been considered effective planning can occur. Pullan said:

"The fundamental goal for planners is to achieve a feel for the change process and the people in it, which entails a blend of research and experiential knowledge ... change is not a fully predictable process" (1991, p. 107).

Pullan quoted Patterson, et al, in arguing that planning should be strategic to take into account the non rational world of school systems:

"The goal of strategic planning is to produce a stream of wise decisions to achieve the mission of the organisation. Emphasis shifts from product to process. Just as planning the process builds in flexibility for adaptation for changing conditions in and out of the organisation, it also accepts the possibility that the final product may not resemble what was initially intended" (1986, p. 61).

Pullan then drew on the work of Louis and Miles (1990), to draw a number of conclusions from their analysis of the evolutionary planning process.

1. Effective evolutionary planning must be built on the direct involvement of the principal or some other key leader in the school.

2. Action precedes planning as much as it follows it.

3. Multiple themes often precede mission statements.

4. It is best to start small, experiment, and expand successfully while contracting the less successful.

5. Leadership dominated early planning must shift to shared control with teachers and others. The control base expands as evolutionary planning unfolds.

Pullan (1991) believes that often planning fails because of false assumptions by planners or because some problems which arise have no solutions. Strong commitment to a particular change may be a barrier to setting up an effective change process and the promoters of change need to be committed and skilled in the change process as well as in the change itself. Educational change is a process of coming to grips with the multiple realities of people who are the main
participants in implementation. Innovators who are unable to alter their realities of change through exchange with would be implementers can be as authoritarian as the staunchest defenders of the status quo. Planners are often unaware of the situations that potential implementers face, introduce changes without providing the means to identify and confront situational constraints and make no attempt to understand the values, ideas and experiences of the implementers.

Another problem that planners face is the assumption that schools operate within a rational social system (Wise 1977). Fullan reports on Patterson et al (1986) and their five dimensions of rational versus non rational conceptions in relation to school systems.

1. Goals - schools systems are guided by multiple and often competing goals.

2. Power - power is distributed throughout the organisation.

3. Decision Making - a bargaining process inevitably occurs to arrive at solutions which satisfy a number of constituencies.

4. External Environment - the public's influence is large and unpredictable.

5. Teaching Process - there are a variety of effective situationally appropriate ways to teach.

A final reason for the failure of planning is that complex implementation plans designed to cover all known contingencies themselves become a source of confusion and burden for those carrying out the change.

Sometimes planning fails because problems arise that are unsolvable. This may be because the complexity of the situation makes it incomprehensible or because the solution cannot be understood or put into practice by the implementers.

While extensive planning went into the introduction of the VCE, many unforeseen events occurred during the implementation process. Was the planning flexible and responsive enough to cope with the demands of implementing the VCE?
B. THE 'NORTHFIELD REPORTS'

During the period of this study a parallel study of the introduction of the VCE was being carried out by a team of academics from Monash University under the leadership of Associate Professor Jeff Northfield. The 'Northfield' study was to focus on what was happening in schools during the introduction of the VCE, by tracking the experiences of teachers in fifteen schools, and to describe this to the wider community; to provide a record of the VCE implementation from a school perspective. The 'Northfield' team produced four reports:

1. Responding to the Challenge - 1989
2. Meeting the Challenge - 1990
4. The Challenge Continues - 1992

The four reports were republished in a single volume in 1993, entitled "Lessons For All - A four year evaluation of the VCE implementation, 1989-92". The 'Northfield Reports' take a broader view of the introduction of the VCE, than this study, which is grounded in the experiences of one school. The two studies are complementary, the 'Northfield Reports' lack the fine detail of this study, but provide a broad context within which to view this study. The issues identified in both works are similar so some of the relevant findings of the 'Northfield Reports' will be outlined below.

i POLITICAL ASPECTS AND THE PUBLIC DEBATE

In his forward to "Lessons For All" Northfield devoted a significant section to the political aspects of the introduction of the VCE:

"Almost a decade of curriculum reform has been associated with intense and often bitter debate over many issues. Social and political issues often took precedence over educational issues and there are few areas of the community that did not become deeply involved in the VCE analysis. Those responsible for development and implementation underestimated what was needed to support schools and teachers and communicate with the wider community. The VCE, as planned, was a complex major change and this underestimation partly contributed to much of the media and political debate being based on myths and a misunderstanding of what was being attempted. There are lessons for sections in the community who, with the best intentions, let particular interests shape their response and polarise the debate at the expense of the students and school communities who needed extensive support as they attempted to put VCE ideas and plans into practice" (in Northfield and Winter, 1993, p. 7).
Gill, writing in the fourth report, summarised the feelings of teachers and posed a number of questions regarding the role of the media and VCAB in relation to the concerns of teachers:

"Teachers and principals were exasperated at the disjunction between their own knowledge (including knowledge of problem areas) and expertise in delivering the VCE, and the media misrepresentations 'by people who don't know what they are talking about'.

The project team formed the strong view that schools were confident of their ability to deliver the VCE and to resolve the problems of initial implementation ... the project team is forced to ask these questions.

- Why were most schools' judgements so consistently downplayed, ignored or overridden in the public debate about the VCE?
- What were the reasons for the widespread negative media coverage?
- Why, within VCAB itself, did 'on the run' changes and modifications at times pre-empt due processes and timelines for curriculum review and reaccreditation?
- Were there other major issues which schools regarded as important?"


ii IMPLEMENTATION ISSUES

Northfield highlighted a number of implementation issues. In 1990, when analysing the experiences of pilot schools, he recognised the enormity of the task for teachers:

"Although there continues to be general support for the VCE and what it is trying to do within the pilot schools, there is concern about the capacity of schools to put it in place effectively. (sic) Even in the pilot schools, which have approached the VCE in a positive manner, there have been some concerns. Schools without the pilot school experience are going to approach the VCE with far less understanding and confidence. There is an impression that pilot schools have recognised that outside assistance will be very limited. This can be regarded positively if schools have the confidence, resources and expertise to meet the challenge. The VCE is stretching pilot schools, especially when they take on an in-service role for other schools. The remaining schools will not find it any easier to implement the VCE satisfactorily. To implement the VCE is asking a great deal of teachers and there are some, both within schools and outside, who feel they have not received adequate support and resources to complete the task" (in Northfield and Winter, 1993, p. 75).

At the end of 1992 Northfield strongly criticised the lack of thought given to implementation issues:

"We are paying the price for an inadequate understanding and lack of commitment to the implementation stage. Educationists from overseas are surprised at how well VCAB and teachers coped given the immense task and the low priority given to implementation" (in Northfield and Winter, 1993, p.180).
iii PROFESSIONAL DEVELOPMENT

Northfield is critical of the level of professional development provided to teachers:

"The support for those who had to make the VCE work was minimal, certainly less than required to complete the tasks confidently and effectively in the first year. It was as if the good ideas would automatically fall into place - we did not invest enough in in-service to ensure the ideas would be understood and therefore be implemented effectively" (in Northfield and Winter, 1993, p. 180).

iv WORKLOAD

The significance of teacher workload as an issue is recognised in each of the four reports. At the end of 1992, after one full year of the VCE, a full chapter of the fourth report is devoted to teacher workload. Corrigan wrote that although few of the recommendations of the working party on teacher workload (231) had been acted upon and that there was no denying that:

"...the workload of teachers has been enormous and, at times, unmanageable, but overall it has been worthwhile in terms of what students are now achieving" (in Northfield and Winter, 1993, p. 136).

Corrigan identified a number of aspects of the increase in teacher workload:

1. Teachers were required to shift their educational philosophy and teaching strategies. Teachers were required to spend time and energy learning for themselves.

2. The role of the teacher changed. Teachers not only had to teach, but also respond to and facilitate their students' needs.

3. The workload was not uniform, largely due to CATs. At peak times the workload was very intensive, almost excessive, and frequently required work during the vacation.

4. First year out teachers have little support for their unique difficulties.

In addition, Corrigan found that the morale of teachers was low:

"It is difficult for them to adopt the changes necessary in teaching VCE in the light of the negative media and general public attitude to the VCE. All their extra efforts and the level of commitment required go largely unheeded by those outside the school community (sic)" (in Northfield and Winter, 1993, p. 136).

Despite the workload difficulties outlined by Corrigan she ended on a positive, if qualified, note:

"In conclusion, teachers are supporting the VCE in real terms. They are accepting the workload; a measure of their commitment. With continued experience of teaching VCE it will become easier but will the VCE remain stable enough for teachers to gain confidence and expertise with the massive curriculum and learning changes they are being asked to manage?" (in Northfield and Winter, 1993, p. 137).
CHEATING AND THE VERIFICATION PROCESS

Northfield wrote, in 1992, on the issue of authentication and verification of student work:

"It is not difficult to collect anecdotes which indicate imperfections in the overall assessment procedures. Whether we stay with the present system and continue to improve it will depend on our faith in teachers to carry out the authentication and verification procedures...

If the community does place its faith in teachers we believe the assessment approaches in the VCE have the potential to encourage and give credit for a wider range of learning outcomes" (sic) (in Northfield and Winter, 1993, p. 177).

CONCLUSION

Northfield concluded, at the end of 1992:

"Four years ago we could not have foreseen the difficulty of the VCE changes, nor the controversy that would be created. What has been achieved is a tribute to teachers. They have continued to respond with the best interests of their students as their prime objective. The way they have responded to the challenge must increase the status of the profession. Much remains to be done" (in Northfield and Winter, 1993, p. 180).

This literature review has established the theoretical basis for this study in the area of change by outlining the major issues which may have had an effect on the introduction of the VCE. These included the nature of the change, the impact of the change on the individual, implications for the organisation instituting the change and the role of professional development in implementing change.

Finally it reviewed a major piece of qualitative research into the introduction of the VCE that is also longitudinal in nature and is important as a local point of comparison for this study.

A range of qualitative methodologies will be used to collect the data. Chapter 3, which follows, examines the debate surrounding the use of different research methodologies, describes the methodologies used, outlines the data collecting procedures and means of data presentation and provides reasons for choosing a particular methodology. Finally a brief outline of my perspective and history in relation to my position as a participant observer is provided.
CHAPTER 3.

METHODOLOGY

This chapter will examine the debate surrounding the use of different research methodologies and will provide supportive evidence for the methodologies used in the research component of this study. The history and current state of the debate over the relative strengths and weaknesses of qualitative and quantitative research methodologies is discussed. Support for the qualitative approach of this study is provided. The use of the case study as a research tool is examined and evidence is provided to support the validity of its use in this study. Literature regarding the role of the researcher as participant observer is discussed and justification provided for the adoption of this technique as one of the investigative means of this study.

The second section of the chapter discusses the types of methodologies chosen, the means of presenting the outcomes of the data collection and the role of the participant observer.

A. METHODOLOGY: THEORY AND DEBATE

The methodologies chosen in this study involve using qualitative, rather than quantitative, techniques. This review will provide broad justification for the use of qualitative methodologies as a means of describing the reality of the VCB and of making a contribution to the body of knowledge on educational change. This subchapter will be organised in three sections.

The first section will outline the debate over the relative merits of qualitative research compared to quantitative techniques. In recent times there has been a move to accept both forms of research as valid and complementary. Historically the two schools of thought were diametrically opposed and the validity of conclusions reached from qualitative research was questioned. However, qualitative techniques have now been recognised as making an equal contribution to the body of research knowledge.

One of the qualitative research tools used in this study is the case study. In the second section validity of the case study approach is discussed, the strengths and
The weaknesses of this technique are outlined and the position of case studies as part of a network of qualitative methods is considered.

Another qualitative technique adopted in this study was for the author to become part of the case study group as a participant observer. In section 3 the literature in this area is reviewed in support of the validity of this research tool.

1 METHODOLOGY: THE DEBATE

"Until 20 years ago, qualitative methodology lacked a history within educational research; not surprisingly, its appearance on the scene prompted concern about its legitimacy" (Howe and Eisenhart, 1990, p. 2).

This concern led to the formation of:

"...two distinct schools of thought, which were often viewed as dichotomous" (Guba and Lincoln, 1981, p. 183).

regarding what was a valid methodology for educational research. Recently a number of authors have questioned this division and have argued that it is up to the researcher to choose the appropriate mixture of methodologies in order to make a contribution to the wider debate, and to leave the theoretical debate to somebody else. As this study uses the tools of qualitative methodology, to investigate the introduction of the VCE, a consideration of the validity of this approach is important.

THE TWO SCHOOLS

In this study the two schools will be referred to as the Quantitative approach and the Qualitative approach. Adamson (1995) in her review of Howe and Eisenhart (1990) summarised the main characteristics of each approach to research in Table 4.

TABLE 4: SUMMARY OF THE MAIN CHARACTERISTICS OF THE QUALITATIVE AND QUANTITATIVE APPROACHES TO EDUCATIONAL RESEARCH

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<td>objectivity</td>
<td>subjectivity</td>
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<tr>
<td>fixed categories</td>
<td>emergent categories</td>
</tr>
<tr>
<td>outsider's perspective</td>
<td>insider's perspective</td>
</tr>
<tr>
<td>static reality</td>
<td>fluid reality</td>
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<td>causal explanation</td>
<td>understanding</td>
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</table>
The origins of this division arose when social scientists adopted a 'traditional' scientific approach to their research, that is they developed a positivist paradigm based on the idea that there was a 'reality' to be discovered. Therefore the researcher should be objective, use impersonal language and experiments should be able to be replicated. The aim of research was to search for generalisations and, for social scientists, to explain and interpret the laws that govern society (Adamson, 1995).

The anti-positivists or nonpositivists argued that this style of research was a failure and can be characterised by three quotes:

"... at best inconclusive, at worst barren" (Tom, 1984, p. 2),

"... inadequate to tell us anything secure and important about how teachers should proceed in the classroom" (Barrow, 1984, p. 213),

"the effort to use scientific method to study and improve teaching had come a cropper" (Gage, 1989, p. 4).

Gage (1989) called this debate the "Paradigm Wars" which he claimed reached its climax in 1989. Gage argued that there were three reasons for the failure of the positivist approach:

1. Human affairs are inextricably involved with the intentions, goals and purposes that give them meaning.

2. Science is involved with direct one way causal links and there were no such connections between teacher behaviour and student learning.

3. Scientific methods can only be applied to natural phenomena that are stable and uniform across time and space. They cannot be applied therefore to teaching and learning.

The search therefore should not be for the type of prediction and control that scientific method might bring, but for the type of insight that historians and philosophers can provide.

A further criticism came from the interpretive researchers. Gage referred extensively to writers such as Erickson (1986) when he wrote that:

"... individuals were able to construct their own social reality, rather than having reality always be the determiner of the individual's perceptions" (1989, p. 5).

The interpretivists argued that people interpret things differently and may differ in their responses to the same or different situations. Therefore the desire, by positivists, to be able to replicate results and make generalisations was an ill
conceived basis for research when dealing with people in their 'natural' settings.

Smith agreed:

"... that human experience was context bound, and there could be no context free or neutral scientific language with which to express what happened in the social and human world" (1983, p. 7).

Gage outlined the third criticism to positivist research as that produced by the critical theorists. Their view was that:

"... most educational research in general and research on teaching in particular had been governed by a merely 'technical' orientation aimed at efficiency, rationality and objectivity" (1989, p. 5).

Instead the critical theorists implied that researchers should have been:

"... looking at the relationship of schools and teaching to society - the political and economic foundations of our constructions and knowledge, curriculum and teaching" (1989, p. 5).

The critical theorists emphasised the importance of power in society and the function of schools in defining social reality.

As the decade of the 80's progressed so did the debate about the legitimacy of qualitative research in education. Howe and Eisenhart wrote that initially the debate was cast in terms of:

"... a choice between an entrenched quantitative methodology and a highly suspect newcomer" (1990, p. 2).

In the mid 80's the debate divided into two strands. Lincoln and Guba (1985) and Smith and Heshusius (1986) took the position that the choice was not between qualitative or quantitative methods but instead between positivist and non-positivist epistemologies that supposedly underlie alternative research paradigms. Thus in order to justify qualitative research a researcher must distinguish between the two epistemologies and then defend the legitimacy of the non-positivist approach.

On the other hand, Denzin (1989), Erickson (1982, 1986) and Goetz and LeCompte (1984), rather than considering abstract epistemology, moved on to focus more on the particulars of the various research methodologies. In their view qualitative research should be justified in terms of the development and articulation of methodological design and standards of analysis. Firestone illustrated a different trend in thinking accepting the distinction between the two methodologies. He defined quantitative methods as expressing:

"...the assumptions of a positivist paradigm which hold that behaviour can be explained through objective facts. Design and instrumentation persuade by showing how bias and error are eliminated" (1987, p. 16).
Qualitative methods were defined as expressing:

"...the assumptions of a phenomenological paradigm that there are multiple realities that are socially defined. Rich description persuades by showing that the researcher was immersed in the setting and giving the reader enough detail to 'make sense' of the situation" (1987, p. 16).

Firestone pointed out that while each method uses different techniques of presentation and means of persuasion, they are "not antithetical". In fact, Firestone believed that the two methodologies, while rhetorically different, could be complementary presenting the reader with different kinds of information that could be used to triangulate to:

"...gain greater confidence in one's conclusions" (1987, p. 16)

Howe concurred arguing that:

"...no incompatibility between quantitative and qualitative methods exists at either the level of practice or that of epistemology and that there are thus no good reasons for educational researchers to fear forging ahead with 'what works'" (1988, p. 10).

Lofstedt (1990, p. 79) believed that by 1990 most researchers accepted the complementarity of the two methods and that further discussion should focus on nine issues:

1. The role and function of theory.
2. The relationship between theory and empirical research.
3. Research methods.
4. The identification of research problems.
5. The relationship between the researcher and the 'researched'.
6. Issues of replicability and generalisability.
7. The views of individuals and society.
8. The application of research findings.
9. The need for terminological streamlining.

Eisner goes further putting the position that it is acceptable, if not desirable, to use multiple methods in research:

"I seek no replacement of conventional approaches with new ones, but rather the provision of multiple methods and many voices" (1992, p. 7).

Eisner questioned the positivist view of objectivity arguing that truth is relative and therefore there is no one right way to find the truth. Therefore rather than arguing
in terms of abstract epistemologies, attention should be focussed on the particulars of various research methodologies.

Salomon agreed, saying that there is a distinction to be made that:

"... transcends the one between the quantitative and qualitative research paradigms. It is a distinction between the kind of research that suits best the study of causal relations among selected variables and the study of complex learning environments undergoing change" (1991, p. 10).

These two approaches, the 'analytic' and the 'systemic' differ from each other in terms of the epistemological assumptions which underlie them, but not in terms of the quantitative/qualitative dichotomy. The validity of each approach is limited however by a range of factors and therefore the two have to be employed complementarily.

Salomon pursued this line, agreeing with Firestone (1987), and arguing that researchers in the field have tired of the debate, leaving it to the philosophers, preferring to continue with their research:

"... tolerating, even encouraging a multiplicity of methods" (1991, p. 10).

In addition, the different paradigms face similar challenges and demands, such as validity (Phillips, 1987), standards of quality (Howe and Eisenhart, 1990) and means for facilitating generalisability (Shulman, 1988). Eisner (1983) and Shulman (1986, in Salomon, 1991) had argued that as discrete often manipulated events and complex environments required different research approaches, then no single paradigm or set of assumptions was necessarily superior to any other.

Instead, paradigms should be seen as ways to study selected aspects of the world and their selection should be a function of the aspect of the study (Salomon, 1991, p.11). Therefore, the validity of the knowledge gained from any one study should be judged from within the boundaries of the particular paradigm on which it is based. No single paradigm provides a fully satisfactory understanding all on its own (Feyerabend, 1974), so a number of different views would be needed to achieve a full understanding of a phenomenon (Salomon, 1991, p. 16).

While Salomon suggested that:

"... rapprochement appears to be on the way" (1991, p. 11), thereby signalling an end to the war of paradigms, other writers had earlier proposed that qualitative and quantitative methods could be productively integrated. Even though there was unease amongst some researchers (Guba, 1987; Smith, 1983 and Smith and Heshusius, 1986), Howe (1988, p. 10) argued in favour of the 'compatibility thesis' which says that:
"...combining quantitative and qualitative methods is a good thing..." (1988, p. 10),

and not epistemologically incoherent and that there are:

"...important senses in which quantitative and qualitative methods are inseparable" (1988, p. 10).

As early as the late 1970's Gertz (1978, in Howe, 1988) and Giddens (1976) had argued that for the best results in research the paradigms must be combined. Therefore the continuing debate over methods of research was diverting attention away from the real concerns of the researcher. Researchers could devise whatever methods seemed appropriate to investigate the questions at hand.

Howe described the progress of the debate over the twenty years of the 70's and 80's:

"...the use of qualitative methods in educational research has evolved from being scoffed at, to being viewed as useful for provisional exploration, to being accepted as a valuable alternative approach in its own right, to being embraced as capable of thoroughgoing integration with quantitative methods" (1988, p. 10).

Although he did concede that not all researchers have accepted the final stage in the evolution he concluded that:

"The growing tendency of educational researchers to resist the tyranny of methodological dogma is a good thing. It is high time to close down the quantitative versus qualitative conversation" (1988, p. 10).

The challenge for researchers is not so much one of entering into arguments about competing paradigms, but to ensure that once the choice of methodology is made that it is appropriate, well designed and properly executed. If this is not done the results will not reflect reality and the conclusions will be unwarranted (Fehring 1986, p. 41).

Miles and Huberman contend that:

"...it is getting harder to find any methodologists solidly encamped in one epistemology or the other" (1984, p. 20),

and the issue is to develop methods that are:

"...practical, communicable and non-self-deluding" (1984, p. 15).

They identified five problems with the output of qualitative studies:

a) Questions of sampling, where only a small number of cases is involved.

b) Generalizability of qualitatively derived data.
c) Possibility of researcher bias.
d) Replicability of qualitative analysis.
e) Methods of analysis that are not well formulated.

The final of these is seen as the most serious threat to the presentation of reliable valid conclusions from qualitative data, however Miles and Huberman believe:

"... social phenomena exist not only in the mind but also in the objective world - and there are some lawfully and reasonably stable relationships to be found among them" (1984, p. 19),

and that qualitative research methods can be developed to accurately describe these relationships.

The most recent phase in the debate has involved the question of connections between the researcher and research which are seen as dynamic by Collins (1992, p. 181) and issues of communication and accessibility. Howe and Eisenhart stated that:

"... the conclusions of educational research ought to be generally accessible to the education community ... the language of the results and implications must be in a form that is understandable to, and debatable by, the various actors in a particular setting ... the research process itself must give attention to the nature of the contexts and individuals it investigates and to which its results might be applied ..." (1990, p. 7).

Thus the debate amongst the 'naturalists' (those supporting the use of qualitative methods) has focussed inwards and moved on to a range of new issues. Cziko (1989) wanted research to lead the development of innovative practices, Eisner (1992) was concerned about who was competent to do educational research, Robinson (1993, in Howe and Eisenhart, 1990) on allowing the teachers 'voice' to be heard and in Fullan (1993a) the need for every teacher to be a 'change agent'. By the 90's the qualitative research tradition was thirty years old and existed in its own right. What was more important was to use research to improve the quality of education.

The final word on the debate goes to Peshkin:

“No research paradigm has a monopoly on quality. None can deliver promising outcomes with certainty. None have the grounds for saying 'this is it' about their designs, procedures, anticipated outcomes” (1993, p. 28).

On qualitative research he wrote:

“Many types of good results are the fruits of qualitative research. Its generative potential is immense” (1993, p. 28).
Peshkin’s main point was that every different method of data collection only provides an approximation of reality. Therefore all are valid, they merely provide a different contribution to the body of knowledge, and all are limited when used alone. Research is progressive and all forms of research should contribute to refining the questions and building on the antecedents to a further quest for knowledge.

ii THE CASE STUDY APPROACH TO RESEARCH

One of the research tools of this study is the use of a case study approach to investigate the role of teachers in implementation of the VCE. The use of the case study as a research tool was once widespread, predating the development of quantitative techniques and was the earliest method of systematic investigation in the government and military (Bromley, 1986). However by the 1950’s it was falling out of favour and had almost completely declined by the 1970’s across most disciplines (Stoecker, 1991), except clinical psychology, anthropology and geography. More recently there has been an expansion of qualitative research methodologies, and the endorsement of context embedded qualitative inquiry by researchers who were originally strictly quantitative in their approach (Miles and Huberman, 1987). What then is the current status of the case study as a means of research?

There are two major problems for case study researchers. Firstly, there is the issue of possible bias and its impact on the validity of the research:

"Case study research, since it does not provide experimental controls and therefore is assumed to not allow for ‘scientific distance’, has no built-in corrective against the researcher’s possible biases" (Stoecker, 1991, p. 91).

Also that independent and dependent variables are not accurately measured, that case study is retrospective (therefore biased) and employs arbitrary interpretations (Runyan, 1982, in Stoecker, 1991). In other words case study is not rigorous enough, but is biased (Yin, 1984, in Stoecker, 1991). Secondly, critics claimed that case study does not allow for the generalisation of findings to other settings and there is no way to measure external validity (Stoecker, 1991).

However the case study does have a place in research and there are solutions to the problems outlined above. Stoecker believes that the term ‘case study’ should be reserved for:

"... those research projects which attempt to explain wholistically (sic) the dynamics of a certain historical period of a particular social unit" (1991, p. 97).
That is, the case study is not strictly speaking a 'method' but more a frame
determining the boundaries of information gathering:

"Within this frame we may survey, interview, observe, participate, read, visit archives,
dig through garbage or even count" (Stoecker, 1991, p. 98).

Case studies may use qualitative or quantitative methods.

In developing this research frame Stoecker (1991) claimed four issues need to be
considered; the role of theory, the historical perspective, the multimethodological
approach and the researchers role.

On the question of the role of theory Stoecker (1991, p. 102) advocated what he
terms "theorizing idiosyncrasy" which involves bringing all possible theoretical
perspectives to bear and discarding and weighing each until a valid and useful
explanation is obtained. The difficulty arises in deciding how much to rely on
theory and run the risk of missing important idiosyncrasies, or restrain theory and
run the risk of overemphasising the idiosynratic.

The role of theory overlaps with the issue of historical perspective. Stoecker
argued that:

"... we need to look into the past to determine whether our theoretical arguments have

If intensive research is to be accepted as more effective than extensive research in
explaining causal relations, then it must be shown how cause and effect occur over
time and how actors construct and act on intentions based on their interpretations
of cause and effect. Theory creates the question and provides a guide to
recognising cause and effect. The researcher finds that general processes, indicated
by general theories, hold true to varying extents and thus the researcher rebuilds
theory to explain the unexplained variance.

This rebuilding aids the ability to generalize as:

"Generalization is possible because of the belief that the general resides in the particular
and because what one learns from a particular one applies to other situations
subsequently encountered" (Eisner, 1981, p. 7).

Understanding the relationship of the case study to its social context adds to an
understanding of the whole.

Adopting a multimethodological approach contributes further to this
understanding, (Stoecker, 1991) where finding the same results through different
methods engenders greater confidence in the results.
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Adopting a multimethodological approach contributes further to this understanding, (Stoecker, 1991) where finding the same results through different methods engenders greater confidence in the results.
Finally, according to Stoecker:

"Rigorous, accurate research, ... not only requires the involvement of the people being researched, it requires the self conscious involvement of the researcher" (1991, p. 106).

Stoecker (1991) argued that the less the researcher knows about the experience of a situation, the less he/she is able to determine whether the explanation works. Thus the researcher is inextricably involved in the research process and the case study frame must recognise this fact, building in rigorous procedures and developing research design which will counter possible criticisms and anticipate difficulties.

Stenhouse (1978) wrote that the aspiration of the researcher is not to produce objective data, for that is impossible. Instead it should be to produce subjective data where the subjectivity is sufficiently controlled to allow critical scrutiny:

"The aspiration is to critical intersubjectivity, not to objectivity" (1978, p. 33).

To this end the researcher should make his/her records available for grounding the work and as a resource for the educational research community. In addition the political, academic and personal bias of the researcher should be exposed. This approach would help to answer a major criticism of case studies which is that they lack internal coherence and validation by those who are studied, and fail to provide the detail of texture which would allow hypotheses to be tested across case studies.

Elsworth (1992) also strongly supported the case study approach to research, but warned against six possible threats to the validity of explanatory inference in case study research and evaluation. These threats focus on observation, classification, causal inference and valuing in case study research and are summarised below (from Elsworth, 1992, pp. 34-35):

1. Selection (of events and settings): includes limitations of attention, such as looking in the wrong place, and the effects of efforts of 'gatekeepers' in the field to direct the researcher's attention to particular events and settings.

2. Premature classification/Mis-classification: occurs when an observation is put into one class when it is better regarded as being in another. An event may be labelled prematurely as a result of over theorising.

3. Simple inductive triangulation: occurs when a firm conclusion is drawn from a small number of observations or reports as opposed to 'multiple method' triangulation where an active attempt is made to refute a generalisation by showing that it does not hold when an alternative method of observation or measurement is used.
4. Misjudged salience: results from a researcher judging and subsequently interpreting an observation or event as salient to a causal interpretation of a phenomenon when in fact it is not.

5. Spurious causal attribution: when one event is attributed to be the 'cause' of a later correlated event there appear two types of threats. Firstly, that both events are causally related to a third event, or to a generative structure or mechanism, but are not themselves causally related. Or secondly, when a number of other unrecorded events are also causally related to the second event thus suggesting the action of a more salient generative mechanism. This category also includes the interpretation of reported or observed correlate of an outcome as a 'cause' when it is better interpreted as a non-causal correlate.

6. Spurious/coerced interpretation or valuing: involves the problem of coercion of the researcher to the point of view of the program participants. This is a threat to both descriptive and causal inference and also involves the use of certain criteria to allocate value to an event when another set of criteria is more appropriate.

However, Elsworth believed that these threats can be avoided and that intensive research methods such as the case study:

"... appear to be ideally suited to generate the kind of detailed explanatory causal inferences demanded of social science by the realist perspective" (1992, p. 17).

He argued that extensive cross sectional survey research, for example, only offers fairly gross indications of causal mechanisms. More intensive data, gained through case studies, are necessary to gain a clearer view of the actual causal processes at work and to develop and test satisfactory theories about these processes:

"... the causal hypothesis developed from the case studies might be validated by matching to the mediating effects discovered from the analysis of survey data or by new forms of (qualitative?) meta-analysis ..." (1992, p. 17).

Elsworth encapsulates his argument in favour of case studies in terms of the ability of case studies to generate useable knowledge:

"... the 'yield' of useable knowledge from this kind of 'two-stage' procedure would be greatly enhanced by the development of appropriately rigorous procedures for the validation of the first-level inferences derived from the intensive strategies themselves" (1992, p. 17).

In order to add rigour and validity to any findings from case studies Elsworth supports the use of a transactional model of argument as a strategy as proposed by Dunn (1982). Here the threat to the validity of an inference is viewed as a rebuttal in a socially transacted argument. In place of the three elements of thesis, conclusion and major premise are six elements: data, claim, warrant, backing, rebuttal and qualifier. The key to this strategy is the identification of threats to the value of the 'useable knowledge'. Elsworth concluded that the:
The transactional model is therefore a general strategy independent of the nature of the research design that might generate the knowledge claim, and equally applicable to explanatory as well as predictive research, and to qualitative as well as quantitative data (1992, p. 20).

The transactional model, when used as a strategy, adds validity to the findings claimed by a researcher using the case study method.

Miles and Huberman attempted to address the issue of the validity of case study method by suggesting a range of strategies that a researcher using a qualitative approach might adopt in data collection and systematic analysis of that data. They believed that:

"... analysis consists of three concurrent flows of activity: data reduction, data display and conclusion drawing/verification" (1984, p. 21).

and that these three streams are:

"... interwoven before, during and after data collection in parallel form to make up the general domain called 'analysis'" (1984, p. 22).

Thus they concluded that data analysis is continuous and iterative. This interactive aspect to data collection is shown in Figure 8.

Figure 8 : Components of data analysis - Interactive Model
(From Miles and Huberman, 1987, p. 23)

By understanding more clearly what is happening when data are analysed, research methods that are more generally reproducible could be developed, therefore negating questions of validity of any conclusions drawn from qualitative data.

Therefore the use of the case study as a research tool is valid provided the collection and analysis of the data is systematic and and consistent with the theoretical arguments outlined above.
iii THE RESEARCHER AS PARTICIPANT OBSERVER

One of the strengths of qualitative research is that the data can provide:

"...well grounded, rich descriptions and explanations of processes occurring in local contexts" (Miles and Huberman, 1984, p. 15).

This 'context embeddedness' of qualitative inquiry provides the opportunity for the researcher to take on the role of a "participant observer" (Guba and Lincoln, 1981) who is actively involved in the situation being examined. This was a role I took in gathering data in the case study school. The participant observer's:

"... perspectives, insights and powers of observation become integral to what is being studied. Disciplined subjectivity is a strategy used by the researchers to examine systematically their own and others' responses, in order to discover and explain educational phenomena. The successful ethnographer develops the ability to maintain a dual identity ... and to represent authentically the experiences of the persons involved in the situation being studied" (Fehring, 1986, p. 34).

The researcher carries out the analysis of data sequentially even while further data are being gathered, therefore it is an interactive process where the information gathered directs subsequent data collection.

Guba and Lincoln (1981, p. 193) summarised the basic methodological arguments in favour of participant observation as follows. The observation:

a) maximises the inquirer's ability to grasp motives, beliefs, concerns, interests, unconscious behaviours, customs, etc.

b) allows the inquirer to see the world as his subjects see it, to live in their time frame, to capture the phenomenon in and on its own terms, and to grasp the culture in its own natural, ongoing environment

c) provides the inquirer with access to the emotional reactions of the group introspectively - that is, in a real sense it permits the observer to use himself/herself as a data source

d) allows the observer to build on tacit knowledge, both his/her own and that of members of the group.

Some of the problems with participant observation, as a technique, are that an immense amount of data are collected, making analysis difficult. There is a danger that the researcher is too close to the individuals involved and may be accused of losing their objectivity, or alternatively becomes ostracised by the subjects who lose their sense of trust and see the researcher as some type of voyeur. Most important is the possibility that the presence of the researcher may effect the validity of the data gathered:

"To what degree are the informants' statements the same as they might have given either spontaneously or in answer to a question in the absence of the observer?" (Fehring, 1986, p. 37).
Again Guba and Lincoln (1981, p. 193) summarise the arguments against participant observation, which all hinge on the direct experience and close involvement of the researcher. The method:

a) may lead to reactivity in the setting or on the part of the members
b) leans heavily on personal interpretation
c) leads the investigator to experience a setting in a biased manner
d) leads to self deception on the part of the investigator
e) causes the investigator to take meanings for granted and thus make it impossible for them to observe or report on them.

Guba and Lincoln approach the issue of reliability and validity of data gathered by a participant observer from another perspective, that of 'dimensions':

"To what extent is the observer a participant or not? Is the situation natural or contrived? To what extent are the subjects aware, or not aware, of the participant's role as observer?" (Guba & Lincoln, 1981, p. 198).

Other issues relating to the subject of the inquiry (the sensitivity involved) and the situation (the duration of the study, the structure involved) also need to be considered.

The development of appropriate checks arises out of the nature of the study itself and cannot follow a prescribed recipe. Observation, Guba and Lincoln argue, is more than just seeing; it is what one notes and pays special attention to, things one inspects, studies, remembers and contemplates. Participant observers need to listen, grasp social meanings - understand the context of events and behaviours and know their feelings and tone (Guba and Lincoln, 1981, pp. 195-199).

According to Guba and Lincoln (1981, p. 213), the replicability of any given experience is less important than is the recognisability of the description of those who lived the experience. The circumstances of observations and data collection help explain how decisions are reached and what might be the limits and purpose of the inquiry. These data must be recognisable to those involved in the study. The major check, for Guba and Lincoln, therefore lies in the quality of the observation and recording of the data.

While no research technique is perfect the problems associated with participant observation can be largely overcome by the researcher adopting rigorous qualitative methods and being vigilant in avoiding the traps described above. For
example, when interviewing peers a participant observer must be aware that the interview relationship is different to an interview carried out by a non-participant observer:

"... and that a variety of specific consequences for the nature of the interview follow" (Platt, 1981, p. 75).

Platt (1981) identified a series of considerations to take into account when interviewing peers:

a) Shared group membership - the interviewer is not anonymous and has a history and perceived characteristics that may be directly relevant to the research topic.

b) Background knowledge and shared understandings - the respondents make assumptions about what the researcher already knows and therefore unintentionally withholds valuable information forcing the researcher to make interpretations based on prior knowledge rather than just collecting data.

c) Equality and status - status differentials may be relevant in how the respondent is handled. Difficulties can arise when a respondent, who sees themselves (sic) as being equal to the researcher, offers their (sic) own interpretations rather than offering raw data.

Despite these difficulties Platt supported interviewing as a valid technique but points out that:

"The weaknesses of interviewing are intrinsically bound up with its strengths as a specialised mode of social interaction" (1981, p. 89).

Difficulties with the participant observer becoming too closely involved with the situation can be alleviated by the researcher corroborating his/her findings, through triangulation, by comparing their results with two or three accounts of a similar situation (Fehring, 1986, p. 35).

Guba and Lincoln (1981, p. 194) quoted Douglas (1976) who similarly says that the researcher can determine whether his/her involvement is causing him/her to distort experience by checking perceived reality against prior expectations, checking initial ideas against later ideas or checking early notes, which should not include much of what was later considered to be crucial. Douglas’ idea of "immersion" is also discussed where the researcher leaves behind preconceived notions of what will be found by becoming so deeply involved that earlier prejudices are forgotten so understandings should arise over time out of the data. Wax (1971) and Reinharz (1979) argue that observers ought to show how they were changed by the study; they should be able to re-examine old values and beliefs and own up to their own prejudices. Thus any observations made will

**TABLE 5: DETERMINING RELIABILITY AND VALIDITY OF OBSERVATIONAL DATA**

<table>
<thead>
<tr>
<th>FACTORS TO CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Is the account plausible and accountable?</td>
</tr>
<tr>
<td>2 Are the data consistent both internally and externally? Use of:</td>
</tr>
<tr>
<td>- triangulation</td>
</tr>
<tr>
<td>- multiple methods of inquiry</td>
</tr>
<tr>
<td>- member checks</td>
</tr>
<tr>
<td>- ongoing checks for contamination</td>
</tr>
<tr>
<td>3 Does the study provide a well grounded body of description?</td>
</tr>
</tbody>
</table>

Based on Guba & Lincoln (1981, pp. 212-3).

Problems of analysis of large amounts of data can be overcome by, for example, the adoption of the techniques described by Miles and Huberman (1984). The use of these techniques also gives the status of any findings greater validity due to the fact that they are rigorous and systematic. This approach will be used in this study to give strength to the validity of the findings.

**B. DESCRIPTION OF METHODOLOGIES**

**i CHOICE OF METHODOLOGY**

As a teacher involved in the introduction of VCE Mathematics to Victorian post primary schools I was interested to explore how teachers tackled the task of implementing this change. As a mandated change, it would be at least nominally implemented. However what degree of integrity with the Study Design and the intentions of its creators, would be maintained as teachers introduced the Study to their classrooms? What changes would be required by teachers, in their teaching styles and knowledge base? What commitment would teachers have to these changes?
(a). ‘THE TEACHER’S VOICE’

An important aspect of this study was to consider the ‘teacher’s voice’ - to listen to professional teachers as they practised their craft. I wanted this investigation to be useful to my colleagues and to be relevant to my work within the school. Providing a ‘thick’ description, a case study approach has the benefit of being ‘lifelike’ and accessible to most, thus increasing the chances of an audience understanding the issues being explored. A case study builds on the tacit knowledge of its readers. It has the potential to focus the reader’s attention and illuminate meaning. I was aware of practical restrictions on the research, such as time constraints and my lack of experience in research. In addition the Mathematics faculty was too small for an empirical study, thus rendering any results statistically insignificant, and there would be a turnover in teaching staff over the period of the study. A case study however does not depend on a priori instrumentation, design or hypothesis. This approach allows the data to emerge from the context itself. A longitudinal study also allows for regular observations and includes the teachers in a reflection of their own practices as they implemented the new VCE.

(b). UNIT OF ANALYSIS

The major unit of analysis in this case study is to be the Mathematics faculty, the group responsible for the implementation of the new VCE Mathematics. In addition individual teachers within that faculty would be ‘tracked’ and have the chance to tell their own stories in relation to this change proposal.

(c). ROLE OF THE RESEARCHER

My role was to be that of an ‘inside observer’ or ‘participant observer’ as a member of the Mathematics faculty. My rationale for this approach was that I could build on my direct experience within the Mathematics faculty and record behaviour and events as they occurred, ‘discovery and description’ could be maximised, and I would be better positioned to observe a fairly complex situation. Data collection would be possible where other attempts at communication with the faculty could prove difficult. I could use myself as a data source and attempt to understand the motivations of others as they implemented the new Mathematics course of study. I recognised that one of the chief dangers of this approach was ‘going native’ but hoped that regular checks with my supervisor would guard against this. ‘Immersion’ in the school situation I hoped would lead to more informed insights and understandings of the situations in which change would
take place. All members of the faculty when initially informed of the nature of my study, were willing to be involved and actively supported the research.

(e) DOCUMENTATION

The study was documented using a range of mechanisms:

1. Journal: kept for the duration of the study. Used to document observations, together with issues and events concerning the change proposals as they arose. The journal recorded discussions, decisions and processes that took place at any forum in the school relevant to this study.

2. Questionnaires: completed by the members of the faculty at appropriate intervals (see Appendices V, VI and VII).

3. Unobtrusive data: included Agendas and Minutes of Meetings, discussion papers on curriculum issues and professional development materials.

4. Document review: in setting the wider context for the case study a review of the literature regarding the general implementation of the VCE, paying particular attention to Mathematics, and a document analysis of articles published in "The Age" newspaper was undertaken in order to gain some understanding of the political context in which the changes to Mathematics were set.

(f) DURATION OF THE STUDY

The duration of the study was from the introduction of the VCE, in January 1989, to December 1992 when the Mathematics faculty was disbanded due to the integration of Niddrie High School into a new multi-campus college. Because of this change a series of retrospective interviews were performed where teachers of Mathematics were asked to reflect on the introduction of VCE Mathematics and its impact, particularly upon their own teaching practices. Whereas the questionnaires were seen as 'snapshots' in time, the interview was asking teachers to make sense of their own experiences regarding Mathematics.
OUTCOMES

What was to be done with the case study and any findings which emerged? If the case study was to be of use it had to be couched in language accessible to practising teachers. It needed to reflect the experiences of 'real' teachers in their attempts to implement a mandated change proposal in Victorian post primary schools. If successful, other practitioners might be able to relate to these experiences and it might help better inform teachers and other educationalists about the process of change and its implementation. 'Scientific' generalisations that could be applied universally to schools would not emerge but 'Naturalistic' generalisations, as described by Stake, might be arrived at:

"by recognising the similarities of objects and issues in and out of context and by sensing the natural covarations of happenings" (1978, p.5).

This case study possibly has more potential in being used as part of a meta-analysis, as part of a wider review of the change process focusing on the introduction of the VCE, and might reflect patterns useful when considering the ways teachers implement change.

(a)... DATA COLLECTION PROCEDURES

Over the four year period of the case study data were collected from a range of sources. There was an attempt to triangulate methods so that the research would not be dependent upon one source of data, and be less open to any researcher bias.

A summary of the methods used follows:
### SUMMARY OF DATA COLLECTION FOR CASE STUDY

#### A. RECORD KEEPING

1. Journal of events kept by researcher.
2. November 1990 - Interviews with faculty members (see Appendix I).
3. February/March 1991 - Interviews with key participants (see Appendices III, and IV).
4. November 1991 - Workload Review Questionnaire (see Appendix VI) with follow up discussion at a sub-committee of the Curriculum Committee and the writing of a report (Notation QW).
5. December 1991 - Mathematics Review Questionnaire (see Appendix V) on first year of VCE at Units 3 and 4 (Notation QR).
6. November 1992 - Survey questionnaire (see Appendix VII) on implementation with a follow up discussion at a faculty meeting (Notation QS).
7. July/August 1993 - Retrospective interviews (see Appendix VIII).
8. Unobtrusive measures, minutes of meetings, Professional Development material.
9. Written surveys completed by students studying Mathematics (see Appendix II).

**Note:** In all cases where individual responses have been reported pseudonyms have been used, except in the case of the researcher.

#### B. MONITORING PUBLICATIONS

1. Content analysis of documents and articles in “The Age”.
2. All VCAB publications were collected and analysed.
3. All Ministry publications were collected and analysed.
4. Other published reports, teacher union publications, discussion papers etc. were collected and analysed.

#### C. PARTICIPANT OBSERVER

1. Role as Inside Participant
A more detailed description of the data collection procedures follows:

(a) **RECORD KEEPING**

1. **Journal of Events**

A journal of events was maintained keeping a log of key issues as they arose and of groups or individual teacher’s responses to these events. An entry was made against every meeting or discussion held within the school, highlighting the critical issues considered. The journal often consisted of notes written ‘on the run’, to be followed up and elaborated at a future time. My observations were often noted and became central to the study in maintaining accuracy of analysis over a long period.

Journal events will be cited in this thesis by:

* J [journal] [date of entry] [indented quotations]

E.g. J:6/6/90 “Mathematics Faculty Meeting - The Faculty ....”

As noted above the journal entries often were a mixture of simple observation and an interpretation of these events. As the main instrument of this observer study I was aware of the need to guard against intrusions of bias and my own assumptions, as in the selection of data. Time constraints could also interfere in the physical recording of the data, as research would be an adjunct to my principal role, that of teacher. Nevertheless, as a member of the teaching faculty I would be less likely to disturb the ‘natural’ situation. I would gain access to responses of individuals not available to outside researchers.

2. **Questionnaires**

Questionnaires create a mixed response from those using naturalistic methods of research. Questionnaires are not generally supported because they do not usually provide:

“... concrete data about real events” (Guba & Lincoln, 1981, p. 319).

They are:

“... ungrounded, impersonal and said to limit the respondents’ response range significantly” (Guba & Lincoln, 1981, p. 164).
However questionnaires can serve a useful purpose in that they are less expensive to conduct, especially in terms of time, than interviews. Logistically, especially for a teacher-as-researcher, it is easier to manage questionnaires than interviews, as questionnaires can be self administered and given to many people simultaneously. While questionnaires do call for a uniform response for some aspects of data collection, this at times is not too limiting a factor. Discussions with my research supervisors provided insight into the types of questions suitable for this activity.

Gathering of basic information such as subjects taught, years of teaching or experience other than that in the classroom could be simply accomplished using a questionnaire. Moreover in this study, questionnaires were to be only one section of the data collected. The questionnaires would become grounded once placed alongside journal entries and the interviews. While it may have been preferable to conduct a series of interviews over the period of the study, available time for both researcher and interviewees did not make this practical. As an inside participant conducting the research, it also was possible for respondents to ask for clarification about particular issues or to write on the questionnaires ‘asides’ or personal messages. The questionnaire was not seen by respondents as being imposed upon them by a faceless researcher but was a study being completed by a colleague with the cooperation of the faculty. Indeed when returning the questionnaire a number of respondents wished to talk more at length about their responses or issues raised.

i) Completing the Questionnaires

Three questionnaires were completed by faculty members. Questionnaires were personally handed to each member of the faculty and the nature of the study explained. Respondents were asked to complete the questionnaires and return them to the researcher. Personal reminders were given if the questionnaires were not returned within an appropriate time frame. This personal approach appeared to assist the response rate.

Data from the questionnaires will be cited in this thesis by:

* Q [questionnaire] # [Notation]
* Karen [name of respondent]
* 12/91 [date]
* "..." [indented quotation]

e.g. QR:Karen:12/91 "CAT 2 - it was fairly easy ...."
ii) Analysing the Questionnaires

The questionnaires were analysed as single items enabling individuals to be tracked, and then combined as the major unit of analysis, the Mathematics faculty. In order to reduce the data, making them both manageable and accessible, a series of matrices were produced for each questionnaire. The initial matrix was simply a table collating individual responses to particular questions. Only direct quotations from the questionnaires were inserted in this matrix. This initial matrix allowed for a brief scan of the data collected to be made and for an impression to be made of the range of attitudes and experiences present in the faculty.

From each questionnaire, a number of themes and issues could be extracted and further matrices developed. These matrices highlighted particular aspects of the study and allowed easy cross checking of questionnaire responses over the 1991-1992 period.

3. Interviews

i) Reasons for Using Interviews

Dexter (1970) described interviewing as a conversation with a purpose. While members of the Mathematics faculty had completed two questionnaires at one year intervals, the courses of study were continually being modified, leading eventually to complete revision and renaming of all Mathematics studies. Had the last four years been a waste of time? Had anything been gained by their attempt to implement a change that had been mandated and imposed upon them by VCAB, a statutory body? I wanted to explore in depth the response of Mathematics teachers and a questionnaire would not serve this purpose. I wanted to use the language of the teachers and utilise their value and belief systems in order to better understand their responses to this series of mandated changes. Openly, in a conversation, I wanted to ask Mathematics teachers to reflect on their experiences of teaching Mathematics and the nature of the changes they believed they had made over the past few years. I wanted to question both their response to the introduction of VCE Mathematics and to the changes made over the implementation period.

ii) Scheduling the Interviews

Interviews with faculty members were conducted over a three month period. Niddrie H/S had amalgamated and the teachers from the five original schools had been redistributed among three remaining sites. The focus for teachers in 1993
was on establishing themselves in their new locations with new colleagues and for many, with a new body of students. Time to interview former Mathematics teachers was difficult to arrange. Some teachers had left the College and were scattered around the State. Others had left the teaching profession altogether.

iii) Those to be Interviewed

Personal contact was made with seven of the teachers who had taught Mathematics at Niddrie HS and who remained within the Essendon Keilor College. Two other faculty members did not complete interviews as they had left the school prior to the decision to interview and contact with them had been lost (See Table 6 for a summary of teacher involvement in interviews).

iv) Location of Interviews

Interviews were conducted in a range of settings over varying periods of time. As an interview was scheduled, an appropriate setting was arranged. Often the time the interviewee had available dictated the location. Schools rarely have private offices available for teachers conducting personal research. Many of the interviews were conducted in a quiet end of the staffroom or in a teaching space not at use at that time. Nevertheless, while the conditions were less than perfect teachers focussed on the questions and gave considered responses. The interviews varied from forty minutes in duration to a little over an hour.

v) The ‘Nature’ of the Interview

Wolf (1979) characterised naturalistic evaluation as a search for meaning. In conducting these interviews I wanted to find out what meaning teachers of Mathematics had made of their experiences and to ground my inquiry in the multiple perspectives held by these teachers. The interview would be conducted with participants in full knowledge of the nature of my enquiries.

vi) Why not interview in small groups?

Research indicates that group interviews tend to be dominated by one or two more vocal members and my experience as a member of the Mathematics faculty supported this view. I was interested in multiple perspectives. More practically, it was easier to organise for two people to meet at any given time than for a group to meet. Even though the process of interviewing individuals was certainly more time consuming than other possible methods, one on one interviews better suited my purposes. Available time was a factor however to be considered. For this reason
an interview where the interviewee was just asked to ‘talk’ about his/her experiences was also eliminated as a possible interview method.

vii) How structured were the interviews to be?

While structured interviews, as indicated by Guba and Lincoln, are not merely orally administered questionnaires they did not seem appropriate to my needs. Structured interviews ask respondents, who are seen to be of equal status, identical questions in order to get a ‘typical’ response. In this study there would be differences between people interviewed as their experiences within the school varied. Different perspectives could be expected to emerge. Teachers would be asked to make individual contributions. Unstructured interviews have a different rhythm to that of structured interviews as the interviewer is free to follow the leads raised by the interviewee who is seen to have ‘special’ knowledge of interest to the interviewer. The exchange is often spontaneous like a real conversation and more likely to deal with sensitive issues. While certainly questions would be prepared and probes ready to explore particular areas, in order to better inform my research, I wanted to allow the ‘teacher’s voice’ to emerge. I was interested in the individual’s own response and this was best gained through the adoption of an unstructured interview approach.

viii) Framing Questions and Sequencing the Interview

As an inside participant I had no need for an ‘informant’ to provide background information on the teachers involved in the interviews. Adopting a neutral position in both framing the questions and in conducting the interview became a critical issue. The role of one of my research supervisors, Dr. Neville Johnson, who acted as a critical friend, added some protection against possible research bias. Discussion took place prior to the framing of the questions regarding the purposes of the interview and the range of questions to be included. It was recognised that as a person known to the interviewees I could adopt a relatively informal approach. While the range of questions asked would be determined by the responsiveness of the interviewees to the situation, preparation of probes would assist the general direction of the interview. A typology of questions emerged, open ended in nature, based loosely on the ‘Six Thinking Hats’ of DeBono. An attempt was made to tap into the different thinking domains of the interviewees; to elicit responses in terms of facts (the white hat), emotions (red), negative judgements (black), opportunities provided (yellow), creative insights (green) and finally to provide an overview (the blue hat). Given that the interview was to be retrospective in nature I wanted to allow the interviewees an opportunity to
unscramble their thoughts. The sequencing of the questions used to spark the interview and guide it in its general direction could be roughly described as following what Guba and Lincoln (1981) described as a ‘quintamensional plan’. Here probes were designed to move the interviewee from areas descriptive and relatively impersonal in nature to the affective realm and areas of a more personal nature.

ix) Validating Material from the Interviews

Prompts or questions were to be taken into the interview and referred to by the interviewer and the entire interview was to be recorded on audio-tape. The tapes would then be available for others to review and to authenticate claims based on material raised in the interviews. Furthermore the interviews could be checked for instances of where the interviewee might have been influenced by the responses or prompts of the interviewer. Empathising with the issues raised by the interviewees is important in order to elicit indepth responses, but the interviewer must retain the ability to hear accurately what is being said without overlaying a different system of values and attitudes on that said in an interview.

x) The Use of Transcripts

As part of a process of review a transcript was made of each interview soon after it was completed. Issues raised by one interviewee could then be put to another respondent or at least be available for consideration. Listening to the interview also allowed non explicit prompts to be gauged - the tone of voice used, pauses taken before answering, or in the case of the interviewer any emphasis placed on the questions or part thereof. When combined with the notes taken during the interview a more detailed picture emerges of individual teachers telling their stories. The transcripts were also useful in saving time when analysing the interviews. The process of analysis included reviewing each interview as an entity in itself, then combining the interviews to produce a larger set of data which was integrated to form part of the total inquiry.

Interviews will be cited in this thesis by:

* I
* Colin
* 15/8
* ""

[indent quotations]

[interview]
[name of interviewee]
[date]
[indented quotations]

e.g. I:Colin : 15/8/90
“The students we are teaching ....”
Where comments were made regarding the circumstances of the interview, the background of the interviewee or other relevant observations they were recorded in the transcripts of interview. Such observations will be sited in this thesis by:

* I-T [Interview-Transcript]
* Karen [name of interviewee]
* 25/8 [date]
* . . [Indented paragraph]

e.g. I-T:Karen:25/8/93 As Faculty Co-ordinator Karen ....

4. Unobtrusive Measures for Collecting Data

As Guba and Lincoln (1981, p. 226) noted, researchers have often overlooked or scorned valuable material because of its availability or 'routineness'. It has appeared more prestigious to generate 'new' information. However by using documents and records existing for purposes other than a particular research study, sense may be made of a particular context. Unobtrusive data is non interventional. It is based on typical or natural behaviour and so is non reactive.

Unobtrusive measures may help further ground a study by providing supplementary and contextual data to that gained by the researcher in a more direct approach. In this study the type of unobtrusive measures collected include the Minutes of school wide Curriculum meetings and the Minutes of Mathematics meetings. Official letters from VCAB concerning the VCE, in particular Mathematics, and outlines of professional development activities are also included. While data collected from unobtrusive measures can be difficult to aggregate or interpret, being an inside participant allows a greater understanding of the material under discussion. It is easier to make decisions about the merit of particular items or to follow up issues using different methods of research. The benefits of being able to triangulate data collected by unobtrusive measures with that collected by the investigator outweigh any perceived disadvantages. As the data collected by unobtrusive measures was public in nature no ethical issues arose concerning infringements of privacy or the like.

When used in this study, material collected by the use of unobtrusive measures will be referred to directly, by citing the full source. Where direct quotations have been made these will be indicated by the use of quotation marks as part of the text. Unobtrusive measures are primarily used in this study to set the context of this case study. They provide background information about the issues of concern to the school as a whole and to the Mathematics faculty in particular. Data from
outside the school context, such as that from VCAB, help provide the reader with an understanding of the context in which the school operated and of some of the constraints facing teachers involved with this study.

5. Student Survey

At the end of 1990, in order to gauge student response to Mathematics within the school, a survey of a random sample of Mathematics students was completed. The size of the sample was 30 students out of 105 who attempted one unit of Mathematics in the year. They were also evenly distributed across the three different units offered by the school. The purpose of the survey, to act as part of a review of the subject for the following year, was explained to students who were then invited to participate. Students were asked to indicate their attitude to Mathematics before beginning their studies and their attitude at the end of the units of study. Specific approaches to teaching and learning styles and topics studied were referred to in the survey. Students were asked to comment on areas of the curriculum they found enjoyable and of use, and on areas which in their opinion were less successful. An attempt was made to gauge a general opinion of Mathematics and by providing probes and asking for concrete examples to also elicit more specific responses regarding the 1990 curriculum.

Student opinion was taken into account when modifying the 1991 Mathematics course of study.

Excerpts from the student survey will be cited in this thesis by:

* S [Student survey]
* I [sequential number of response]
* ".." [indented paragraph]

e.g. S:(2) "We learnt new...."

The results from the student surveys were collated into a single table providing an overview of the student response. Items relating to particular areas of Mathematics were summarised under appropriate headings. These findings were presented to the Mathematics faculty for consideration.
MONITORING PUBLICATIONS

1. Content Analysis of Articles from "The Age"

According to Holsti:

"Content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (1969, p. 14).

While content analysis has traditionally been used by quantitative researchers it has become a tool increasingly used by naturalistic inquirers to make sense of data such as unstructured interviews. By organising and using appropriate categories the data can be reduced into a form of greater use to the researcher. Generally, when using content analysis, the content of the data is not under the inquirer's control, and for those supporting qualitative methods the:

"specified characteristics may need to emerge from the material itself rather than be imposed upon it by an a priori theoretical construct" (Guba & Lincoln, 1981, p. 240).

According to Guba and Lincoln (1981) four major characteristics of content analysis have been agreed upon by researchers. Content analysis is:

1. A rule guided process - rules must be derived, procedures delineated and selection criteria defined so that subsequent analysts using the same rules, ought be able to arrive at the same inferences

2. A systematic process - once the rules have been clearly explicated they are applied in the same way to each piece of content, whether the analyst regards it as relevant or not

3. A process that aims for generability - findings should further the development of insights with respect to the context, which should serve in instances other than or beyond the single document in hand:

"All content analysis is concerned with comparison, the type of comparison being dictated by the investigator's theory" (Holsti, 1969, p. 5)

4. Deals in manifest content - one is limited to recording only those items that appear in the document. It is at a later interpretive stage that inferences and conclusions are drawn.

Content analysis, demonstrating these characteristics, will help satisfy the criteria of objectivity in research being undertaken.
i) Selecting "The Age" as a focus for study

In this study, content analysis was to be used as a means of ‘making sense’ of a large number of articles relating to the VCE and to Mathematics in particular, collected from "The Age" newspaper, a publication owned by Conrad Black, and published daily in Melbourne, Victoria. Articles were collected from 1989 to 1992, the period of this study. "The Age" was selected primarily because it was available as a resource in the staffroom for teachers. Informal discussion often focussed on issues raised in this newspaper. "The Age" was not a ‘definitive’ source but was used because it allowed for the debate regarding the implementation of the VCE, to be tracked. This contents analysis was not intended to analyse the role of the media in the implementation of the VCE, nor to be exhaustive. The role of the contents analysis was to better explore the wider context in which Mathematics was being implemented. What were the issues regarding the VCE and Mathematics being discussed in the public forums? What level of debate existed regarding the decision to mandate Mathematics as a compulsory study? What was the ‘atmosphère’ in the broader sense of the word, in which Mathematics teachers were operating?

ii) Collection Procedures for the Data

Papers were collected on a daily basis and articles sorted each week. At times articles from other papers such as "The Herald Sun" were collected as a point of cross reference. As articles were collected they were:

* numbered sequentially
* sourced with name of paper listed
* dated
* author noted (if any)
* section of the paper listed (Editorial, Letters ...)
* title noted

Initially the data was stored in chronological files.

iii) The Unit of Analysis

The unit of analysis selected for the content analysis was the discrete article selected from the newspaper. As such it could be an article from the Letters to the Editor section, a general article or Editorial.
iv) Exploring the Nature of the Data

At intervals the articles were reviewed. An abstract was written where the subject matter of each article was noted, along with 'key players' in the debate as they emerged. If applicable, links between articles were noted. One example of this was the ongoing debate which developed between Geoff Maslen, Education Editor of "The Age" and Professor David Penington, Vice Chancellor of the University of Melbourne. Classification of the data into these broad areas marked the initial construction of categories.

v) Forming Categories

Developing appropriate categories in many ways was a process of trial and error. As it was desirable for the categories to emerge from the data in order for the classification to be well grounded, the categories varied as new elements entered the discussion being followed in "The Age".

As a general guide the 'five canons' of good category or taxonomic construction developed by Guba and Lincoln (1981) proved of use in forming categories. The five canons are:

1. categories must 'reflect the purposes' of the research
2. categories must be exhaustive - each datum must be placed
3. categories must be mutually exclusive
4. categories must be independent
5. categories must be derived from a single classification principle.

In a similar manner to the Questionnaires, a matrix was formed for each year, based on the key categories emerging from the analysis of the articles from "The Age". The columns represented the major sources of information; newspapers, the Ministry of Education, VCAB and the school. The rows represented the months of the year. The key points were then recorded in the appropriate box along with the author and specific publication. It was thus possible to trace the progress of a debate on a particular issue by highlighting the entries in the grid. The final column represented the school context, so any outcomes of the debate would eventually be identified in that column.

Once the critical issues were identified new matrices were drawn up, each matrix representing a particular issue. The rows were arranged by time period, the columns arranged according to the source of the data. This arrangement was used to more clearly identify the patterns of response in relation to the organisations involved, in addition to the time in which the responses occurred.
This form of data analysis is based on three models described by Miles and Huberman. The first is the time ordered matrix where:

"... its columns and rows arranged by time period, in sequence, so that one can see when particular phenomena occurred. The basic principle is chronology" (1984, p. 100).

The second is event listing where a series of concrete events are arranged by chronological time periods, sorting them into several categories. And thirdly, a form of event listing limited to where "critical incidents", defined as important or crucial and/or limited to an immediate setting are identified.

Analysis, at a later date, involved drawing conclusions from the themes to emerge.

(c). PARTICIPANT OBSERVER

i) Role as a Participant Observer .. An Inside Observer.

The decision to be involved in this study as an 'insider observer' or as Guba and Lincoln (1981) term it, 'participant observer', arose from the nature of the study itself, and of my involvement with the implementation of Mathematics, in both a general sense and as a teacher at Niddrie High School. As a teacher-researcher I had the opportunity to not only be a genuine participant dealing with the implementation of the change proposal but also, by completing research into the implementation process, I could create an opportunity to share any understandings gained with others interested in this field. By formalising the study into a thesis by research, I would also be responsible to others outside the area being studied. Supervisors could add integrity to the study being undertaken and act as critical friends. Moreover, to an inexperienced researcher they would add guidance and the benefit of their experiences.

However, the very strength of participant observation, that of immersion in a setting might become a downfall of the study being undertaken. For this reason the use of 'checks' becomes important to the participant observer.

ii) The Researchers Perspective and History

As an inside observer and participant in the implementation of the VCE it is important to state my personal views on the introduction of the VCE to inform the reader and to set the context within which I am operating.
As a Curriculum Co-ordinator in a school at the time of publication of the 'Blackburn Report' I had the opportunity and interest to be involved in some of the consultations leading up to the introduction of the VCE. My view was that changes were overdue and I was generally supportive of the philosophy and aims of the VCE. I was concerned as to the work involved and the changes to my teaching that would have to occur. Once implementation began I found the workload imposing, but worthwhile as the VCE seemed to meet student needs.

I became concerned as implementation progressed at the public debate and the continual changes that were occurring. I felt that more time was needed for the VCE to 'settle in'. I felt more comfortable with some of the changes once I had experienced the difference they made to the students. The VCE suited my teaching style and I was able to adapt quickly to the new demands and changes.

My experiences and contact with other teachers in the school, as well as my background in curriculum development, led me to develop this research program as a means of documenting and analysing the most major curriculum development in the history of the state of Victoria.

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Having established the validity of a longitudinal, qualitative approach to the research and outlined the methodologies to be used in collecting data for this study, the context of the data collection must be established in order to make sense of the results. The introduction of the VCE had a very high profile in the community. The following chapter outlines the social, educational and political context of the introduction of the VCE as well as describing the case study school where an example of implementation actually occurring is studied.
CHAPTER 4.

CONTEXT OF THE STUDY

Before any results of this study are presented the background, or context, of the study must be considered. This study, being multi-layered, is set amongst a number of contexts at a variety of levels. In order to identify the important information, in relation to the aims of this study, these varying contexts are described in four sections.

The first section outlines the general context in which this study is set. The structure of the system, a history of the introduction of the VCE and an explanation of the reasons leading to its introduction. As an analysis of the public debate is a major theme of this study the origins of the debate and an outline of the main issues to be discussed are provided in the second part of this chapter.

The political influence on the introduction of the VCE is analysed in this study and in the third section the public debate and the impact of the 1992 state election, on the implementation of the VCE, is discussed.

The final sub-chapter describes the case study school and the teachers in the Mathematics Faculty, who are the focus of one part of the study.

A. GENERAL CONTEXT

In examining teachers and their response to change it is important to consider the general context in which these changes are occurring. In this study there are three main levels in which the context is set:

1. State System Level: this is set by the government policies on education, which may be enacted by bodies such as VCAB. This study considers specifically the introduction of the VCE and the changes to the structure and teaching of Mathematics courses.
2. School Level: policies developed at the school level, which govern curriculum delivery, within the boundaries set by government policy.

3. Faculty Level: where implementation occurs and the work of converting policy set by the state and school into classroom practice occurs.

Decisions made at each of these levels has an impact on teachers to some extent. The ability of teachers to influence these decisions is greatest at the faculty level, less so at the school level and least of all at the state level. In discussing teachers response to change, developments in policy at the state level provide an example of an externally imposed change. Decisions at a faculty level, give an example of teachers being involved in a collaborative process.

However, the three components of the context do not operate independently of each other. The degree of flexibility at the school and faculty level is largely determined by the state. A good example is in the introduction of VCE Mathematics where schools were asked to volunteer to become pilot schools for the implementation of the new programs. The structure and content of the study was set, by a VCAB sub-committee, the Mathematics Field of Study Committee (FOSC). Schools were only involved in the implementation phase. The involvement at the school level was to decide whether or not to become a pilot school and at the faculty level on how to implement the changes. The implications of this hierarchical approach to curriculum delivery and its impact on teachers response to change will be a key to this study.

In examining the context of the changes to the VCE it is necessary to look at its origins. Much of the impetus for change in schools, in the past ten years, has been externally derived from the Ministry of Education i.e. the state level. The publication between 1982 and 1984 of Ministerial papers 1 to 6 together with the 'Blackburn Report' in 1985 had wide ranging implications for schools. Ministerial Paper No. 6 explicitly states that all students should "experience success" in their learning. The twin concepts of "access and success" combined with increased participation of parents and students in the decision making process of schools gave rise to significant changes in the running and organisation of schools.

The introduction of the VCE in 1990 occurred partly as a consequence of these earlier developments and partly in response to changes in the nature of students attending schools in years 11 and 12. Retention rates were increasing and the
aspirations of students were changing. From 1981 to 1991 retention rates in Victoria increased from 23.8% to 71.1% (201).

There was also an increasing number of students in the senior years of school who were not aiming at tertiary study and required a different style of education to the traditional, tertiary oriented, HSC. Prior to the introduction of the VCE these students were accommodated by additional courses such as the Tertiary Orientation Program (TOP), Schools Year 12 and Tertiary Entrance Certificate (STC), Technical Year 12 Certificate (T12) and HSC Group 2. Consequently there were sweeping changes to course design and delivery imposed on teachers with the introduction of the VCE, in addition to the changes in their clientele.

In the Mathematics area further pressure on teachers came from the primary schools who were experimenting with programs such as Reality in Mathematics Education (RIME), Early Literacy In-service Course (ELIC) and Exploring Mathematics in Classrooms (EMIC) and with the publication of the Frameworks documents in 1988. Students rising through the school system were being taught in new and innovative ways and when confronted by traditional teacher centred styles were having difficulties. Thus mathematics teachers were under pressure from a wide range of external forces, from below (primary schools), from above (Ministry policy) and from within the school (other faculties, curriculum committees, increased student retention). Students confronted teachers with new found capabilities, for example computer expertise, which may have been outside the teacher’s experience. The teachers response to these pressures to change will be a large component of this study.

An additional complicating factor that arose as a result of the introduction of the VCE was the concept of 'District Provision of the VCE'. A central component of the VCE was to ensure that students completed a broad general education. In order to achieve this breadth schools had to offer a wide range of the forty four available studies. Schools with small numbers had difficulty doing this and were encouraged to collaborate with other schools in the district to provide the necessary range of studies. This meant some students were forced to commute from school to school to obtain their desired studies. An eventual outcome of this collaboration between schools, combined with pressure from the state, was the 'Re-organisation' of Niddrie and four other schools in the district to form a new three campus college in 1992 (two schools closed). The negotiations for this re-organisation occurred over a three year period at the same time as the introduction of the VCE.
Another peripheral aspect to the context was the career restructure which also occurred in 1990 and 1991. It is important to this study in providing a picture of the teacher as a person involved in responding to a range of complex issues. The career restructure involved the introduction of the Advanced Skills Teacher (AST) positions. This was a three tiered structure designed to replace the old promotion positions (Senior Teachers). The restructure was to reward teachers who were good classroom practitioners and to establish positions of responsibility in schools to be filled by these teachers. The day to day running of schools and management of students would be carried out by teachers with proven records of exemplary classroom practice. The running of schools would be more effective because of the practical expertise of the AST's and inexperienced teachers would have good role models.

The impact on teachers eligible to apply for the AST positions was a large increase in their workload and an increase in stress levels. The applications were difficult to write, short listed candidates had to attend searching interviews and schools were disrupted while interviewing panels were formed and candidates missed classes to be interviewed. It was not uncommon for candidates to apply for between fifteen to twenty five positions and obtain interviews for most of them. Many of these teachers were also actively involved in the implementation of the VCE.

This process destabilised schools in a number of other ways. A large number of former Senior Teachers became disaffected as they were reclassified at AST 1 (the lowest of three levels of AST) and were required to apply for promotion to the other levels. Many refused claiming that they had been through a promotion process once before to become Senior Teachers and should not have to do it again. Others applied and were not successful or were only promoted to the middle ranking AST 2 level. At the same time teachers who had always been junior to the Senior Teachers were being promoted over them, often beating Senior Teachers in competition for the same position. This led to some resentment and ill feeling in schools when the appointments were announced and when the new appointees took up their positions.

At the state level much of the educational bureaucracy was being dismantled or decentralised as a cost cutting exercise. More responsibility was being thrown onto schools and less support was available, especially in the areas of district consultancy services. This was most widely felt in the area of curriculum development, where many consultants were being forced to return to school and the Local School Support Centres were being closed down.
Consequently the introduction of the VCE occurred in a context of widespread change within schools. Some changes, such as 'District Provision' and 'Reorganisation' arose directly out of the introduction of the VCE. Other changes were unrelated, but all were occurring in an environment of reduced support for schools.

As the Labour Government approached the 1992 election and began to make budget cuts, which included the closure of schools, the loss of teachers' jobs and the winding back of school support centres, teachers became involved in widespread industrial action. This included a threat (in late 1991) to ban the full implementation of the VCE in 1992.

Although this threat was averted the Liberal opposition promised to make further changes if elected, thus adding more uncertainty to the situation. The election of the Liberal Government in October, although towards the end of this study accelerated this process of continuous change and had a degree of impact on the school in this study.

**B. DOCUMENT ANALYSIS CONTEXT**

In examining the contexts of the changes to the VCE a second dimension to the study evolved. In addition to the micro-dimension, the case study of the Niddrie Maths Faculty, there was a macro-dimension. This was the debate over the VCE carried out in the media. This debate was wide ranging including politicians from both major parties, university academics, educationalists, officials of teacher unions, teachers and principals, parents and parent groups, students, members of the business community, newspaper editors, journalists and other writers, television journalists and interested members of the public.

The public debate carried out in the media ran parallel to and linked with an internal debate carried on in educational circles. This occurred via the publications produced by VCAB, the teacher unions, Ministry of Education, parent organisations, and principal associations. It also took place at meetings of subject associations, VCAB sponsored in service activities, clusters of teachers working with school support centres and groups working within schools.

By analysing the documentation of the debate its path could be traced, identifying the major sources of arguments, the key points to these arguments and then any
changes of policy or practice that may have arisen as a result. Finally the impact on the school could be examined completing a cycle which linked the macro and micro dimensions of the study. Thus the macro dimension of this study is more than merely the broader context in which the teachers' response to change occurred. It is an integral part of the array of factors influencing the teachers' responses to the changes imposed by the introduction of the VCE.

i ANALYSIS

The first part of the analysis involves identifying the major issues and periods of the debate and begins in 1990. In 1989 pilot schools had trialed English, Mathematics and Australian Studies and prior to this there had been conflict with a number of universities, especially with respect to tertiary selection issues. Slattery (1) reported that prior to May 1990:

"The debate over the VCE has focussed mainly on issues of tertiary selection. This is because the universities, with the power to set their own exams, were capable of crippling the reform if they chose to do so".

However in 1990 all schools, including Niddrie High School, were part of Phase 1 of the introduction of the VCE, running VCE English, Mathematics and Australian Studies at Year 11. Therefore the full implications of the VCE were becoming apparent to a wide range of interested parties.

Slattery (1) reported on Caulley's (5C) study that claimed that teachers in pilot schools were "floundering" and that more money and support needed to go to schools, teachers and students. The article also identified another key issues. That there was:

"... strong criticism from many students of the year 11-maths workload, and the stress associated with these trials".

A further issue identified by Slattery (3) was a perception in some quarters of the increase in cheating by students.

These four themes, tertiary selection, support for implementation, workload and cheating recur frequently in the literature over the three year period of the study and have been identified as the major themes for further analysis.

1. CHEATING

The issue of cheating revolved around the completion of school assessed CATs where teachers were given the responsibility to verify the authenticity of a
student's work. This was known as the verification process. Maslen (5A) reports that Caulley's study (SC) suggested that:

"... cheating could become widespread and that public credibility of the certificate will be stretched over the problem of ensuring that the work of students is basically their own".

The chairperson of VCAB, Dr. Richard Tisher, disputed that cheating would be rife. He said the procedures for verifying students' work would probably be more rigorous and disciplined than those used by tertiary institutions:

"The procedures already in place will provide adequate safeguards .... although .... because the board is concerned about the issue, it will be monitoring what happens very closely" (5A).

Associated with the issues of cheating and verification was the area of assessment. The new forms of assessment used in the VCE became integral to the debate over the authenticity and comparability of results and linked into the debate on tertiary selection.

2. TERTIARY SELECTION

The debate over tertiary selection concerned the grading system for CATs in year 12 and the weighting given to some CATs over others. Some university faculties Slattery (1) wrote were also:

"likely to set strict prerequisites, to sift out students taking less academic subjects".

Thus there was discussion over the comparability of results obtained in different CATs in different studies. VCAB in May 1990 recommended a 10 point scale, from A+ to E, to end the two years of conflict with the universities. However the issue of tertiary selection continued to be of concern over the period of the study.

NOTE: In the document analysis section of this study these two issues will be considered together. They are so closely intertwined in the debate that it would be difficult, and counterproductive to obtaining a full picture of the debate, to divide them into separate strands.

3. WORKLOAD

Workload issues related to teachers and students. Students were required to complete a wide range of work requirements involving tasks that were new to them and to their teachers and initially involved large amounts of time. Teachers had increased workloads in the areas of course development, preparation and correction, authentication and drafting of students' work.
4. SUPPORT FOR IMPLEMENTATION

Although related to workload issues the support for teachers in the implementation phase was a separate issue. Many of the demands of the VCE required teachers to learn new skills or develop under utilised skills, write new courses, develop new materials and introduce new assessment procedures. The level of external support from bodies like VCAB and local support centres was crucial for the success of the implementation phase. At the school level teachers with positions of responsibility for curriculum development, but with little or no experience with the VCE, were expected to be able to assist staff with their difficulties.

C. POLITICAL CONTEXT

i THE POLITICS OF AN EDUCATIONAL CHANGE

The introduction of the VCE became highly politicised. This was due partly to the impending 1992 state election and partly to the inherent political nature of education as a service which absorbs a large percentage of the state budget. The debate which ensued was highly significant in setting the context of the implementation of the VCE. Teachers were not able to simply get on with the job of implementing the change, but were continuously embroiled in a public debate which sometimes appeared to result in changes of policy.

As reported by Bruce (211A), in February, 1993, in his analysis of the final 'Northfield Report' :

"An overwhelming majority of teachers spoke with varying degrees of disappointment, anger, bitterness and despair of the inability of particular sections of the community to 'give VCE and us a chance'. Consistent negative coverage from various sections of the media and uncertainty about changes to the VCE under a Kennett Government caused anxiety in schools".

The political nature of the introduction of the VCE, while not discussed at length in the media, was written about intermittently. In an early letter to the editor of 'The Sunday Herald' in March 1991 E.D. Thompson (7B) wrote :

"It is frustrating for those of us who are implementing the new VCE, to read the constant, ill informed criticism appearing regularly in the media. Informed debate is essential, but the politically motivated criticism from the ultra-conservatives reflects their refusal to recognise the strengths of the new curriculum".

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Thompson's point is perfectly illustrated by the publication of two articles, in "The Age", on the same day in April, 1991. Barnard (13), an ongoing critic of the VCE, wrote:

"Given the way the VCE juggernaut continues on its way, impervious to the complaints and cries of those being crushed beneath it, it is understandable why the Opposition has made it one of its priorities to review thoroughly the entire certificate once it achieves government".

Maslen (14A) took a different view:

"The failure of Victoria's political parties to develop a bipartisan policy on curriculum and assessment in the past two years of school is a tragedy for the states students - and a sad reflection on our adversarial political system, whereby anything controversial becomes a weapon for one side to belt the other with. ... The Opposition has consistently attacked the VCE, seizing on the community uncertainty that was inevitable with the introduction of so substantial a change, as a means of further trying to discredit Joan Kirner".

Maslen claimed that the Opposition's policies were ideologically driven and ignored the fact that the VCE was being supported by most school communities. He concluded:

"Here we have a future government marching straight back into the past. ... Has no one in the Opposition read the Blackburn report or actually visited schools to see what is taking place?".

The Labour Government was not immune from criticism. Magazanik (66), September, 1991, in a case study article on a teacher quotes her as saying that she feels alienated by the government due to massive budget cuts and broken promises and that teachers feel undermined, overworked, underpaid and the subject of unfounded jokes about how easy teaching is as a job. Consequently there was strong support for industrial action amongst teachers.

(a). A CRITIC EMERGES

Maslen (79), in November, 1991, in a review article in the 'Education Age', wrote that in the decade leading up to the introduction of the VCE the educational bureaucracy had been significantly reduced and that support services had been cut. Yet in schools life went on:

"... as if the cyclonic battering of the bureaucrats was not happening".

While teachers may have appeared insulated from the world outside schools, in effect they were not, as changes in the workplace, changes in codes of behaviour and the need for schools to perform tasks that were:

"... once the responsibility of others",

had an impact on the classroom and how teachers approach their work.
However Maslen wrote:

"... there are also internal changes that are sometimes even more influential ... the advent of the VCE has forced some of the more conservative teachers in the state to alter their full frontal modes of instruction and to allow their students room to explore the world in novel ways".

He continued:

"The way the VCE is challenging conventional education is one of the reasons for the passionate opposition it has aroused. Those who are most outspoken in condemning the new certificate - the political conservatives, the vice-chancellor of Melbourne University, a posse of private school teachers - also have the strongest reasons to fear the emancipation of young people that the VCE promises".

Maslen (118) became more focussed on the politics of the VCE in January 1992 in an article entitled "Politics kills off the VCE, bit by bit". His opening paragraph sets the tone of the article:

"Political cowards and educational wimps are helping to destroy the VCE. The changes already forced onto the certificate, and those being considered, will push education reform in Victoria back ten years. Victorians do not have to await the election of a conservative government for the educational Dark Ages. Labour has placed its electoral prospects above educational values and is undermining much that the VCE stood for. Far from resisting these moves, or speaking out against the poisons in politics, the VCAB has weakly accepted the Government's changes and is considering some of its own that are worse.

Ever since the Blackburn report in 1985 set out its radical proposals for the VCE, the certificate has been under attack. Right from the start many of the original recommendations were rejected or ignored because the Labour Government lacked the courage to confront its opponents. As a result, the certificate has undergone constant revision so that it is becoming less enlightened and, for students, more burdensome.

The VCE is the most complicated curriculum development undertaken in Victoria ... Yet the assaults on the certificate have not been concerned with the complexities as with the core reforms".

Maslen tried to identify the motives behind the opposition groups:

"Up until November 1989, Victoria's political parties had shown bipartisan support for the VCE's development ... then the Liberals cynically decided to capitalise on community unease ... and started to use parental concern as a political weapon. They have been helped by a vociferous group of private school lobbyists who ... detests the VCE generally because of the threat it imposes to the privileged access to higher education that private school students enjoy".

On the opposition of the University of Melbourne Maslen wrote:

"... Melbourne (University) is the most reactionary education institution in the state ... its leaders have resisted almost every reform in secondary schools for the past 50 years".

On examinations:

"... VCAB's predecessor - the VISE - wanted external examinations scrapped in 1990. Never mind that examinations are education's (sic) greatest self delusion and that even Queensland abolished them 20 years ago. No ... Victorians have an almost mystical reverence for examinations and the numerical scores they generate. Anyway, with conservative educational attitudes predominant and a chicken-hearted government, external exams are already part of every VCE study. Yet the Blackburn Report was opposed to them. The recommendation to get rid of exams was just another of those that petrified the timid politicians and it got lost along the way".

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(b). THE MINISTER RESPONDS

Neil Pope, Minister for School Education, wrote to all parents (232) on the 25th. February, 1992, in an attempt to defuse some of the criticism of the VCE. He referred to the positive findings of the Northfield report and included a copy of the editorial from 'The Age' of the 14th. February entitled "The VCE passes examination". Pope concluded his letter:

"In contrast to the uncertainty being generated from some quarters of the media, the Northfield Report indicates wide acceptance of the VCE. The report is a welcome signal from an independent source that, despite politically inspired attempts to damage confidence in the VCE, the teachers and students who are doing the certificate are growing in their assurance that it is both worthwhile and workable".

(c). A SECOND CRITIC APPEARS

In April 1992 Slattery (142) discussed the reaction to the intense media focus on the VCE. He wrote that school level issues tended to get little coverage:

"... the media should take in the actual workings of the VCE in schools, leading perhaps to a more informed debate about those aspects of the certificate that remain in flux. The job is made more difficult, however, by the impending state election and the overt politicisation of the VCE".

Slattery believed that the danger was that because the VCE was closely identified with the political beliefs of the Premier Joan Kirner (who was also Education Minister in the early days of the VCE) the opposition would use the VCE as:

"... just another stick with which to beat Joan Kirner and her Government".

His view was supported by opposition advertising campaigns based on the findings of their polls that the VCE was a potent election issue.

Slattery wrote that the effect of this political context on implementation could be seen in the Government’s attempts to:

"... clear the certificates (sic) decks",

in an attempt to shore up community support for the VCE and establish a bipartisan approach to the certificate, and thus remove it as an election issue. He concluded with a comment on the role of the media in the debate:

"... in conservative quarters 'The Age' is perceived to have been soft on the VCE and, by extension, soft on the Kirner Government. The 'Herald-Sun' is accused by others of running a campaign against the VCE. But if the VCE shows all the signs of having a difficult birth, the blame cannot be laid solely at the media’s door. Without the media’s constant security of the reform, key features of the certificate may not have been modified".

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A detailed analysis of the role of the media in the debate and whether the media had a direct effect on forcing change is not within the scope of this study. However the media scrutiny of the introduction of the VCE is a factor to be considered and will be explored elsewhere in this study.

(d). A NEW GOVERNMENT

The political aspect to the debate on the VCE increased as the October election approached. Education, specifically the VCE, became a major election issue. The editorial (171A) in 'The Herald-Sun' of 14th. October, a week after the election, encapsulated the issues that had been given a high profile during the election campaign by the challenging Opposition. In discussing the Kennett Government’s educational reforms the editorial said:

"The prime target is the totally discredited VCE. Under Labour, the certificate was intended as a great educational leveller. The pursuit of excellence was sacrificed to the cult of equal outcome.

Under the Coalition, there will be a return to old-fashioned principles. Examinations will return as a major instrument for assessing scholastic achievement. The much-criticised assessment system will be restructured. And elimination of cheating will be a priority. The reforms are intended to produce a fair and workable assessment. The VCE has been grossly deficient on this score until now, a failure highlighted by employers and major tertiary institutions.

... So far, the chaotic VCE has had a disastrous impact on students trying to prepare for their careers. The change of Government presents a real chance to get it right at last".

Slattery (171), in October, 1992, discussed the political elements of the introduction of the VCE in an ‘Education Age’ article entitled “Flawed by administrators or floored by politics?” where he asked:

"Is the VCE a victim of political machinations or are its problems more fundamental?".

Slattery wrote that there were two views on what was wrong with the VCE. Firstly that it suffered the inevitable “teething problems” that would be expected in such a large curriculum change and that it was undermined by political forces:

"These include the machinations of Melbourne University’s vice-chancellor, Professor David Pennington, and shadow education ministers John Richardson and Don Hayward, acting in concert with the media”.

Or secondly:

"The view most often espoused by Liberal Party spokesmen, ... was that the certificate was ‘fundamentally flawed’; a view which suggested that the certificate needed radical surgery to save it".
Slattery identified Penington as a major critic who interfered in the implementation of the VCE:

"In both a public and private capacity, he managed to keep the heat on the certificate over a period of about two years".

On the other hand Slattery felt that Penington and others also played a role in forcing constructive changes to the VCE in response to concerns over tertiary selection and university preparation.

Slattery believed that some of the problems with the implementation of the VCE were as a result of poor administration and cites the workload problem as something that could have been avoided with better planning. A result of this, in his view, was that teachers in schools may have felt like guinea pigs while VCAB experimented with the VCE until they found a workable model.

Slattery ended his article by asking how the VCE became so:

"... deeply and destructively politicised?".

His conclusion highlights an underlying theme in the context of this study. He placed the blame initially with the former Labour Education Minister, Joan Kirner, whom he claimed was at the same time the VCE's greatest champion and greatest enemy. That by her belief in the purpose of education to be a means for changing society and her support for the concept of 'equality of outcomes':

"She made it easy for the opponents of the VCE to claim the certificate was the product of social, not educational goals".

Therefore the debate, according to Slattery (171), had become impossibly polarised along party political lines. To a large extent any debate over the educational merit of the change was being overshadowed by a political arguments born out of the need for the participants in the debate to establish their positions in the run up to the state election. The introduction of the VCE had become a 'political football'.
THE SCHOOL

Niddrie High School: established 1958, situated in the North Western suburbs of Melbourne. At its peak it had a student population of over 1,000, but during the time of the study enrolments decreased slowly from approximately 800 in 1989 to 650 in 1992. The number at Years 11 and 12 stayed relatively constant during this decline at approximately 300. This disproportionate share of enrolments occurred due to increased retention rates at the VCE level while enrolments fell at the junior levels because of demographic trends in the district.

Students were drawn from families of working class and lower middle class socio-economic groups. A large proportion of parents of students were first generation immigrants from the Mediterranean countries of Europe, although the vast majority of students were born in Australia.

The school was co-educational with a standard curriculum, similar to most other schools in the area, and a large range of extra-curricular activities. The teaching staff was stable with most staff staying in the school for long periods of time. Many staff were either ex-students of the school or had grown up in the surrounding area and had attended neighbouring schools. The general atmosphere could be described as quiet, productive and secure with good discipline.

In the VCE years the curriculum offered concentrated on the areas of Business Studies, Mathematics/Science, Health and Physical Education and the Arts. Humanities and Technology was under represented due to lack of student choice and lack of an established history of these subjects.

Decisions on curriculum were made at two levels. Policy was set by the School Council. Recommendations would be made to Council by the Education Sub-committee after consultation with the staff Curriculum Committee. The Curriculum Committee worked with the faculties to implement policy and to provide feedback and make submissions to the Education Sub-committee. Thus a cycle of consultation between parents, teachers and students was established under the umbrella of the School Council. All proposals for curriculum change had to go through this cycle before they could be implemented. This applied to the implementation of externally imposed government policy as well as changes arising from within the school.
In 1992, as part of the District Provision of the VCE policy Niddrie High School became part of the new multi-campus college known as Essendon Keilor College. The college was formed on three sites after the amalgamation of five schools. The three sites were the former Keilor Heights High School, which became the Keilor 7 to 10 campus, Essendon High School, which became the Senior (VCE) campus, and Niddrie High School, which became the Niddrie 7 to 10 campus. The other two schools, Avondale Secondary College and Queens Park Secondary College both closed. The new college began in 1993.

ii THE MATHEMATICS FACULTY

The faculty was composed of teachers with varying degrees of experience and was stable over the period of the study compared to other faculties in the school.

Karen: The co-ordinator, more than 10 years experience, other subject Health Education. Mathematics trained and had taught all levels. Had only taught at Niddrie. Very confident in the subject content.

Bruce: Careers Teacher, more than 10 years experience, new to the school in 1989, experience in two other schools. Other subject Chemistry which he preferred to teach rather than senior maths. One of the most able mathematicians in the faculty.

John: Deputy Principal, almost 30 years experience in four schools. Had taught all levels but in recent years had taught only one class of the most able year 12 students. Very able Mathematician.

Gary: Over 10 years experience, no other teaching subject. Had only taught at Niddrie. A former faculty co-ordinator who had stepped down from the position due to family problems. An able mathematician who had taught Senior subjects in the past but had opted out in recent years.

Paul: Over 15 years experience, other subject Chemistry. Had taught at two other schools, former Senior teacher and Curriculum Co-ordinator. Taught senior Chemistry and Senior Mathematics, but only those units chosen by the weaker students. Not confident teaching the more difficult topics.
David: Over 10 years experience, other subject Biology. Had taught at one other school. Former faculty and curriculum co-ordinator. Taught senior Biology and Mathematics. Not mathematics trained but had completed further study to improve qualifications. Tended to teach the middle level VCE students but was confident of teaching at any level. The researcher.

Mike: First year of teaching was in 1988 at Niddrie, other subject Geography. Taught senior Mathematics at the lowest level, not confident teaching anything more difficult.

Colin: Over 10 years experience, other subject Biology. Had taught at a wide range of schools as a regional relieving teacher before transferring to Niddrie. Taught senior Biology and Senior Mathematics at the lowest level. He was undertaking further training at the time of this study to further his qualifications as he lacked the knowledge to teach at a higher level.

Brian: First year of teaching was in 1989 at Niddrie, although he had worked in private industry prior to becoming a teacher. Other subject computer science. Taught the middle to lower levels of senior Mathematics but completely lacked confidence at any of these levels.

The faculty operated by consensus, very few votes ever being taken on issues. Teachers were organised into teams depending on the subjects they taught. The teams were the groups responsible for implementation of the program. They planned the syllabus, shared ideas on content, presentation and assessment and reporting and acted as a mutual support mechanism. New teachers coming into the faculty would become part of a team and thus their transition into the faculty was made as smooth as possible. The teams tended to work informally although some faculty time was devoted to team meetings. This formal role of the teams was highlighted in two areas; course planning and the teaching and assessment of CATs.
iii IMPLEMENTATION

Once the study designs were written for the three Phase 1 studies, schools were asked to volunteer to become pilot schools and to trial the new courses. A school which did not become a pilot school began to implement the VCE in 1990 with the introduction at Year 11 of the Phase 1 studies of English, Mathematics and Australian Studies.

At Niddrie High School the decision was made not to become a pilot school in 1989. Pilot schools were to trial the new VCE Curriculum in English, Mathematics and Australian Studies and provide feedback to VCAB and all other schools who were to implement the VCE one year later.

There were a number of reasons cited for not entering the pilot program recorded in the minutes of the Mathematics Faculty meeting of October 1988:

1. Lack of knowledge about the courses of study.
2. A number of young inexperienced staff who lacked the confidence and expertise to tackle a new idea.
3. A perception that it was better to allow somebody else to pilot the courses and for Niddrie to learn from their mistakes.
4. A lack of conviction about the worth of the VCE and therefore a lack of commitment to its implementation.
5. Suspicion as to the amount of support available from outside the school and a lack of preparedness to commit the time necessary to be a pilot school.

This was despite the fact that the English faculty was very keen to pilot that study. However to become a Pilot school the three areas of English, Australian studies and Mathematics all had to agree to the pilot project and Australian studies and Mathematics had similar reservations. The argument put forward by the English faculty was that there would be a level of support from VCAB for pilot schools that would not be available once the pilot was over. While agreeing with this point of view the mathematics faculty felt that this positive aspect to becoming a pilot school did not outweigh the negatives outlined above. Prospective teachers of Australian Studies were to have been drawn from a range of teaching areas and as a group did not feel adequately prepared for the VCE at that stage (see Appendix IX for a detailed calendar of events).

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THE STUDY

As described in the methodology, data were collected from individuals using a number of formats. These varying methods were chosen as being the most practical given the constraints of time and availability of the subjects at the times the data needed to be gathered. In the case of the workload review the questionnaire technique was adopted to coincide with a wider survey being done throughout the school in order to contribute a submission to the joint Ministry of Education/Union (231) workload review.

While the faculty was generally stable, some changes occurred over the period of the study. A summary of the participation, in this study, of each member of the faculty is outlined in Table 6.
TABLE 6: PARTICIPATION OF MEMBERS OF THE MATHEMATICS FACULTY IN THE CASE STUDY

<table>
<thead>
<tr>
<th>TEACHER</th>
<th>PARTICIPATION</th>
<th>COMMENTS</th>
</tr>
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</table>
| Karen  | February 1991  
November 1991  
November 1992  
August 1993 | As Maths Faculty Co-ordinator for all of this period. Karen was central to managing the implementation phase. She stated that she was enthusiastic about the VCE and participating in this study and opted to teach at the VCE campus. |
| Bruce  | November 1991  
November 1992  
August 1993 | His participation in the study was grudging and he was not enthusiastic about teaching the VCE. He chose to remain at Niddrie when it became a 7 to 10 campus. |
| John   | November 1992  
August 1993 | As Deputy Principal he taught only one class and thus did not participate in the workload review. |
| Gary   | November 1991  
November 1992  
August 1993 | A willing participant in the study, but very reticent about teaching the new VCE. Opted for the Keilor 7 to 10 campus. |
| Paul   | February 1991  
November 1991  
November 1992 | As Curriculum Co-ordinator for the period of the study. Paul was central to the implementation at the school level. Opted for the VCE campus but was sent to the Keilor 7 to 10 Campus. After one term, he took sick leave based on stress and unhappiness at the change to a non VCE teaching load. He took a departure package in 1993 and refused any contact with his former colleagues, and therefore further participation in this study. |
| David  | November 1991  
August 1993* | The researcher. |
| Mike   | November 1991  
November 1992  
August 1993 | He stated he was unhappy with some aspects of his ability to teach VCE Mathematics and opted for the Keilor 7 to 10 campus. |
| Colin  | November 1991  
November 1992  
August 1993 | By the time Colin had completed his further qualification enabling him to teach Reasoning and Data, the study had been eliminated and replaced by a study he was not capable of teaching at Year 12. He opted to stay as Maths/Science Faculty Co-ordinator at the Niddrie 7 to 10 campus. |
| Brian  | November 1991  
November 1992 | At the formation of the Essendon Keilor College, Brian was declared in excess and transferred against his will to another school. He refused all attempts to further involve him in this study. |

* While I did not interview myself I did make my own observations against the interview questions.

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It has been demonstrated, in this chapter, that the context in which this study is set has a number of interconnecting aspects all of which have an impact on the implementation of the VCE.

The results which follow this chapter are set within these various contextual aspects. Chapter 5 deals with the content analysis of the published newspaper articles and other documents. It focuses mainly on the issues of cheating, support
for teachers in the implementation process and the increase in workload, for teachers and students, which occurred with the introduction of the VCE.

Chapter 6 documents the results gathered from the case study. The case study data are organised into six areas. The response of the teachers to the externally imposed change, issues of implementation, professional development, collaboration and collegiality, the impact on the classroom of the VCE and the effect on the overall school curriculum of the VCE.
CHAPTER 5.

RESULTS - DOCUMENT ANALYSIS

In analysing the newspaper articles and other written material three categories of analysis were developed. These categories covered the majority of articles as they seemed to reflect the major concerns expressed by people writing about the VCE. Although there is some overlap the material can clearly be sorted into one of the three areas.

The first issue, while organised under the title of ‘Cheating’ considers a much broader range of topics. These include the verification process, examinations, tertiary selection and internal assessment. The debate on these issues is outlined, including the impact on the implementation of the VCE.

The second issue is that of support for teachers in the implementation of the VCE. Included as part of the documentation of the debate is a consideration of the effect of the media on the VCE debate. While related to the issue of support for implementation, workload is considered separately because of its significance in the debate over the VCE. It was also an issue that was resolved early in the implementation of the VCE, possibly partly as a result of the debate.

Other issues which emerged during the analysis are included within one of the three categories.

The newspaper articles collected were in the main from “The Age” newspaper, published in Melbourne, Victoria. Documents were also gathered from VCAB, as the statutory body responsible for the implementation of the VCE and from the Ministry of Education, responsible for the system of state education in Victoria. For the years of this study, 1989-1992, 362 documents were collected, analysed and collated. Using the guidelines developed by Miles & Huberman (1987) for content analysis, five key themes emerged from the documents, which were subsequently developed as categories in the analysis. The themes were:

1. General debate about the VCE
2. Implementation issues
3. Workload issues - for both teachers and students
4. ‘Cheating’, Verification and Assessment
5. Tertiary selection

The documents were distributed in chronological order according to their source, The Age, Ministry of Education or VCAB. In addition discussion concerning Mathematics was collected to provide further contextual material for the case study investigating the implementation of Mathematics at Niddrie High School. The same process of distribution was used. Tables 7 to 13 summarise the numbers of documents collected in each category. These tables provide a broad picture of the level, timing and sources of materials used in this study.

TABLE 7: GENERAL DISTRIBUTION OF DOCUMENTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>THE AGE</th>
<th>MINISTRY</th>
<th>VCAB</th>
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<td>9</td>
<td>35</td>
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<td></td>
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</tr>
<tr>
<td>TOTAL</td>
<td>250</td>
<td>18</td>
<td>94</td>
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</table>

As can be seen, 1991 and 1992 are the years in which most discussion about the VCE took place. As 1991-2 is the period in which all schools implemented the VCE, as opposed to the trial period conducted only by Pilot schools, this trend is perhaps not surprising.

When using the themes as categories the following distribution can be noted.

TABLE 8: GENERAL VCE DEBATE

<table>
<thead>
<tr>
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<td>1991</td>
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<td>31</td>
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<td>1992</td>
<td>74</td>
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### TABLE 9: IMPLEMENTATION ISSUES

<table>
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<td>9</td>
</tr>
<tr>
<td>1992</td>
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### TABLE 10: WORKLOAD ISSUES

<table>
<thead>
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<th>VCAB</th>
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<tr>
<td>1992</td>
<td>10</td>
<td>2</td>
<td>9</td>
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</tbody>
</table>

### TABLE 11: CHEATING, VERIFICATION AND ASSESSMENT

<table>
<thead>
<tr>
<th>DATE</th>
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<th>VCAB</th>
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<td>1993</td>
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### TABLE 12: TERTIARY SELECTION

<table>
<thead>
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<th>MINISTRY</th>
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<td>1992</td>
<td>9</td>
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<td>3</td>
</tr>
</tbody>
</table>
A. CHEATING

THE VERIFICATION PROCESS

The issue of cheating initially revolved around the school based CATs that were assessed using the verification process. This process consisted of the following steps:

1. The class teacher graded each CAT on a scale of A+ to E using a range of criteria developed by VCAB.

2. Teams of teachers within the school then cross marked each other's work until a consensus was reached regarding the interpretation of the criteria and the standard of each grade was reached.

3. Teachers from clusters of schools would then meet and go through the same process until agreement was reached regarding the standard of the work in their cluster. Any CATs where the marks were changed by more than two grades would also be assessed by the panel (cluster) chairperson who had the power to change any mark.

4. The results, thus verified, were submitted to VCAB.

A major criticism of this process was that it was very time consuming, expensive of staff and open to teachers trying to argue the case for their students' marks to be retained while others were downgraded. Therefore in the second year of VCE mathematics the system was changed.

The third step in the process was eliminated and replaced by a system where the teachers submitted their students' marks to the panel chairperson along with randomly selected samples of the work, which included all A+ grades and two samples of every other grade. The panel chairperson re-assessed the work. If the panel chairperson agreed with the results, within specified tolerance limits, then...
the grades stood. If however the panel chairperson gave the work a grade outside the tolerance limits then all other student work which also received that grade was sampled and re-marked.

At the completion of the set time for carrying out the CATs teachers were expected to sign a form attesting that the work submitted for assessment was the student’s own work. Any outside assistance was to be acknowledged and teachers were expected to see the student work in progress. The procedures by which a teacher was able to attest that the work was genuinely that of the students was known as ‘authentication’. Where cheating was known or suspected there were established processes for the school to follow and any student found to have cheated would have a Not Assessed (NA) recorded for that piece of work.

However a number of critics argued that these procedures were inadequate and that cheating was widespread, or at the very least large numbers of students were receiving undue assistance.

As a result of this criticism the project CAT was reduced to extend over only four weeks and the problem solving CAT suspended at the end of 1992 and retained as a work requirement only for 1993 and beyond.

In addition the use of these results for tertiary entrance arose as an issue as the reliability and comparability of students’ marks were questioned in some quarters. This analysis will concentrate on the three intertwined issues of assessment and the verification process, cheating and tertiary selection.

EXAMINATIONS AND TERTIARY SELECTION

The media debate surfaced around May 1990 with the publication of the Caulley and McGaw Reports. The arguments not only revolved around the issue of cheating, but also the results students in pilot schools were receiving for their work. Maslen (5A) reported that parents in the top private schools were worried that their students’ chances of tertiary entrance were being adversely effected by their results. He quoted one mother:

“My daughter always got A’s for Mathematics, now she is in a pilot school for the new VCE maths and she’s only getting D’s”.

Maslen argued that the reason for this may be that:

“...the new courses are testing a different set of abilities than the skill of sitting for exams and that now a true picture of her child’s capacity is being presented”. 

104
However Maslen said that concern over cheating was widespread with parents arguing that the scope for cheating was much wider because most CATs were not done under exam conditions. He argued that this concern may be unfounded as:

"...150,000 young Victorians in higher education ... for the most part are assessed in much the same way as that planned for the VCE".

He did concede, however, that there was a:

"... need for the results of the VCE to be seen to be 'authentic'. Dr Caulley's study, in fact, suggests that cheating could become widespread and that public credibility of the certificate will be stretched over the problem of ensuring that work of the students is basically their own".

Maslen then quoted the chairman of VCAB, Dr Richard Tisher, as a counter to Caulley:

"... the procedures for verifying students' work will probably be more rigorous and disciplined than those used by tertiary institutions. The procedures already in place will provide adequate safeguards ... because the board is concerned by the issue, it will be monitoring what happens very closely".

Caulley (5B) asserted that there is an inherent problem with the CATs when compared to external examinations:

"In a written external examination, the task is in one sense the same for all students.... However, when a task is not done under test conditions, it is impossible to guarantee that the work is solely that of the student. A CAT that is not done under test conditions leaves the way open for the possibility that the work is not genuinely that of the student. Teachers will be asked to attest that the work of the student is genuinely that of the student. However the burden of proof will be on the teacher. Even if a teacher has grave doubts about the work of a student, there may be no way the teacher can prove it is not the student's work".

Caulley’s main concern was the use of CAT results for tertiary selection:

"Students should all have a fair and equal chance of running the race for tertiary places. This will not occur if the tasks students do are not common, if they do not do them under the same conditions and have the same access to help and resources, and if the criteria are not the same or not consistently applied in the same way. A selection system must have credibility with the public. The present system does, the new system has to also. Where public credibility will be stretched, will be over the problem of authentication. This problem did not exist when tertiary selection was mainly based on written examinations ... If a public controversy occurs over the CATs system, it is most likely to be over the problem of authentication".

It would appear from this that the use of VCE results for tertiary entrance was one of the major reasons for the development of concern, from some universities, over cheating, the nature of the task being assessed and the reliability and comparability of marks. Slattery (1) highlighted this when he wrote:

"The debate over the VCE has focussed mainly on issues of tertiary selection. This is because the universities, with the power to set their own exams, were capable of crippling the reform if they chose to do so."
However, a dispute is looming between the key universities over their right to weight different tests. Some faculties are also likely to set strict prerequisites, to sift out students taking less academic subjects”.

Masters (322) entered the debate early in 1991 arguing that efforts at reliable measurement can either be limited to exams or a serious attempt can be made to develop dependable measures of other valued outcomes. He wrote that current:

“... efforts at educational measurement are primitive”

and that the major problem to be addressed is that of comparability:

“Our measuring sticks in education are myriad, idiosyncratic and rarely calibrated against shared standards”.

He argued that comparability is assumed when dealing with examination scores, but that this is not necessarily the case as there is large variability of the task students carry out even within the one test. He believed the new VCE test CATs would make full use of the developments in modern measurement theory, but:

“The bigger challenge in educational measurement is that of achieving comparability of assessment not based on paper and pencil tests. Many essential educational skills ... are not validly assessed in timed written tests”.

He also argued that the verification procedures of the new VCE are superior to the old HSC system of standardising non-test marks against a test score:

“The verification procedures of the new VCE begin with the premise that a student completing a superior research project should be awarded more credit for that project than a student completing a lesser project, regardless of their results on other tests and assignments and regardless of the schools they attend. Comparability of this kind requires shared assessment standards together with procedures for ensuring that criteria are applied consistently across schools”.

He concluded that the new VCE takes seriously the task of developing dependable measures of valued outcomes, other than those measured by a test, through CATs, shared assessment criteria and the verification process.

iii VCAB RESPONDS

In May VCAB published advice to schools on authentication and undue assistance:

“While VCAB and schools are concerned to promote student learning and have no wish to deny parents or others the right to assist students ... the credibility of the VCE requires that work submitted for assessment be the student’s own work. Accordingly it is suggested that schools publish advice to parents and students in the following terms. ‘Advice to students may take the form of guidance on the nature of desirable adjustments and improvements to their work. Such advice should not however involve actually inserting such adjustments or improvements into the work, dictating them or directing the student specifically as to the actual text to be inserted”’ (228).
The public debate resurfaced in June 1991. By this stage all schools were running the Phase I studies of English, Mathematics and Australian Studies, not just the pilot schools as in 1990. Therefore all students were involved in the CAT system. The catalyst for the re-emerging of the debate was the decision by the University of Melbourne, in early June, that it would set its own selection test in English unless the State Government agreed to a second external examination in English. The debate quickly broadened to include all VCE studies and many other aspects of the assessment process.

Maslen (27) opens the counter argument with the statement:

"The external examination is education's (sic) greatest self-delusion".

Maslen disputed claims made by the vice-chancellor of Melbourne University, Professor David Penington. Maslen quoted from a letter Penington sent to The Age newspaper in 1990 where Penington wrote:

"... External assessment will have to play a major part in selection and maintaining standards".

In the same letter, Maslen wrote:

"He goes on to argue that examinations are the best predictor of how well most students will cope with university study".

Maslen argued against Penington on a number of counts. Maslen believed that Penington did not represent the views of education experts in his own university. He quoted Professor of English, Stephen Knight, who was also an authority on assessment:

"I assess my students and do it pretty well without external testing and I cannot see why the school system with its verification procedures can't do that as well".

Maslen questioned Penington's qualifications. Penington's:

"... expertise is in medicine, not in education or assessment, and it is interesting to contrast his views with those of the education experts in his own university, or with those of the former vice-chancellors of La Trobe or Deakin universities. La Trobe's Professor John Scott is a statistician while Deakin's Professor Malcolm Skilbeck is a world authority on curriculum development. Both have strongly defended the VCE and its assessment methods".

Maslen's personal view was that:

"... the evidence suggests that school based assessments are just as useful as exams, and may be even more successful in identifying those who will do well at university".
He quoted Dr Hilary Schofield of Melbourne University's Centre for the Study of Higher Education who said that school based assessments were:

"consistently and substantially related to tertiary performance".

Also that school based assessments:

"were better predictors of tertiary performance than the externally examined HSC".

Maslen concluded his article by saying that Melbourne University:

"... is alone among the states tertiary institutions in demanding more external examinations in the VCE and threatening secondary students with its own tests if it does not get its way".

THE POLITICIANS BECOME INVOLVED

Two days later (13 June 1991) Maslen (28) reported the federal Education Minister John Dawkins as saying that Melbourne University should stop:

"... creating this degree of mischief ..."

about the VCE and that the State Government stop debating with Professor Penington. Maslen also quoted the Victorian Education Minister Barry Pullen who agreed with Dawkins that the VCE needed time to settle down and that Penington was politicising the VCE. Maslen quoted Pullen:

"There are differences of opinion within Melbourne University over the vice-chancellors position on the VCE I doubt if prolonging the debate in this way does the university's credibility much good".

Penington is said by Maslen to have answered that he was used to personal attacks from Mr Dawkins.

Maslen continues to pursue his case on 18 June 1991 (29) with a criticism of Dawkins for using the VCE debate to attack his old political enemy in Penington. He then used the article to undermine Penington's credibility further:

"... For the reality is there is more concern on campus about the issue than has so far been implied in letters to "The Age". Claims that the council was unanimous in its decision ..." (to introduce an English selection test) "... are wrong, according to some council members".
Penington answered his critics in an ‘Education Age’ article on the same day titled “Debates unwarranted ‘tumult’” (30). He wrote that any flaws in the VCE should be identified and corrected as quickly as possible. Penington argued that proponents of allowing the VCE to settle in were jeopardising the futures of students and that obvious faults should be remedied immediately. He also claimed that defenders of the VCE were trying to stifle public debate by claiming the VCE to be sacrosanct. One of the major problems he identified was the assessment processes.

As a follow up to this Penington sent a copy of this and another article to the principals of all schools with an accompanying letter (311). He opened the letter:

“Recent misrepresentation of the controversy over the VCE in the press has been unfortunate. It may cause unreasonable anxiety amongst students and parents”.

The purpose of the letter was to reassure schools that the university was keen to work with schools and not against them in the implementation of the VCE.

A COMPROMISE IS REACHED, BUT THE DEBATE GOES ON

The letters to the editor following this upsurge in the debate are published in equal proportion for either side of the debate (32A, 32B) and finally in late June, 1991, Maslen reported (33) that the Victorian Vice-Chancellor’s Committee approved a scoring system for tertiary entry that gives equal weighting to all CATs, regardless of whether they are external exams or not:

“The vice-chancellors (sic) acceptance of the system is a de facto acknowledgment of the virtues of the VCE and the rigorous verification procedures in its assessment”.

Contributions to the debate continued to appear intermittently, often as part of the general discussion of the VCE.

Cousins (38A) in a letter to ‘The Education Age’ wondered whether the debate was:

“... merely about the 10 per cent (maybe 15 per cent) who wish to go to university”.

He argued that Melbourne University had too much influence on the implementation of the VCE, which was not its role:

“It seems that Melbourne University is by and large the only place pushing for the introduction of extra exams, and the reasons appear to be sorting out who best can regurgitate the most unrelated facts sequentially”.

109
Duncan (42A) in an article critical of Premier Joan Kirner’s introduction of the VCE reopened the cheating debate in August, 1991, claiming that the government had refused to investigate allegations of cheating. He cited anecdotal evidence to support his contention that:

"... cheating is undermining the value of the VCE",

and that it was a major concern in the year when only three of the 44 studies are operating. He claimed that:

"... there is great reluctance to have these matters investigated because there are fears that the results might destroy what is left of the VCE experiment".

Former education minister Ian Cathie, who set up the VCE, is reported in September 1991 (56A) as saying that the VCE had been taken over by teacher unions and left wing parent groups:

"The VCE is wide open to plagiarism and there is a stream among some educationalists opposed to any form of standardised testing?.

Cathie continued on to say that many aspects of the VCE had been twisted to achieve social engineering goals and that he agreed with many of Penington’s criticisms especially the need for external testing rather than the emphasis being on internally assessed work.

At the same time the first round of test CATs for mathematics was being criticised as being too easy (Maslen, 58A).

viii MATHEMATICS IS TARGETED

Melbourne University claimed to be so concerned at the value of the Maths results, reported Slattery (77), in November, 1991, that all first year students in 1992 would be tested to identify students who lacked the basic skills, regardless of their performance in the VCE. Penington is quoted as saying that:

"The university expects to be doing a lot of remedial teaching in mathematics next year".

He blamed the new teaching methods required for the VCE claiming that too much time was spent on the work requirements at the expense of necessary skill development.

A spokesperson for the mathematics department, Dr Frank Barrington, is quoted as saying that the reason for the tests was that there were doubts as to whether the VCE results were good predictors of success at university, unlike the old HSC...
subject, Mathematics B. This view was supported by surveys at both Melbourne and Monash universities which showed that VCE maths students were 15 points behind HSC students. As a result VCAB had commissioned an independent review of VCE mathematics which would lead to changes.

The review panel, which was established in July, and Chaired by Professor John Mack of Sydney University, wrote to schools in November (310) reporting on the review and requesting feedback on their findings. In particular the panel identified five matters for comment:

a) the capacity of the design to enable schools to provide suitable and rewarding mathematics courses in Years 11 and 12 for students not intending to proceed directly to higher education

b) the capacity of the design to allow those students, contemplating entry to higher education, some flexibility of choice of units in Year 11 followed by Year 12 units suitable both for higher education and for other purposes

c) the effects of selection criteria adopted or notified by higher education institutions on units offered and student choice in Years 11 and 12

d) the suitability of various combinations of units in Years 11 and 12 as preparation for further study in different higher education areas and for direct entry into various careers

e) whether or not student performance on CATs in a 3/4 block is influenced by choice of blocks studied in Years 11 and 12.

In November, 1991, during the examination period, Strong (87) reported rumours about answers to VCE mathematics papers being for sale and Penington and Hayward protesting, although neither had seen the alleged papers. Strong quoted a speech by Penington where he said:

"Major problems have already emerged over authentication, with answers to maths CATs on sale in markets".

However when pressed Penington could not produce any hard evidence and cited a rumour told to him by an unnamed principal. Similarly Hayward had no evidence but referred the paper to an outspoken critic of the VCE, Kevin Donnelly, who also had no evidence other than a rumour told to him by some of his students. Neither VCABs acting chairman, Howard Kelly, nor the president of the Mathematical Association of Victoria had heard anything of the allegations. Ellingson and Wilmoth (90) quoted a student as saying that CATs were available for sale and that tutors and parents were completing CATs for students. However there was no hard evidence to support the ‘for sale’ claim. Also that the problem of plagiarism can be overcome if a student’s work is monitored closely by the teacher. Kelly is again quoted:
... if the VCE is taught properly, then much of the work for the CATs is done in class time, which eliminates much of the scope for cheating.

Maslen (89) re-entered the debate at this time with an article entitled "Exams: an idea whose time is up". He makes two contributions to the arguments. Firstly that in some subjects in the VCE external examinations will contribute as much to the final score as they have for years. Secondly that while not a problem with the old HSC cheating also occurred with the external examinations.

The end of November saw a flurry of letters to the editor on the assessment issue. Penington (96) wrote in answer to Strong's article:

"I have long been a vocal critic of many aspects of VCE maths. The study is seriously flawed, as is one of its two 'external' tests, or CATs, ... It is a key study in the preparation for higher education and hence, matters greatly. When I have criticised any aspect of the VCE, I have been persistently attacked by VCAB and government officers, by ministry sponsored community groups and by the principal education writer of 'The Age'. It is a powerful machine for silencing critics."

Penington provided evidence to rebut Strong's claim that the story of exam solutions being available was a rumour and he concluded that:

"'The Sunday Age' appears to be stooping to personal vendettas".

ix IS THE NEW BETTER THAN THE OLD?

Blackler (97), in December, 1991, compared the old HSC examination system to the VCE verification process arguing that verification is less equitable and less reliable. She hoped that:

"... some of the people involved in the inner sanctum of this assessment bureaucracy will have the courage to speak out about the confusion, the clumsiness, and the aleatory aspects of this process of assessing students. If the community accepts that this revolution has provided equity for students and a professional role for teachers, then it has been duped by the social engineers driving education in this state".

In response Haynes (98) disagreed with Blackler:

"The principle of teacher involvement in assessment must be retained".

She contended that the verification process was more thorough and objective than the old examination system and that as assessment was now the responsibility of the class teacher the quality of teaching was maintained. The system of panel chairpersons also provided more support for teachers than was previously available.

In the final contribution for 1991 Slattery (106) discussed the fact that 130 students were caught cheating in 1991 (over 110,000 students were enrolled in the
VCE). The most common offence was plagiarism and the most common targets the school based CATs Slattery commented:

"Cheating is not new. Even the VCE's critics admit the certificate has not so much created a problem, as heightened one that has always existed".

A spokesperson for VCAB is quoted that cheating had been rife under the old system. Slattery concluded with the information that VCAB had completed new guidelines for schools on how to handle cheating and authentication problems. Teachers should monitor students work by examining drafts and requiring students to keep all materials and acknowledge sources.

Before the 1992 school year began it was announced, in early January, that the assessment of English was to be changed to be 50% external. Dr. Jean Blackburn, whose 1985 report led to the introduction of the VCE, commented:

"I think that probably they ought do that with more subjects" (115).

Slattery (115) also reported that the Opposition planned to introduce external assessment in all subjects to 50%. Education spokesman Hayward said the move on English was an attempt to remove the VCE as an election issue and that it was an admission that many aspects of the VCE assessment had failed.

x THE ELECTION LOOMS LARGE

The political aspect of this debate was highlighted by Haynes (117) in a letter to the editor:

"How much more is to be thrown off the VCE sled by a government desperate to thwart the ravening wolves of the opposition? ... Any move towards increased external assessment can be motivated only by political expediency. It denies British evidence that school-based assessment results in improved standards of work and higher grades".

Dyer (119) wrote that the Blackburn report recommended an equal balance between external examinations and externally moderated teacher assessments.
The publication of the third ‘Northfield Report’ occurred in February, 1992. Slattery and Bruce (131,132) summarised its main findings on cheating with reference to a number of cases and edited excerpts from the report. They concluded their article, entitled “VCE : a mixed report ; Fears of cheating, but certificate accepted”:

"In summary, teachers believe they can tell if a student is cheating and that (with the exception of the mathematics problem solving CAT) the vast majority of students were not cheating".

‘The Age’ editorial of the 14th. February (232A) paraphrased some of the Northfield findings in a generally positive tone. It says that the checks in the system would detect cheating and although there is still room for improvement some clearer guidance for parents and students is needed. The Education Minister, Pope, responded, on 25th. February, (232) by publishing the editorial for distribution to parents along with a covering letter in which he wrote:

"... there are still some concerns about authentication, but ... the VCE procedures which have been set in place are helping students to clarify the age old boundaries between cheating and receiving legitimate help".

Two letters to the editor are published in response to the Slattery and Bruce articles, on 18th. February. A VCE student (Clarke (135A)) wrote:

"I can report from the heart of the problem that there are very few students, if any, who do not cheat. ... Teachers have little chance of actually catching students in the act".

Leahy (135B) wrote:

"... cheating existed at secondary level long before the VCE was mooted. ... I found the practice of cheating much more widespread at tertiary rather than secondary level. ... tertiary authorities had few, if any, procedures for detecting such practises ... cheating at the research level is also widespread ... my experience of cheating in the VCE is that it has been minor, and easily detectable. ... My fear is that the VCE will be undermined, not by the spread of cheating, but by the hysteria encouraged by headlines such as yours. It would be pharisaical in the extreme for the VCE’s tertiary level detractors to exploit this hysteria by agitating for the imposition on their secondary colleagues of policing burdens which those detractors are unwilling to impose in their own institutions".

VCAB sent a memorandum (233) to schools, from Chairperson Kelly, on 20th. February, 1992, outlining improvements to be introduced to verification procedures following an internal unpublished report carried out by Dr. Viv Eyers. Eyers had stressed that the verification model worked satisfactorily and that the basic principles underpinning the process should continue. Five principles were adopted, three of which were relevant to the issue of cheating:
1. That VCE verification maintains statewide standards as well as grade comparability.

2. That VCAB delegates its authority to maintain such standards and grade comparability to its verification chairpersons, within clearly defined procedural rules.

3. That the VCE verification model depends on representative sampling of the school assessed work of students with decisions on that sample translating to other members in that grade interval, which were not sampled.

Kelly concluded the memorandum:

"I wish to assure you that the overall structure and intention of Verification remains unchanged and that the modifications under consideration are designed to strengthen the process, streamline the administrative requirements and build on our 1991 experience."

In the VCAB Bulletin of February (226) Kelly, in a review of the first year of implementation of the VCE, showed an awareness of the impact of the media debate and attempts to allay some of the concerns. He wrote:

"... the professionalism of teachers working with principals in the local community to provide a challenging VCE for students has been a hallmark of the year."

On assessment he wrote that it is more varied than ever before:

"The range of CATs illustrates that skills, which were previously unrecognised, can now be assessed; and the school-assessed verified CATs in conjunction with the formal exams in the VCE have led to a genuine breadth of assessment. The range of learning, skills and means of presenting learning that the VCE now affords is a huge step forward. It is, however, an achievement that needs a lot more explaining to parents during 1992 and the best means to do this is through initiatives in the school community."

Later in the article he reiterated:

"... without verification we would quickly move back to the inevitable distortion that must take place when the exam is the anchor to which all other assessment is related."

On the acceptance of the VCE by tertiary institutions he defended the VCE:

"Attempts by parts of the media to portray VCAB as being locked in a pitched battle with parts of the tertiary sector distort the picture. It ignores the successes and genuine co-operation between VCAB and the tertiary sector."

Kelly then outlined the agreements made over the use of assessment for tertiary selection. The most important of these was the endorsement of the tertiary institutions of the use of end of school achievement as the basis for selection for tertiary places and that the VCE provided an appropriate measure of end of school achievement.
However in March the results of the first round of special university mathematics tests became available. Pinkney (138) reported that VCE students were on average 14 per cent lower than HSC students. Penington is quoted that the VCE students had lower skill levels than HSC students and he is supported by Monash University's Associate Professor Neil Cameron.

VCAB Chairperson Kelly's response is reported as being that it would be wrong to draw too many conclusions from the test results:

"It is important to determine exactly what is being tested, certainly the Melbourne University test ignores much of the work being done by VCE kids. It doesn't assess their ability in statistics and this is a study that a huge number of VCE students are involved in" (138).

In addition a timetable for the implementation of the recommendations of the Mack Review was reported. The first stage of reforms would be introduced at Year 11 in 1993 and in Year 12 in 1994 (see Table 14). Kelly was quoted that the recommendations were part of the:

"natural process of curriculum change".

The opposition education spokesperson, Hayward, disagreed and was reported as saying:

"This is more proof that the VCE mathematics course is a failure. While the government does nothing, last year's, this year's and next year's students are going to be innocent victims. With this damning evidence there is no excuse for the government not acting immediately".

Hooley in his report (139) on the review's recommendations focuses on the issue that because the recommendations divide mathematics on the basis of future pathways, there are issues of 'streaming' (division of students based on ability or interest) to be addressed. This was a situation unique to mathematics as a VCE study.

McRae (140) discussed why mathematics attracted so much attention. He believed that performance in mathematics is used as a sifting device by most of the professions. He wrote:

"That inevitably means the nature of and arrangements for the teaching of maths will be something of a battleground, and the sky over VCE maths has been lit by tracer fire for several years. The fight has a lot to do with some fundamentally differing assumptions about the nature of maths and maths education".

This is despite the fact, in his opinion, that:
"Only a tiny proportion of the more than 95 per cent of students who take it will find the maths they are learning in years 11 and 12 useful in the longer term."

xiv POLICY CHANGES

In April changes to the verification process were published (224). These changes were instituted as a result of the Eyers Report and were designed to streamline the process and to make it more reliable.

In May, Kelly (146) wrote an article explaining the CAT system as all 44 studies were running for the first time in 1992. He wrote that the VCE had attempted to link curriculum and assessment as closely as possible:

"It has been an ambitious undertaking and one that teachers, parents, students and VCAB are still coming fully to terms with.
In the sometimes acrimonious debate about the VCE, the real benefits, real changes, have sometimes got lost. And many of the changes, some radical, some subtle, are in the areas of assessment and reporting."

Kelly went on to say that while styles of teaching and learning have become varied and developed over time assessment modes have tended to remain fixed. Therefore the VCE uses examinations as an appropriate assessment tool for some kinds of knowledge while school based and verified assessment is used for learning which takes place over a long period of time. He also wrote:

"... people who mark examinations are the same teachers who mark school assessments. There is as much variation between markers of examination scripts as there is between markers in a school situation."

Thus the belief that examinations are the only fair method of assessment was misplaced:

"The process of verification and the publication of criteria give to school assessed CATs the degree of externality that ensures statewide comparability in the award of grades. ... The system of assessment and reporting for the VCE is superior to what we have left behind."

xv PENINGTON AGAIN

In July Melbourne University re-opened the debate when Penington wrote to all the principals of all schools offering special consideration to students disadvantaged by the VCE. Slattery and Bruce (163) reported a spokesperson for the Minister Of Education, Neil Pope, as saying:

"... we regard this letter as nothing more than political posturing ..."
Victorian Secondary Teachers Association (VSTA) President Brian Henderson was quoted as saying:

"It's just another outrageous attempt by Penington to meddle in the VCE debate and trying to get evidence to discredit the VCE".

The VSTA consequently instructed its members (245) to ignore Penington's letter as it was of no assistance to schools or students and was:

"... yet another misconceived and high handed attempt to intervene in the VCE independently of other tertiary institutions".

Bruce (165) reported Penington's reasons for the offer as being that any student near the cut off mark for any course who can show that they have been disadvantaged by the VCE would be able to be considered on an individual basis.

xvi UNIVERSITIES CAN'T AGREE

The next key point in the debate occurred in September, 1992. Bruce (167) reported that the universities were split over the internal assessment component of the VCE. La Trobe and Melbourne Universities are reported to have expressed concern, while Monash University and RMIT believed it would have been unfair to alter selection procedures so late in the year.

The vice-chancellor of Latrobe University, Professor Michael Osborne, was reported as saying:

"Under the present VCAB assessment, it is quite possible that some students will be disadvantaged, and they may well find themselves unable to gain entry to the university of their choice".

Melbourne University was likely to give greater weighting to externally assessed work, than that internally assessed, for students around the cut off score.

In an article entitled 'VCE assessment gets half year pass', written when the first data on the verification process became available, Bruce (169) reported that:

"Data compiled from the half year results in the VCE prove that the controversial internal assessment procedures are valid, according to the VCAB".

He quoted Kelly:

"I am completely convinced that the verification processes are working remarkably well. This is not to say there are no difficulties but we have the capacity to deal with particular problems".

A minor criticism came from Professor Ian Williamson, the chairman of the selection procedures committee at Melbourne University who observed that
teachers were tending to use the five grades A,B,C,D and E and not the full ten point scale i.e. A+,A,B+,B, etc.

However, two days later, Bruce (170) reported that the vice-chancellors of the state's seven universities had called for an independent review of school based assessment in the VCE. The State Opposition said it would establish the review before the end of the year if it won the election. Hayward agreed that there were flaws in the process designed to provide comparability of marks between schools:

"This is one of the worst problems in the VCE, for to causes unfairness to students. If verification is not fixed, some students will be unjustly prevented from getting a university place".

Both the Government and VCAB disagreed as the process of verification had already been reviewed by VCAB and it was a valid and fair system.

Penington was reported as saying that the vice-chancellors examined the data supplied by VCAB and found irregular patterns between subjects. Also he argued, that while the VCE needed both internal and external forms of assessment, both forms had to be credible, therefore the need for the review:

"It's not a political matter. It needs to be an expert educational review and, because of the politics in Victoria, I think it need to be from out of state".

The vice-chancellor of Monash University, Professor Mal Logan, felt there was a lack of confidence in the system and that some fears may be unfounded. A review could restore public confidence:

"I think we don't know if it is working properly or not. From the evidence of some people there is cause for concern".

VTAC in its October bulletin (218) recognised these concerns by stating its agreement that for tertiary selection purposes:

"... institutions will pay particular attention to applicants around the cut-off, especially for high demand courses, so that, as far as possible, applicants and schools will not be disadvantaged".

xvi LABOUR LOSES THE ELECTION

The political context of the debate abruptly changed in October, 1992, with the election of the Liberal Kennett Government, with Mr Don Hayward as Education Minister. Pinkney (171B) and Bruce (172) report on wholesale changes introduced in the first weeks of the new government and to be implemented by the end of the year. The major changes were in the area of assessment whereby the Government would:
- Establish an independent inquiry into the verification process
- Replace the 'S' or 'N' marking scheme at year 11 with grades
- Increase exam style assessment in year 12 English to 50%
- Eliminate the Maths problem solving CAT
- Replace the separate CAT grades with a single mark for each Year 12 subject
- Crackdown on cheating.

Kelly was reported as believing that these changes would stabilise the VCE, although parent and union groups believed the changes should have been left to allow the VCE more time to settle down.

The relationship between assessment and tertiary entrance was highlighted by Williamson (177) who wrote that the grading system was flawed and the reduction in most studies from four to three CATs would increase the impact of these flaws. Consequently tertiary selection processes are made more difficult and therefore the need for the independent review of the verification process.

Loader (187) discussed the concept of a reliable and valid assessment process for the VCE and came to the following conclusion:

"... we don't want to assess only 'correctness'. Sometimes other criteria, such as time taken, solution strategies and problem solving skills, are more important bases for assessment. Similarly, we want to provide for multiple viewpoints for judging performance such as students' assessment of themselves and other students. ... This is why alternative forms of assessment, encompassing a variety of strategies, criteria and viewpoints for judging performance are necessary".

Marles et al (197A) criticised the assessment processes as inspiring little confidence, bureaucratic, time consuming and unreliable. Panel chairpersons were inadequately trained, criteria for assessment were vague and changeable and school assessments were too easily overturned:

"There is a widespread feeling that there is too great an element of chance in the whole process. ... Better methods are available. It is incumbent on VCAB not to adhere to a doctrinaire view of an assessment system which is so clearly failing badly".

At the end of December, 1992, the independent review was published (Brown and Ball, 1992). Bruce (208A) reports the findings that the process of school based assessment lacked credibility because it was:

"... open to cheating by students and teachers and favours students from privileged backgrounds".

The review recommended that the system be replaced by one that relied more heavily on statistical moderation of results.
xvii POSTSCRIPT

While not strictly within the time frame of the study, it is worth noting some articles published early in 1993 which review the first full year of implementation of the new VCE.

Bruce (208) and Muller, (209) again reported on the Brown and Ball Report, in early January 1993, extensively analysing the findings. In summary they wrote that there was serious doubt expressed in the report about the ability of the verification system to deliver reliable marks. On the issue of cheating they said that the report was clearly suspicious that internal assessments could be tainted due to a large percentage of students and a minority of teachers using unfair practices. The arguments expressed in the report on exams versus internal assessment suggested that the debate has reached the point where both forms of assessment are seen as valid. The issue had become one of achieving the correct balance between the two. The final articles to be considered in this study were published in early February 1993 in response to the Brown and Ball report (210). While the majority of letters to the 'Education Age' agreed that there were some initial problems with the verification process, most of the writers, who were practising teachers, disagreed that the process was unreliable and that only minor adjustments needed to be made. Brown and Ball (212) answered their critics a week later in an article that essentially reiterated the findings of their report.

The last word in the debate came from the publication of the final ‘Northfield Report’, in early, 1993. Bruce (211) reported that the report found that schools:

"... believed that the positive aspects of the new certificate far outweigh the problems with assessment, cheating and excessive workload".

Other important findings reported were that cheating had ceased to be an issue in schools in the twelve months from the beginning of 1992 and that verification only needed refinements. This was in spite of the fact that the Education Minister intended to completely overhaul the whole verification process in 1993 because he believed it to be unfair, inconsistent and open to cheating. The report was quoted as saying that while stories and suspicions of cheating abounded, actual examples of breaches were few.

On verification Bruce wrote that the Northfield Report found that almost all teachers wanted verification to continue and that the public debate, which seemed to be heralding the demise of verification, was disconcerting for many teachers.
At the beginning of 1994 the verification process was significantly changed with the addition of an externally set General Achievement Test (GAT) against which all internal school assessments were to be compared.

B. SUPPORT FOR IMPLEMENTATION

i THE TASKS FOR TEACHERS

An important aspect of the introduction of the VCE was the nature of the support teachers received in the implementation phase. The success of implementation hinged on teachers being able to carry out a number of tasks in addition to their classroom teaching and other responsibilities. These tasks included:

- development of programs within VCE guidelines
- development of new assessment procedures
- modification of classroom practices in line with changes to assessment procedures
- revision of content to enable the teaching of new units
- understanding of new terminology and processes
- the formation of effective teams

It is in this area of implementation where the impact of the public debate can be observed.

One possible response to the introduction of the VCE could be that teachers accept the change, embrace it and go about the business of implementation without interference or assistance from outside the school. This model ignores the realities, however, of the VCE which was set in a political context and which was subject to extensive public debate. In addition, the VCE required teachers, especially mathematics teachers, to change long held practices and adopt new and unfamiliar roles. The VCE was a:

"... basic revolutionary change in the way teachers teach and students learn"

(Slattery (3)).

As there was little or no experience at the school level in these new ways of working, outside assistance, especially in the early phases of implementation, was essential.
Slattery (3), reported in May 1991, on Caulley’s (SC) study of the first year of CATs in the pilot schools. Slattery wrote that the study suggested that:

"...many teachers don't know how to teach the new studies and are without much guidance. As a result ... many are floundering. ... a lot more money (should) be spent to support these teachers".

Maslen (23) recognised the problems for teachers and expanded the impact of the VCE to include teaching in the junior levels:

"Teachers have now realised that the sorts of skills needed to tackle the demands of the new VCE have to be introduced earlier on in a student's life. The wave that has swept over years 11 and 12 has carried on to influence what is taking place right down through the whole school system.

Confronted with a new curriculum, new assessment procedures, new demands, teachers have been forced to adopt many new methods and I suspect many of the howls of outrage now to be heard come from those teachers who are fearful of change and are terrified of what might happen if they give their students too much freedom.

Of course there are obvious problems ... the sheer workload is no doubt causing more teacher stress. Many teachers believe that professional development is inadequate and more needs to be done".

Maslen (92), in an article considering the role of the teacher as a change agent, proposed that the hardest place to make changes was in the classroom:

"Making changes here is much harder than it is to reorganise a school, or even a whole education ministry. Yet it is in the classroom where the real revolution has begun to occur".

**THE ROLE OF THE MEDIA**

Slattery (142) identified some of these issues in his article on the role of the media in the problems associated with the introduction of the VCE. He wrote in April 1992:

"While this debate is pitched broadly, at the general community, the people it appears to effect most profoundly are those who have invested most in the new VCE: the students and their teachers.

However, school communities now appear tired of the VCE debate; tired of the critics. They now want to be left alone to get on with the business of teaching and learning. They feel victimised, even bashed by the media".

Slattery reported comments by Northfield:

"... long term criticism of the certificate has proved damaging to teacher's morale. After 12 months of hard work, they find themselves confronted at year's end with a news media primed and eager for the perennial VCE scandal stories. As if they didn't have enough problems with school discipline and classroom motivation.

'Teachers are closing ranks, they see a challenge to the certificate as a challenge to them and the work they do'".

Slattery also quoted Margaret Gill, a senior lecturer in education at Monash University, when she wrote that the debate on the VCE has been represented in the media as:
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"Teachers are closing ranks, they see a challenge to the certificate as a challenge to them and the work they do".

Slattery also quoted Margaret Gill, a senior lecturer in education at Monash University, when she wrote that the debate on the VCE has been represented in the media as:
"... little more than a drama of dissonant voices: a power struggle between particular public figures and public bodies ... the educational work of schools and their communities in grappling with major curriculum change in order to implement the VCE was trivialised or ignored".

Slattery quoted the second ‘Northfield Report’, published in 1991, in relation to the media’s attention on the issues of cheating and standards:

“These issues are clearly seen as important by some people and form the debate at a policy level and political level. This debate seems to be occurring independently of the issues emerging at the school level. School level issues attract little attention in the media...”.

### iii THE CASE STUDY

In analysing the implementation of the VCE, and attempting to identify implementation issues at the school level, Niddrie High School was used as a case for study. The analysis occurred at three of levels:

1. Curriculum Committee  - school policy is set at this level via the School Council Education Sub-committee.

2. Mathematics Faculty   - decisions on course content, teaching methods and staffing occurs at this level.

3. Individual teacher    - implementation in the classroom occurs at this level.

Support was available from a number of sources including VCAB, teachers in pilot schools, consultants from school support centres and teachers within the school in positions of responsibility, e.g. Faculty Co-ordinators, Curriculum Co-ordinator or Professional Development Co-ordinators. The support took the form of briefing sessions held by VCAB staff, in-service days run by school support centres, faculty meetings within the school and informal discussions with fellow teachers in the staffroom.

Early into the implementation for Phase 1 schools there appeared the first signs of unease amongst teachers about the level of support. In April, 1991 the issue of a lack of resources arose with respect to both library resources (Riseley (14B)) and appropriate text books.

VCAB having foreseen that there would be difficulties produced, on a monthly basis, a “VCE Implementation Newsletter”. For example, the October 1991 issue (305) outlined the experiences of the seven schools which had undertaken the full VCE in Units 3 and 4. Six major areas of concern had been identified by these
schools in their implementation and advice was given to schools as to how they might overcome problems in these areas. The six were:

- Ongoing course development
- Coordination of student and teacher workload
- Advice to students on programs
- Development of policies and procedures for administration of VCE
- Development of assessment and reporting policies
- Implication for years 7 - 10

In December 1991, the school carried out its own internal review of the first year of implementation (113). The review panel was a sub-committee of the Curriculum Committee and included teachers from the three Phase 1 studies, level coordinators and representatives of the Curriculum Committee. The review panel produced eight recommendations aimed at better informing students, ten recommendations on student management issues and eighteen recommendations on how administration of the VCE at the school could be improved. All of these recommendations were adopted in 1992 as a means of improving the delivery of the VCE.

**iv OUTSIDE SUPPORT**

In the implementation phase a series of professional development days were run at a regional level and funded by the Ministry of Education. Niddrie High School was a member of the cluster of schools serviced by Lincolnville School Support Centre which in 1991 ran a VCE course development day in May. Schools were given an extra pupil free day for this purpose and a second pupil free day was provided in November to carry out the verification process (308,309).

Intermittently VCAB would write letters to principals or to teachers providing advice on issues of concern. For example, in July 1991 the Acting Chairperson, John Legge (320) wrote to principals to address, among other things, criticism that the workload on students was too heavy. So while VCAB appeared to be responding to the public debate, a question to be addressed in this study is how teachers were effected and whether implementation was aided by their response. VCAB produced a wide range of publications in an attempt to support teachers. These included:

- frequent memoranda sent through the Victorian Administrative School System (VASS) computer system, to which all schools were linked, dealing with specific issues
- monthly editions of the 'VCAB Bulletin' mailed to all schools
- an annual 'VCE Administrative Handbook' containing all dates, rules, regulations and other important information
- an annual 'Verification Manual' outlining the procedures to be followed in the verification process
- irregular supplements to the 'VCAB Bulletin' focussing on specific issues, for example, "Designing an accessible VCE program" (230)
- an annual report on each study which concentrated on implementation issues
- an annual report from VCAB.

v MATHMATICS IS REARRANGED

Another case where VCAB appeared to respond to the public debate, and thus effect implementation by a change in policy, was in the setting up of the external review of VCE Mathematics. In November 1991 a discussion paper was produced (310) which proposed a complete restructure of mathematics courses. The new studies were to be an amalgam and reorganisation of the original studies. If adopted this proposal would have a major impact on implementation.

In April 1992, VCAB endorsed these proposed changes, to be introduced in 1993 for units 1 and 2 and 1994 for units 3 and 4. VCAB showed an awareness of the impact on teachers of the changes in its Memorandum to schools 30/92:

"The restructured Mathematics study design is intended to provide clearer pathways to tertiary courses and employment. In addition the changes will offer teachers the maximum opportunity to utilise course development work which they have already completed in order to implement the current design" (299).

Professional development activities were proposed to assist teachers in the implementation of the revised units.

In June 1992, VCAB Memorandum 53/92 (297) outlined the titles and broad content areas and in September, in a supplement to the VCAB Bulletin, detailed course outlines were published for units 1 and 2. Broad content areas and assumed knowledge for units 3 and 4 were published in the October VCAB Bulletin (215) with detailed course outlines following in a supplement to the December VCAB Bulletin (216). The promised professional development was never organised and was left to the school to arrange its own.

The changes to the Mathematics Study are outlined in the Table 14.


### TABLE 14: SUMMARY OF CHANGES TO VCE MATHEMATICS UNITS

<table>
<thead>
<tr>
<th>ORIGINAL UNITS</th>
<th>REVISED UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change and Approximation 1 &amp; 2 and Reasoning and Data 1 &amp; 2</td>
<td>Mathematical Methods 1 &amp; 2</td>
</tr>
<tr>
<td>Space and Number 1 &amp; 2 and Reasoning and Data 1 &amp; 2</td>
<td>General Mathematics 1 &amp; 2</td>
</tr>
<tr>
<td>Space and Number 3 &amp; 4 and Reasoning and Data 3 &amp; 4</td>
<td>Further Mathematics 3 &amp; 4</td>
</tr>
<tr>
<td>Change and Approximation 3 &amp; 4 and Reasoning and Data 3 &amp; 4</td>
<td>Mathematical Methods 3 &amp; 4</td>
</tr>
<tr>
<td>Extensions (C &amp; A and S &amp; N) 3 &amp; 4</td>
<td>Specialist Mathematics 3 &amp; 4</td>
</tr>
</tbody>
</table>

Although these changes were to occur after the period of this study, there was an impact on the implementation of the VCE in two areas:

a) Teachers had undergone professional development designed for the original units, some or all of this could be seen to be wasted.

b) The normal 'settling in' period for teachers in the classroom where they became comfortable with the original units was overshadowed, for all of 1992, by the knowledge that it was all going to change again in 1993.

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### vi HOW DID SCHOOLS COPE?

Despite the range of VCAB publications and modifications to courses and processes schools had to set up their own support structures during the implementation phase. Some of these structures were prescribed by VCAB while others arose out of a need identified by the school.

Within the guidelines set down by VCAB schools were required to develop their own courses, methods of assessment and reporting, teaching strategies and support materials. As only limited professional development was available externally, schools ran their own professional development activities.

As a means of supporting its staff Niddrie High School operated at two levels, generally and within the faculty:

1. **General support** - this was provided by the curriculum committee and a team of VCE co-ordinators responsible for student welfare. This team produced a series of handbooks for students (325) and teachers (326) outlining school policies and procedures on
issues such as verification, authentication, illness, subject changes etc. Descriptions of each VCE unit (327) were also produced and this team ran regular meetings of teachers, students and parents to provide them with updates of information regarding the implementation process.

2. Faculty support - within the Mathematics faculty teams of teachers were established to work together on course development, assessment procedures and assistance of each other in the implementation at the classroom level. Course development planning documents (323), report formats (324) and discussion papers (322) were regularly produced to assist team and faculty members. Any teacher who attended external professional development or network meetings would report back to the faculty at the earliest possible moment. Materials and resources were shared and various members of the group were given designated tasks so that the workload was shared.

Another imperative operated, as well, and that was the need for the school to have well established procedures to deal with any situation that arose during the year. Due to the extensive public debate on the issue of cheating Niddrie High School followed VCAB regulations rigidly, publishing in the ‘VCE Handbook for Students’ (325) strict guidelines for the handling of the verification process and the authentication of student work.

C. WORKLOAD

Early in the implementation phase concerns over workload began to surface. Initially these concerns were expressed at meetings of teachers and in union publications. However the debate began to appear in the newspapers once the student workload became apparent. As a result VCAB instituted a number of changes to attempt to alleviate the perceived problems. This occurred over a long period and it was felt by some that while the changes did reduce the severity of the problem, the integrity of the VCE itself was compromised as a result and that the workload issue was used by the opponents of the VCE to undermine some of its more innovative aspects.
ANALYSIS

(a) 1991 - THE DEBATE IS CONCEIVED

The debate over workload issues became public in 1991 when all schools introduced Phase 1 studies to Year 12. Hartshorne (14C) in a review of the book by Michael E. Barnard titled "Taking the Stress Out of Teaching" quotes the first sentence of the book:

"Teaching today is harder than it’s (sic) ever been".

While not directly related to the introduction of the VCE this article discusses the general problem of increasing pressure on teachers and the corresponding stress teachers are facing. These comments are directed at teaching in general but set an underlying theme for the debate on workload. That is that teachers are being asked to do more work to introduce the VCE while the demands of teaching in general are also increasing.

The focus on teachers continued with a feature article by Slattery (18) which discussed the changing role of teachers in the classroom and the balancing of their commitment to student learning against the difficulties they face in achieving their goals.

The first major sign of student concern emerged publicly in August when Koh (47) wrote that most students had spent twice as long as the recommended time completing their Mathematics CAT 1 as well as not receiving adequate training in research methods or having the necessary resources available.

At the school level a review of the year was carried out in November by a sub-committee of the Curriculum Committee and a number of findings were made in relation to student workload:

- that some teachers needed to be more flexible with late submissions of work
- internal deadlines should show flexibility and fairness
- that while most students coped well with the workload it was often at the expense of the non VCE subjects
- students who were not coping needed to be monitored carefully and counselled to develop strategies to keep up with the work
- students should be encouraged to use word processors and that word limits be set
- that teachers be trained in drafting techniques
that regular teachers meetings be held in 1992 to support phase 2 subject teachers with the lessons learned from phase 1 teachers, especially in the areas of record keeping, authentication procedures, assessment and planning.

- that networks with other schools be set up to support teachers in small faculties.

At the end of 1991 the awareness of the workload problem seemed to be essentially school based and strategies to deal with problems were being developed at that level. There seemed to be little assistance coming from outside bodies at this stage.

(b). 1992 - THE DEBATE IS BORN

In 1992 with the full implementation of the VCE workload arose as a major concern. Students were no longer studying a mixed course as all studies were part of the new VCE. Consequently early in the year the VSTA, Federated Teachers Union of Victoria (FTUV) and Ministry of School Education set up a working party to examine teacher workload.

VCAB demonstrated its awareness of this issue in three publications; VCE Implementation Newsletters No. 5 (Student Workload) and No. 7 (Relationship between Work Requirements and CATs) and the VCAB Bulletin of February, where VCAB:

"... attempted to provide advice on constructing coherent programs with a realistic workload for students and teachers" (226, p. 21).

The key, VCAB claimed, to managing the workload and maximising flexibility was the way work requirements were approached:

"In all study designs there are elements in each work requirement that need to be met and there are aspects which encourage local decision. It is more than appropriate for some aspects to be given more emphasis than others. Always good teaching and learning will depend primarily on the professional judgement of teachers" (226, p. 21).

(c). JUNE - THE PRESSURE MOUNTS

In early June Rofe et al (150) wrote in relation to recently held physics and mathematics CATs that students:

"... have not merely burned the midnight oil. They have still been at their desks at sunrise. Such working sessions throughout the night have been commonplace,...The kind of Term 4 stress, which the new VCE was supposed to reduce, is now being experienced continually throughout the year with devastating effects on school attendance accompanied by real concerns about student health,...The students have little sense of fulfilment. They are numbed by the process,... these tasks are so demanding of time that
there is very little opportunity for them to pursue any other interest... Whatever reforms are necessary to the VCE, the reduction of student load to a sane level is the most urgent... As well, our attention should now turn to the VCE teachers who are faced with the overwhelming task of assessing these CATs.

Four days later Lamont and Bruce (153) reported that:

"The State Government has proposed study breaks and correction days to help teachers and students cope with the VCE, following criticism that the course involves too big a workload".

The chairman of VCAB, Howard Kelly, is quoted as saying that he would write to schools asking them to clarify the amount of work required of a student. He said the problem was driven by anxiety on the part of students over competition for tertiary places. The Education Minister, Neil Pope, is quoted:

"The anxiety of students is one that can be expected. However, it is also a matter of the VCE in its full first year of implementation, and as such it is clear a number of VCE students are submitting work well in excess of what is expected".

He also said that it was important for teachers to have class free days to correct the internally assessed CATs.

The Opposition's education spokesman, Don Hayward, claimed in the same article that there was no doubt that workloads had:

"become unbearable and unsustainable",

and were as a result of fundamental problems with the VCE.

This series of articles triggered a consistent response from students and teachers. In the 'Briefly' section of the Age of 11th, John Kiely (154) presented the views of three students, one principal and three teachers who were unanimous in their criticism of the large workload for students and teachers. Also published that day was a feature article, Talbot (156), highlighting Richmond Secondary College as an example of a school where workload is a problem.

On the same day Bruce (155) reported an announcement from Education Minister Pope that Students were to receive five days study leave and teachers two days for verification to ease the workload. However the Opposition Education spokesperson, Hayward, refused to make a commitment to the measures:

"It is the fundamental nature of the VCE that is the problem. Whether they get two days, four days or a week off, it doesn't deal with the fundamentals. We have to take the pressure off the internal assessment and put more emphasis on external exams".
**VCAB RESPONDS**

On 17th June, at its regular meeting VCAB, instituted a series of changes to ease the workload (158). In the short term limits were placed on the word length and number of drafts of CATs. These were to be implemented at the beginning of the second semester and details were published for schools in July and August (158A, 220, 221) and reported by Slattery on 14th July (166). Teachers were encouraged to accept a maximum of two drafts.

In the longer term, to be implemented in 1993, all 44 VCE studies were to be reduced to three CATs:

"In a further acknowledgment of excessive workloads for students and teachers..." (158).

Final details of the changes were published by VCAB in September (217).

These changes were supported in the Age editorial on 18th June:

"There is no doubt that many VCE students are working far too hard this year, but how much of this is the result of an unreasonable workload imposed by the VCE and how much of it is self-imposed by students desperate not to join the unemployment queues is open to argument... adjustments to the VCE announced by the VCAB yesterday should go some way towards easing the immediate and long term pressure on VCE students and their teachers.

It is to be hoped that the latest changes will alleviate some of the criticism of the VCE, which has had a demoralising effect not only on teachers but on students who are already under huge pressure... there is an increasing agreement that the VCE is a better system than the old one" (159).

It should also be noted that the VSTA supported these changes to reduce workload and indeed claimed some credit for forcing the changes to take place (247).

**AUGUST - THE WORKING PARTY REPORTS**

In August, 1992, the Working Party on VCE Teacher Workload published its "Interim Report" (231). The working party was composed of representatives of the two main teacher unions (VSTA and FTUV), VCAB and the Institute of Educational Administration (IEA) and was commissioned by the Education Minister Neil Pope in February 1992. The setting up of the working party arose from the settlement of the industrial campaign of late 1991 and the ongoing campaign by the VSTA since 1989. This included the presentation of a log of claims to the government in 1989, the making of submissions to the Ministry of Education and VCAB and extensive negotiations with the Minister for Education.

It was not until the end of 1991 that the Minister or VCAB recognised that workload was an issue and agreement was reached on the establishment of the working party (246). The working party's terms of reference were (214, 231):
"To investigate operation and administrative demands of the VCE in the formative years of implementation in particular:
- teacher record keeping and the use of the VASS system
- authentication of student work
- internal and external verification
- student profiles
- school reporting".

In examining the context of their report the working party identified a number of issues that have relevance to this study:

- working for the VCE as a general certificate of secondary education
- working with the VCE as the main tertiary entry selector
- the current curriculum context
- system and school restructure
- radical economic contraction
- youth unemployment and record retention levels
- a background of media campaigns
- new conceptions and insights about learning, teaching and testing
- information access - information overload and information technology
- professional self perception and changing approaches to teacher work
- award restructuring and new career structures.

In the area of the media the report notes that:

"... there has been little serious effort by the mass media to understand the nature of the change. In the current media coverage there has been much distortion and alarm. The initial campaign against the 'Mickey Mouse' certificate with its 'collapsing standards' is now a shrill protest about the VCE being much too demanding. ... For all its teething problems the VCE is displacing a system that had competitive tertiary entrance as its focus. Teachers are having to cope with a hefty attack while they are putting these new approaches into effect" (231, p. 1.3).

In terms of the implementation of change the report states that in the area of teacher self perception:

"There is a strong appreciation of the need for radical change. There is no clear unanimity about one best way to make that change work effectively for all students" (231, p. 1.4).

One conclusion reached is that:

"The above trends and imperatives constitutes for teachers pressures and stresses not known by previous generations of teachers" (231, p. 1.4).

Two hundred and thirty teachers were surveyed and nineteen major factors were identified as contributing to teacher workload (231, p. 3.2). Over half (53.5%) of teachers surveyed identified lack of time for course writing and material development as a demanding factor. Drafting of student work (42.7%), meeting
the requirements of the study design (36.5%), record keeping (34.8%) and student counselling (21.3%) were identified by a significant number of teachers as major contributors to increased workload.

The report also takes into account the debate that had been taking place over workload issues and asked teachers for their responses. The authors asked teachers to respond to seventeen items frequently raised in the course of the public debate about the VCE to allow teachers, as one of the two major groups involved (along with students), the opportunity to put their point of view:

"90% of teachers surveyed agreed that the VCE teacher workload made teaching more demanding than they had previously experienced at that level. Close to 56% strongly believe this. More importantly perhaps, it should be noted that only 2.6% disagree with this" (231, p.5.1).

Also only three workload factors were viewed by a substantial number of teachers as becoming more manageable as the process became more familiar. These were use of the new methodology (41%), interpretation of study designs (50%) and new ways of teaching and assessing (46%)(231, pp. 5.1-5.2).

On the amount of extra time involved in teaching the VCE teachers of units 1 and 2 responded that they spent an average of 3.5 hours per week over and above normal correction and preparation. Teachers of units 3 and 4 responded that they spent an average of 5.8 hours per week (231, p. 6.1).

The report demonstrated that teachers viewed workload issues as a major factor in the introduction of the VCE and thus its successful implementation.

(0) HOW DID THE CASE STUDY SCHOOL RESPOND?

At the case study school the workload issue was identified by the Curriculum Committee as a high priority for monitoring and action. At the end of 1991 the committee reviewed the implementation of phase 1 studies at units 3 and 4 and made recommendations to faculties within the school as to strategies that may be adopted to minimise the impact of the increased workload.

In June 1992, at the end of Semester 1, the committee surveyed all teachers to identify the major workload problems that arose for them during the teaching of unit 3. Again a number of recommendations were made to faculties. These included:

- limiting the number of drafts of student work that teachers read
where possible establishing teams of teachers to share preparation and correction
- providing time release for assessment of student work
- use of faculty meeting time more constructively
- teachers ‘doubling up’ on classes to reduce preparation
- use of clerical staff for more routine tasks
- reduce other demands on teachers time, such as excessive meetings
- keep class sizes to a reasonable minimum
- keep face to face class time to a reasonable minimum.

Some of the recommendations were able to be implemented within the school, such as limiting drafts, while others were outside the school's control and determined by the education bureaucracy, such as class sizes.

* * * * *

Chapter 5 has focussed on the macro-dimension of this study, the content analysis, and has identified a number of significant issues in the introduction of the VCE which have an impact on teachers at the school level. These issues centred around workload for teachers and students, support for teachers in the implementation of the VCE, assessment of student work and the resulting concerns by some tertiary institutions and finally the political aspects of the debate over the VCE.

Chapter 6, which follows, deals with the micro-dimension of the case study school, and attempts to link the experiences of teachers at the school level with the data presented in Chapter 5.
CHAPTER 6.

RESULTS - CASE STUDY

In the analysis of interviews, surveys and other data collected in the Case Study school six major issues were identified. The presentation of the results of the Case Study will be organised into six categories.

The first section will highlight the responses of teachers in the case study to the external imposition of the VCE. The second section documents typical responses to the implementation issues involved in introduction of the VCE. Professional development that was made available to teachers is documented in the third section. In addition the thoughts of teachers as to the adequacy and usefulness of the professional development program is outlined. The attempt to develop a collaborative approach to the introduction of the VCE is illustrated in the case study school through documentation of interviews in the fourth section. The view of teachers as to the effect on classroom practice is analysed in the fifth section, which links closely with the discussion, in the final section, of the "Ripple Effect" of the VCE into other levels in the school. Students and teacher opinions as to the effect on the classroom, at both the VCE and other levels, are presented in the section on the "Ripple Effect".

Although these issues are inter-linked they have clearly emerged as distinct entities from the data at various stages in the period of this study. The level of concern may also be related to the timing of announcements from VCAB, the volume of debate in the media or other factors. While mention may be made of these external factors, an analysis of the inter-relationship between the school and the external influences will occur in the Discussion and Conclusions chapter of this thesis.

A. THE RESPONSE TO EXTERNALLY IMPOSED CHANGE

The first record in this area is in relation to the response of the Mathematics Faculty to the opportunity to become a VCE pilot school in 1989 by running the Phase 1 Studies of Mathematics, English and Australian Studies.
"Maths faculty decided not to become a trial school in 1989 despite pressure from the English Faculty as there was insufficient information from VCAB regarding course structures, requirements of pilot schools and lack of confidence of some inexperienced teachers. Also gives a full year for preparation. Let other schools be pilots and learn from their experience."

Individual teachers had a variety of responses. Generally the reaction was favourable, but guarded. Most saw the need for changes because of the changed student population with increased retention rates and the inappropriateness of existing courses for many of those students. For example:

I: Paul: 15/8/90  
"The students we are teaching now are different because more students stay at school longer. Old courses need to be changed. I liked the idea that the VCE is supposed to take this into account."

However there were a number of qualifications:

I: Gary: 9/11/90  
"It was confusing and difficult to explain to parents and students. I had a lack of interest in the new system and felt it was too much work for the individual teacher."

I: Colin: 20/8/90  
"Initially I thought it would involve a great deal of work on course development and also a change in educational strategies."

In the retrospective interviews carried out in 1993 five of the seven interviewees remembered having positive reactions to the proposed changes. These memories were not always totally consistent with earlier responses which suggests mixed feelings regarding the introduction of the VCE.

Typical of the comments were:

I: Karen: 25/8/93  
"I felt positive about the idea. It will make Maths more accessible to all students and more relevant."

I: Gary: 30/8/93  
"I felt it would be better for the students as the workload was spread over the whole year rather than all the emphasis being on a three hour exam in November."

To balance this were a range of comments that suggested a degree of cynicism as to the motives of those proposing the changes. At one end of the range of responses was Mike:

I: Mike: 19/8/93  
"I was worried. Why is this happening? What is wrong with what we've got? Why do we need to change? Why go about these supposed great changes?"

While Mike's response was extreme a number of other interviewees expressed concerns:

I: Gary: 30/8/93  
"Under Labour there was a left wing political agenda behind the changes."
It appears that generally the teachers recognised the need for change, but were reticent to embrace the proposals wholeheartedly because of a feeling that there were other forces at play outside of the school and educational contexts.

A final comment leads to the next issue, of implementation, and highlights a tension felt by many teachers between being directed from outside as to what to teach versus the workload involved in developing courses specifically designed to meet the needs of students within the school.

"I was involved but not happy to do course planning. Every school was doing it so we were 're-inventing the wheel', even though we were responding to our own needs. Central curriculum development is better as it reduces the effort, frustration and irritation. However I might also have got upset if I had been told what to do."

B. IMPLEMENTATION ISSUES

This theme of implementation is continuous over the period of the study. It had an internal component, the school and the classroom, and an external component, VCAB and CATs.

Initially the most common concern, expressed by all teachers in the study, was that there would be insufficient support available to assist them in delivering the new courses in the classroom. There was also a genuine nervousness about how to cope with the required changes to classroom practice. These concerns extended to the most fundamental aspects of teaching. Are the support materials for the design of the new courses adequate? What does the new terminology mean? How much assistance should be given to students versus how open ended should the teaching be? What do the new assessment procedures mean? What is a work requirement and how does a teacher know when it has been satisfactorily completed? How are CATs to be assessed and what is the process for verifying the given grades?

"I was worried about resources and support."

"I was worried about resources, training and workload. I felt inadequately qualified and didn't know enough about the courses."

In 1989 the Mathematics Faculty spent a large proportion of the year addressing these concerns in preparation for teaching Units 1 & 2 in 1990. Courses were
developed, following the VCAB outlines, planning documents were produced to assist teachers in their class preparation and decisions were made on which specific units to run.

J: 1/2/89  "Maths Faculty Meeting - Series of folders set up to collect materials in preparation for the introduction of VCE in 1990, eg. CDSM. Books on problem solving to be purchased by Co-ordinator. Staff members to test ideas (on current classes) and report back or demonstrate to rest of faculty. This to be done with the demands of VCE in 1990 in mind and the need to train both staff and students in the new techniques."

Some support was forthcoming, other than in the professional development area (see below). The school administration, after being requested by the faculty (J: 19/7/89), provided a grant of $2000 to spend on VCE materials (J: 9/11/89). This was in addition to money already included in the faculty budget for that year. This occurred before the first VCE class was taught. Once 1990 began the concerns about implementation became more grounded in experience, rather than apprehension about the unknown and there was a wide variety of reactions.

Teachers were interviewed after the completion of Unit 1, that is after completion of the first semester of the first year of the VCE.

All interviewees agreed that teaching styles had changed and that the students benefited from the range of teaching and learning strategies that had been employed. However the changes involved a dramatic increase in the workload for teachers and students. The following excerpts give a picture of the range of opinions:

I: Karen: 16/8/90  "Planning documents helped clarify the courses for teachers and students. Detailed documentation makes writing reports easier and more meaningful. You have a good idea of student’s strengths and weaknesses. But keeping detailed documents is very time consuming. Teaching is more interesting for teachers and students but there is some added stress because teachers and students have to adjust to the handing over of the responsibility for learning to students. While the kids have developed skills and the ability to communicate about Maths, some activities may lack sufficient structure and some kids have been stressed by this."

I: Colin: 20/8/90  "There was much more work for all involved, therefore there was a need for greater organisation. The VCE forced staff to look at their teaching strategies and try a few new things."

I: Paul: 15/8/90  "Student work must be constantly checked to make sure they complete the course. There is an increased variety in teaching (the old course was all the same). There is less out the front teaching and chalk and talk, but more group work, problem solving and research."

The school carried out a Workload Review in November 1991 across all staff involved in implementing the VCE and the responses of Mathematics teachers to the questionnaire were collected as part of this study. The teachers were as one in
identifying a significant increase in correction time, especially with regard to CATs and the process of drafting the written report. The second imposition cited was the need to keep more accurate and thorough records as the decision on 'passing' or 'failing' a student by awarding an 'S' or 'N' had to fit within strict guidelines and was open to scrutiny by parents, students and VCAB. The excerpts which follow highlight the major concerns that Mathematics teachers felt at the time and are representative of the views expressed.

QW:Bruce:11/91  "Workload problems were in record keeping and marking multiple drafts of CATs. There should be a limit on the number of drafts. Students have to hand in everything to get an 'S' for their Work Requirements and this means heaps of correction for teachers."

QW:Mike:11/91  "The Study Design specifies 20 hours for students to work on CAT 1. This is not realistic. Much more time is needed. Teachers need more time for correction of CAT drafts."

The workload on students was also mentioned by most respondents. The most popular solution was that many students would be better off to concentrate their time and energies on fewer units in year 12 and possibly do some Unit 3 & 4 studies in Year 11 to spread the workload over two years.

One observation that was made in retrospect concerned the effectiveness of the implementation of the VCE.

I:Karen:25/8/93  "We tried to do everything, teach skills as of the old HSC plus do the new VCE requirements. We did not want to sacrifice anything. Some teachers did not take on board the philosophy. They just tried to adapt what we did already. This improved over time and a good attempt was made, but it was still something new and different."

C. PROFESSIONAL DEVELOPMENT

Linked closely to the issue of implementation is the professional development of teachers involved in introducing the change. This was of special significance in the case of VCE Mathematics which involved extensive changes, not just to content, but also to the teaching and learning strategies occurring in the classroom. There was unanimous agreement that the amount of professional development provided from external sources was inadequate and of variable quality.

I:John:22/8/93  "There was too much trial and error; there should have been more inserviceing. There was very little input from the pilot schools and we should have used the pilot school teachers more. The CAT marking sessions were invaluable, but they were too late as we had already..."
taught it for a year. Discussions with other teachers were valuable to get a clear picture of the assessment criteria.”

John highlighted the main difficulty with the professional development issue. While there was some externally provided professional development most of the responsibility was left to schools to provide their own or to combine with other schools to form clusters. The experiences of pilot schools were meant to be passed on to Phase 1 schools to assist them, but there was no formal process established for this to occur. Apart from briefing sessions organised by VCAB at the beginning of the year and verification days at the end of the year, there was little formally organised professional development program. Subject associations and local school support centres ran ‘one off’ sessions but these were seen as having limited effectiveness.

I-T:Karen:15/3/91 As Mathematics faculty co-ordinator Karen had to take a leading role in organising professional development for the Maths staff. Therefore her awareness of professional development issues was high.

Her answer to the question “Has the level of professional development support been adequate?” was “Not really”. But she qualified the answer by talking about the availability of what was provided.

I:Karen:15/3/91 “A lot of interesting, nitty gritty professional development has been after school hours and only one or two staff regularly attend. More professional development during school hours would help. More professional development on descriptive reporting and alternative means of assessment of projects and problem solving would also be good.”

The retrospective interview highlighted the main issue with professional development. That is, VCAB did not provide an organised cohesive program and that it was left up to ‘unofficial’ bodies to organise professional development.

I:Karen:25/8/93 “There was very little support, resources were poor. Local networks were OK. Apart from VCAB briefing days there was not much help from the outside. We had to run our own in house professional development. We set up teams, but different teams did things differently. This may have been a mistake as there was little recognition of the broader issues and they were only aware of their own studies.”

I:Mike:19/8/93 “Assistance was mainly from fellow teachers, especially those teaching the same unit. We were really thrown in at the deep end and spent one year learning from experience. You had to do it before you knew what you didn’t know. Nobody knew what to expect from the CATs so there was nobody to train you. After the first year you could see areas that needed changing.”

A specific concern that was expressed early on was that the new courses were based on assumptions about the skill levels of teachers. The most obvious example was the need for computer skills as courses were written with the use of computers as an integral part of the teaching.
I: John: 6/2/91

"I am concerned about my lack of experience with computers. I have a wider range of students' abilities in my class than I'm used to and I'm concerned about teaching problem solving skills using computers."

The response of individuals in the faculty was to carry out their own professional development. Colin enrolled in a university course specially designed for under trained teachers teaching Mathematics and John enrolled in a number of computer courses and bought his own computer. The faculty made use of their new skills and organised an in-house professional development session on the use of spreadsheets in problem solving.

J: 10/6/91

"Maths Faculty Meeting - Colin and John ran in service on the use of spreadsheets as they can be used in all Maths units and save the students a lot of time in avoiding long calculations. Few teachers within the faculty were confident about using computers in the classroom."

In addition the issue of time arose consistently as a problem related to professional development. There was a strong feeling amongst the cohort that teachers were required to take on an increased work load to implement the VCE but were not given the time necessary to obtain the necessary professional development. In order to alleviate this the school had made available some time for teachers to work on course development and some extra state wide days were provided by the Ministry of Education.

J: 31/5/90

"Curriculum Day - VCE teachers from the region met to design courses for Year 12 1991."

J: 6/6/90

"Maths Faculty Meeting - VCE Course Development time release is available. Teachers must choose to go to either Maths or Science."

Despite this teachers felt that the time provided was not enough and that it was not used very effectively.

I: Gary: 9/11/90

"The level of professional development support was poor. In service days were unproductive."

I: Colin: 20/8/90

"Much more information on practice is needed and more support materials for course writing."

I: Paul: 15/8/90

"Within the school professional development was adequate but I am not sure that the problem solving we are doing is actually problem solving. We need some external advice."

In retrospect these opinions did not change except in the case of Mike who originally had felt the amount of professional development was good.

I: Mike: 16/8/90

Question - "How would you describe the level of professional development support available?" Answer - "Good."
"Pressure of time didn't allow for much professional development. No extra time was available, allotments increased and promises of time were not forthcoming."

"There was no extra time release and we had to fit in the VCE along with all the other demands. Only faculty time was available, no extra time."

"There wasn't much support. There were more changes in Maths than any other subject, therefore we needed more time."

As the issue of professional development and time release looms large, in the responses outlined above, Table 15 (see page 144) outlines the professional development sessions provided by VCAB as documented in the Journal.

The professional development days organised and run by VCAB followed a common pattern. A typical day is outlined below:

Session 1: Lecture by an expert from VCAB on the latest developments and instructions on how the day was to proceed. Some time for questions.

Session 2: Teachers work in cross school groups on set task. Usually materials from pilot schools available to stimulate activity.

Session 3: Teachers work in school groups on issues arising from first two sessions.

Session 4: Plenary.

VCAB also published a series of papers intended to prepare teachers for the introduction of the VCE and to provide support during the implementation phase. The timing of the publications was noted in the journal and is summarised in Table 16 (see page 145).

It should be noted that these publications were in addition to the regular VCAB Bulletins which were published monthly and contained advice and information to schools regarding implementation issues.

In addition to the VCAB sponsored days the local Regional network met monthly to discuss implementation issues and trial materials. The Mathematics Faculty also met at least monthly and devoted part of the meeting time to VCE issues. This may have included trialing materials, planning, receiving reports from members who had attended Network Meetings or responding to VCAB publications.
**TABLE 15: SUMMARY OF PROFESSIONAL DEVELOPMENT ACTIVITIES ORGANISED BY V CAB IN SUPPORT OF THE INTRODUCTION OF THE VCE**

<table>
<thead>
<tr>
<th>DATE</th>
<th>TITLE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/5/90</td>
<td>VCE Curriculum Day</td>
<td>VCE teachers from the region meet to design courses for Units 3 and 4 1991 based on guidelines provided by VCAB</td>
</tr>
<tr>
<td>10/12/90</td>
<td>VCE Planning Day</td>
<td>Group of five teachers from within the school met to review the introduction of VCE at Units 1 &amp; 2 and to continue planning for 1991</td>
</tr>
<tr>
<td>4/3/91</td>
<td>VCE Verification Day 1</td>
<td>CAT 1 was distributed and assessment procedures discussed. Teachers were given assessment criteria and samples of work, from the pilot schools, and were required to do practice assessments and compare their results with the actual assessments given. Schools limited to sending a small team only. They were then expected to pass on the information to the others back at school.</td>
</tr>
<tr>
<td>30/5/91</td>
<td>VCE Course Development Day</td>
<td>In-house day for Mathematics teachers where courses were reviewed and CAT 1 was cross marked and agreements on assessment reached. Funding for replacement teachers provided by VCAB.</td>
</tr>
<tr>
<td>28/11/91</td>
<td>School Curriculum Day</td>
<td>In house Curriculum day for all teachers (not organised under VCAB auspices). After a whole staff meeting mathematics teachers released to work on course development and assessment issues related to proposed changes for 1992.</td>
</tr>
<tr>
<td>29/11/91</td>
<td>VCE Verification Day 2</td>
<td>All Maths teachers from the region attended and took all their students CATs, which had already been assessed in teams back at their schools. All the CATs were then cross marked by teams of teachers from other schools. Any disagreements on marks awarded were adjudicated by a Regional Panel of VCAB appointees.</td>
</tr>
<tr>
<td>15/3/92</td>
<td>VCE Verification Day</td>
<td>Teachers of all subjects attended regional meetings. Teachers of more than one subject must choose which to attend. Panel Chairperson outlines the course structure, CAT requirements and assessment procedures and criteria.</td>
</tr>
<tr>
<td>20/11/92</td>
<td>VCE Verification Review Day</td>
<td>Teams of representative teachers from schools attended regional meetings to review 1992 CATs and assessment criteria and to be briefed on changes to courses for 1993. Feedback from teachers on assessment criteria to be passed on to State Chairperson for consideration in forming criteria for 1993. The teams were then to return to schools to pass on the information to their colleagues.</td>
</tr>
<tr>
<td>DATE</td>
<td>TITLE</td>
<td>DESCRIPTION</td>
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</tr>
<tr>
<td>22/3/89</td>
<td>VCE Planning Guide</td>
<td>Outline of courses to be introduced in 1990. Includes the first version of the CDSM to be used for planning courses for 1991.</td>
</tr>
<tr>
<td>3/8/89</td>
<td>Report on Pilot School In-service Meetings</td>
<td>Pilot schools met in June to review their progress in trialing Unit 1. The report summarised the findings of these meetings.</td>
</tr>
<tr>
<td>12/89</td>
<td>Draft Mathematics : Study Design</td>
<td>First version of the Study Design to be used by teachers for the planning of courses for 1990.</td>
</tr>
<tr>
<td>20/2/90</td>
<td>Procedures for Verification of Mathematics CATs</td>
<td>Procedures published for use by pilot schools in the verification of CATs and for the information of non pilot schools.</td>
</tr>
<tr>
<td>3/90</td>
<td>VCE Planning Guide : Supplement</td>
<td>Includes a report from Pilot Program In-service Meetings held in November 1989, which contains advice based on the teaching of Phase 1 studies in 1989.</td>
</tr>
<tr>
<td>4/90</td>
<td>Mathematics : CDSM</td>
<td>Final version of CDSM for use by teachers in planning and implementation of VCE Mathematics.</td>
</tr>
<tr>
<td>21/4/90</td>
<td>Advice for Mathematics CAT 1</td>
<td>Advice to pilot schools on how to teach CAT 1 and for the information of non pilot schools.</td>
</tr>
<tr>
<td>5/5/90</td>
<td>Key Issues in Mathematics</td>
<td>Key issues and matters of concern to teachers were outlined and discussed.</td>
</tr>
<tr>
<td>9/90</td>
<td>Mathematics : Study Design</td>
<td>Final version of Study Design which outlines content and course structure. Accredited until 31/12/93.</td>
</tr>
<tr>
<td>10/90</td>
<td>VCE Planning Guide : Supplement</td>
<td>Includes VCE Questions and Answers - answers to questions frequently asked by schools about how the VCE works.</td>
</tr>
<tr>
<td>29/11/90</td>
<td>Review of Pilot School Experiences</td>
<td>All Phase 1 teachers received a document outlining the experiences of Pilot schools to assist in implementing Units 3 &amp; 4 in 1991.</td>
</tr>
<tr>
<td>1/2/91</td>
<td>&quot;Working With Work Requirements&quot; - Draft</td>
<td>Not a VCAB publication but produced by a team of consultants in the Western Metropolitan Region to assist Phase 1 teachers in implementing work requirements.</td>
</tr>
<tr>
<td>14/3/91</td>
<td>Course Review Materials</td>
<td>Materials sent to schools to assist in the review process. Included a report from Pilot School evaluation meetings held in December 1990.</td>
</tr>
<tr>
<td>1/12/91</td>
<td>VCE Review</td>
<td>The VCAB External Review Panel published a discussion paper on proposed changes to the VCE Mathematics Study Design suggesting reduction in choices, and confusion, for students. Comments were invited by 20/12/91.</td>
</tr>
<tr>
<td>8/92</td>
<td>VCE Report : Mathematics</td>
<td>Inaugural report on the implementation of Mathematics. It reports on the experience of the study in practice and identifies issues for further development. To be used by schools in their review processes.</td>
</tr>
</tbody>
</table>
D. COLLABORATION AND COLLEGIALLY

As was apparent from the discussion on professional development, a key to successful implementation was the ability of the teachers to work together. In early 1991 the Mathematics Faculty set up teams in the three areas of Reasoning and Data, Space and Number and Change and Approximation. The teams were to work together in the implementation of Units 3 and 4 by sharing strategies and materials and working together on assessment procedures.

The teams were meant to be supportive and to provide a structure within the faculty for teachers to work within. Opinion on the success of this attempt at collaboration and collegiality, despite a strong need for teachers to work together, was varied. Two factors were identified as being critical to the success of the teams. The personalities and roles of the teachers and the immediacy of the tasks to be carried out. On the personalities of the teachers the following comments are illuminating.

I:John:22/8/93

"People tended to go their own way. Even though teams were set up they didn't work well. For example, in Reasoning and Data, the team of four broke into two pairs, partly due to the physical arrangement of the school, partly due to personalities and competence. Therefore the Structure for an ongoing team approach wasn't there."

I:Gary:30/8/93

"Teams did not work. They depended too much on individual personalities. Brian had trouble; as an outsider he didn't know people very well. We spent too much time on administrative details and not enough on teaching techniques. Leadership in the faculty didn't work. It was difficult to find people and there was little communication if staff were new. You were never asked if you needed help."

QS:Brian:12/94

"There was little feedback amongst Reasoning and Data teachers especially between new people and those who have taught it before."

I:Bruce:24/8/93

"The operating of the teams was very ad hoc and leadership within the faculty was patchy. The teams didn't work well because they depended on the individuals within the team. There was no monitoring of their effectiveness."

I:Colin:24/8/93

"Teams started well when nobody knew enough to go it alone. But they tended to break down through lack of time and the physical division of staff into different staff rooms. Other teachers were helpful when asked, but little was offered and people tended to work as individuals. The team structure kept operating but it was not adequate."

However the teams were effective at times when there was external pressure on the teachers, such as the assessment of the internal CATs.

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I:John:22/8/93  "The faculty worked well at CAT marking time."
I: David: 29/8/93

"Team idea was good but fell down over time. It only really worked well when the pressure was on from the outside, for example, CAT marking time. Informal groups developed outside teams. Faculty meetings did not work well due to poor leadership."

The question of leadership was consistently mentioned and leadership may have affected the successful functioning of the teams.

I: Mike: 19/8/93

"Leadership in the faculty was inconsistent, depending on her mood. Most help was informal from other teachers within the school and a friend at another school. General conversations were useful at times."

The co-ordinator, Karen, had a different perspective to other faculty members.

I: Karen: 25/8/93

"Leadership was difficult; there were different philosophical positions of people in the faculty. Some let go of control more easily, others wouldn’t let go at all and only adopted the new structure while doing the same old thing in the classroom."

E. THE CLASSROOM

While no systematic investigation of the classroom was made in this study the comments of teachers in the interviews and surveys suggest that, despite the difficulties, changes did occur. This was partly because the changes were imposed from VCAB but also because teachers saw some merit in the new ideas.

I: Karen: 25/8/93

"I definitely changed my style of teaching and assessment. It was more open ended, activity based and involved more group work and cooperative learning. My teaching was less rigid."

I: John: 22/8/93

"I felt restricted by the old HSC and the VCE has freed up my style."

I: Gary: 30/8/93

"I was happy with the changes. Projects and problem solving gave a greater variety of experiences. I was able to be less concerned with the answers and more with the attempt and process."

I: Mike: 19/8/93

"I have tried to develop a different angle to my teaching by promoting a more problem solving approach. I don’t explain so much and try to get the kids to think more for themselves."

These positive views did not change over the period of the study. In earlier interviews similar feelings were expressed.

I: Paul: 15/8/90

"There is increased variety in the VCE (the old course was all the same style). There is less out the front teaching and chalk and talk. More group work, problem solving and research."

I: Bruce: 5/9/90

"Students are organised so that they know what is required of them. Work requirements mean the expectations are more clearly defined. You have to use more versatile teaching strategies. Problem solving and project work better prepares students for tertiary work."
I: Colin: 20/8/90

“The VCE has forced staff to look at their teaching strategies and try out many new methods and strategies.”

The impact on the classroom of the new VCE had consistent universal agreement of the teachers in the study as to the positive effect on teaching and learning and the permanency of the changes. The only area of disagreement was in relation to the reduction in content covered and an apparent change in the skills developed by students. Bruce represented a significant minority when he responded:

I: Bruce: 24/8/93

“The increased emphasis on Work Requirements means that standards are lowered because the emphasis is on completion rather than reaching a particular level of understanding.”

There was a degree of resentment expressed at the continual changes which occurred over the period of the study. A number of teachers expressed the view that while they could understand the need to ‘fine tune’ the courses, not enough time was allowed for the courses to settle down and for teachers to get used to the new VCE. Many of the changes that did occur were seen to be driven by forces other than the needs and concerns of the teachers and students. Consequently, many teachers felt that the continual changing and ensuing confusion had a negative impact on their classroom teaching. All the teachers placed the blame, to varying degrees, on the universities, press and political influences.

I: Karen: 25/8/93

“Changes to CAT 2 were a result of media pressure and debate from the uni’s. The uni’s wanted content that the VCE didn’t have. They required different skills than what the VCE was designed to achieve. Uni’s had the wrong idea about the purpose of the VCE. VCAB was well intentioned but inexperienced as this was a world first in curriculum change. It took a while for them to work out what was happening. Changes to CAT 1 might have been in response to teacher’s concerns.”

I: John: 22/8/93

“There was too much choice even within the one subject. There was pressure from the uni’s who needed basic skills. Some areas were not even covered such as in Space and Number (Extensions) there was no calculus, even though it was the main Maths subject.”

I: Gary: 30/8/93

“The changes were a response to public pressure as there was a large amount of debate in the press. Least important was the response from teachers.”

I: Mike: 19/8/93

“Changes occurred because the mix of subjects was too confusing. Also a response to uni’s who wanted a simpler system and to the media as well. Little consultation with teachers. The VCE was seen as too hard and needed to be changed. VCAB did have a review process but it didn’t work very well.”

An overview of the Journal over the period of the study shows that an enormous amount of time and energy went into planning, discussing, assessment, review, trialing materials and attempts to change classroom practice. There were critical events which showed the faculty trying to come to terms with a change of policy.
direction which undid some of the work previously done or which added items to the agenda which had to be dealt with immediately. For example:

J:28/11/91 “Maths Faculty given time to consider proposed new courses for next year. VCAB Panel has invited comment from interested parties on the new combinations of subjects.”

None of these critical events arose from within the faculty or in response to classroom needs. They were all a result of decisions made externally to the school.

E. 'THE RIPPLE EFFECT'

The general feeling among the teachers questioned was that the changes they had implemented in the VCE definitely had a flow on effect into their teaching at Years 7 to 10. The curriculum and teaching methods changed to be more consistent with the VCE model. Specifically a Work Requirement approach to teaching was adopted. There were degrees of enthusiasm expressed but all were generally positive.

I:Colin:24/8/93 “I changed my style completely in junior classes. I brought in computers and the more experimental style suited me as a Science teacher who'd picked up Maths teaching as a second string.”

I:Gary:30/8/93 “The value of attempting the question, the process of looking at the question, thinking about it, then trying it has been proved. I don't want to fall back into the old habits as I am happy with the new teaching styles. The only problem is that the pressure of time sometimes means it's tempting to fall back into relying on the textbook to get through the work.”

I:Mike:19/8/93 “I've tried to develop a different angle to my teaching that is permanent. If I'm more open ended in my approach the students will be more well rounded and they will be good at doing a range of things. However the more problem solving approach does make it more difficult for the junior students to maintain some skills because they get less time to practise.”

I:Karen:25/8/93 “The changes are now firmly entrenched in my repertoire because they are intrinsically good, especially the new forms of assessment. It's less rigid and the kids achieve more success.”

Two questions arise from these responses. Firstly, how much of what was said is just rhetoric and were the real changes in the classroom not as great as claimed? Secondly, have these changes become entrenched in the curriculum or are they dependent on the individual teacher for their survival?

Insights can be gained from the student surveys of November 1990 which were administered to the first students to attempt Units 1 and 2 of VCE Mathematics.
Of the thirty students surveyed (out of 105 who attempted at least one Mathematics unit) the responses were very evenly divided. Those on the positive side liked the freedom and challenge of the open ended nature of the courses, while the negative responses centred on the fact that teachers did not explain the work enough.

Typical positive comments were:

S:(1) "Traditional skills work was good stuff. Projects were different and challenging."

S:(2) "We learnt new skills. We learnt how to logically approach and solve a problem. We learnt how to set out and conclude a project."

S:(3) "In problem solving I liked working out problems in real life situations."

S:(4) "VCE makes a difference to the way I feel about Maths because of the work requirements."

Some negative comments were:

S:(5) "It would have been better if I had a better teacher who explained the work properly."

S:(6) "The projects were too hard."

S:(7) "The skills work was boring. The projects were too complicated and needed to be explained more."

What is clear from these responses is that there were certainly changes in classroom practice at the VCE levels.

The changes also can be seen to have extended into the Years 7 to 10 curriculum at a formal level. As early as 1989 the Mathematics Faculty was beginning to institute changes at the lower levels.

J:30/8/89 "Maths Faculty Meeting - Years 7 to 10 students should be encouraged to make summaries of units as training for the VCE."

J:8/2/90 "Maths Faculty Meeting - Problem solving at Years 7 to 10. Teachers should begin tagging particular problem solving activities for specific year levels."

J:5/4/90 "Maths Faculty Meeting - Discussion on whether to have exams at Year 10. Majority feel it is better to give students a problem solving exercise as an exam does not cater for all students while problem solving can be done by all students and is good preparation for VCE."

J:3/4/91 "Curriculum Day - Descriptive Reporting. Staff committed the school to adopting descriptive reporting in tandem with an investigation into developing a Work Requirement approach to assessment, in line with the VCE."
The Mathematics faculty formally adopted a work requirement approach to Years 7 to 10 at a meeting on the 14th. November 1991 and also agreed to rewrite courses to include topics on probability and statistics to provide background for the VCE. The Work Requirement approach was simultaneously introduced in other subjects and became formally part of the school's Curriculum Policy in 1992.

Further, in 1992 selected problem solving exercises and projects were graded in a similar fashion to VCE CATs and these were called Assessment Tasks. Thus the work of students in Years 7 to 10 was meant to reflect the type of work they could expect to be exposed to in the VCE.

The results, outlined above, have provided a picture of the complexity of the processes involved in implementing the VCE, the different levels at which the innovation was introduced and the major issues at both the macro (community) and micro (school) levels.

The following chapter discusses these results and attempts to link the findings with the body of theoretical knowledge described in the literature review. The context of the change in terms of its externally imposed nature and the political and public aspects of the introduction of the VCE is discussed. The implementation issues at the teacher level are also discussed focussing particularly on professional development and workload.

A series of conclusions are then drawn in relation to the purpose of this study.
CHAPTER 7.

DISCUSSION AND CONCLUSIONS

A. INTRODUCTION

"A large part of the problem of educational change may be less a question of dogmatic resistance and bad intentions (although there is certainly some of both) and more a question of the difficulties of planning and co-ordinating a multilevel social process involving thousands of people" (Fullan, 1991, p. 65).

Fullan could have been referring to the VCE as his comment encapsulates the dilemma faced by the education system in Victoria in implementing what could be classified as a Phase 4 change (Fullan, 1991) where intensification of the curriculum coincided with a restructuring of the state education system. Not only was there a major curriculum change occurring, but the bureaucracy which had supported teachers was being dismantled and rebuilt at a time when it was needed most.

While the introduction of the VCE was essentially a first order change (Fullan, 1991) in that it was designed to improve what existed within the existing organisational structures it did significantly change the roles of teachers and, to some extent, students.

This discussion will attempt to identify the issues of planning and co-ordination specific to the Victorian experience as well as other issues which may have influenced the process of change. In attempting to identify patterns and links, it will be necessary to tie together the theory upon which this study of a change process is grounded, the context of this change, the way in which it became the property of the general community and special interest groups outside schools and the effect the change had on an individual school and its teachers.

The discussion will examine this 'multilevel social process' and attempt to establish links between theory and practice. It will then evaluate the successes and failures of the model for change which has been established with the introduction of the VCE. In other words, this discussion will identify the positive aspects of the process and seek to explain how this was achieved while balancing against the negative aspects and why they occurred.
Although the case study revolved around a mathematics faculty, this discussion will concentrate more on how these teachers implemented a change, rather than specifically considering the teaching of VCE Mathematics. At times, mathematics will be highlighted because of its status as a Phase 1 study and the place it held in the public debate. Mathematics will be used as a vehicle to study the processes of implementing change.

In order to manage the discussion, it will be broken down into sub-chapters based on a combination of the major issues identified from the Case Study data and the document analysis.

The first sub-chapter deals with the context within which the VCE was introduced and which factors were critical to its success. Two key aspects to this context of change are discussed. Firstly, the question of the political aspects of the change and the public debate which ensued is addressed. The introduction of the VCE was highly politicised due to the 1992 election and the inherently political nature of education. This not only gave rise to a series of changes, but also, to a lengthy and often negative public debate. Secondly, the impact of the externally mandated aspect of this change on its implementation is discussed in this section.

The second sub-chapter concentrates on implementation issues. This study is primarily concerned with the implementation, over a four-year period, of an externally imposed change. Three issues which impinged on the success or failure of the innovation are discussed. The section on challenges to teachers and the solutions deals with the fact that teachers bore the brunt of the change and had to rise to a number of challenges. Critical to the implementation of any program is appropriate professional development. The nature of the professional development program is discussed in this section and its success evaluated. Thirdly, the introduction of the VCE resulted in an increased workload on teachers. The effect of this factor on the implementation of the VCE is discussed.

The third sub-chapter discusses cheating and the verification process. This was a major issue in the debate over the VCE and was the area where non-school-based individuals had a strong influence. A number of changes occurred and these may have been due in part to the public debate.

In the final sub-chapter, the success or failure of the implementation of the VCE is evaluated in terms of Fullan's (1993a, 1993c) eight lessons of dynamic change. Within this framework, the VCE is seen as being characterised as a series of tensions created by competing demands.
B. CONTEXT OF THE CHANGE

One of the purposes of this study was to investigate the effect, on the implementation the VCE, of the context within which the change was set. The results strongly suggest that the context within which the VCE was introduced did significantly effect implementation. The various political agendas which operated, either through party politics or through the educational community, certainly seemed to influence developments, or changes, in policy. Because the change evolved from a government initiative and evolved with little input or impetus from within schools until it was externally mandated, further mandated changes were relatively easy to achieve. It was not necessary to undergo a lengthy process of consultation with teachers, even if they were the implementers, because the ‘ownership’ lay with the educational bureaucracy who were the designers of the change.

However, as time progressed and teachers took on ownership of the change because of the time and energy they had invested, and because of the benefits to students that they saw in the new system, the context changed. What was originally a top down model of change became both a top down and bottom up model as teachers adopted the change.

What follows is an analysis of the political and public context within which this change is set and an examination of how this externally imposed change was implemented.

1. POLITICAL ASPECTS AND THE PUBLIC DEBATE

The introduction of the VCE was the subject of ongoing public discussion. It was introduced by a Labour government partly as a means of reshaping the social structure of the state, and in the final days of its term in office, as an issue to use in an attempt to hold onto a rapidly dwindling supply of votes.

The weaknesses, teething problems and lack of acceptance by some educationalists were used by the conservative opposition parties as a means of criticising the government and further undermining its electoral support. This caused major concern at the school level. As Northfield observed, at the end of 1990, there was:

“...A perceived lack of support for the VCE (sic) among a few key educationists, sections of the media and the state opposition. There is also a government that, while supporting the VCE, finds it necessary to make significant cuts in secondary staffing and
support services for the year of VCE introduction. This perceived lack of support leads to anxiety among the school communities especially when the VCE was being queried in areas which are not regarded as major concerns by the schools” (in Northfield and Winter, 1993, p.74).

There were problems with the VCE in its initial form but that would be expected in such a large and comprehensive change. Many difficulties could not be foreseen and did not appear until the VCE was put into practice in schools. However the political and public debate had a major impact on the confidence of teachers, the potential for solving problems as part of the normal implementation process and the final form of the VCE.

The political nature of education is nothing new. As Fullan noted:

“... innovations get generated through a mixture of political and educational motives ... educational reform is very much a political process” (1991, p.6).

Education absorbs a large proportion of a nation’s budget. Many people have a stake in education whether they be parents, students, teachers, politicians, university academics, business people or social theorists. And, of course, everybody has been to school and memories of their school experience greatly influence many people. Northfield and Winter, writing specifically about the VCE, agree:

“Almost a decade of curriculum reform has been associated with intense and often bitter debate over many issues. Social and political issues often took precedence over educational issues and there are few areas of the community that did not become deeply involved in the VCE analysis” (1993, p. 7).

What was the effect of this political and public debate on the implementation of the VCE? One sentence in the report on “VCE Teacher Workload” (231) encapsulates the influence of the public debate over the VCE:

“There has rarely been a curriculum issue that has won such extensive media attention about its ‘problems’ and so little attention to its fundamental purposes” (p. 5.9).

The literature suggests that it is difficult for teachers to implement change and that many conditions must be met to make the journey of change successful. The bigger the change the more difficult the journey. As a curriculum change the introduction of a new state wide common certificate involving major changes to teaching and learning was a very large, complex and difficult undertaking. While it is not surprising that there was extensive public discussion of the introduction of the VCE, much of it was negative. There was a perception amongst teachers, in the case study, that the VCE was modified in response more to public and political pressure than as a result of teacher feedback. These findings are supported by Gill’s contribution to the fourth ‘Northfield Report’.
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"Teachers and principals were exasperated at the disjunction between their own knowledge (including knowledge of problem areas) and expertise in delivering the VCE, and the media misrepresentations 'by people who don't know what they are talking about'" (in Northfield and Winter, 1993, p. 170).

The effect of this public debate on teachers was to undermine their confidence and develop in them a sense of frustration. Despite this teachers worked hard to implement the VCE and to maintain its integrity. This was expressed by a number of teachers in the case study and echoed by Gill, in 1992:

"... schools endorse the VCE as providing a comprehensive Year 12 curriculum ... Both principals and teachers were strongly committed to the improvement, not the dismantling, of VCE ... There was acknowledgment in all schools that more work would be needed before 'all the wrinkles were ironed out' ... There were remarkably few disasters for such a dramatic change ... There were specific problems but no fundamental flaws' ... A consistent impression ... was of the enormous effort which teachers and school communities had invested in attempting to deliver the full VCE programme in 1992" (in Northfield and Winter, 1993, p. 175).

It would appear that the implementation of the VCE was subject to powerful forces external to schools. Most of the changes that occurred during the implementation phase were externally mandated. This was as a result of the political climate and vocal critics in positions of influence. These critics, with little experience of the classroom realities of the VCE, built on the inability of the community to understand and accept the breadth and complexity of the changes and the need for time to resolve initial difficulties with implementation. The views and experiences of the teachers with the practical experience of implementation, while not ignored, were of secondary importance. The inevitable 'teething' problems were used by critics to undermine the integrity of the VCE. This created a climate of concern which then led to modifications dictated by a conservative political agenda rather than genuine educational arguments. The credentials of the critics were rarely considered. Maslen (27) was the only writer of significance to question the credibility of one of the major critics, Professor David Penington.

Northfield agreed that school issues were ignored when he wrote in the second 'Northfield Report', in 1990, that the debate:

"... seems to be occurring independently of the issues that are emerging at the school level. School level issues attract little attention in the media and we would encourage the reader to consider why there is such a mismatch between school level and wider level concerns" (in Northfield and Winter, 1993, p. 74).

Slattery (142) responded by questioning the role of the media:

"... the media should take in the actual workings of the VCE in schools, leading perhaps to a more informed debate about those aspects of the certificate that remain in flux. It could also help to illuminate the fairly complex experiences of students and teachers"
... there is enough evidence of low morale in schools to suggest that the moment has arrived for a rapprochement between the media, broadly defined, and schools.

The role of VCAB, in responding to the media debate, was pivotal. VCAB had the power to deflect much of the political influence as timelines for implementation had been set and processes for consultation with schools were in place. By allowing time for the changes to 'settle in' and then instituting the established review procedures many of the problems, highlighted by the critics, could have been solved. If there were fundamental flaws then they would also have been clearly identified. Instead, VCAB chose to respond to the outside critics, often pre-empting their own processes, and instituted a series of changes without significant consultation with teachers. 

A number of questions arise from the actions of VCAB. If the consultation processes had been allowed to occur would the same 'problems' have been identified? If so, would the same solutions have been developed? Or, would there have been different problems and different solutions, based around the teachers perspectives?

The answer is that some of the issues brought forward in the public debate were important to teachers and that some of the solutions did have general support from the teachers. The workload issue is an example. However there were other issues and other solutions that did not receive due consideration due to the lack of consultation, while different issues were afforded greater importance by virtue of the public debate. The issue of cheating, verification and school based assessment was one where the debate was loud and long, but where schools already had appropriate procedures in place. Teachers felt that while the issue was important there were solutions in place.

Despite this, VCAB instituted a series of changes to the VCE. For example, the number of CATs was changed as were the assessment procedures for school assessed CATs, in response to the debate on cheating and verification. This had two effects.

Firstly, the balance between internal and external assessment was significantly altered and thus fidelity to the original aims was threatened. Secondly, the degree of trust invested in teachers was reduced, despite the fact that there was no evidence to suggest that teachers had done anything less than act professionally and faithfully follow the procedures.
How was it that VCAB were able to ignore their own processes? It seems that the government, concerned about re-election, was prepared to allow changes to occur if they reduced the intensity of the debate. But there was not enough time, before the election, for the established consultative processes to occur. Therefore VCAB were either encouraged, or allowed, to bypass processes, provided action was seen to taken in order to answer the critics.

Porter writing of the Australian experience in 1976 makes a point that is still relevant today:

"... for any program in planned educational change to be successful, policy makers must give attention to the reality that both personal needs and organisational requirements equally affect the process and must be catered for... political and structural protection for innovation must be built in advance into any program attempting change in education" (1976, p. 241).

It is doubtful that this was done with the introduction of the VCE. All too often planning was ignored or structures that supported the change were bypassed or dismantled. Personal needs of teachers and organisational requirements, such as time and resources, were not catered for because of the political needs of the government and the opposition. Northfield’s conclusion encapsulated the political situation at the end of 1992:

"The inadequacies in practice will allow the opponents to continue their opposition. Some will wish to dismantle the VCE further, others believe important features of the VCE have already been lost. The situation now requires leadership which identifies and endorses the fundamental VCE ideas and provides the commitment and support to see that these are achieved in practice" (sic) (in Northfield and Winter, 1993, p. 180).

Where was this leadership to come from if the integrity of the VCE was not to be further eroded? In October, 1992, after the election of the Kennett, conservative, government Slattery (171) previewed the changes which were about to be made to the VCE. He noted that VCAB was not to be abolished, but merely reconstituted and that the government felt that they could deal with its “pragmatic” chairperson, Howard Kelly. Slattery wrote:

"Kelly sees himself as an honest broker, attempting to introduce changes demanded by governments and universities while maintaining what he calls ‘the integrity of the certificate’. He argues that there is a new broad acceptance of a common framework, one in which all senior students have access to a range of studies capable of preparing them for work or higher education”.

Whether or not the integrity of the certificate has been maintained depends on what role the certificate should play. While it was true that students still had access to a wide range of studies (one of the original intentions of the VCE), what happened within those studies had been significantly altered. Many of these alterations occurred more as a result of either direct or indirect political pressure, rather than
in response to feedback from teachers. Consequently the integrity of the curriculum change, that is the VCE, may have been compromised.

To refer back to the aims of this study, how was implementation effected by the public debate and the resultant changes? Fullan provides part of the answer:

"Some ideas are going to work, while others will not. We need to recognise this and accept the need for persistence, working through the implementation process" (1993c, p. 1).

In many cases, while teachers persisted in making the VCE work, VCAB and the government did not. Instead they looked for immediate remedies to problems which may have been resolved with time. Teachers had worked to achieve 'mastery' (Fullan, 1993a) of their area within the new VCE, only to be told that it was all to be changed. Thus implementation of the newest change began at the expense of the previous version. Teachers quickly became reticent about incorporating a new idea into their teaching repertoire, for fear that it would be a waste of time and effort. Instead the temptation was to change their old ways as little as possible and adapt the VCE to suit their preferred means of operating.

As Fullan (1993c) says, both top down and bottom up strategies are necessary for a change to be successful. This lack of trust of teachers and lack of patience with the implementation of the reform seriously threatened the implementation of the VCE and reduced the chances of continuation as well.

ii. EXTERNALLY IMPOSED CHANGE

The introduction of the VCE was, to teachers, an externally mandated change imposed upon them as a result of a series of reports and recommendations in which they had limited input. The adoption of the change took place at a political and bureaucratic level. Teachers were expected to effectively implement the change regardless of their personal feelings or beliefs or their level of adoption of the change. The introduction of the VCE would appear to fit into the 'least desirable' category of Johnson's (1989) 'hierarchy of desirability' in the source of pressure for change:

Least desirable - an innovation or initiative externally devised by authorities to improve the quality of teaching and learning.
More desirable - a locally derived change planned by a group of teachers to improve aspects of their schools program.

Most desirable - a proposal for change from within the individual teacher in response to a particular situation or as part of the teacher's desire to continue their own learning.

The introduction of the VCE cannot be easily categorised. Despite being externally mandated it came at a time when many teachers were dissatisfied with the prevailing system. Teachers were receptive to many of the innovations as they felt that the old courses no longer served the needs of their students. Students were staying on at school longer and had a much broader range of abilities than students of the past. The VCE seemed to provide a solution. Therefore teachers were able to adopt the proposed changes because there were elements of the 'most desirable' level of the hierarchy. Teachers felt a need for change but had no vehicle to introduce the changes. The VCE provided that vehicle and it was seen by many to have 'educational merit' (Waugh, 1983, Waugh and Punch, 1985).

Therefore Fullan's (1992) first phase of the change process (initiation or adoption) occurred at both the bureaucratic and school levels. Problems arose in the implementation and continuation phases because of lack of planning, inadequate support for teachers and political interference. Teachers and schools were expected to implement not just an initial 'one off' change, but also a long series of modifications and reversals of changes already made.

These adjustments were not merely the fine tuning of a successful system, but involved major changes of direction in areas where teachers had spent time and energy developing new skills and practices. These included modifications to and elimination of specific CATs. Also assessment procedures were changed to take responsibility away from teachers and place more emphasis on external examinations. This changed the emphasis of the VCE from being concerned with process to being driven more by concerns over course content and tertiary selection.

The continual changing of the nature of the VCE meant that, although adoption occurred, implementation and continuation were continually disrupted. If a significant number of teachers were Pragmatic Sceptics (Doyle and Ponder, 1977) who worked hard without seeking change, supported innovations provided they
did not threaten the status quo and would withdraw support from a curriculum initiative once there was pressure to change, then successful implementation would be under threat.

Fullan (1992) defined implementation as the first experience of putting an idea into practice, followed by continuation where the change becomes incorporated into the system or disappears through attrition. Because teachers were required to make changes to their practices and procedures, almost continuously over the period of this study, the implementation phase was disrupted. Teachers became fatigued with implementing new ideas only to have them changed and then have to implement something new, with little confidence that this most recent reform might not also be changed in the not too distant future. Northfield concluded, in 1992:

“We are paying the price for an inadequate understanding of and lack of commitment to the implementation stage. Educationists from overseas are surprised at how well VCAB and teachers coped given the immense task and low priority given to implementation” (in Northfield and Winter, 1993, p. 180).

Consequently continuation was at risk. If the change did get built into a teacher’s repertoire it was often seen as being only temporary with the likelihood that it would have to be discarded to be replaced with something else. The change would not be fully incorporated and the danger existed that many teachers would return to their old well worn practices masquerading as the VCE. Teachers could become habituated to change and ignore the next innovation as being unimportant. However, it could be argued that the VCE was successfully implemented. The explanation can be found in Fullan’s (1993c) eight lessons about change and is elaborated upon later in this discussion.

One area where there is little doubt that changes were fully incorporated was in the adoption of a work requirement approach to teaching not only the VCE, but also at Years 7 to 10. Teachers were convinced of the worth of this new approach to teaching and, after some experimentation, included it as part of the day to day teaching and curriculum structure. The major reason for the success of this innovation was that teachers were given time to learn by trial and error as once the concept of work requirements was introduced it was not changed. Schools were able to develop processes and practices unencumbered by outside pressures and had the freedom to realise the benefits to students of such an approach. Also, the level of professional development required for teachers to become familiar with the ideas behind work requirements was minimal and could easily be handled by ‘in house’ programs.
C. IMPLEMENTATION ISSUES

Issues of implementation go to the heart of the daily operations of teachers and schools. The best or the worst educational initiatives will fail without the support of teachers. Even then, teachers may be in full agreement with a change but implementation may fail for reasons outside the control of teachers. The more complex the change the greater the chance that an unforeseen problem will prevent, or at the very least reduce, successful implementation.

The third aim of this study was to attempt to identify the factors which either helped or hindered implementation. A number of factors can be identified from the results and will be discussed in the following section. They include, professional development, workload, collaboration and collegiality, resources, external support and pressures from within the classroom.

i  THE CHALLENGES TO TEACHERS AND THE SOLUTIONS

Fullan's (1992) second phase of the change process, implementation, is the focus of this study. Fullan (1993c), in discussing the lessons learnt about dynamic change, wrote that bottom up and top down strategies are necessary and that every person must be seen as a change agent. The top down aspect has already been discussed so the operation of teachers at the school level must now be considered. How did they respond in their role as implementers?

While the teachers in the case study fit into a number of categories, using Johnson's (1993) taxonomy, most could be classified as being 'Stabilised' teachers with five to fifteen years experience, available for diversification and change and willing to take selected risks. They will accept new responsibilities and are looking for career advancement. These stabilised teachers were the ones who controlled the direction of the implementation process.

They were operating in a school that could be classified as a mixture of 'Maintenance Oriented' and 'Energising' (Johnson, 1989). While stability was considered to be very important new ideas were grasped and a co-operative atmosphere existed. However the 'classroom press' (Fullan, 1991) tended to divert energies away from innovation and the 'Practicality Ethic' (Doyle and Ponder, 1977) was of paramount importance.
Therefore the nature of the support for the individual teacher becomes a key to successful implementation. Northfield, writing in 1989, (in Northfield and Winter, 1993) identified six useful approaches to support teachers in implementing changes:

1. Regular meeting times for teachers of each course.
2. Support from School Support Centre staff and other consultants.
4. Sharing examples of student work.
5. Student exchanges.
6. In-service support.

In-service support will be discussed in the section on professional development but the other five areas represent the types of support that, if present, can aid the implementation process. In 1989 Northfield wrote:

"It is difficult to see how teachers can implement these changes alone, and arranging for regular teacher meetings would seem to be a minimum requirement for all schools" (in Northfield and Winter, 1993, p. 47).

This time was made available in the case study school, both during school time and in after school scheduled meetings. The response of teachers suggested that they were valuable opportunities to assist in the implementation of each aspect of the new courses. The scheduling of regular meetings provides a means of overcoming the problems encountered by teachers in coping with reforms. Fullan and Hargreaves (1991) identified isolation and untapped competence as two of these problems. The structuring of the meeting schedule can allow teachers to collaborate to destroy the feeling of isolation and to provide access to competent teachers. Meeting time can be also used to begin to develop a sense of collegiality which will continue to function during the implementation process.

While the formal structure of the meeting existed there was collaboration amongst the teachers. But this did not extend to any large extent outside the meeting times. The teachers in the case study tended to fall back on friends or previously developed networks for support, rather than develop new professional relationships. Thus some teachers became isolated except for some informal contact and irregular organised meetings.
School Support Centres could have fulfilled a role in breaking down some of the isolation of teachers. Northfield wrote of the general experience with Support Centres and consultants:

“There was evidence of effective intensive support for a few schools but it would appear that limited consultancy services did not enable quality support to occur for a majority of schools” (in Northfield and Winter, 1993, p. 47).

The School Support Centre serving the case study school attempted to provide support by setting up networks of teachers who would meet after school. However the timing and siting of these meetings did not encourage teachers to attend. The school did send representatives to the network meetings, and some valuable insights were gained and fed back to the teachers at school, however it was not enough to fulfil the needs of those teachers with difficulties.

A bigger failure in providing support was the under utilisation of the experience of the teachers in pilot schools. Northfield writing in 1989 recommended:

“In many ways the knowledge of the pilot curriculum areas now resides with the teachers who have implemented the courses. Where consultancy support for schools is limited it would seem important to find ways of using the experience of pilot teachers” (in Northfield and Winter, 1993, p. 48).

In the experience of the teachers in the case study this did not happen. Teachers in the pilot schools were rarely available for consultation due to the constraints on their time from within their schools and because of the many requests for advice from teachers outside their schools. Some of the lessons learned from pilot school programs were communicated through VCAB publications but these did not always answer teachers’ concerns. The good intention that the pilot schools would serve as models and provide support and assistance for teachers in implementing the VCE failed through lack of resourcing and availability of time.

The lesson from the pilot schools was that the implementation of the VCE was going to be difficult and demanding and that teachers would need support. However there were no structures put in place to utilise the expertise of the pilot school teachers in supporting the teachers who followed them in non pilot schools. In addition, teachers in pilot schools had volunteered to enter the program, they had adopted the VCE and were prepared to commit time and energy into making it successful. But were they typical of the majority of teachers and would their problems and solutions be transferable to other less enthusiastic teachers? The VCE involved ‘reculturing’ schools (Hargreaves, 1995) and it may have been better to target a range of different types of teachers, including those critics and sceptics who might initially try to block the change. That way a broader range of
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difficulties could have been confronted and dealt with before all schools began implementing the VCE.

One area, well handled, was the verification days where samples of student work from pilot schools were shown to teachers and formed the basis for their discussions on assessment. This enabled teachers to develop their understanding of the nature and purpose of the work and draw on the ideas of others in developing implementation strategies. The use of the students themselves was never considered by the teachers in the case study.

Since support from outside the school was limited, teachers were forced to support each other from within. The nature of their collaboration would have a significant impact on the success of their attempts to implement the VCE. The autonomy in the classroom that teachers had prior to the VCE was challenged. Joyce et al (1989) identified the importance of collegial (sic) support and stressed the need to change the workplace to make cooperative behaviour the norm. Wildman and Niles (1987) listed autonomy, collaboration and time as the three essential conditions for professional growth. The teachers themselves in the case study recognised the importance of working together and supporting each other. Why then did the collaboration lessen as the implementation of the VCE proceeded?

The answer to this question rests in the diverse nature of the teachers within the case study, their individualistic response to the change and the inherent 'low interdependence' of teachers (Johnson, 1989). Johnson identified a number of variables which may have an impact on the ability of teachers to collaborate:

"Change strategies should be varied according to the individual behaviours and images of teachers" (Johnson, 1993, p.6).

"Individual teachers exhibit different growth states, and different appetites for learning; thus they differ in their availability for learning" (Johnson, 1989, p.10, 1993, p.7).

"Teachers implement change in ways and rates different from one another" (Johnson, 1989, p.11, 1993, p.8).

"Teachers respond to change proposals in highly personal ways and their learning has to do with issues of collaboration, guided reflection, and the search for meaning, all of which occur over extended periods of time" (Johnson, 1989, p.12, 1993, p.10).

"Teachers are more likely to change the way they work in classrooms if they are supported in their own working environment by a group of colleagues who engage in co-operative/collaborative professional development activities" (Johnson, 1989, p.15, 1993, p.13).

"There appear to be a series of broad patterns in the ways in which teachers respond to the work of teaching which roughly correspond with age and experience" (Johnson, 1993, p.9).

The teachers in the case study collaborated strongly in two situations. Firstly, in designing the courses to be taught in the first year of the VCE. Secondly, when the
assessment of CATs was underway and they had to compare the grades they had awarded and develop consistency in their assessments. Collaboration seemed to be greatest when the pressure of outside scrutiny was the greatest. However as implementation progressed the nature of collaboration varied. Those who were least experienced or comfortable with the changes gravitated together to form informal collaborative groups. Experienced or confident teachers tended to work more independently and only confer with other similar teachers. This was despite the fact that working groups were established to encourage collaboration because all teachers felt it was important.

A reason for the failure of collaboration was the increase in workload combined with the teachers’ variable responses to change (Johnson, 1989, 1993). This meant that teachers became inward looking concentrating on the immediacy of their classroom. Teachers able to provide guidance and assistance still faced a formidable challenge in implementing the VCE in their own classrooms and had neither the will to help nor the awareness of the difficulties of their struggling colleagues. Those experiencing problems sought out others in similar positions because they did not want to appear incompetent and hoped for a sympathetic response. The implementation timetable and the available professional development did not take into account the varying rates with which teachers are able to absorb change. The throwing back of the responsibility for implementation onto schools and teachers who lacked sufficient training and resources overloaded teachers and provided a less than ideal environment for effective collaboration. This lack of collaboration threatened effective implementation.

### II PROFESSIONAL DEVELOPMENT

Conners defined professional development as:

"... the sum of all activities, both formal and informal, carried out by the individual or system to promote staff growth and renewal" (1991, p. 58).

Fullan set his definition within a context of change:

"Professional development is the sum total of formal and informal learning pursued and experienced by a teacher in a compelling learning environment, under conditions of complexity and dynamic change" (1994, p. C-40).

The issue of professional development is central to the successful implementation of an educational change. The introduction of the VCE required teachers to change long held practices and beliefs. Their chances of successfully implementing the changes would be increased by effective professional development. Guskey wrote:
"Never before in the history of education has there been a greater recognition of the importance of professional development. Every proposal to reform, restructure, or transform schools emphasizes professional development as a primary vehicle in efforts to bring about change" (1994, p. 42).

Fullan and Hargreaves (1991) identified four important aspects of professional development which have an impact on teachers in their response to change proposals. These aspects are often overlooked, as seemed to be the case with the VCE:

1. **The teacher's purpose** - teaching is not merely a technical business, but also has a moral component. Teachers play a key role in creating the generations of the future.

2. **The teacher as a person** - making a lasting change will almost inevitably be slow. Age, stage of career, life experience and gender factors make up the total teacher.

3. **The real world context in which teachers work** - some aspects of the context of teaching vary; teaching strategies cannot be standardised. Realism and practicality are important. Contextual characteristics set boundaries around what teachers can do, around the realistic possibilities for innovation.

4. **The culture of teaching; the working relationships that teachers have with their colleagues** - total teachers are most likely to emerge, develop and prosper in total schools which value, develop and support the judgement and expertise of all their teachers in the common quest for improvement.

Johnson (1989) recognised that two of the factors to be considered when examining the nature of a change proposal were the level of change:

"Change proposals involve 'administrative' change of the organisation of the school and/or 'pedagogical' change in terms of the teacher and student actions, lesson content and classroom organisation" (1989, p.5).

and the breadth of teacher change required by the proposal:

"Change proposals differ in the change they may require of teachers. They either require a teacher to polish or 'fine tune' existing skills and methods, or involve the mastery of significantly different teaching strategies or "new repertoire"" (1989, p.5).

Johnson concluded:

"... major change proposals over the past decade appear to possess few of the characteristics that would make them appealing to teachers" (1989, p. 6).
The introduction of the VCE involved administrative and pedagogical change and required teachers to not only fine tune but also add to their repertoire. Were the professional development needs of teachers fulfilled, or should the VCE be added to Johnson’s list of unappealing change proposals?

Northfield (in Northfield and Winter, 1993) strongly asserted that the professional development provided was inadequate. The teachers in the case study, while not as extreme in their opinions, agreed. They were expected to make significant changes to their teaching repertoire with, on the whole, only their colleagues from within the school to help them. While they felt that the professional development provided to them was generally useful and practical, it was insufficient, ad hoc, lacked continuity and back up and was not provided by experts (as there were none). Too much of the professional development was left up to them to do the best they could, in their own time either at a school or regional network level. The people in the best position to provide professional development, VCAB, either did not have the will or the resources to do so.

However some professional development did occur and there were organisations in place which had a responsibility to provide professional development services to teachers. So, what are the elements which make up successful professional development programs and did they exist in the introduction of the VCE, to assist teachers with implementation?

In identifying the elements of successful professional development teachers should be viewed as learners. Conners writes:

"Teacher professional development programs must, if they are to have maximum impact, pay more attention to teachers as individuals and adult learners" (1991, p. 60).

Successful training approaches are effective when they combine concrete, teacher specific training activities, ongoing continuous assistance and support during the implementation process and regular meetings with peers and others. Fullan asserts that research on implementation has demonstrated:

"beyond a shadow of doubt" (1991, p.86),

that these processes of sustained interaction and staff development are crucial regardless of the nature of the intended change. The more complex the change, the more interaction is required during implementation.

Certainly there was initial professional development relevant to the VCE and significant time was devoted to preparing teachers for the implementation. But, it
was not ongoing and teachers had very little time for reflection, nor were there 'experts' available to provide feedback or further coaching. Professional development was devoted to introducing the latest modification to the VCE rather than to assisting teachers in incorporating the changes into their teaching. The introduction of the VCE was a very large and complex change, therefore, the professional development provided should have been extensive, ongoing and supportive. In reality only some of the requirements for effective professional development were met and there were a number of undesirable aspects to the professional development provided.

The approach to professional development adopted by VCAB could best be described as a mixture of some aspects of Johnson's (1989) three approaches to professional development (Outside Expert Interventionist, Inside Collaborative and Partnership Innovation). The reaction of teachers to the professional development days was generally positive. The fact that some outside experts were available to inform teachers of what needed to be done and then provide the opportunity for discussion and collaboration was a positive aspect to the professional development program.

However when difficulties with implementation were raised with the outside experts they showed little understanding of the nature of the problem as they were not classroom teachers and had no direct experience to relate to. Many of the solutions they suggested were impractical and their emphasis on policy rather than practicality made teachers powerless to change or modify weaknesses that they had experience of in the new system. Teacher's craft knowledge seemed only to be acknowledged when it confirmed the predetermined direction set by VCAB.

When teachers returned to schools they seemed to instinctively try to combine the Inside Collaborative and Partnership Innovation Focussed approaches to their own professional development. This arose out of a strongly perceived need for more training, the organisational structure which places staff in small groups to implement the curriculum and the natural tendency of most teachers to go to each other for help and support. The positive aspects of this collaborative approach were that the teachers did learn from others, they did reflect on their own practice and, when they were available, considered exemplary practices and developed strategies for use in their classroom or for further professional development.

Where professional development failed was that there was a lack of ongoing support once the initial enthusiasm for the change dissipated and was consumed by the day to day demands of the classroom. The Inside Collaborative approach
works best for fine tuning existing practices, the VCE required more than this on many occasions. The Partnership Innovation-Focussed approach would have been a better model to adopt if the initial program had been well designed and the ongoing support available. Neither of these prerequisites were filled. It would appear that the professional development program for the introduction of the VCE fell into a number of the traps. Fullan and Hargreaves highlighted the dilemma when they wrote:

"Many staff development strategies have been just as fragmented, non-involving and oblivious to the needs of teachers, as the other innovation strategies they were meant to supplement or supplant" (1991, p. 16),

and that staff development:

"...treats the teacher as a partial teacher, not a total teacher" (1991, p. 17).

While there was a recognition, by VCAB and the Ministry of Education, for professional development of teachers there was no co-ordinated plan and little recognition of the needs of teachers. The focus of staff development should be the 'total teacher', and it best takes place in the 'total school' (Fullan and Hargreaves, 1991b). This was not the case with the introduction of the VCE. The professional development provided concentrated on the technical aspects of the VCE. It failed to recognise that teachers are a highly varied group, even within the same subject area such as mathematics. There was only one style to all of the VCAB sponsored professional development and it was designed to impart to teachers information that VCAB considered important. It did not provide teachers with the variety of strategies they needed in the context of their classroom.

While there was an awareness of the need for professional development in the introduction of the VCE it was seen as an adjunct to the change, not as a primary vehicle in bringing the change about. Consequently there was little attempt to design an integrated systematic program that took into account that there are many types of teachers (Doyle and Ponder, 1977; Joyce, Bush and McKibben, 1982; Johnson, 1993) who learn differently but are capable of changing if the right conditions are met. It was expected by VCAB that after initial training teachers would return to their schools and develop collaborative ways of working and provide support for each other. However co-operative work practices in schools were not the norm and no resources were devoted to changing the conditions in schools (Joyce, et al, 1989) to encourage this to happen.

There was also little recognition that schools vary greatly in their responsiveness to change (Joyce, Bush and McKibben, 1982; Johnson, 1989). Pilot schools were
not necessarily representative of schools in general and therefore the lessons of their experiences were not always applicable to other schools.

The availability of consultants’ service individual schools was restricted due to lack of resources and dwindling numbers. Despite their importance in supporting implementation (Johnson, 1989; Murdoch and Johnson, 1994) their role was limited to supporting adoption and establishing networks of teachers during implementation. Eventually very few consultants existed and again teachers and schools were left on their own.

Teachers obtained professional development when ever and where ever they could, because of the need to survive in the classroom. Many may have fallen victim to the ‘classroom press’ (Huberman, 1983; Pullan, 1991; Crandell et al, 1982). They had no choice but to implement this mandated change and without adequate support did the best they could by drawing on their own experiential knowledge and that of their immediate colleagues. With the pressure of time the immediacy of the classroom tended to dominate and the ability of teachers to reflect and seek further knowledge was reduced. The lack of suitable available professional development only made teachers focus more on the day to day and therefore, with time, become increasingly isolated.

iii WORKLOAD

The issue of student and teacher workload loomed large, in the early stages of the implementation of the VCE, and had two aspects. There was the increase in workload that is inherent in introducing any major curriculum change where courses must be written, materials and resources trialed and professional development undertaken. In addition, there was an increase in workload caused by the changes to teaching and learning strategies, course content and structure and assessment and reporting procedures. The introduction of the VCE also took place in a climate of increasing demands placed on teachers by the systematic, top down reforms of intensification and restructuring (Fullan, 1991). Subsequently there were concerns about increasing levels of stress in the teaching force caused by teachers trying to do more things while holding on to the old ways, and trying to do them all at once. Teachers would not let go of the old systems to make way for new learnings.

It was felt in, some circles, that in their attempts to ensure that the changes were implemented correctly and that ‘standards’ were upheld some teachers were
overloading their students with work. While within the technical interpretation of
the regulations this increase in student workload was outside the spirit of the VCE.
Secondly, the amount of work required by teachers in preparation and correction
had been underestimated resulting in the goals of the new VCE being neglected in
the face of teachers trying to develop strategies to cope.

Concern over teacher stress levels was high, prior to the introduction of the VCE,
and the Ministry of Education commissioned a study which published a report in
1989 under the title of "Teacher Stress in Victoria". The report concluded:

"Our society has set its educators a very difficult task. It has mixed the tasks of
economic growth, employment, education, and welfare together. It is not sure how to
create enough jobs, it is not sure how to best reduce the number receiving welfare
benefits, and it believes that national development depends, somehow, on skills and
knowledge, so it asks education to solve the problem" (1989, p.47).

While this report did not suggest that the stress on teachers was overwhelming it
did recognise that stress in teachers was a problem which required action to be
taken to reduce stress levels. Increasing the workload on teachers was not one of
the suggested courses of action. A number of recommendations were made:

1. Make clear to both schools and the communities of which they are part of what
their responsibilities are and what they are not, with what tasks they are
charged, and what tasks fall to other organisations.

2. Give schools resources sufficient to do the job that they really have to
do, so that they can discharge properly all their responsibilities.

3. Let schools and teachers be responsible for, and informed about, their
management and teaching, and let them be publicly accountable for their
stewardship.

4. Return prestige to schools and teaching by providing the rewards and
recognition for teachers that will continue to attract and retain high quality

It was into this less than ideal climate that the VCE was introduced.

The teachers in the case study expressed concern over both increases to their own
and student workloads. These concerns also appeared in the public debate with
parents and students expressing their fears that the demands on students were too
great. VCAB and the Ministry of Education responded quickly by modifying
CATs and Work Requirements and providing teachers with time release to carry
out assessment and planning tasks. These changes largely alleviated the problems
and the debate died down. The workload problem was not complex and was easy
to solve. However, the planners of the VCE should have foreseen some of the
difficulties and made appropriate concessions from the start. The experiences of
the pilot schools and initial feedback from Phase 1 subject teachers should also
have alerted the administrators to the problems before the media debate gathered
momentum. Much of the criticism of the VCE, which revolved around the workload issue, could have been avoided with better forward planning and a more responsive bureaucracy.

The issue of workload does however provide a good example of the interaction between those charged with the implementation of educational change and the general community. These interactions are complex, but links can be identified. Some developments may have occurred as a result of general consciousness raising which lead to action by one or more groups. It does seem that the combination of a number of factors worked together to cause a change which aided in the implementation of the new VCE. These factors were:

1. Industrial campaigns by teacher unions
2. Negotiations between teacher unions and the Ministry of Education
3. Public debate in the newspapers
4. The normal review processes of VCAB
5. Action at the school level

Unlike most of the other implementation difficulties in the introduction of the VCE all parties eventually agreed that the workload issue needed to be solved and agreement was reached on the solutions. That was little political mileage to be made once the solutions were put into place, and that while the issue was significant in its impact on teachers and their ability to successfully implement the VCE, the debate and subsequent solutions to the problem did not undermine the integrity of the VCE. While teachers and students initially felt under pressure from the workload, and for a time this made implementation more difficult, the changes that occurred were more a matter of ‘fine tuning’ rather than major structural or philosophical changes. The main negative impact of the workload issue was that it became one of a number of factors that contributed to lowering teacher and student morale and added to an overall perception that the VCE had major flaws and that it was not working.
D. CHEATING AND THE VERIFICATION PROCESS

While cheating in the VCE was the headline which began the debate the issue essentially revolved around an argument about the validity of teacher assessment of student work versus the supposed objectivity of externally set examinations. The universities also had a strong stake in the debate because the grades students received in the VCE were used to gain entry into university courses.

The question of assessment and the awarding of grades went to the heart of the purpose of the VCE and the nature of students attempting to gain the certificate. In the past the HSC had been used as an entry requirement for university. But the VCE was designed to fulfil a wider purpose which was to provide students with a broad and comprehensive education, as well as a pathway into university.

It seems likely that some students were caught cheating because there were stricter procedures in place and because teachers worked more closely with students in drafting their work and monitoring their progress. As Slattery wrote:

"Previously, only the most blatant of cheating was identified whereas now, the teachers believed, most cheating of an important nature was identified and dealt with" (in Northfield and Winter, 1993, p.152).

Therefore the issue of cheating, while crucial to the acceptance of the VCE as a valid qualification, was of secondary importance to the main debate over verification and the 'standards' achieved by students. Because more cheats were caught there was an impression that there were more students cheating. The likelihood is that there were, in fact, less students cheating because there were rigorous procedures in place to catch 'cheats'.

On the verification process, teachers were generally supportive, despite the increased workload, and felt that the processes gave rise to results that truly reflected the worth of the students' work. The main strength of the verification process arose from the collaboration of teachers to arrive at agreement over interpretation of the assessment criteria and the grading of the CATs. Both teachers in the case study and the results of the investigations published in the 'Northfield Reports' confirm the importance teachers placed on verification as having an important role in the VCE. Loughran, writing in the third (1991) 'Northfield Report' quotes a teacher:

"Verification is not too bad. The internal process is good and this year our grades were spot on. Teachers see it as a lot more work but it's worthwhile because it is an intrinsic part of the VCE" (in Northfield and Winter, 1993, p. 120).
The other advantage of assessing the CATs according to specific criteria is that the students have a clear idea of what they are expected to produce and how it is going to be marked. Why then did the issue reach such prominence in the public arena?

The answer to this question lies in the identity of the protagonists in the debate, the most influential of whom was the Vice Chancellor of the University of Melbourne, Professor David Penington. He strongly pursued the argument that external examinations were the only remedy to the dangers of internal, teacher based assessment where there was a high risk of cheating and plagiarism. He also argued that the level of Mathematical knowledge displayed by students at university who had completed the VCE was lower than those of students who had done the HSC. Penington was supported by the Opposition political parties who added this issue to their list of criticisms of the Government. While the issue of cheating was the catalyst the debate surrounding this issue quickly developed into an argument over assessment procedures and their validity, reliability, comparability and usefulness.

The new assessment procedures were a cornerstone of the VCE and departed significantly from many past practices. For example, students were not required to present CATs for grading and could be awarded the VCE provided they satisfactorily completed the Work Requirements. Tertiary institutions which had previously used predominantly examination results as means for selecting students were confronted with results based, at least partly, on CATs which were not examinations, but were a combination of examinations and teacher assessments derived through the verification process. In addition, assessment is an ongoing issue in education so the introduction of new types of assessment procedures in the VCE provided an opportunity to revisit the old arguments on the validity of various forms of assessment.

What is clear from the analysis of the data is that some changes of policy on assessment did occur, at least in part, as a result of the public debate. Despite support for the verification process by teachers, independent commentators and a range of university academics, the election of a conservative government led to sweeping changes where the emphasis was taken away from the internally assessed CATs and placed more on examinations. This is a clear example of the politicisation of the VCE and how decisions for change were partly based on educational grounds and strongly influenced by powerful individual critics in tandem with a change in the political landscape of the state.

The effect on implementation was to slow it down, by requiring teachers to continually learn new procedures and change their practices and to raise questions
of trust and faith in the professionalism of teachers. This issue of faith in teachers’ ability is taken up by Northfield in the final (1992) report:

"... almost all students believed that cheating was possible, but not in their schools with their teachers. We were left in little doubt that the great majority of teachers accepted authentication as their professional responsibility” (sic) (in Northfield and Winter, 1993, p. 176).

Along with evidence from the case study school this statement suggests that the difficulties with cheating and the verification process did not lie at the school level, where teachers were very conscientious at implementing the correct procedures. The lack of faith shown in teachers, as evidenced by the public debate and changes in the verification and assessment procedures; would undermine the implementation process.

E. THE PARADOX THAT IS THE VCE

The answers to the questions posed in the purpose of this study may best be illuminated by discussing a series of paradoxes that seem to characterise the implementation of the VCE.

Hargreaves defined paradoxes and their impact on today’s society:

“Paradoxes - seemingly absurd or self contradictory statements or states of affair - are becoming more and more evident throughout education now, as well as beyond it. They are symptomatic of a world in rapid transformation - pulling us in many directions at the same time” (1995, p. 1).

Fullan believes that there is a pattern to change which concerns the ability to work with polar opposites:

“... simultaneously pushing for change while allowing for self-learning to unfold; being prepared for a journey of uncertainty; seeing problems as sources of creative resolution; having a vision, but not being blinded by it; valuing the individual and the group; incorporating centralising and decentralising forces; being internally cohesive, but externally oriented; and valuing personal change agency as the route to systematic change” (1993a, p. 40).

In working with polar opposites tension is created. The discussion of the paradoxes of the VCE will be in terms of the tensions that existed in the implementation stages. Fullan’s (1993a, 1993c) eight lessons of the new paradigm of dynamic change will be used as a framework.
TENSION 1: ONE CANNOT MANDATE WHAT MATTERS

An original aim of the VCE was to provide a certificate for all students, the notion of 'access and success'. The VCE was to be flexible enough to be accessible to all students and to allow all students to successfully complete the certificate. This aim was generally accepted by teachers. However once the implementation began other stakeholders, the universities, business and some educationalists, disputed this aim. What began to matter about the VCE became the property of the community despite the views of its 'architects'. This is best illustrated with the reaction to the new mathematics courses.

Mathematics, along with English, had historically been used as a sifting device to determine the eligibility of students for tertiary places. The VCE changed mathematics into a study that all students could succeed in. It was not specifically designed with the requirements of tertiary institutions in mind. Consequently there was a debate on standards and forms of assessment and the mathematics courses were rewritten to suit the demands of the tertiary sector.

This change compromised the integrity of the certificate as it was in opposition to the aims and purposes of the VCE. However the universities still viewed the VCE as being the 'entrance ticket' and preferred to use their power to force changes to the VCE rather than examine their own practices and beliefs.

TENSION 2: CHANGE IS A JOURNEY, NOT A BLUEPRINT

The implementation of the VCE occurred according to a strict timeline with pilot schools followed by Phase 1 studies and Phase 2 studies - a clear blueprint. However this timeline, for example, did not allow for the experiences of the pilot schools to be communicated to the teachers of the Phase 1 studies. Teachers were required to embark on a long and difficult journey but the timeline did not allow for the knowledge of those that went before to be passed on. The experiences of the pilot schools were communicated to VCAB which used them to make changes and then imposed these changes on the Phase 1 teachers.

Another aspect, not considered, was that in most cases teachers in the pilot schools were 'trail blazers', keen to embrace change and with resources to support them. For the Phase 1 teachers, who followed, changes were imposed to fit into the timeline and they were asked to retrace their steps and take a different uncharted path to a different destination. They were not allowed to complete the journey they
had set out on, nor to see where it might end. In addition they did not have the experiences, or resources, of others to build upon.

The designers of the VCE created a blueprint upon which to build the VCE. The problem for teachers was that they needed a map. As Northfield wrote, in 1992:

"... the problems of major change were barely understood let alone resolved but the timetable for the VCE meant that schools would be left to make the total program work with little support but a genuine commitment to do the best for the students"

(in Northfield and Winter, 1993, p. 13).

**TENSION 3: PROBLEMS ARE OUR FRIENDS**

Because of the size of the change it was inevitable that there would be problems with the implementation of the VCE. Teachers began to develop solutions to the problems, but some stakeholders reacted as if the problems were unexpected, and thus the VCE was flawed. Others saw problems as being a normal part of the change process and the solutions as a means for improvement.

A positive example was the workload issue. All parties agreed there was a problem and worked together to change the system to reduce the workload of teachers and students to reasonable levels. The result was improved work practices, reduced expectations and additional support.

Other problems did not produce a similar result as they became used as a means of one group achieving its goals at the expense of another group. This occurred in the case of the assessment of CATs where a tension existed between teachers and special interest groups outside schools. The resolution occurred as a result of an exercise of power rather than consensus. It is questionable as to whether the resulting changes were an improvement with respect to the aims of the VCE.

**TENSION 4: TO START WITH VISION MAY BE A MISTAKE**

That the architects of the VCE had a vision seems clear. This vision was not shared by teachers at the adoption stage, but developed during implementation as a result of their actions. Fullan (1993c) wrote that ownership of an idea is often strongest in the middle of a process when action is at its highest point of intensity. This seemed to be the case with the VCE. Teachers were initially cautious about the changes but became convinced of the value of the VCE once they began to work with their students. The high points occurred during the first years of implementation when, paradoxically, the workload was highest.
However when the pressures from outside the schools began to take effect and
teachers saw the vision they had arrived at being substantially changed, without
their collaboration, their intensity was reduced as the vision was no longer shared.
Correspondingly, their commitment to implementation of an evolving vision was
also reduced. As Hargreaves contends:

"Rational, linear, long term, strategic planning should be replaced by evolutionary
planning. Do a little bit, review and revisit ideas, then do a little bit more" (1995).

Fullan (1993b) puts it another way saying that those charged with the introduction
of any change should start small, but think big. The problem with the VCE was
that it was started on a large scale as a result of big thinking.

**TENSION 5: THE INDIVIDUAL AND THE COLLECTIVE
GROUP MUST HAVE EQUAL POWER AND RECOGNITION**

While it was the individual teacher who was charged with implementation, the
individuals who wielded influence were not teachers, as has been demonstrated in
the analysis of the newspaper articles. The way for teachers to be heard would
have been through the development of a culture of collegiality and collaboration as
a counter to their isolation. However there was no mechanism in place to assist
teachers and although teachers in individual schools attempted to operate in
groups, those groups tended to break down in time. The debates over the VCE
tended to be between various individuals and while the danger of ‘groupthink’
may have been avoided, teachers did not have a collective voice on most
implementation issues. The equilibrium, which Fullan (1993c) believes is needed
was not present.

The exception was the issue of workload, where the teacher unions were able play
the advocate’s role, and where a solution was found because there was no
dominant culture.

**TENSION 6: NEITHER CENTRALISATION NOR
DE-CENTRALISATION WORKS**

The initial approach to the implementation of the VCE was a centralised one.
Teachers were forced to adopt the mandated change, but embraced the
implementation with energy and commitment. Almost by accident an effective
combination of centralisation and de-centralisation evolved. However, the cohort
of teachers implementing the VCE were in general experienced and sceptical about changes. As Fullan wrote:

"Teachers and others know enough now ... not to take change seriously unless central administrators demonstrate through actions (sic) that they should" (1991, p. 74).

After the initial professional development teachers were largely left on their own. In the case of mathematics top down changes continued to occur, with little organisational support, so teachers did not put their full weight behind the changes, not knowing what was to come next.

**TENSION 7: CONNECTION WITH THE WIDER ENVIRONMENT**

"Partnerships and a range of inputs and ideas from outside our immediate framework help us to solve problems" (Fullan, 1993c, p. 3).

In the case of the VCE there was a continuous input from outside schools. While some of it was positive and contributed to the solving of problems it is questionable that real partnerships existed. Much of the input from the community was perceived as undermining of the work of teachers. The media debate gave an impression that teachers and the community were seen to be pulling in different directions, while teachers in schools tended to get strong support from their parents and teachers. The partnerships existed at the local level, but should have been built more broadly with the universities and businesses prior to implementation.

**TENSION 8: EVERY PERSON NEEDS TO BE A CHANGE AGENT**

"One should never assume that the system knows what it is doing. By contrast, if we assume that no-one necessarily knows what is needed in any given set of circumstances, then we must assume that we need to find out and know for ourselves, working collaboratively with others" (Fullan, 1993c, p. 3).

This eighth tension goes to the heart of whether the VCE was successfully implemented, because it focuses on the role of the implementers, the teachers. The evidence presented in this study suggests that the system lurched from controversy to controversy, while teachers persevered in the classroom to make the VCE work. Hargreaves (1995) believes that teaching is a profoundly moral and emotional act and it was this moral imperative to teaching which largely contributed to the successful implementation of the VCE.

Teachers, generally, have an ethic of care for their students and try to avoid chaos. Despite the difficulties with the introduction of the VCE teachers tried to insulate their students from the confusion and provide a stable learning environment.
order to do this teachers adopted the vision, inquired into the knowledge they needed and mastered the skills that were required. They then attempted to implement the VCE literally. As a result they began to master the skills of change agentry and combine them with the already existing moral purpose (Fullan, 1993a).

Where teachers fell short was in the development of collaboration with their colleagues. In the case study school this was partly due to a lack of leadership from the principal who failed to:

"...shape the organisational conditions necessary for success, such as the development of shared goals, collaborative work structures and climates, and procedures for monitoring results" (Fullan, 1991, p. 76).

The impetus came from the teachers who attempted to develop a collaborative approach in the early stages of implementation. However, as the ‘classroom press’ took hold their commitment to collaboration was lessened. Because there were few structures in place within the school, and there was little support from outside, the level of collaboration declined as implementation proceeded.

Nevertheless, change did occur because individual teachers did work together and generally were pulling in the same direction. The implementation of the VCE, both at the case study school and across the system, lent truth to Fullan’s statement that:

“It is the cumulative actions of individuals, connected together, which make change” (1993c, p. 4).

*****

The discussion and conclusions have identified the major findings of this study and linked them with the body of knowledge associated with the literature into change. The paradoxical nature of the introduction of the VCE is also highlighted, where many aspects of the implementation process are shown to be in conflict with the idea about what is ideal in an effective process of change.

Chapter 8 summarises the main finding of this study and discusses its strengths and limitations. It also makes a number of recommendations regarding future attempts to introduce change.
CHAPTER 8.

SUMMARY AND RECOMMENDATIONS

This study intended to investigate three issues related to the introduction of the VCE. The response of teachers to implementing an externally mandated change, the effect on implementation of the public debate over the VCE and the factors which helped or hindered the implementation process. An additional question may now be asked. Was the implementation of the VCE successful?

The conclusions will be presented in three sections beginning with a summary of the six main findings of the study. The second section outlines the limitations and strengths of the study where the strengths of the qualitative, longitudinal approach of this study are summarised along with an evaluation of its weaknesses. The final section lists recommendations for further areas of research.

A. SUMMARY OF FINDINGS

The main findings of this study are:

1. The introduction of the VCE was an externally mandated change which teachers adopted because it fulfilled a recognised need of students. The VCE was successfully implemented due, in large part, to the ability of teachers to combine the moral purpose of teaching with the skills of change agency. This was built on the adaptability and good will of teachers, their commitment to their students and their willingness to expend time and energy in excess to the normal requirements of their job.

2. While teachers were expected to implement the change they were not provided with adequate professional development, funding, resources, support and consultation. Despite this, implementation was generally successful. A question lies over whether continuation was completely successful.

3. The public debate and criticism of the VCE by significant individuals in the community was a major influence in some of the changes which were made to the VCE after its introduction. The political situation in Victoria
during the period of this study provided an environment of sensitivity to criticism by the Government and thus an openness to the need for finding quick solutions. Some changes slowed implementation, by causing changes in direction, additional work or by undermining the confidence of teachers. Changes achieved through consultation with teachers assisted the implementation process.

4. The introduction of the VCE required teachers and students to take on an increased workload, which tended to slow implementation and make it less effective.

5. The many changes made to the VCE did threaten its integrity. However, two critical elements remained which helped to keep its integrity intact. The VCE remained a single certificate and the breadth and depth of subject choice was retained so that the VCE was able to cater for the needs of all students. It could be argued therefore that the VCE was successfully implemented.

6. The Work Requirement approach of the VCE was accepted as a valuable process, successfully implemented and incorporated into lower levels in schools.

B. LIMITATIONS AND STRENGTHS OF THE STUDY

STRENGTHS

This study was undertaken over a four year period from 1989 to 1992 with two components of original research: the document analysis and the case study. As is appropriate, for this qualitative approach to research, triangulation occurred with the inclusion of reference to other studies, such as the ‘Northfield Reports’ and the report on “VCE Teacher Workload”, and data were collected using a range of techniques. The discussion was undertaken within a context of the published literature in the field of change. Conclusions drawn from the study are underpinned by original research findings which are consistent with the established literature.
Another strength of this study is its longitudinal nature. The introduction of the VCE was a major curriculum change that was progressively introduced through a number of phases. The success or failure of its implementation can best be evaluated over a long term as the introduction of the VCE was an evolutionary process. Thus the longitudinal study gives a more complete picture of implementation of the VCE.

LIMITATIONS AND AREAS FOR FURTHER INVESTIGATION

While the case study dealt with a small group of Mathematics teachers in one school the focus of the study was to hear the 'teachers voice' regarding the impact of the introduction of the VCE. It was not in the realm of this study to investigate the events in the classroom and whether continuation occurred. This leads to a question for further investigation. In the implementation of the changes involved in the VCE what was the impact on teaching strategies and how did the learning of students change?

A second area for further investigation would be in the role of the media in influencing educational directions. For practical purposes this study mainly considered one part of the media, "The Age" newspaper. However a more extensive study could investigate the impact of all forms of the media on the directions of change in education and the use of the media by people with a stake in the education area.

A further limitation in this study is that it has dealt with the early implementation of the VCE and the changes that took place in its first years, but has not addressed the consolidation phase that occurred after 1992. How many of the original aims of the VCE survived into 1995, and beyond, and how have student outcomes changed as a result of their experiences with the VCE?
C. RECOMMENDATIONS

In the introduction of a change as sweeping as that involved in the VCE a number of recommendations can be made from the findings of this study:

1. A clear plan for professional development of teachers implementing a change must be developed. The plan must include an ongoing program that is school based and responsive to the local needs of teachers and schools. It should be supportive of teachers and provide adequate time, resources and recognition for those teachers participating in the program. The plan should be designed in consultation with teachers and must be able to be adapted to fit to changing or unforeseen circumstances. It should include access to a range of experts. These could vary from external consultants who can provide a theoretical background, to experienced practitioners, who may be able to provide solutions to practical everyday problems. The plan should take into account the individual needs of teachers and not merely take a ‘broad brush’ approach to professional development. The plan should be designed to encourage collaborative work cultures.

2. Time must be allowed for the change to ‘settle in’. While minor adjustments should be made, as change is a dynamic process, major changes should not occur until initial ‘teething problems’ are solved and a systematic review of the change occurs. Any review, leading to modifications, should include extensive consultations with teachers and draw on their experiences in the implementation processes.

3. Where pilot programs are used, and these can be of great value, the experiences of teachers working in these programs must be drawn on extensively to support the teachers who follow them and to provide feedback to the designers of the change. Schools which operate pilot programs must be provided with sufficient support and resources, not only to implement the change, but also to be available to other schools and teachers to provide them with support.

4. Where a major curriculum change is being introduced an effort must be made to reduce the pressures on teachers from other possible changes, which can divert energy and focus from the curriculum change.
5. Because of the political nature of education there should be a process developed to inform and educate the community as to the purpose and nature of the change. While public debate of educational issues is a healthy part of a democracy, the body responsible for controlling the change should be publicly supportive of teachers. Any modifications made should not be seen to occur due to public pressure but because of sound educational principles and after consultation with teachers.

6. Adequate funding and organisational support must be provided at all levels of the change process.

Fullan sums up what is important to remember when dealing with change:

"... educational change, because it is ubiquitous, is mandatory; it is growth that is optional. It is within our power to make the sorts of changes which will represent true growth for education, educators and learners. If we do not act, we will be ever-increasing victims of change" (1993c, p. 4).

The introduction of the VCE was a major educational change that produced victims as well as growth. The key to any successes in implementation was the effort that teachers produced on behalf of their students. They did this in spite of a lack of adequate professional development support and in the face of an undermining political debate. Energy and resources were ill spent in imposing a 'top-down' model of curriculum change and would have been better utilised in providing more consultation and support. Some of the problems which arose during the implementation phase could have been avoided if teachers had been given the time and resources to work through the 'teething problems'. Instead they were continually asked to make change after change. This served to reduce their effectiveness and thus slow the implementation process. Future educators must learn the lessons of the VCE and avoid repeating its mistakes.
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## B. CONTENT ANALYSIS DOCUMENTS

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<td>Implementing the full VCE</td>
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<td>308.</td>
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<td>30/5/91</td>
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<td>VCE Course development Day - Mathematics</td>
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<td>309.</td>
<td>VCAB</td>
<td>11/91</td>
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<td>Preparation for Verification</td>
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<td>310.</td>
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<td>25/11/91</td>
<td>letter to schools</td>
<td>VCE Mathematics - External Review Panel</td>
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<td>20/6/91</td>
<td>letter to principals</td>
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<td>25/7/91</td>
<td>letter to principals</td>
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<td>327.</td>
<td>Niddrie H.S.</td>
<td>1991</td>
<td>advice to students</td>
<td>Unit descriptions for VCE studies</td>
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</table>
APPENDIX I

VCE MATHEMATICS INTERVIEW NO 1, 1990

NAME: 

1. What subjects are you trained in?

2. What mathematics subjects have you previously taught?

   Year 12 - Maths A
   - Maths B
   - General Maths
   - Business Maths

   Year 11 - Maths 1
   - Maths 11
   - Business Maths

3. What is your teaching experience?

   Number of years teaching -

   Number of schools taught in -

4. What VCE subjects are you teaching in 1990?

   Year 12 - Maths A
   - Maths B
   - Business Maths

   Year 11 - C&A
   - S&N
   - S&N (G)

5. What were your initial thoughts regarding the VCE in 1989 knowing that it was being introduced in 1990?
6. Now that the VCE has been underway in this school for one semester what do you see as the positive and negative aspects of the new courses?

a) Organisation

b) Teaching styles

c) Learning strategies

7. What improvements could you suggest for next semester?

a) Organisation

b) Teaching styles

c) Learning strategies

8. a) How would you describe the level of professional development available?

b) What additional support is needed?
9. VCE continues into Year 12 in 1991. What are your feelings?

   a) For the school

   b) On your involvement

10. What effect have these major changes had on you personally?

11. What suggestions do you have for the implementation of Phase 2 VCE?
APPENDIX II

1990 VCE MATHEMATICS : STUDENT SURVEY

NAME : (Optional)

DATE :

UNITS STUDIED :

The Maths teachers want to improve the Maths courses for next years VCE students and we would like you to help us by answering the following questions. Thank you.

1. Maths was divided into three sections this year; skills work, problem solving and projects. What aspects of these areas did you think were good?
   a) Skills
   b) Problem solving
   c) Projects

2. How could the course be changed or improved?
   a) Skills
   b) Problem solving
   c) Project

3. Is there anything that could be done that was not done?
4. Overall, how would you rate the course?

NOT SATISFACTORY    SATISFACTORY    VERY SATISFACTORY

5. Overall, how would you rate your interest in Maths?

LOW    MEDIUM    HIGH

6. Why did you choose to do Maths in 1990? (Circle one or more)

a) I like the subject

b) My parents advised me to do it

c) My teachers advised me to do it

d) I need Maths for a good job

e) Other reasons (list)

7. How do you feel about Maths now, compared to how you felt at the start of the year?

8. Included with this survey is a list of the topics you did this year. List the topics in the following groups.

a) I liked the topic

b) I'm indifferent to the topic
c) I didn't like the topic

9. For those topics in groups a) and c) give reasons for putting them in those groups.
c) I didn't like the topic

9. For those topics in groups a) and c) give reasons for putting them in those groups.
APPENDIX III

V.C.E. MATHEMATICS CASE STUDY:

NAME: DATE:

1. What subjects are you trained in?

2. What senior Maths subjects have you previously taught?

3. What is your teaching experience?
   
   Number of years teaching:
   
   Number of schools taught at:

4. What V.C.E. Subject are you teaching in 1991?

5. What were your initial thoughts regarding V.C.E. in 1990 knowing that it was being introduced in 1991?
   
   a) Effect on the school
   
   b) Your involvement

6. Now that the V.C.E. has been underway in this school for one year what do you see as the positive and negative aspects of the new course?
   
   a) Organisation
   
   b) Teaching styles
   
   c) Learning strategies
7. a) How would you describe the level of professional development support available?
   
b) What additional support is needed?

8. What effect have these changes had on your personal view of Maths teaching at the senior levels?

9. Do you have any other comments or suggestions to make about the introduction of the V.C.E.?
APPENDIX IV

V.C.E. MATHEMATICS CASE STUDY:

NAME: DATE:

1. What was your position in 1990?

2. What is your position this year?

3. What were your thoughts as a Co-ordinator on the impact of the introduction of the V.C.E.?
   a) Effect on the school
   b) Effect on the faculty

4. Now that the V.C.E. has been underway for one year were your thoughts correct and what has been different?
   a) Effect on the school
   b) Effect on the faculty

5. Has the level of P.D. support been adequate?

6. What additional support is needed?
7. What are your feelings regarding the continued phasing in of the V.C.E. in 1991?

a) At Year 11

b) At Year 12

8. What effect have these changes had on your personal view of Maths teaching at the senior levels?

9. Do you have any other comments or suggestions to make about the introduction of the V.C.E.? 
CIRCLE THE ANSWER TO THE QUESTIONS BELOW:

1. Which units did you teach this year?
   S&N    R&D    EXT(C&A)

2. My overall impression of the Maths CATs 1 and 2 is that they have run:
   CAT 1: Excellently  Very Well  Well  OK  Not Well  Very Poorly
   CAT 2: Excellently  Very Well  Well  OK  Not Well  Very Poorly

3. What I learned about mathematics from the CATs was:
   CAT 1: A large amount  A lot  Average  Not much  Nothing
   CAT 2: A large amount  A lot  Average  Not much  Nothing

4. The resources available at NHS for the CATs are:
   CAT 1: Excellent  Good  Average  Not good  Useless
   CAT 2: Excellent  Good  Average  Not good  Useless

5. Should VCAB release the general topic areas for the CATs to teachers prior to
   the release of the CATs themselves to allow teachers to prepare?
   CAT 1: Absolutely  Yes  Indifferent  No  Definitely not
   CAT 2: Absolutely  Yes  Indifferent  No  Definitely not
6. The CATs have been very focussed and clear in what is expected of students:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

7. The CATs have been very useful in assessing students mathematical achievements:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

8. I would scrap the CATs and go back to written exams:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

9. The CATs have meant a lot of extra work for Maths teachers:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

10. The CATs have meant a lot of extra work for Maths students:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

11. The CATs have been very rewarding for Maths teachers:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>
12. The CATs have been very rewarding for Maths students:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

13. VCAB support for Maths teachers and students has been:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Excellent</th>
<th>Good</th>
<th>OK</th>
<th>Poor</th>
<th>Non existent</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Excellent</td>
<td>Good</td>
<td>OK</td>
<td>Poor</td>
<td>Non existent</td>
</tr>
</tbody>
</table>

14. The verification process worked effectively:

<table>
<thead>
<tr>
<th>CAT 1</th>
<th>Absolutely</th>
<th>Yes</th>
<th>OK</th>
<th>No</th>
<th>Definitely not</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 2</td>
<td>Absolutely</td>
<td>Yes</td>
<td>OK</td>
<td>No</td>
<td>Definitely not</td>
</tr>
</tbody>
</table>

15. I think the best thing about the CATs is:

- CAT 1:
- CAT 2:
- CAT 3:
- CAT 4:

16. I think the worst thing about the CATs is:
17. I think the CATS could be improved by:

CAT 1:

CAT 2:

CAT 3:

CAT 4:
APPENDIX VI


1. List any workload problems that arose for you or your students in your Unit.

2. What caused these problems?

3. What do you need to be clear about to improve the situation, such as:
   a) links between work requirements and CATs
   b) What needs to be taught in respect of content/concepts/skills
   c) Different teaching and learning strategies
   d) Realistic time sequences
   e) The amount of work that can be done and monitored in class
   f) Choice of topics

4. What strategies would lessen the workload problem?
APPENDIX VII

V.C.E. MATHEMATICS - SURVEY TERM 4

Could you please take a few minutes to complete these questions. Your ideas would be much appreciated. Thanks, David Adamson.

1. Circle the subjects you teach this year (Year 12 only).

   - R&D
   - C&A(EXT)
   - S&N
   - S&N(EXT)

2. Is this the first time you have taught the subject?

   YES       NO

3. What other V.C.E. subjects have you taught or are you teaching?

   Year 11

   Year 12

4. Were you given sufficient information at the beginning of the year as to what and how you were required to teach? Comment.

5. Did you have a clear understanding of the distinction between CATs and Work Requirements and the expectations of students? Comment.
6. Was there adequate support and/or professional development:
   a) From within the school? Comment.

   b) From outside the school? Comment.

7. With regard to the CATs did you feel adequately prepared to assist the students? Comment.

   CAT 1.

   CAT 2.

   CAT 3.

   CAT 4.

8. Were you satisfied with your teaching during the CAT periods and which areas would you like to change?

9. Did you feel that the assessment and verification process for the CATs was adequate and that accurate results were obtained?
10. What is your opinion of the proposed changes to next year's courses?

a) Reducing CAT 1 to four weeks.

b) Dropping CAT 2.

c) Eliminating the current units in favour of two units at year 11 and three units at year 12.

11. Do you have any other comments to make about any other aspect of the V.C.E.?

12. Are you planning to continue teaching the V.C.E. next year?

Comment on your reasons.
APPENDIX VIII

RETROSPECTIVE INTERVIEW 1993

INTERVIEWEE: ______________________ DATE: __________.

PREAMBLE: The purpose of this interview is to look back over the introduction of VCE Maths and its operation until the end of 1992. This is the final part of my research. The interview will be taped for the purposes of referral when writing up my notes of the interview. None of the comments made will be attributed to any individual as pseudonyms will be used in the write up.

QUESTIONS:

1. Remember back to when the idea of the VCE was first introduced there were a number of discussions regarding the changes. Can you remember how you felt about the proposed changes? Comment.

2. Why do you think the VCE was introduced?

3. In 1988 the Maths faculty decide not to be a pilot school in 1989, despite pressure from the English faculty. Did you agree with our decision? Why or why not?

4. In 1989 we began to prepare to introduce Maths at year 11 in 1990 (phase 1). Were you willingly involved in the development of the Year 11 courses and consequently the teaching of the subject? Explain you feelings at the time.
5. What assistance or training did you receive before teaching the VCE Maths?
   a) From whom?
   b) What form did it take?
   c) What were the benefits?
   d) What were the inadequacies?
   e) What was its duration?

6. How did the school as an organisation support you in the introduction of the VCE Maths?
   a) Time allowance/release
   b) Budget
   c) Scheduling of meetings
   d) Provision of resources
   e) Personnel
   f) Other

7. Was this support ongoing?
8. Think about the first classes you taught in the new system. How would you describe your first attempts:

a) In the classroom

b) With work requirements.

Comment on the following areas:

a) your attitude

b) student response

c) teaching and learning styles

d) other

9. What adjustments did you make to your teaching as your experience increased?

a) How did your teaching change?

b) Why did it change?

10. Were there adequate on-going organised in-service activities to assist you in this process?

a) What was the source of the in-service and who ran it?

b) What form did it take?

c) What were its shortcomings?

d) How could it have been improved?
11. What other support was there for you in the implementation of the VCE?
Comment on these categories:

a) teams of teachers

b) leadership within the faculty or school

c) individual teachers

d) other

12. After the introduction of the VCE there were many changes made to Maths over a number of years. How did you react to the changes in the following areas:

a) CATs, reduction from 4 to 3

b) changes to work requirements

c) courses - changes to the mix of subjects we offered

- changes for 1993 to actual subject names

d) other

13. Why do you think these changes occurred?

a) response to public pressure

b) response to feedback from teachers

c) recognition of inadequacies in the original courses

d) other

14. What influence do you think teachers had on effecting these changes? Did you think teachers' concerns were listened to? Did you find this process satisfying or frustrating?
15. What general changes occurred in your teaching style as a result of teaching the VCE Maths?

a) General influence e.g. other subjects

b) Your teaching at years 7 to 10

c) Your teaching at years 11 to 12

16. Have you changed as a teacher as a result of teaching the VCE? do you think these changes will be long lasting especially in your new situation?

17. Do you believe the introduction of the VCE had an impact on the development of the general curriculum at Niddrie? If so how?

18. What do you think has been the impact on student learning?

a) 11 to 12

b) 7 to 10

19. At various times Maths was reviewed internally by either the maths Faculty or the Curriculum Committee e.g. workload review.

a) Were these reviews helpful?

b) What could have been done differently?

20. Do you think the curriculum changes that have occurred will be long lasting?
a) Work requirements 7 to 10

b) Assessment tasks 7 to 10

c) Teaching methods

d) Other

21. If VCE reverts to a more conservative approach e.g. standardising internal CATs, do you think this will effect teaching at years 7 to 10? Why, why not? Is this a problem?

22. How would you react to this statement? Teaching has not really changed as a result of the VCE, instead teachers have adapted the new courses to suit their established styles and only give the appearance of having changed.
APPENDIX IX

CALENDER OF IMPORTANT EVENTS

1985 Blackburn Report published

1988 Curriculum Frameworks published

1989 VCE Pilot Program begins for Phase 1 Studies (English, Australian Studies and Mathematics) with Units 1 & 2

1990 VCE Pilot schools introduce Phase 1 Studies Units 3 & 4
All remaining Victorian schools introduce Phase 1 Studies Units 1 & 2

Career Restructure begins for teachers with Advanced Skills Teacher 1 (AST 1) selection process and appointments

1991 VCE Units 1 & 2 introduced in all Studies in all schools
All schools introduce Phase 1 Studies Units 3 & 4

1992 VCE Units 3 & 4 introduced in all Studies in all schools

Career Restructure continues for teachers with AST 2 & AST 3 selection process.

Liberal government elected in Victoria

1993 VCE Review with changes made to structure of student programs

Essendon Keilor College formed

Career Restructure; teachers take up AST 2 & 3 appointments across Victoria
Author/s:  
Adamson, David

Title:  
The challenge of the new: a study of the impact on teachers of an externally mandated system wide curriculum change

Date:  
1995

Citation:  

Publication Status:  
Unpublished

Persistent Link:  
http://hdl.handle.net/11343/35646

File Description:  
The challenge of the new: a study of the impact on teachers of an externally mandated system wide curriculum change

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