Information Technology in the New Victorian Certificate of Education

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Victoria is not alone in Australia as it recognises the problems associated with a multiplicity of post-compulsory courses with different characteristics, purposes, prestige and quality, as it seeks to categorise the subjects to promote coherence and commonality.

The Blackburn Report
Concern over the small number of students staying at school beyond the compulsory age, led the Victorian Minister for Education to commission a report on post compulsory schooling. The report is now known as the Blackburn Report after its chief author (Blackburn, 1985). The report contained a number of anomalies, paradoxes and flaws, but its principal recommendations, which included integrated and better balanced senior courses, increased retention and a single certificate, were immediately accepted by the Minister of Education.

Numerous studies have shown that higher-level secondary students want courses that are work-related. Unfortunately, this is used as a reason for tinkering with school courses, and no one ever draws the conclusion that what students really want is work itself: unemployment, not schooling, is the problem.

A major gap in the Report was a failure to set up specific links with that which precedes and that which follows senior courses. The Ministry of Education has been developing ‘Curriculum Frameworks’ for the earlier years of school, but there has still been little work done on integrating this with the Victorian Certificate of Education. At the other end of the process, teachers are still asking tertiary institutions how selection will be achieved, while tertiary institutions are still waiting to find out what assessment will be carried out, and how it will be reported.

The Victorian Curriculum and Assessment Board set out to identify the appropriate major curriculum areas for Years eleven and twelve, hoping to define studies with evident similarities and purposes. It called these areas fields of study, and convened a number of steering groups, each with the task of investigating an area of the curriculum to see if it satisfied the criteria for a field of study. Some fields were obvious: Mathematics, English for example. Others were less obvious: should Science be one field or several? Information Technology was exceedingly contentious: is it a field in its own right, or is it a part of many other fields? Answers to this question were generated, not simply by academic considerations, but also by social, feminist, developmental and pragmatic ones. Eventually, after much see-sawing, Information Technology was declared one of the thirteen Fields of Study in the Victorian Certificate of Education.

For each field, a Field of Study Committee was established, and given the task of deciding what studies should be identified within the field, and writing a study structure for each of these studies. A study is a subset of a field which is distinguished by clearly distinct and coherent content or approach. Since studies are further divided into semester length units, this vague definition left Field of Study Committees in some doubt about how to subdivide their field into studies. The assumption was that each study would comprise four semester units (Units 1 to 4); sequential in that they would typically be associated with the four successive semesters of the two final years of secondary school, but non-sequential in that Units 1, 2 and 3 should have no prerequisites. The Information Technology Field of Study Committee felt that there are a number of valid subdivisions of the field at Year twelve (Units 3/4) level, but that, in the current state of introduction of the subject into schools, a single Unit 1/2 pair would be the most appropriate. Therefore, along with one or two other Field of Study Committees (notably History and Mathematics), the Information Technology Field of Study Committee made a case for a slightly different structure. Together with a slight relaxation by the Victorian Curriculum and Assessment Board of the rule that Unit 3 should have no pre-requisites, this has permitted a viable and flexible Information Technology study.

A full Victorian Certificate of Education course is 24 units over the two years, including 4 units of English, 2 units of Australian Studies, at least 2 or more units of studies in the Arts/Humanities fields and at least 4 units of studies in the Mathematics, Science, Technology fields.

In this way, Blackburn’s recommendation for breadth is finally implemented,
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albeit less specifically than recommended by either Blackburn or the Curriculum and Assessment Working Party.

All units include work requirements. These are activities and pieces of work that are assessed at school level, and classed as satisfactory (S) or not satisfactory (N). To complete a unit satisfactorily, a student must obtain S for each work requirement. To get the Victorian Certificate of Education a student must satisfactorily complete 16 units, including at least 3 units of English and at least 3 sequences of semesters 3 and 4 in subjects other than English.

Level 1/2 units are only assessed within the school. Level 3/4 units include Common Assessment Tasks, which are tasks done by everyone studying the unit. These are also assessed within the school, but are then moderated across schools. How this moderation is to be done has not yet been decided.

Each Unit 3/4 pair is to have 3-6 Common Assessed Tasks designed to assess different aspects of the course. One Common Assessed Task per Unit 3/4 pair is to be an examination or test. The tasks are to be of equal weight or value, and each is to be graded A - E. This grading is approximately criterion-referenced, as it is based on grade descriptors. For any Common Assessed Task, each grade (A-E) has an associated grade descriptor, couched in positive terms. The grade is awarded if a student’s performance matches the level of skill or attainment spelled out in the corresponding descriptor. If the performance does not merit even an E grade, the result is reported as U (Ungraded). If a Common Assessment Task is also a Work Requirement, the A-E grading is a finer subdivision of the S (Satisfactory) category. A student doing 6 unit 3/4 pairs will do about 24 Common Assessed Tasks.

The relation between Work Required and Common Assessment Tasks varies between studies. In Information Technology, each Common Assessed Task is a Work Require task, so as to avoid giving the students yet more work. In some other studies, the view has been taken that 'external assessment' should be quite separate from 'internal assessment' and Common Assessment Tasks are distinct from Work Requirement.

Presumably, the general pre-requisites for tertiary entry will be phrased in terms of grades awarded on the 24 Common Assessment Tasks; while specific pre-requisites will refer to satisfactory completion of specified units.

Structure of the Information Technology Field
The Information Technology Field of Study Committee decided that:
• computer technology, its applications and its implications are three valid aspects or emphases of Information Technology;
• these could be developed into three studies;
• but at this stage of development of Information Technology, there is insufficient variety of introductory material to form three Unit 1/2 pairs;
• in any case, a more integrated approach is appropriate at Unit 1/2 level; and
• even at Unit 3/4 level no emphasis should be pursued to the exclusion of others.

The results of these considerations led to a structure where students are: strongly recommended to have completed Unit 1 or Unit 2 or have equivalent background before entering any Unit 3 (Victorian Curriculum and Assessment Board, 1989).

In Units 1 and 2, the three emphases are given equal weight. Both Units 1 and 2 are introductory, but to achieve variety for the student who does both, Unit 1 concentrates on the single personal computer and the individual user, while Unit 2 looks at networks and larger systems and groups. In Information Processing and Management, computer applications are emphasised, but computer technology and its effects are also included. This area is what is unfortunately coming to be called Information Systems. It is unfortunate because it is a term that is potentially all-embracing, yet the term is going the same way as the term “data processing”, which came to refer to a subset of those activities which may properly be referred to as data processing. We have used Information Processing and Management rather than Information Systems, as the latter term is being used for the next Unit 3/4 pair that emphasises computer and
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communications technology (while also dealing with computer use and effects). This area is what is most commonly referred to as 'Computer Science'. We deliberately wished to avoid this name for reasons that are indicated below. The third unit 3/4 pair covers the effects of and society's influence on the development and use of information technology. Students also use and learn about computers (and have almost certainly done Unit 1 and/or 2). Any one student may do up to 8 Information Technology units (although this is not recommended).

Having decided on the studies in the field, it was the task of the Field of Study Committee to oversee the writing of a study design for each study. The study design contains:

- principles and aims;
- content (Areas of Study);
- rules;
- assessment procedures;
- work requirements;
- Common Assessment Tasks, including grade descriptors.

The Victorian Curriculum and Assessment Board's intention is that the study design should not be a detailed curriculum or course, but a study structure, from which a school may develop a course that is appropriate to the needs and resources of its own pupils, teachers and community. No-one had much experience at writing such things. Many of us proceeded by writing a more specific curriculum and then omitting some of the material! Teachers then complained that the study design was too vague and imprecise! It is not yet clear just how this generality can co-exist with some sort of parity of difficulty in Work Requirements (to achieve the 'parity of esteem' across subjects explicitly sought by the Victorian Curriculum and Assessment Board); nor is it easy to see how a school-set Work Assessment can also be a Common Assessment Task.

Also being written for each study is a Course Development Support Materials document (of perhaps 100 pages) giving

- relevant considerations in course design;
- approaches to course design;
- sample courses;
- sample Work Requirements;
- references to resources:
  to assist teachers in developing their teaching programmes.

Each unit is assumed to take 100 hours for the average student, 50-60 in class, and 40-50 outside.

Some Problem Areas
Obvious problem areas include professional development, confusion between like studies and the speed of implementation.

Professional development
Some teachers come to the Victorian Certificate of Education having a great deal of experience teaching Higher School Certificate Group 1 subjects, and their emphasis is on external examinations. These teachers find the prospect of so much internal assessment quite daunting and the compatibility of assessment a matter of concern. Other teachers come to the Victorian Certificate of Education from school-determined Approved Study Structures courses, and are aghast at the large amount of common tasks and external moderation. Both groups are going to find their workload greatly increased through having to do more of the course development work than heretofore. Teachers need support from the Ministry of Education and subject associations in order to handle the great changes that are occurring. It is a measure of the teachers' disorientation that they often over-estimate the amount of curriculum change implied by the Victorian Certificate of Education. Many have to be specifically told that much of their current courses and teaching material will continue to be valid and useful.

Professional development is particularly necessary in Information Technology because it is a new field. We start with a lack of qualified teachers in a growth area. Hence, the situation will deteriorate unless extra resources are injected and inducements offered to train teachers in this field. It is all too easy for the top Information Teachers to get better-paid jobs outside education.

Secretarial Studies and Computer Science
The Victorian Curriculum and Assessment Board decided that the Victorian Certificate of Education is not the place
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for vocational topics, such as carpentry or shorthand. Furthermore, somewhere along the line it was decided that, while the Business Studies field would include such ‘professional’ studies as economics, law and accounting, secretarial studies belongs in the Information Technology field.

There is indeed a Group 1 Higher School Certificate subject called ‘Secretarial Studies’ which is not unlike Information Processing and Management. However, there is a number of Group 2 Higher School Certificate subjects (with names such as ‘Office Practice’, ‘Advanced Typing’, ‘Secretarial Practice’) that have little overlap with Information Technology, and which contain large chunks of shorthand and typing which have no place in the Victorian Certificate of Education at all.

Thus, the Information Technology Field of Study Committee is continually facing irate teachers demanding to know why there is no unit in the Information Technology field that looks like ‘Office Practice’ or ‘Advanced Typing’. More seriously, current secretarial teachers, seeing Information Technology as their only available future, are worried that it has been written for mathematicians and computer science experts. Conversely, many current teachers of the Higher School Certificate Group 1 Computer Science see Information Technology as having been sold out to the commerce teachers. This view has been reinforced by the high level of activity of the Victorian Commercial Teachers’ Association in relation to the Information Technology study design, and the total inactivity (until a few months ago) of the Computer Education Group of Victoria.

It is for these pragmatic considerations that the name ‘Computer Science’ was avoided in the Information Technology study. It is hoped that teachers from various backgrounds will eventually come to the study with open minds, rather than assuming that each segment is tailor-made for one particular bias.

Speed of Implementation

From a report published in 1985, Victoria is to have the complete new Year eleven and twelve curriculum totally operative by 1992. Little wonder with this short time span that there are difficulties and confusion. Naturally, the Victorian Curriculum and Assessment Board laid down policies at its inception, but rules have been changed and new ones made ‘on the fly’. For instance, the Field of Study Committees were initially told to complete their study designs before planning the Common Assessment Tasks. However, it appeared there was a sudden realisation that assessment inevitably affects courses, and we were told to plan the Common Assessment Tasks and studies together. Despite an awareness of the need to check for overlaps, or gaps between studies designed by different Field of Study Committees, inadequate attention has been paid to these matters.

Conclusion

The implementation of such a complete change in such a short time is not a common phenomenon in education: it can justify being called a revolution. Inevitably there are problems as people’s empires are invaded, and they experience ‘future shock’ from the pace of the change. I have no major concerns about course content: in most disciplines, there is a great variety of appropriate things to teach at this level, and it does not matter if the Victorian Certificate of Education leads to a slightly different set of them.

What is important, is that the changes are guided by educational concerns, and that schools and teachers are not simply being called on to solve more general social problems. It is important that teachers see the changes as educationally valid, and not as political window-dressing. The major challenge is going to be to solve the problem presented by Blackburn: how to make a single structure provide a worthwhile course for all students.

References


Victorian Curriculum and Assessment Board (1989), VCE Information Technology Study Design, VCAB