PAST, PRESENT AND FUTURE:

A YEAR 12 PROFILE

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ABSTRACT

This study attempts to draw a Profile of Victorian students in what could be considered the most crucial year of their schooling: Year 12.

The study uses as a background framework a general ability score, school achievement score and an autobiographical questionnaire recorded when the students (N= 591) were Year 9s (in 1989) and compares it with their responses to the present questionnaire and the path they have chosen to follow in Year 12 based on their self-assessed abilities, subject strengths and weaknesses, and career aspirations for the future.

As a group who are the 'survivors' to Year 12 these students, as might expected, were found to have significant differences from the wider group of Year 9s tested in 1989. Their general ability scores based on results on the Raven's Standard Progressive Matrices (RSPM) and their school achievement results based on the Otis-Lennon School Ability Test (OLSAT), are significantly higher. Given this fact however, this Year 12 group still show such low achievement scores compared to the Australian norms that their academic success in the University course some 50% wish to complete, must be doubtful.

The plans for 1993 of this group reveal that the greater majority of students (64% of males and 80% of females) plan on some future study to attain their career goals which in the main are in Professional and Para-professional fields. An examination of their career choices today, reveals that 15% of students hold the same aspiration they did at Year 9. Together with some who have changed their career path, many have not made appropriate subject choices to support entry into desired tertiary courses. This when coupled with the average ability and low achievement scores of 3 in 4 students does not augur well.

Both the subject choices of students as well as their career choices still appear to be strongly sex-typed, with fewer girls represented in the maths and science areas. As is discussed, their selection away from these areas significantly limits the courses available to these girls. We find courses leading to occupations within the 'helping' professions dominating female higher education study choices, as well as desired employment choices as veterinary nurses and childcare workers.

Possible determinants of underachievement of all students, and particularly girls, may include poor self-esteem and an external locus of control, that is a reliance upon extrinsic motivation to achieve. This results in apparent anomalies where aspiring
Veterinary nurses have higher ability and achievement scores than aspiring Vets, and, Nurses (girls) similarly surpass Doctors (boys) on these measures.

An examination of what could be called 'special interest' groups: "no maths"; "two maths"; LOTE (Languages other than English), and, those who aspire to be Teachers, reflects the broader issues of gender and the low achievement scores which are a concern for the whole group.

In seeking explanations it would seem that the OLSAT score is a highly reliable litmus test for whether girls elect to complete: no maths, one math or two math at VCE; a science-oriented programme; enjoy school and choose a career outside the "helping" professions.

As educators, this study raises several points that warrant immediate attention. These are:

- the poor achievement level of these Victorian students, falling some twenty points behind their ability must be made known to both educators and students and plans made to correct this.

- the need for Career Counselling from the beginning of secondary school and an awareness of the importance of this area to all students.

- that teaching methods, curricula and harassment by boys in Victorian schools may be contributing factors which are costing the community the skills and talents of girls as they make subject and career choices based on 'gender expectations' which are less than their abilities would indicate they could/should make.

- that despite what we as educators would wish, in the three years between Year 9 and Year 12, 96% of Victorian students surveyed come to hold a "tepid" to negative attitude to school.
CHAPTER 1

INTRODUCTION

In 1992 in Victorian Government Schools some 30,500 Year 12s left an education system which had supported and nurtured them for twelve or thirteen years. Historically, and currently, much is written about the system, but what is written tells us only indirectly about that system's products: the students.

Who are these students?

What do we know of their abilities, their preferences, their attitudes and their achievements? In what ways are these Year 12 students different from the youngsters they were three years ago? How do they feel about the system in which they have been involved for so much of their life? On leaving, what are their future plans? If they have made decisions about a career choice what areas have they chosen? Is it a choice which they arrived at only in their final year at school? Are the choices which students make in both curriculum and career areas free of significant gender differences? Do student choices in terms of subjects and careers reflect significant differences in ability or achievement? Do students who choose special subject orientations - maths/science, humanities or Languages Other Than English (LOTE) - have common interests and abilities? Do the girls who choose to stay on to Year 12 significantly differ from their male classmates in terms of ability or achievement levels?

With greater student numbers choosing to stay on past the point of it being legally compulsory, a knowledge of these students may help educationalists, administrators and policy makers ensure that objectives such as excellence, maximal educational benefits or satisfaction with the State school system (objectives of plans such as Successful Schooling, Victorian State Schools 1992 - 1994), are met.

Given that the increased retention rate in Government Schools to Year 12 (the school sector from which the present study is drawn) has been particularly marked with Year 12 enrolments growing from 12,111 students in 1981 to 31,344 students in 1991, an increase of 259 per cent (National Report on Schooling in Australia, NRSA, 1991: 38), what these young adults can tell us of their educational experiences and their hopes and aspirations should be seen as worthy and important data for future planning.

These Year 12 students have made the decision to stay on at school and to complete the first full two years of the Victorian Certificate of Education (V.C.E.). Other classmates and friends have left school from Year 9 (approximately 15 years of age) through to, and including, Year 12. It is clear that the decision of this group to stay on to complete their V.C.E. has been based on their own implicit and explicit wishes as well as that of their parents, teachers and peers, but the entire reason for their decision
may well remain obscure. Two factors however which may be suggested as holding
some relevance for their decision and, the increased retention rate, are the state of the
Victorian economy through the '80s and '90s and the public perception of the
increasing value of further education: at least to Year 12, if not beyond.

Year 12 holds a unique position in a Victorian student's education: it is the
culmination of the student's (and the system's) effort of the last twelve or thirteen
years and it is the 'jumping off' point to the rest of their life.

This study draws a profile of the Year 12 student at this important moment in time,
bringing together their past influences, their present situation and their future
aspirations.

Students from 14 Government schools volunteered information in 1992 through the
use of a questionnaire containing items of direct comparison with one completed by
them in 1989 as Year 9s. Also as Year 9s these students had been assessed using
standardized tests of general ability and school achievement. These tests, the Raven's
Standard Progressive Matrices, 1958 (RSPM) (to determine general ability) and the
school achievement), provide a background framework from which to view the
students' self-assessment of their subject strengths and weaknesses, as well as their
overall subject choice and their occupational preferences.

The students' aspirations for 1993 and beyond are discussed with reference to their
peers, their ability and achievement scores and the subjects chosen which may impact
upon those choices. Career choices made as Year 9s are compared and contrasted
with those at Year 12, with special interest given to those students who did not change
their career choice over the three years.

Similarly over the three years the students' attitude to school is analyzed and reviewed
in the light of ability and achievement scores.

Special interest groups such as "No Maths", "Two Maths", LOTE and aspiring
teachers are subjected to special investigation.

In the next chapter a brief review of the literature concerning various aspects of this
study such as ability and achievement testing, subject choices, career aspirations and
gender issues will be presented. Chapter 3 contains details of the design of this study
and the methods of data collection and analysis. Chapter 4 presents the results
obtained and examines possible determinants of student choices as well as looking at
special interest groups. Chapter 5 presents the 'Profile' highlighting a number of
issues arising from the research and drawing some conclusions, and the final chapter
summarizes the more important findings of the entire study.
CHAPTER 2

REVIEW OF THE LITERATURE

2.1. ABILITY AND ACHIEVEMENT TESTING

Students who responded to the present study's 1992 Questionnaire had been previously assessed by McGuigan in 1989 using a similar autobiographical questionnaire as well as two standardized tests: The Raven's Standard Progressive Matrices (RSPM) to determine general ability and the Otis-Lennon School Achievement Test (OLSAT) to determine school ability and the ability to succeed at school studies.

The present study has not attracted the antagonism towards testing that the McGuigan study was subject to, in that the writer's intention in 1992 was to draw upon the test results obtained previously, rather than re-test. Hence the writer would refer the reader to McGuigan's (1992) lengthy defence of the two tests and the testing process, rather than repeating such justifications at length here.

It is important for the reader to be aware that presently students in Victorian Schools may leave school never having been assessed by an examination to ascertain their standing in their class or the wider school-year population. Under the VCE, in Year 12, the number of external assessments, such as examinations, is in the minority. Work Requirements and the majority of Common Assessment Tasks (CATs) are school based in their assessment and use criterion-referenced assessment rather than norm-referenced assessment. Although many Non-Government i.e. Independent and Catholic schools may, across the school-life of a student, use ability, achievement and classroom testing, a researcher drawing upon students in the Government school population has access to no such data.1 Thus to a researcher interested in the determinants of student choices in either subjects or careers, such as the present study, the factors of ability or achievement levels cannot be objectively verified - unless the researcher himself or herself sets out to objectively assess such factors with the use of standardized tests.

Subjective forms of assessment such as self, peer or class teacher are adequate or appropriate in certain contexts. In their study of occupational aspiration, for example, Carpenter and Western (1989) used a self-assessment scale of ability, premising their use of this scale on their belief that the social origin of individuals, the type of school they attended and their interest in studies would affect the student's view of their own ability directly. To this end, the student's self-assessment of their ability was a variable whose importance lay in its subjectivity.

---

1. Teacher unions and Ministry of Education bureaucracy effectively vetoed such assessment.
This is not true in the case of the present study where it was imperative that there be an objective measurement for ability and achievement as determinants which may account for differences in subject and career choices of almost 600 Government school students.

Whilst general ability tests were previously considered useful in school contexts in the areas of subject choice and vocational guidance in that they allowed the careful consideration of areas in which the student was likely to succeed, their use presently is restricted to confirming the appropriate diagnosis of individual students who are recommended for remediation.

For the purposes of the present study a non-verbal test such as the RSPM provides information which is complementary to that given by the more verbally oriented OLSAT, allowing some comparison between achievement and general ability. Both tests are well-recognized and widely accepted.\(^1\) Similarly both tests are able to be group administered and have been normed for Australian populations and adapted for use in Australian schools by the Australian Council of Educational Research (ACER).

Australian norms for the RSPM cover the range of 10 to 18+ years under timed conditions. Validity of the RSPM in comparison with the Wechsler and Stanford-Binet Intelligence Tests has been reported by Sattler (1982) and confirmed by Court and Raven (1982) as varying from 0.55 to 0.86 (cited McGuigan, 1992:15).

The OLSAT (Intermediate Form R) had been normed for the age range under study in 1989, that is 15 year olds. As well as having the appropriate age norms, the Intermediate Form R was chosen in preference to the Advanced Level of the OLSAT, because a number of students in the original study had a language other than English as their first language. Responses on the OLSAT are converted to a score which is taken as an index of verbal-educational ability or school-learning ability. According to McGuigan (1992:30), "there is a strong relationship between this index of learning ability and measures of scholastic achievement, (Vernon, 1960, p 14)".

Specific details of the RSPM and OLSAT, as well as McGuigan's (1992) rationale for the choice of test are contained in Chapter 3.

### 2.2 CAREER ASPIRATIONS AND CHOICES

The plans, aspirations and career decisions of young people could be viewed as following one of three approaches. In the first approach the process by which the young person makes their career or occupational choice is considered as a spontaneous or irrational one. Individuals do not so much choose an occupation - or field of higher study -as 'drift' into one. This 'drifting' may be seen as a response to the pressures of a situation; such factors as economic, peer group or chance being considered. (Caplow, 1954)

---

1. Outside Victoria with its blanket regulation of standardized normative testing.
In stark contrast to this thinking is the approach where the young individual's decision making processes in choosing a career or field of further study is considered to be purposeful, logical and systematic. This approach sees the young person as a rational, thinking being who systematically works through the range of career options available to them and chooses the 'best fit' for their talents, abilities and interests. (Blau, Jessar, Parnes and Wilcock, 1956)

A third approach relates the educational plans and occupational aspirations to personality type. This approach has its origins in "matching men with jobs" and is based on the proposition that different occupations have different interests. Interest profiles of particular professions can be compared with the individual's own preferences using instruments such as the Strong-Campbell Interest Inventory (SCII) or the Vocational Preference Inventory (VPI). (Holland, 1973; Naylor, 1984)

When one looks at career plans or occupational choice then, factors taken into account must include not only the personal preferences, choices and aspirations of the student but also the economic and social environments that act on them - factors which are difficult to control. Although difficult to control, the impact of such social and economic variables to the Australian student's success in the transition from school to higher education has been shown as being directly correlated to the social class position of the parents of the student (Anderson and Vervoorn, 1983; Broom, Jones, McDonnell and Williams, 1980).

The writer is aware that such a variable is neither controlled or accounted for by the present study drawing only upon students within one school sector - in this case the Government sector. Nor by collapsing responses can one ignore the possible economic and social class differences between Western and Southern Metropolitan School Regions or within families living in the same region.

Whilst the present study sought information on parental occupations - so as to directly compare with the earlier 1989 McGuigan study - no additional data such as "Perceived Family Income" (where the student is asked to rate the family's wealth relative to other families in the immediate neighbourhood), or, "Area Wealth" (where data is obtained through the latest Australian Census of the Population and annotated to each specific questionnaire on the basis of address or postcode) were requested or undertaken. Thus studies such as that of Carpenter and Western (1989) which have access to this data are able to discuss the area of economic and social class inequality as a factor in one's transition to, and selection of, higher education. These factors whilst understood to be possible explanations are acknowledged as outside the scope of the present research, which lacked insufficient data collection in this area.

Similarly, whilst ethnicity has been shown in Australia to have important consequences for student aspiration and achievement (Miller and Volker, 1987; Williams, 1987) with students from non-English speaking immigrant backgrounds having high(er) aspirations and less likelihood of dropping out of school than their Australian classmates, the present study does not differentiate on the ethnicity of its students, simply because the available data did not access such details.
2.3 SUBJECT CHOICES AND INTERESTS

When one looks at the area of subject choices there does not appear to be a great deal written suggesting reasons for those choices. In asking one of Australia's foremost authorities in the area of personality types and interests why students choose the subjects they do, there was, it appeared, a lack of interest in the "why" and only an interest in the decision itself. (Naylor, (1992), in conversation with the writer). The 'why' has been of interest, though, in the area of highly able students' subject choices in the USA and in specific areas in Australia where the underlying reason for the subject choice has been attributable to gender differences.

The subject choices of able and highly able students in Senior High has been a subject of much research in America. (Ecoles, 1985; Groth, 1969; Kerr, 1983, 1985; for example) Having found consistently that women outperformed men through primary school, high school and College (University) it was of some concern why women were, in the main, absent from senior or high status positions. Of course, many sociological and equity aspects have been raised which are outside of the present research but one issue which may impact on this study is that on reviewing the subjects women and men studied in Senior High (Year 11 and 12) it was found that women - although as capable as the men - chose academically less rigorous subjects. Thus in terms of grade point averages women consistently outperformed men, however, the opportunities for College courses was reduced due to the women opting out of maths/science subjects.

Highly able women opting out of maths/sciences and choosing less academically rigorous courses than their male classmates is a reflection of the broader educational scene and a sad loss of potential talent.

Interestingly, in looking at the choices made by nearly 4,000 Australian youngsters Naylor (1984:194) has suggested that "interests appear to be substantially independent of aptitudes and abilities [although] there is a hierarchy of relationship with academic performance that makes a lot of intuitive sense". However, when Carpenter and Western (1989) analyzed educational impact on attainment of academic self-assessment they found that this appeared a much more important determinant of attainment among women than men.

If a young woman is to succeed in entering higher education she must, it seems, be strongly convinced her ability is above average and such a consideration has a greater impact on her attainments than the socializing influences of the home, neighbourhood and school or her own interest in her studies

Carpenter and Western (1989:66)

In suggesting possible reasons which may work against able girls achievements in either Kerr's (1983, 1985) studies or the more recent Australian study of Carpenter and Western (1989) we note some common elements with the findings of a number of Australian Projects of National Significance dealing with the education of girls; all girls.
2.4 DIFFERENCES ATTRIBUTABLE TO GENDER

In Victoria the Education of Girls Program supports the implementation of the Equal Opportunity Action Plan for Girls in Education 1991 - 1993 and this program aims at providing a framework to improve the education experiences of girls. The National Report on Schooling in Australia (Victorian Section), (1991:42) lists initiatives within the program as including:

- the *Women Talk Work Register*, which is a register of women in non-traditional occupations which aims to broaden the career aspirations and expectations of girls and to encourage them to consider non-traditional occupations

- the *Statewide Equal Opportunity Resource Centre*

- *Hypatia's Place*: a Maths, Science and Technology Education Centre for girls which conducts professional development programs to broaden the post-school options of girls by increasing their participation in maths, science and technology

However, it is the writer's understanding that the status of these initiatives excluding the Statewide Equal Opportunity Resource Centre is "Not Determined" and that their on-going funding is questionable.

The field of gender issues in Education is diverse and the writer can but touch upon a small number of issues which have been raised by the present research concerning areas where there was/is a perceived need to improve the education experiences of girls. Perhaps by looking at the driving forces behind the National Policy for the Education of Girls in 1986 and some current literature we may place the present study in context. (Actual, stated Policy concerns are *italicised*.)

*The lower retention rates of girls into post-compulsory education.*

An individual's academic self-concept has been shown to be an important correlate of academic achievement. But as studies using self-assessment of ability have found (Carpenter and Western 1989, Batten 1989) greater proportions of boys assess their abilities as 'above average' with girls more likely to consider themselves only 'slightly above average'. Whilst girls tend to more accurately assess their abilities, boys who nominate their abilities as 'slightly below/below average' are more likely than girls with similar self-assessments to accept higher education offers. If a girl is not sure what to pursue after Year 12 she is more affected by the post-school plans of her friends as well as her mother's (working) status than are her male counterparts. (Carpenter and Western, 1989, Milligan and Thompson, 1992).

*Stereotyped patterns of subject choice, with girls under-represented in the scientific, technological and mathematical areas of the curriculum.*

One issue here is that of success and competency, linking with the perception of abilities mentioned above. In their Australia-wide research Milligan and Thompson
(1992) interviewed girls, their parents and their teachers. Their work *Listening to Girls* is filled with illustrations offering some explanation for subject and career choices made by girls. Faced with figures still showing the National under-representation of girls in mathematics, they quote, as an example, one female Year 11 maths teacher as saying that at the end of the first term she often had to battle girls' desire to pull out of the subject because they were doing badly. 'A girl getting 49 per cent thinks of herself as a complete failure. Boys with 35 per cent see themselves as only missing a pass through bad luck. A girl with 90 per cent thinks it's good luck and the boy with a similar mark will be a hero to himself, and often to others' (p 42). This recalls Kerr's (1985) work with highly able girls taking less rigorous course subjects to maintain near perfect grade point averages rather than take 'risks' with the more academically demanding material.

Similarly, in a Department of Employment, Education and Training (DEET) study as a Project of National Significance entitled *It's all because we're girls* (1992:41) two major factors were seen as contributing to declining female student numbers in advanced mathematics and science. Firstly, that girls saw little relevance in these subjects to their future careers, and secondly, the behaviour of boys in the class undermined the confidence of the girls in their own abilities.

By contrast, Naylor's research (1984) found that in Investigative interests there was an absence of any salient sex differences. (Investigative is one of Holland's six interest themes characterized by the demands for intellectual and scientific investigation of natural and social phenomena. Investigative types see themselves as scholarly and able in mathematics and the sciences. They see the world as complex and abstract, and approach it with a rational, analytical and critical approach).

Naylor (1984:200) suggests that there is substantial evidence of greatly increased participation by girls in mathematics education and that this accounts for the lack of expected sex differences in the interest area. One area left undeveloped in the Naylor research is that his lowest figures were for girls in co-educational settings particularly technical settings and that his highest figures for female 'investigative types' were in single sex, Independent schools.

In summarizing the many reasons for girls withdrawal in particular subject areas the Australian National Projects on the Education of Girls have concentrated on teaching methods, boys' domineering behaviour, teacher's attitudes, student victimization and girls' attitudes towards subjects based on their belief that certain subjects were more appropriate for girls. In University these factors have contributed to the enrolment of girls in more traditionally female dominated areas of English studies, social psychology, teaching (particularly primary teaching), child development, human biology, office and secretarial studies and fashion.

**Low levels of esteem, confidence, physical fitness and physical skill**

Confidence in and a positive self-concept about choosing non-traditional female subjects or occupations in post-compulsory schooling can be enhanced by the presence of female role models, and as a number of schools are implementing, single-sex science, maths and physical education classes. But there are still problems in the
way the subjects are presented with text-books often giving examples related to boys' experiences, thus many girls are left floundering. In the words of a male physics teacher:

In physics the girls are at a disadvantage and the reason is that physics has become more applied. For example, about air pressure it would say when you pump up a bike tyre, the tyre pump becomes hot. Most boys would know that, but the girls don't seem to.

*It's all because we're girls* (1992:10)

In terms of self-esteem or self-concept teachers attitudes have been perceived as highly influential - both positively and negatively - with regard to girls' participation in subjects and whether girls have equal opportunities in the classroom or on the playing field.

Unless actively corrected by teacher intervention, girls see boys as being better at practical work because of their experience with equipment and machinery. Many girls will perceive that this is a reflection on their abilities and believe that boys are 'naturally' better. An image that boys will capitalize upon rather than correct.

*Turning On the Turned-Off Girl in Physical Education* (A Project of National Significance, 1986) found that the attitude of some male PE (Physical Education) teachers towards girls abilities in sport was discriminatory and this had an adverse affect on girls' confidence in the area.

Similarly skills learned in traditionally female subjects are not adequately recognized or valued. As an example here, the subject Human Development which has VCAB enrolment figures of six girls to every boy is not accepted by all higher education institutions as a subject to be calculated in the students' Scaled Score for University admission. In like manner, within the school environment, some humanities subjects are 'downgraded' in importance or prestige in a school, where the student perception is that English and English Literature are 'soft' subjects equating to 'girls' subjects, which equates to not important subjects; or "Vegie" maths (the easiest maths) being the maths course with the 'dumbest' boys and mostly girls enrolled in it. These perceptions do little for the self-esteem and confidence of boys who are good at English or poor in maths - but do even less for the self-concept of girls in general.

**Stereotyped and inappropriate expectations by both girls and boys in relation to future careers and life patterns.**

The National Policy for the Education of Girls in Australian Schools (1986:57) stated:

> There is evidence that many girls fear that interest and success in schooling will require them to suppress or sacrifice important aspects of their femininity or particular ways of expressing it. This fear militates against intellectual achievement by girls across the full ability range, and their development towards satisfying adult lives.
That academic achievement and femininity are seen as mutually exclusive across the full ability range is saddening; that it exists at the upper ability range must surely be tragic. As was found in the present work and in the National Project of Significance *Listening to Girls*, (1992) achievement-oriented young girls will not enrol to be engineers, technologists, tradespeople, retail or industry workers but there will be plenty of female lawyers, doctors, teachers and psychologists.\(^1\)

Few girls will mention TAFE. Most girls have only a hazy idea of the economics of adult life and believe that if they work for five years or so they will be 'set up' and able to leave the workforce to have children. Salary, too, is not a factor considered strongly by girls; they seem to concentrate on the quality of life. (*Listening to Girls*, 1992:31)

The significance of the female peer group on a girl's aspirations has already been noted with Carpenter and Western's (1989) findings that two years after Year 12 "[a] young woman perceiving in Year 12 her friends planning further studies after Year 12 is likely two years later to aspire to a professional or managerial position".

It follows therefore that should the peer group aspire to traditional, non-professional goals a young woman may find herself "sabotaging" her own aspirations (Kerr, 1992) to maintain group cohesion and the *status quo*.

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\(^1\) The present study would also add Accountants
CHAPTER 3

RESEARCH AND METHODOLOGY PROCEDURES

3.1 GENERAL

Permission to conduct the survey in the schools was obtained from the Assistant Director - Information Management Section, Dr John Gregson, in July 1992. This Survey comprised a follow-up to an earlier Retention Survey conducted by Kevin McGuigan during 1989 into the Retention rates of Year 9 students in schools in both the Western Metropolitan and Southern Metropolitan School Regions.

3.2 SCHOOLS AND STUDENTS

Letters were addressed to the Principals of schools in the Western Metropolitan Region (WMR) and Southern Metropolitan Region (SMR) who had participated in the original Retention Study in 1989.

These letters gave details of the present follow-up survey, including a copy of the student questionnaire, and sought the Principals' voluntary co-operation in this follow-up of their Year 12 students who had originally participated in 1989.

Schools were asked to advise whether they wished to administer the present questionnaire themselves and return the completed forms by mail, or whether it was preferable to have a survey team attend the school to supervise the questionnaire at a time and date suitable to the school. As the survey was to take some 15 minutes to complete the schools, without exception, volunteered to complete the surveys under their own direction and return the completed questionnaires by mail.

3.3 THE QUESTIONNAIRE

The Questionnaire was designed as a follow-up in the final year of a four year longitudinal study tracking an original Year 9 cohort through to Year 12, whilst providing each school with a changing profile of the student population through each year of study. As a follow-up, the 1992 questionnaire was required to comply with the 1989 questionnaire, although the original questionnaire contained items which were poorly designed. (McGuigan, 1992:51)

Replies were received from a total of 14 of the 27 schools in the two regions (WMR and SMR) who had originally participated in 1989. These 14 schools were 52% of the total possible schools which could have been included in the survey. There were ten schools from SMR (of an original 14 or 71.4%) and four from WMR (or 30.8%). The population of Year 12 students in SMR was 498 while that of WMR was 93, giving a total of 591 Year 12 Students from the two regions. As participation was voluntary, the imbalance in the student numbers from each region could not be controlled.
3.4 SCHOOLS

3.4.1 REGIONS

For the purposes of this follow-up study it was decided to draw upon the total pool of students (i.e. 591) regardless of their school region. In this way students were drawn from schools in close proximity to the central business district of the City of Melbourne as well as from Melbourne Bayside suburbs and Peninsula areas. Schools which responded included large Secondary Colleges as well as Technical Schools, all were co-educational.

The schools' populations were mainly from the middle to the lower levels of socio-economic standing.

3.4.2 SIZE

Each year since 1989 the McGuigan longitudinal study has tracked students as to their movements within the education system (both same and different schools), students leaving for (un) employment and as well a number who 'disappear' for unknown outcomes. The original 1989 Year 9 cohort of 2,829 students had been reduced to an estimated 1500 students in 1992 in the 27 schools. Given that fourteen of these 27 schools elected to take part in this survey and that student participation was also voluntary, 591 student responses is pleasing.

Whilst some analysis will be conducted looking at between school differences the main concern of the present study will be the total 591 Year 12 cohort.

3.4.3 VCE

The range of VCE subjects offered at the level of Units 3 and 4 in each of the fourteen schools varied depending upon the resources available to each school and student demand for a particular VCE study. Of a possible 44 fields of study the majority of schools in the survey offered approximately 25 study areas. These included English (the only compulsory subject in 1992) and (most usually) the following:

Accounting
Art
Australian Studies
Biology
Business Management
Chemistry
Economics
Geography
Graphic Communication

History
Human Development
Information Technology
L.O.T.E.
Legal Studies
Literature
Materials and Technology
Mathematics
Music

Physical Education
Physics
Political Studies
Psychology
Systems and Technology
Technology Design and Development

Other Study areas of some popularity included:

Drama
Environmental Studies
International Studies

Music craft
Studio Arts
Theatre Studies

Woodwork *
Automotive *
Catering *

* Not VCE subjects

12
The range of subjects studied in the fourteen schools in the sample is representative of the wider State according to figures released to the writer from the Victorian Curriculum and Assessment Board (VCAB).

3.5 INSTRUMENTS

3.5.1 QUESTIONNAIRE

The basis of the present study is an Autobiographical Questionnaire (Appendix 1). Particular areas of interest to this study in direct comparison with the 1989 Questionnaire include:

- The job I'd really like on completing my studies is...
- The School subject in which I usually do best is...
- The School subject in which I do not do so well is...
- School is...

Particular - and specific - areas of interest in the 1992 Questionnaire include:

- Subjects studied at VCE
- In 1993 I plan to ...

As in the 1989 Questionnaire students were asked to write about their hopes and aspirations for the year 2,000 AD. Less than 50% of students chose to respond to this section; the great majority of whom elected to do so in as few words as possible. As in the 1989 sample examples of brevity stand out, for example, "DEAD", being chosen by two respondents. The majority response "Rich, married, happy" was equally given by males and females, with the only areas of elaboration being: how wealthy; the looks of the husband or wife; the number of children, and, the trappings of wealth e.g. "red Porsche".

Originally it was planned to conduct analyses on this section of the questionnaire but it became apparent, due to the limitations of the responses, that analysis would yield little useful information.

It is possible that the schools concerned did not allow sufficient time for students to give serious consideration to answering this area, but given the random appearance of students (less than 5%) who chose to write at some length, it is also quite possible that, in this part of the questionnaire, students had little to say.

3.5.2 1989 TEST INSTRUMENTS

In 1989 as Year 9 students the present Year 12 cohort were assessed using both the Ravens Standard Progressive Matrices, 1958 (RSPM) and the Otis-Lennon School Ability Test, Intermediate Form R, (OLSAT), Australian Adaption.
The Victorian Secondary Teachers' Association's (VSTA) adamant opposition to the use of any assessment procedures which ranks students is widely known, as McGuigan (1992:47) found when he needed some form of assessment to determine the ability and achievement levels of the students leaving the education system and those remaining in it.

The present study has not met this opposition in that the intention of this follow-up was not to re-test students at Year 12, but to draw upon their previous test scores. For the reader unaware of the original 1989 survey the following will provide a brief description of the 1989 Test Instruments.

3.5.2.1 RAVEN STANDARD PROGRESSIVE MATRICES (RSPM)

This is a paper and pencil, non-verbal test of general intellectual ability based on pattern recognition and reasoning. It can be given individually or to a group (the latter option making it suitable on this occasion), either as six timed sub tests (making a total of twenty minutes) or as untimed test. The Australian norms (ACER 1986) require the timed version of the test. Age norms are available for 10 to 18+ years.

Each item on the Ravens poses a pattern in which a piece is missing and presented as a white space. Under the pattern are six or eight pieces which physically fit the space left by the missing piece but have different pattern content. The aim is to select the correct pattern piece. The test passes through degrees of increasing difficulty.

The test used in the 1989 survey was the 1958 revised version of the RSPM 1938.

The Ravens was selected by McGuigan (1992) as the general ability measure of logical reasoning of the group as the RSPM

appears to be least biased by gender, socio-economic background, curriculum experience and language...it is linguistically neutral...RSPM can be given to testees irrespective of their language or their fluency in it

[McGuigan, 1992:53]

3.5.2.2 OTIS-LENNON SCHOOL ABILITY TEST, (OLSAT)
INTERMEDIATE FORM R (1967)

The OLSAT is a group intelligence test which is timed and seeks to test the verbal educational aspects of mental abilities, not the practical mechanical. It seeks to assess a student's ability to cope with school learning tasks, and according to the Manual (OLSAT Intermediate Form R, ACER, 1982) the Olsat captures the consequences of environmental limitations that affect a student's ability to master school work at the time of testing. In other words, the OLSAT is intended to reflect the student's achievement in relation to the talents they bring to the school learning situation.
The Intermediate Form R was chosen for two reasons: it was felt that the less demanding language would remove some of the language bias in the test for the number of students with a native language other than English, and, secondly the Intermediate Form R had the advantage of being within the age range tested, that is 15 years of age.

The OLSAT was adapted for use in Australian Schools and was normed by ACER in 1980.

To quote McGuigan (1992) on his rationale for the choice of the OLSAT:

OLSAT is relatively free of material that discriminates unfairly against minority cultural groups, and the test reflects the status of the examinee that makes for school learning success....There is a strong relationship between this index of learning ability and measures of scholastic achievement...

[McGuigan, 1992:20]

The reader is directed to the original 1989 study in McGuigan (1992) for further discussion.

3.6 DATA PROCESSING

Data processing of the present questionnaire was by hand by the writer. ANOVAs were conducted manually by a 3rd year Pure Mathematics student at Royal Melbourne Institute of Technology (RMIT) under the writer's direction as well as by the writer herself.¹ All students and schools participating in the survey were guaranteed confidentiality with school and student names being coded to numbers. At the writer's request Kevin McGuigan provided access to the RSPM and OLSAT scores for the 591 students who responded in the present survey.

¹ A significance level of \(p=.05\) has been used throughout the work. Occasionally significant differences were found at \(p < .02\) or \(p < .01\) and these have been noted where found.
CHAPTER 4

RESULTS

4.1 SAMPLE

Table 1 gives a breakdown of the 591 Year 12 students by school enrolment, by gender and in total.

Table 1. The Year 12 sample

<table>
<thead>
<tr>
<th>School</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>29</td>
<td>46</td>
<td>75</td>
</tr>
<tr>
<td>124</td>
<td>18</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>126</td>
<td>28</td>
<td>51</td>
<td>79</td>
</tr>
<tr>
<td>123</td>
<td>34</td>
<td>46</td>
<td>80</td>
</tr>
<tr>
<td>132</td>
<td>22</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>111</td>
<td>37</td>
<td>28</td>
<td>65</td>
</tr>
<tr>
<td>112</td>
<td>16</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td>120</td>
<td>27</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>137</td>
<td>6</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>119</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>115</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>130</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>128</td>
<td>8</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>133</td>
<td>20</td>
<td>27</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>264</strong></td>
<td><strong>327</strong></td>
<td><strong>591</strong></td>
</tr>
</tbody>
</table>

4.1.1 AGE

The ages of students within the sample show a range of almost 3 years. The eldest student at the time of testing (September, 1992) was 19 years and 8 months whilst the youngest was 16 years and 9 months.

Excluding the eldest student, 12 of the 591 (2.0%) were between the ages of 18 years 9 months and 19 years 3 months.

Excluding the youngest student, 27 of the 591 (4.6%) were between 17 years 3 months and 17 years 5 months.

Thus the greatest percentage of students (550 students or 93% of the sample) were within the age range of 17 years 6 months and 18 years 8 months.

These figures seem representative of wider school practices as shown by the latest Age Participation figures for Victorian schools, both Government and Non-Government, which show 72.2%, 16.5%, and 3.4% of 17, 18 and 19 year olds, respectively, are still at school. (Source: Statistical Annex, National Report on Schooling in Australia (NRSA) 1991)
4.2 UNIVARIATE DISTRIBUTION

4.2.1 RAVEN STANDARD PROGRESSIVE MATRICES

The RSPM Scores were analyzed by school and summarized in Table 2 below. The RSPM has a mean of 100 and a standard deviation of 15.

<table>
<thead>
<tr>
<th>score</th>
<th>126</th>
<th>123</th>
<th>133</th>
<th>112</th>
<th>136</th>
<th>124</th>
<th>130</th>
<th>128</th>
<th>119</th>
<th>115</th>
<th>132</th>
<th>111</th>
<th>120</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70-84</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>85-99</td>
<td>14</td>
<td>10</td>
<td>13</td>
<td>10</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>14</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>100-114</td>
<td>40</td>
<td>37</td>
<td>14</td>
<td>14</td>
<td>37</td>
<td>9</td>
<td>6</td>
<td>16</td>
<td>2</td>
<td>4</td>
<td>22</td>
<td>28</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>115-129</td>
<td>22</td>
<td>28</td>
<td>16</td>
<td>11</td>
<td>26</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>16</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>&gt;129</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No RSPM</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MEAN</td>
<td>106.9</td>
<td>107.3</td>
<td>109.2</td>
<td>103.9</td>
<td>109.9</td>
<td>111.2</td>
<td>108.8</td>
<td>102.9</td>
<td>97.2</td>
<td>105.5</td>
<td>111.9</td>
<td>108.8</td>
<td>101.7</td>
<td>109.4</td>
</tr>
<tr>
<td>Totals</td>
<td>79</td>
<td>80</td>
<td>47</td>
<td>35</td>
<td>75</td>
<td>20</td>
<td>20</td>
<td>28</td>
<td>5</td>
<td>6</td>
<td>48</td>
<td>65</td>
<td>54</td>
<td>29</td>
</tr>
</tbody>
</table>

Given normal distribution there appears to be an over-representation of scores at 115+ (+1s.d); where 16% would be predicted, this sample places 30.5% of scores at this level. Similarly, at less than 85 points (-1s.d) there is a gross under-representation of scores in this sample - only 2.4%, where again 16% would be predicted.

In his original 1989 sample from which the present students are drawn McGuigan (1992) noted a similar discrepancy in scores on the RSPM. (In his case 23.7% and 10.6% at +1s.d and -1s.d respectively). On the basis of that sample, McGuigan and Start (1991) have suggested that the 1986 Australian norms over-estimate the true value of the raw scores by 5 points. It is understood that a renorming has been undertaken for Australian populations by ACER and was released in 1992 which confirms the 5 point bias.

The writer can but concur with McGuigan and Start (1991) in their claims of over-estimation for it seems unlikely that as a group these 591 students contain more than the State's average of highly able students. It should be noted, however, that by Year 12 if the least able drop out we would expect those who remain to be positively skewed - the important question is, by how much.

4.2.2. RSPM BY GENDER

Table 3 represents a Summary Table irrespective of school by gender and with overall totals.
Table 3. RSPM by Gender with Overall Totals

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>70-84</td>
<td>8</td>
<td>3.0</td>
<td>6</td>
</tr>
<tr>
<td>85-99</td>
<td>57</td>
<td>21.6</td>
<td>71</td>
</tr>
<tr>
<td>100-114</td>
<td>114</td>
<td>43.2</td>
<td>149</td>
</tr>
<tr>
<td>115-129</td>
<td>68</td>
<td>25.7</td>
<td>92</td>
</tr>
<tr>
<td>&gt;129</td>
<td>11</td>
<td>4.2</td>
<td>7</td>
</tr>
<tr>
<td>No RSPM</td>
<td>6</td>
<td>2.3</td>
<td>2</td>
</tr>
<tr>
<td>MEAN</td>
<td>107.9</td>
<td>106.9</td>
<td>107.4</td>
</tr>
</tbody>
</table>

An analysis of variance performed on this data found no significant differences between the females' and males' performances on the RSPM. Table 6 (p 22) contains the RSPM scores by gender and by school for data in the above Summary Table. Graphically, the RSPM Distribution by Gender may be presented as in Figure 1.

Fig 1. RSPM Distribution by Gender

![Graph showing RSPM distribution by gender](image)

Whilst we cannot say that, on average, one sex outperformed the other on the RSPM, as a group the 1992 sample did significantly score higher on the RSPM than the entire 1989 population from which they were drawn. An analysis of variance showed that whilst there was not a large effect the difference was significant. \( F_{(1,12)} = 6.18, \ p < .05; \ t_{(13)} = 2.49, \ p < .05 \)
4.3 OTIS-LENNON SCHOOL ABILITY TEST (OLSAT)

The OLSAT scores were analyzed by school and summarized in Table 4 below. The OLSAT has a mean of 100 and a standard deviation of 16.

Table 4. Distribution of OLSAT by School

<table>
<thead>
<tr>
<th>Score</th>
<th>126</th>
<th>123</th>
<th>133</th>
<th>112</th>
<th>136</th>
<th>124</th>
<th>130</th>
<th>128</th>
<th>119</th>
<th>115</th>
<th>132</th>
<th>111</th>
<th>120</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;68</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>69-84</td>
<td>9</td>
<td>18</td>
<td>23</td>
<td>15</td>
<td>13</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>21</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>85-100</td>
<td>23</td>
<td>43</td>
<td>22</td>
<td>15</td>
<td>40</td>
<td>7</td>
<td>6</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>30</td>
<td>20</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>101-116</td>
<td>37</td>
<td>15</td>
<td>2</td>
<td>5</td>
<td>18</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>17</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>117-132</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No OLSAT</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>101.2</td>
<td>90.9</td>
<td>85.1</td>
<td>87.6</td>
<td>94.7</td>
<td>93.1</td>
<td>84.4</td>
<td>90.8</td>
<td>91.6</td>
<td>75.0</td>
<td>91.0</td>
<td>93.9</td>
<td>97.3</td>
<td>91.2</td>
</tr>
<tr>
<td>Totals</td>
<td>79</td>
<td>80</td>
<td>47</td>
<td>35</td>
<td>75</td>
<td>20</td>
<td>20</td>
<td>28</td>
<td>5</td>
<td>6</td>
<td>48</td>
<td>65</td>
<td>54</td>
<td>29</td>
</tr>
</tbody>
</table>

In looking again at the predictions of normal distribution, we find only 3.3% of scores at +1s.d. where we might predict some 16% of test scores. Indeed only 27.7% of scores are greater than the mean of 100 on the OLSAT, which is considered the average achievement in the normative tables.

This can only suggest that the achievement levels in the fourteen schools in the sample should be some cause for concern in that they are significantly below what would be expected by the Australian norms.

As shall be seen when we look at an analysis by gender in the next section, some 72.94% of males and 71.83% of females presently at Year 12 scored less than or equal to the mean (100) on a test of School ability in their Year 9. Statistically, we might have expected only 50% to score within this range.

4.3.1 OLSAT BY GENDER

Table 5 represents a Summary Table of scores on the OLSAT irrespective of school, by gender and with overall totals. (The specific OLSAT scores by school and by gender are contained in Table 6).

An analysis on the female and male scores on the OLSAT would indicate that there has been no significant difference attributable to gender. \(t_{13} = 1.26, \ p > .05\)
Table 5. OLSAT by Gender with Overall Totals

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
<th>Persons</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>&lt;68</td>
<td>1</td>
<td>0.4</td>
<td>6</td>
<td>1.8</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>68-84</td>
<td>72</td>
<td>27.3</td>
<td>81</td>
<td>24.8</td>
<td>153</td>
<td>25.9</td>
</tr>
<tr>
<td>85-100</td>
<td>113</td>
<td>42.8</td>
<td>145</td>
<td>44.3</td>
<td>258</td>
<td>43.6</td>
</tr>
<tr>
<td>101-116</td>
<td>58</td>
<td>22.0</td>
<td>83</td>
<td>25.4</td>
<td>141</td>
<td>23.9</td>
</tr>
<tr>
<td>117-132</td>
<td>11</td>
<td>4.2</td>
<td>8</td>
<td>2.4</td>
<td>19</td>
<td>3.2</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No OLSAT</td>
<td>9</td>
<td>3.4</td>
<td>4</td>
<td>1.2</td>
<td>13</td>
<td>2.2</td>
</tr>
<tr>
<td>MEAN</td>
<td>91.4</td>
<td>89.5</td>
<td></td>
<td></td>
<td>90.5</td>
<td></td>
</tr>
</tbody>
</table>

As with the RSPM scores, an analysis of variance was performed to ascertain whether there was a significant difference between the OLSAT scores of this 1992 sample when compared with 1989 population from which they were drawn. The OLSAT shows highly significant changes. \( F_{(1,12)} = 18.21, p < .01 \)

Whilst both 1992 test results show significant increases on the 1989 population's results, The resultant F value of the OLSAT is significant at \( p < .01 \) compared to the RSPM's results \( F_{(1,12)} = 6.18, p < .05 \).

This is confirmed when one notes that the distribution of OLSAT scores in the McGuigan 1989 sample was positively skewed with only 6.7% of the students achieving above the score of 100, whilst in the present sample, as graphically portrayed in Figure 2 below, some 27.7% of the 1992 students are within this range.

Figure 2. OLSAT Distribution by Gender

![Graph showing OLSAT distribution by gender](image-url)
4.4 COMPARISON OF THE RSPM AND OLSAT RESULTS.

When one considers gender in the analysis of results for the RSPM and OLSAT, analyses of variance confirm that there has been no significant effect attributable to gender in performance on either of these tests for the present 1992 sample. This is in agreement with McGuigan's (1992) findings for the entire 1989 sample from which the present students are drawn.

A graphic representation of the distribution of the RSPM and OLSAT scores by gender clearly highlights the positive skew of the OLSAT scores for both sexes, and conversely the negative skew for the RSPM.

![Graph of RSPM and OLSAT by Gender]

A comparison of actual scores by school and by gender show a discrepancy of some 16.5 points for males and 17.4 points for females between the measure of general ability (RSPM) and the measure of school ability (OLSAT), with the achievement score - the OLSAT - being at the lower end.
These figures are presented in Table 6.

**Table 6. RSPM and OLSAT scores by Gender and by School**

<table>
<thead>
<tr>
<th>School Number</th>
<th>Male RSPM Mean</th>
<th>Male OLSAT Mean</th>
<th>Diff</th>
<th>Female RSPM Mean</th>
<th>Female OLSAT Mean</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>114.2</td>
<td>85.4</td>
<td>28.8</td>
<td>103.4</td>
<td>83.4</td>
<td>20.0</td>
</tr>
<tr>
<td>115</td>
<td>106.0</td>
<td>76.0</td>
<td>30.0</td>
<td>105.0</td>
<td>74.0</td>
<td>31.0</td>
</tr>
<tr>
<td>119*</td>
<td>97.2*</td>
<td>91.6*</td>
<td>5.6*</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>123</td>
<td>109.8</td>
<td>88.2</td>
<td>21.6</td>
<td>104.8</td>
<td>93.7</td>
<td>11.1</td>
</tr>
<tr>
<td>126</td>
<td>105.8</td>
<td>101.8</td>
<td>4.0</td>
<td>107.9</td>
<td>100.5</td>
<td>7.4</td>
</tr>
<tr>
<td>124</td>
<td>104.4</td>
<td>100.2</td>
<td>4.2</td>
<td>118.0</td>
<td>86.0</td>
<td>32.0</td>
</tr>
<tr>
<td>136</td>
<td>109.1</td>
<td>93.9</td>
<td>15.2</td>
<td>110.7</td>
<td>95.6</td>
<td>15.1</td>
</tr>
<tr>
<td>128</td>
<td>103.1</td>
<td>93.6</td>
<td>9.5</td>
<td>102.7</td>
<td>87.9</td>
<td>14.8</td>
</tr>
<tr>
<td>137</td>
<td>111.8</td>
<td>88.3</td>
<td>23.5</td>
<td>107.0</td>
<td>94.1</td>
<td>12.9</td>
</tr>
<tr>
<td>120</td>
<td>102.2</td>
<td>100.5</td>
<td>1.7</td>
<td>101.3</td>
<td>94.0</td>
<td>7.3</td>
</tr>
<tr>
<td>112</td>
<td>106.6</td>
<td>87.9</td>
<td>18.7</td>
<td>101.3</td>
<td>87.3</td>
<td>14.0</td>
</tr>
<tr>
<td>111</td>
<td>107.4</td>
<td>92.3</td>
<td>15.1</td>
<td>110.1</td>
<td>95.2</td>
<td>14.9</td>
</tr>
<tr>
<td>133</td>
<td>112.3</td>
<td>86.7</td>
<td>25.6</td>
<td>105.8</td>
<td>83.6</td>
<td>22.2</td>
</tr>
<tr>
<td>132</td>
<td>110.2</td>
<td>93.3</td>
<td>16.9</td>
<td>111.7</td>
<td>88.7</td>
<td>23.0</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>107.9</td>
<td>91.4</td>
<td>16.5</td>
<td>106.9</td>
<td>89.5</td>
<td>17.4</td>
</tr>
</tbody>
</table>

* This school has been omitted from the calculations as there is no female population.

As can be seen from the above Table the discrepancy of scores between general ability and school achievement is as great as 30 points for males (School 115) and 32 points for females (School 124).

The overall discrepancy range of 16.5 points for males and 17.4 points for females was not as great as in the McGuigan (1992) study which cited an average of 20 points. McGuigan suggests a number of test-related causes which may account for the low level of OLSAT scores including fatigue; lack of motivation to achieve highly in a test resembling school-work, or, comprehension difficulties in interpreting questions. McGuigan makes the pertinent point that the causes of low OLSAT scores would exist in the school performance "score" too, and thus the OLSAT would predict school outcomes.

There appear to be some interesting points arising from the present data:

(i) **School 120 has the lowest discrepancy values between the RSPM and the OLSAT for its entire - i.e. male and female - population with only 1.7 and 7.3 points respectively.**

It might be suggested that School 120's status as an outer suburban Secondary College, (some may suggest even semi-rural) could favourably affect the performances of students.
In research into retention rates in rural areas (Abbot-Chapman, 1986) and of career choices for students in rural areas (Milligan and Thompson, 1992), factors such as isolation and difficulty of access to education work unfavourably against achievement levels. Whilst this school cannot realistically be called rural, the community which it serves is strongly proud of its identity. Many students from this school stated that they would like to continue living in "......" whereas the trend in other schools was to cite more glamorous places of abode for the Year 2000 AD. Interestingly, a similarly low discrepancy value occurs in School 126, also approximately 45 minutes drive from Melbourne's Central Business District, and also known for its strong community identity.

However, the rural "ambience" theory shows superficial weakness in an analysis of the third outer suburban Secondary College, School 130, for its discrepancy figures are the second highest for males (29 points) and fourth highest for females (20 points). There is still an interesting comparison here for as an observer, the same fierce community pride is not present in this school when compared with the others.

The suggestion that school locality may affect student achievement, or that some spirit we might call "community pride" may also affect, either favourably and unfavourably, the achievement of students in schools within that community, deserves further investigation.

(ii) School 115 has the greatest discrepancy for both males and females - 30 and 31 points respectively.

(iii) School 124 has an alarming gender imbalance in the differences in scores between the RSPM and OLSAT - whilst males under-achieve only slightly (at 4.2 points discrepancy this is the third lowest score), females underachieve more than in any other school - there is a 32 point difference between ability and achievement as scored by these instruments.

In attempting to account for variations in the present sample one must recall that both School 115 and School 124 have the smallest samples (N=2) of females who responded. A larger sample may well have been less biased and show a more representative picture of female achievement levels in these two schools. Whether this is in fact the case would require further testing at both schools.

It is possible, of course, that both these schools do have quite distinct gender imbalances in their achievement levels: imbalances that The Education of Girls Program and the implementation of the Equal Opportunity Action Plan for Girls 1991-1993 (both recognized as priority areas of the Department of School Education (DSE)) have set out to redress. Perhaps this finding is one that the Equal Opportunity Officer at both schools should be alerted to so as to investigate whether this small sample reflects the findings of the female population of the wider school. Areas of Gender equity will be discussed in greater detail elsewhere in this work.
In summary, one wonders whether there is an educational and public awareness that such under-achievement is even present within our schools. Given both the VSTA and the Australian Teachers' Federation's (ATF) view on testing and assessment, and a present (1992) pass rate of some 80% at VCE (VCAB, 1992), using criterion-based assessment, there is a high probability that students, teachers, parents and the public have no idea of the widespread underachievement within our schools when looked at in comparison to the wider Australian norms.

4.5 SUBJECT POPULARITY

An analysis by Gender of the "Top 30" subjects (by enrolment) shows the diversity of choice available to the Year 11 and 12 in 1992. The Maths units - S&N, C&A, R&D - have been shown as separate subjects where the student specified. Table 7 shows Female subject choice; Table 8 male choice.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Subject Name</th>
<th>No of Students</th>
<th>%</th>
<th>Cum %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Human Development</td>
<td>128</td>
<td>10.1</td>
<td>10.1</td>
</tr>
<tr>
<td>2</td>
<td>Biology</td>
<td>116</td>
<td>9.1</td>
<td>19.2</td>
</tr>
<tr>
<td>3</td>
<td>Legal Studies</td>
<td>100</td>
<td>7.9</td>
<td>27.1</td>
</tr>
<tr>
<td>4</td>
<td>Psychology</td>
<td>76</td>
<td>6.0</td>
<td>33.1</td>
</tr>
<tr>
<td>5</td>
<td>Information Technology</td>
<td>70</td>
<td>5.5</td>
<td>38.6</td>
</tr>
<tr>
<td>6</td>
<td>R &amp; D</td>
<td>63</td>
<td>4.9</td>
<td>43.5</td>
</tr>
<tr>
<td>7</td>
<td>S &amp; N</td>
<td>62</td>
<td>4.8</td>
<td>48.3</td>
</tr>
<tr>
<td>8</td>
<td>Accounting</td>
<td>60</td>
<td>4.7</td>
<td>53.0</td>
</tr>
<tr>
<td>9</td>
<td>C &amp; A</td>
<td>57</td>
<td>4.5</td>
<td>57.5</td>
</tr>
<tr>
<td>10</td>
<td>Chemistry</td>
<td>54</td>
<td>4.3</td>
<td>61.8</td>
</tr>
<tr>
<td>11</td>
<td>Maths - Not specified</td>
<td>48</td>
<td>3.8</td>
<td>65.6</td>
</tr>
<tr>
<td>12</td>
<td>LOTE</td>
<td>46</td>
<td>3.6</td>
<td>69.2</td>
</tr>
<tr>
<td>13.5</td>
<td>Economics</td>
<td>41</td>
<td>3.2</td>
<td>72.4</td>
</tr>
<tr>
<td>13.5</td>
<td>Physical Education</td>
<td>41</td>
<td>3.2</td>
<td>75.6</td>
</tr>
<tr>
<td>15</td>
<td>Business Management</td>
<td>32</td>
<td>2.5</td>
<td>78.1</td>
</tr>
<tr>
<td>16</td>
<td>Art</td>
<td>31</td>
<td>2.4</td>
<td>80.5</td>
</tr>
<tr>
<td>17</td>
<td>Literature</td>
<td>30</td>
<td>2.3</td>
<td>82.8</td>
</tr>
<tr>
<td>18</td>
<td>Physics</td>
<td>27</td>
<td>2.1</td>
<td>84.9</td>
</tr>
<tr>
<td>19</td>
<td>History</td>
<td>24</td>
<td>1.9</td>
<td>86.8</td>
</tr>
<tr>
<td>20.5</td>
<td>Graphic Communication</td>
<td>17</td>
<td>1.3</td>
<td>88.1</td>
</tr>
<tr>
<td>20.5</td>
<td>Media</td>
<td>17</td>
<td>1.3</td>
<td>89.4</td>
</tr>
<tr>
<td>22</td>
<td>Studio Arts</td>
<td>14</td>
<td>1.1</td>
<td>90.5</td>
</tr>
<tr>
<td>23.5</td>
<td>Environmental Studies</td>
<td>13</td>
<td>1.0</td>
<td>91.5</td>
</tr>
<tr>
<td>23.5</td>
<td>Drama</td>
<td>13</td>
<td>1.0</td>
<td>92.5</td>
</tr>
<tr>
<td>25</td>
<td>Geography</td>
<td>9</td>
<td>.7</td>
<td>93.2</td>
</tr>
<tr>
<td>26</td>
<td>Technological Des &amp; Dev</td>
<td>7</td>
<td>.6</td>
<td>93.8</td>
</tr>
<tr>
<td>28.5</td>
<td>International Studies</td>
<td>6</td>
<td>.5</td>
<td>94.3</td>
</tr>
<tr>
<td>28.5</td>
<td>Theatre Studies</td>
<td>6</td>
<td>.5</td>
<td>94.8</td>
</tr>
<tr>
<td>28.5</td>
<td>Material Technology</td>
<td>6</td>
<td>.5</td>
<td>95.3</td>
</tr>
<tr>
<td>28.5</td>
<td>Catering</td>
<td>6</td>
<td>.5</td>
<td>95.8</td>
</tr>
<tr>
<td>Total</td>
<td>1220</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N.B. Given that it is Compulsory - English has not been included in any analysis
The total number of Subjects enrolled in by the 327 students was 1270.

24
Table 8. Top 30 Subjects for 264 Males - 1992

<table>
<thead>
<tr>
<th>Rank</th>
<th>Subject Name</th>
<th>No of Students</th>
<th>%</th>
<th>Cum %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maths - Not specified</td>
<td>107</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>2</td>
<td>C &amp; A</td>
<td>79</td>
<td>7.4</td>
<td>17.4</td>
</tr>
<tr>
<td>3</td>
<td>Physics</td>
<td>78</td>
<td>7.3</td>
<td>24.7</td>
</tr>
<tr>
<td>4</td>
<td>R &amp; D</td>
<td>72</td>
<td>6.7</td>
<td>31.4</td>
</tr>
<tr>
<td>5</td>
<td>S &amp; N</td>
<td>63</td>
<td>5.9</td>
<td>37.3</td>
</tr>
<tr>
<td>6.5</td>
<td>Accounting</td>
<td>58</td>
<td>5.4</td>
<td>42.7</td>
</tr>
<tr>
<td>6.5</td>
<td>Information Technology</td>
<td>58</td>
<td>5.4</td>
<td>48.1</td>
</tr>
<tr>
<td>8</td>
<td>Graphic Communication</td>
<td>56</td>
<td>5.2</td>
<td>53.3</td>
</tr>
<tr>
<td>9</td>
<td>Chemistry</td>
<td>51</td>
<td>4.8</td>
<td>58.1</td>
</tr>
<tr>
<td>10</td>
<td>Legal</td>
<td>47</td>
<td>4.4</td>
<td>62.5</td>
</tr>
<tr>
<td>11</td>
<td>Biology</td>
<td>44</td>
<td>4.1</td>
<td>66.6</td>
</tr>
<tr>
<td>12</td>
<td>Economics</td>
<td>32</td>
<td>3.0</td>
<td>69.6</td>
</tr>
<tr>
<td>13</td>
<td>Physical Education</td>
<td>29</td>
<td>2.7</td>
<td>72.3</td>
</tr>
<tr>
<td>14</td>
<td>LOTE</td>
<td>27</td>
<td>2.5</td>
<td>74.8</td>
</tr>
<tr>
<td>15.5</td>
<td>Art</td>
<td>25</td>
<td>2.3</td>
<td>77.1</td>
</tr>
<tr>
<td>15.5</td>
<td>Woodwork</td>
<td>25</td>
<td>2.3</td>
<td>79.4</td>
</tr>
<tr>
<td>17.5</td>
<td>Human Development</td>
<td>23</td>
<td>2.1</td>
<td>81.5</td>
</tr>
<tr>
<td>17.5</td>
<td>Business Management</td>
<td>23</td>
<td>2.1</td>
<td>83.6</td>
</tr>
<tr>
<td>20</td>
<td>Geography</td>
<td>14</td>
<td>1.3</td>
<td>84.9</td>
</tr>
<tr>
<td>20</td>
<td>Media</td>
<td>14</td>
<td>1.3</td>
<td>86.2</td>
</tr>
<tr>
<td>20</td>
<td>Psychology</td>
<td>14</td>
<td>1.3</td>
<td>87.5</td>
</tr>
<tr>
<td>22</td>
<td>History</td>
<td>13</td>
<td>1.2</td>
<td>88.7</td>
</tr>
<tr>
<td>23</td>
<td>Studio Arts</td>
<td>12</td>
<td>1.1</td>
<td>89.8</td>
</tr>
<tr>
<td>24</td>
<td>Materials Technology</td>
<td>10</td>
<td>0.9</td>
<td>90.7</td>
</tr>
<tr>
<td>25</td>
<td>Systems and Technology</td>
<td>9</td>
<td>0.8</td>
<td>91.5</td>
</tr>
<tr>
<td>26.5</td>
<td>Literature</td>
<td>8</td>
<td>0.7</td>
<td>92.2</td>
</tr>
<tr>
<td>26.5</td>
<td>Technological Des &amp; Dev</td>
<td>8</td>
<td>0.7</td>
<td>92.9</td>
</tr>
<tr>
<td>28</td>
<td>Drama</td>
<td>7</td>
<td>0.6</td>
<td>93.5</td>
</tr>
<tr>
<td>29.5</td>
<td>Outdoor Education</td>
<td>6</td>
<td>0.5</td>
<td>94.0</td>
</tr>
<tr>
<td>29.5</td>
<td>Automotive</td>
<td>6</td>
<td>0.5</td>
<td>94.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1018</td>
<td>94.5</td>
<td></td>
</tr>
</tbody>
</table>

N.B. Given that it is Compulsory - English has not been included in any analysis. The total number of Subjects enrolled in by the 264 students was 1073.

Were the subject choices made by the 591 students in the present sample representative of the wider (State) population in Government Schools? Excluding Adult single subject enrolments Table 9 presents this data comparatively.
Table 9: Top 30 Subjects for the Study Population compared to State Population - by Gender

<table>
<thead>
<tr>
<th>Study Rank N=591</th>
<th>Subject Name</th>
<th>Female Ranking</th>
<th>Male Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Study N=327</td>
<td>State</td>
<td>Study N=264</td>
</tr>
<tr>
<td>1</td>
<td>Biology</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Maths - Not Specified</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Human Development</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Legal</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>C &amp; A</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>R &amp; D</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Information Technology</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>S &amp; N</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>9</td>
<td>Accounting</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>10.5</td>
<td>Physics</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>10.5</td>
<td>Chemistry</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>Psychology</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>Graphic Communication</td>
<td>20.5</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td>Economies</td>
<td>13.5</td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>LOTE</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>16</td>
<td>Physical Education</td>
<td>13.5</td>
<td>14</td>
</tr>
<tr>
<td>17</td>
<td>Art</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>18</td>
<td>Business Management</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>Literature</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>20</td>
<td>History</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>21</td>
<td>Media</td>
<td>20.5</td>
<td>24</td>
</tr>
<tr>
<td>22</td>
<td>Studio Arts</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>23</td>
<td>Geography</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>24</td>
<td>Drama</td>
<td>23.5</td>
<td>26</td>
</tr>
<tr>
<td>25.5</td>
<td>Materials Technology</td>
<td>28.5</td>
<td>21</td>
</tr>
<tr>
<td>25.5</td>
<td>Environmental Studies</td>
<td>23.5</td>
<td>28</td>
</tr>
<tr>
<td>27</td>
<td>Technological Des &amp; Dev</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>28</td>
<td>International Studies</td>
<td>28.5</td>
<td>31</td>
</tr>
<tr>
<td>29.5</td>
<td>Catering</td>
<td>28.5</td>
<td>-</td>
</tr>
<tr>
<td>29.5</td>
<td>Systems and Technology</td>
<td>-</td>
<td>32</td>
</tr>
</tbody>
</table>

Source: VCAB data base (extraction)

Subjects not appearing in this comparison: Subject: State Rank Female State Rank Male
Music: 27 26
Aust Studs: 25 24
Outdoor Ed: 29 22
Theatre Studs: 30 32

Generally speaking one might suggest that the group of students under study are:
(a) more "commercial" subjects' oriented than their State-wide fellow students e.g. where Economics is ranked 29th for males and 17th for females in State enrollments, it is 12th and (equal)13th respectively for the group under study. Females are (slightly) more represented in Legal Studies than across the State (Rank 3 cf Rank 5); Males less represented (Rank 10 cf Rank 5).

(b) under-represented in such subjects as Materials Technology, Technological Design and Development, and, Systems and Technology. This is particularly true for the males in our study.

(c) The new VCE subject "Information Technology" has become a popular subject choice for girls holding fifth place, and equal sixth for boys in our sample; this is lower by comparison, however, with first and second place (resp) in the State.

4.5.1. GENDER DIFFERENCES IN SUBJECT CHOICE

Looking at the ten most popular subjects for both boys and girls there are significant differences in subject choice according to gender.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank</td>
<td>%</td>
</tr>
<tr>
<td>Maths - Not specified</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>C &amp; A</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Physics</td>
<td>3</td>
<td>7.3</td>
</tr>
<tr>
<td>R &amp; D</td>
<td>4</td>
<td>6.7</td>
</tr>
<tr>
<td>S &amp; N</td>
<td>5</td>
<td>5.9</td>
</tr>
<tr>
<td>Accounting</td>
<td>6.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Information Technology</td>
<td>6.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Graphic Communication</td>
<td>8</td>
<td>5.2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9</td>
<td>4.8</td>
</tr>
<tr>
<td>Legal</td>
<td>10</td>
<td>4.4</td>
</tr>
<tr>
<td>Biology</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Human Development</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Psychology</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

TOTALS                        | 62.5  | 43.6    |

In performing analyses to ascertain if the above rank orders are perfectly correlated, a rank-correlation coefficient of $r_s = 0.4247$ was found. Although not statistically significant at $p < .05$ the figure is approaching significance at this level. ($t_{(11)} = 1.556$, $p > .05$)
This figure indicates that a positive relationship between the two ranks does exist, however, there is only a low degree of agreement between the subjects chosen by boys and girls.

As the reader will also note, academically rigorous subjects - traditionally considered to be maths and science subjects - account for 42.1% of the boys' subject selections, but only 18.5% of the girls, therefore, in their selection of these subjects boys outnumber girls more than two to one.

4.6 THE QUESTIONNAIRE

4.6.1 SUBJECT ASSESSMENT

As they had in 1989, students were asked to assess which subjects they felt they usually performed best in, and which subjects they felt they did not usually perform so well in. The assessment was to be the student's own and the writer wished to see whether there were any significant changes in perceptions of students' "best" subjects and "worst" at Year 9 and at Year 12. If, as an example, a student felt they did not perform well in maths at Year 9, "Maths is my worst subject!", would they still feel this way three years later?

For statistical purposes subjects were coded in clusters or groups based, broadly speaking, on the amount of mathematics content in the subject. As an example, English and Literature were coded "1", Physics "19", Maths "20". Subjects studied at Year 9 were related to Year 12 subjects on the basis of content similarity. (The complete analysis and code list is contained in Appendix 2)

Table 11 shows the subject areas where the greatest change occurred between self-assessed performance in subjects from 1989 to 1992. Only Mathematics and "Business" are statistically significant with "business" increasing tenfold and Maths with a 60% decrease in positive performance.

Table 11. "The school subject in which I usually do best is..."

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1</td>
<td>118</td>
<td>87</td>
<td>-31</td>
</tr>
<tr>
<td>Business¹</td>
<td>9</td>
<td>9</td>
<td>91</td>
<td>82</td>
</tr>
<tr>
<td>Human Dev²</td>
<td>11</td>
<td>1</td>
<td>49</td>
<td>48</td>
</tr>
<tr>
<td>Maths</td>
<td>20</td>
<td>197</td>
<td>74</td>
<td>-123</td>
</tr>
</tbody>
</table>

1. Subjects included in this code: (Year 12) Information Technology, Business Management, Accounting, Economics, Media and (Year 9) Business Education, Consumer Education
2. Subjects included in this code: (Year 12) Human Development - Home Economics, Psychology, and (Year 9) Child care (a sub-unit of Home Economics)
An analysis revealed that when Business and Maths (Codes 9 and 20) were excluded from the data because they are obviously highly significant and would bias the remaining data if included (these are known as outliers), there is no significant effect between choice of 'best' subject between 1989 and 1992. \( t_{(13)} = .5626, p > .05 \)

A breakdown by Gender, as in Table 12 below, illustrates just where the significant changes in Business and Maths took place, both in terms of declining and increasing perceptions.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td>28</td>
<td>90</td>
<td>23</td>
</tr>
<tr>
<td>Business</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Human Dev</td>
<td>11</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Maths</td>
<td>20</td>
<td>110</td>
<td>87</td>
<td>52</td>
</tr>
</tbody>
</table>

An analysis looking for significant effects attributable to gender found that there had not been a significant change in any of the above subject areas for either sex, between 1989 and 1992. (Females: \( t_{(14)} = 1.22, p > .05 \) and Males: \( t_{(15)} = 0.40, p > .05 \) although a larger sample may confirm what appears to be a trend for females to change what they perceive as their "best" subjects more often than males.

Similarly, a larger sample drawing upon school-based and VCAB results, may confirm Carpenter and Western's (1989) findings that females more accurately assess their abilities.

4.6.1.1. BEST SUBJECT - MATHS

When the boys in our sample were asked to nominate the subject in which they usually did best, in both 1989 at Year 9 and in 1992 at Year 12, they nominate Mathematics as their first choice. In 1989, 41.7% of boys chose Mathematics as their 'best' subject, by 1992 - considering a substantially widened curriculum and subject choice - 19.7% of boys still chose Maths as their 'best' subject. A ratio \( (1989/1992) \) of 2:1.

For the girls, Mathematics at Year 9 is close to an equal top choice with English. 26.8% of students choosing Maths (27.5% English), yet by 1992 only 6.7% of girls nominate it as their best subject. A ratio \( (1989/1992) \) of 4:1.

The disparity, therefore, between 1989 and 1992 is twice as great for girls as for boys.

In Victoria in 1992, the following number of girls and boys enrolled in maths:
Table 13. Unit 4 VCE Maths Participation in Victorian Govt Schools in 1992

<table>
<thead>
<tr>
<th>Maths Type</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA/CA (Exts)</td>
<td>2691</td>
<td>49.6</td>
<td>2738</td>
<td>50.4</td>
</tr>
<tr>
<td>RD/RD (Exts)</td>
<td>8648</td>
<td>58.5</td>
<td>6133</td>
<td>41.5</td>
</tr>
<tr>
<td>SN/SN (Exts)</td>
<td>2043</td>
<td>50.9</td>
<td>1974</td>
<td>49.1</td>
</tr>
<tr>
<td>Totals</td>
<td>13382</td>
<td>55.2</td>
<td>10845</td>
<td>44.8</td>
</tr>
</tbody>
</table>

Source: VCAB 1992. Subject Participation Rates - extraction from Data Base figures released to the Writer

Excluding Adult single subject enrolments some 30,472 students attempted VCE in 1992 in the Government School system; approximately 16,195 (53.1%) of these were female.

Drawing upon VCAB’s figures as shown in Table 13 it would seem that some 67% of girls attempt a unit (any unit) of mathematics at Year 12, but what cannot be extracted from VCAB’s data are the number of students (male or female) who attempt two maths, and are therefore concurrently enrolled in two of the above maths units. Such concurrent enrollments would inflate the figures of the actual number of students who complete a maths at Year 12.

The present study found that approximately 14% of students attempt two maths at Year 12, with the ratio of males to females being 2:1.

For those students who chose to complete two mathematics units at Year 12, the choice of subjects studied did not vary by gender, with the five most popular subject combinations being (in order of most to least popular):

1. English, 2 Maths, Chem, Physics [+/- one other]
2. English, 2 Maths, Chem, Biology,
3. English, 2 Maths, Chem, [+ one other]
4. English, 2 Maths, Physics [+ one other]
5. English, 2 Maths, Info Tech [+ one other]

A comparison of the mean RSPM and OLSAT scores for the students attempting 2 maths, revealed significant differences for this group of girls. As can be seen in Table 14 below:

Table 14. Mean RSPM and OLSAT scores for "2 math" Students

<table>
<thead>
<tr>
<th>Instrument</th>
<th>All females</th>
<th>2 Maths Females</th>
<th>All males</th>
<th>2 Maths Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSPM (Mean)</td>
<td>106.9</td>
<td>113.7</td>
<td>107.9</td>
<td>108.1</td>
</tr>
<tr>
<td>OLSAT (Mean)</td>
<td>89.5</td>
<td>101.0</td>
<td>91.4</td>
<td>96.1</td>
</tr>
</tbody>
</table>
The 26 females who enrolled in two maths at Year 12 had, three years earlier when they were tested, achievement scores 11.5 points higher than the average female, and general ability scores 6.8 points higher.

When a t-test was performed to ascertain whether there were significant differences in scores of the 2 Maths students compared with those of all the students, the differences on the RSPM were found not to be statistically significant \( t_{(1)} = 1.06, \ p > .05 \), however the OLSAT differences were significant at \( p < .1 \) \( t_{(1)} = 3.368, \ p < .1 \). A larger sample may confirm that OLSAT differences are significant between those students who choose two maths and the remainder of the student population.

The question which must be asked is why this group elected to attempt two maths at VCE. To suggest that higher achieving students select a more rigorously demanding syllabus, traditionally considered as one which includes maths/science subjects, begs the question of why the remaining 75 females who scored >101 on the OLSAT, for example, did not select an equally rigorous routine.

There appears however some degree of support to suggest that a higher school ability measure concurs with a 'traditionally' more demanding syllabus choice at VCE, and conversely that a lower achievement score may see a female - although not necessarily a male - drop maths from their repertoire of subjects. The girls who did not complete a maths at Year 12 had an average OLSAT score of 87.2 - 2.3 points below their overall grade peers and 13.8 points below the girls who elected two maths. Again the average RSPM scores for the girls who elected to drop maths prior to Year 12 was 104.4, 3.5 points below all their peers, and 9.3 points lower than the two math girls.

Whilst ability and achievement scores appear to directly relate to the selection or not of mathematics at Year 12 for females, the same cannot be said for males. The 'no maths' males had OLSAT scores averaging 90.6 only 0.8 points under their overall grade peers and RSPM scores of 105.8 only 2.1 points under the group average.

The Education for Girls Program, the Women Talk Work Register, the Statewide Equal Opportunity Resource Center and Hypatia's Place (a Maths, Science and Technology Education Center for Girls) suggest many reasons for the lack of women's participation in the maths, science and technology areas. If further research was found to support the present study's findings that girls with low achievement scores were more 'at risk' of dropping mathematics then early intervention could take place.

It would be worthwhile to know just how early under/low achievement begins to affect subject choice. The writer's suggestion would be that Year 8/Year 9 may be critical times for girls given that at around 14 years of age, girls increasingly become aware of a 'romantic' agenda. It is around this age that even highly able girls place great emphasis on romantic/popularity pursuits. These pursuits are seen as mutually exclusive of academic pursuits (and success). (Kerr, 1985; 1992)

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4.6.1.2 BEST SUBJECT - BUSINESS

To the writer, one of the most surprising results of the present study concerned the area of "Business Subjects" i.e. Accounting, Economics, Legal Studies and Politics, together with the choice of "Accountant" as a chosen occupation - fourth in popularity for girls and boys alike. (see 4.8 Occupations, p 51)

A review of student subject choices indicated the 'commercial' subjects of greatest popularity: Information Technology, Accounting, Legal Studies (all in the top 10 subjects by popularity for both boys and girls) and Economics.

A rank-correlation coefficient of $r_s = -4.068$ was obtained upon analysis of the four most popular "commercial" subjects: Accounting, Information Technology, Legal Studies and Economics. The test of significance of this (negative) correlation coefficient was not significant at $p < .05$ however, but was significant at $p < .1$. ($t_{(2)} = -1.4589$)

Thus whilst boys and girls are not perfectly opposed in the ranking of their popularity of their 'commercial' subjects it would appear that there are reasonably strong indications that they are in opposition.

4.6.1.3 BEST SUBJECT - HUMAN DEVELOPMENT GROUP

Although this group included both Human Development and Psychology less than 10% of the nominations were for Psychology (although for females it is the fourth most popular subject). Therefore it is the writer's intention to concentrate the discussion on Human Development.

The full title of this study is "Human Development - Home Economics" and according to VCAB's **Unit Descriptions Handbook for 1992**, Units 1 - 4 are entitled: The Emerging Adult; Family Environments; People, Food and Nutrition, and, Growth and Development.

The history and public perceptions of the subject of Home Economics, as it used to be called, is the subject of Private Lives and Public Domains: Home economics and girls' post-school options (1992) which forms part of a five-part publication of a Project of National Significance. As its author summarizes:

> Teachers regard the subject as being of value to all students but concede that it does have particular relevance for certain groups of students. These groups would be identified as the students who are not achieving well in other areas; the tertiary bound student who wants a subject which offers a break from the pressure of academic subjects; the girls whose futures are seen as closely linked to home making roles; and boys who are interested in careers as chefs.

VCAB enrollment figures indicate an increase in the number of males - as well as females - completing Units 3 and 4 of Human Development - Home Economics. Indeed from their course descriptions these are the Units that would particularly attract students interested in Human Biology, Food Technology, Dietetics and Nutrition and Catering. Hence those students who have specified a career in Catering, Hotel Management, Nursing (inc Mothercraft), Dietetics and being a Chef would find some occupational interest and merit in this subject - about 45 females and 20 males in this sample.

The writer should add in here "Mother", which was the specified occupation of one student. The reader will recall, however, that in excess of 50% of students volunteered their aspirations for the Year 2000 as, in the main, "rich, married and happy" (page 13). The majority of those girls who chose to elaborate, saw themselves as married and as having children - some went so far as to specify the children's gender (!) and to give potential names. Therefore in terms of albeit longterm occupation 'motherhood' may well be a consideration in many girls' choice of Human Development.

An examination of the actual number of students who completed Human Development shows 23 males (reasonably close to the above suggested figure for occupations) but 128 females - well in excess of those considering complimentary occupational fields.

As the quote from Private Lives... above suggests, there are other motivations for choosing the subject (..."a break from the pressure of academic subjects"...) and one might add that elements such as the consideration of a future role as home-maker enter into the decision of girls to enrol in this subject.

The options for enrolling in Human Development - poor achievement in other areas and a break from academic pressures - requires a larger sample than the present study but this study shows RSPM and OLSAT scores for the 151 students choosing this subjects as follows:

<table>
<thead>
<tr>
<th>RSPM Score</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70-84</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>85-99</td>
<td>9</td>
<td>45.0</td>
<td>31</td>
<td>24.4</td>
<td>27.2</td>
</tr>
<tr>
<td>100-114</td>
<td>8</td>
<td>40.0</td>
<td>63</td>
<td>49.6</td>
<td>48.3</td>
</tr>
<tr>
<td>115-129</td>
<td>3</td>
<td>15.0</td>
<td>28</td>
<td>22.0</td>
<td>21.1</td>
</tr>
<tr>
<td>&gt;129</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Mean</td>
<td>104.0</td>
<td>106.7</td>
<td></td>
<td></td>
<td>105.4</td>
</tr>
<tr>
<td>Mean All Students</td>
<td>107.9</td>
<td>106.9</td>
<td></td>
<td></td>
<td>107.4</td>
</tr>
</tbody>
</table>

NB: 3 males and 1 female did not have RSPM scores  N = 147
In a normal distribution we would predict some 16% at +1s.d. from the mean, our sample of males and females in fact had 23.1% of scores in excess of this, with 55% of males and 74% of females, scoring above average on the RSPM. A reverse of this distribution is seen in the OLSAT scores for the same group.

The OLSAT scores are contained in Table 16 below.

**Table 16. Distribution of OLSAT scores by Gender for Human Development students**

<table>
<thead>
<tr>
<th>OLSAT score</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;68</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2.4</td>
<td>2.1</td>
</tr>
<tr>
<td>69-84</td>
<td>4</td>
<td>19.0</td>
<td>31</td>
<td>24.8</td>
<td>24.0</td>
</tr>
<tr>
<td>85-100</td>
<td>14</td>
<td>66.7</td>
<td>60</td>
<td>48.0</td>
<td>50.7</td>
</tr>
<tr>
<td>101-116</td>
<td>2</td>
<td>9.5</td>
<td>30</td>
<td>30.0</td>
<td>21.9</td>
</tr>
<tr>
<td>117-132</td>
<td>1</td>
<td>4.8</td>
<td>1</td>
<td>0.8</td>
<td>1.4</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>92.4</td>
<td></td>
<td>91.7</td>
<td></td>
<td>92.1</td>
</tr>
<tr>
<td>Mean All Students</td>
<td>91.4</td>
<td></td>
<td>89.5</td>
<td></td>
<td>90.5</td>
</tr>
</tbody>
</table>

NB: 2 males and 3 females did not have OLSAT scores  N = 146

Again drawing upon normal distribution predictions we would expect 16% of scores to be +1 s.d or greater in fact on the OLSAT only 1.4% are, similarly at -1s.d. there are 26.1%, where we would also expect only 16%.

In contrast to the mean RSPM score for boys being 3.9 points below that of the overall sample of boys, and only 0.2 points under the mean for all girls we see OLSAT scores 1 point higher for males and 2.2 points higher for females than the overall group. Whilst this appears to run contrary to what we may have expected given the quote's comments about "poor achievement", it must be remembered that the group as a whole were underachieving in relation to their ability scores and that in this group of Human Development students only 14.3% of males and 30.8% of females - 1 in 7 males and 1 in 3 females - score above the mean on the OLSAT.

The suggestion of Human Development as providing a break from the pressure of academic subjects is interesting in the light that 3 of the 7 highest RSPM scoring females chose the subject at Year 12, except that not one of the three could be said to be completing a 'rigorous' academic syllabus.

With the present National movement to 'dissect' Home Economics by adding its Units to other courses in the curriculum, (Private Lives...,1992:18-28) it is surely imperative to find out just why more than 1 in 5 girls in our sample and 1 in 3 in Victoria choose this subject.
4.6.1.4. BEST SUBJECT - ENGLISH

The number of males who considered English as their best subject altered little between 1989 and 1992. As has been commented upon earlier, the ratio of males to females who considered English their best subject in 1989 was 1:3, and in 1992 a little less than 1:3.

Whilst the number of females who considered English their best subject in 1992 was 25% less than in 1989, the subject was still ranked as No 1 when females were asked to nominate. An analysis of variance revealed that the decline in the numbers of nominations between 1989 and 1992 was not statistically significant.

The close second to English has moved from Mathematics to Business for girls in 1992.

4.6.2 POOREST SUBJECTS

As well as being asked to answer the question of best subject, students were asked to respond to "The school subject in which I do not do so well is."

As was done for "best" subjects, the "poorest" subjects - as per student assessment - were coded in clusters or groups based, broadly speaking, on the amount of mathematics content in the subject. As an example, English and Literature were coded "1", Physics "19", Maths "20". Subjects studied at Year 9 were related to Year 12 subjects on the basis of content similarity. (The complete analysis and code list is contained in Appendix 2)

Table 16 shows the major areas of change between 1989 and 1992.

An analysis of this data (with the exclusion of subject 12 ("World" studies) and 20 (Maths) because of their highly significant changes) showed that the remainder of the changes were not statistically significant. (t(13) = 0.30, p >.05)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1</td>
<td>66</td>
<td>114</td>
<td>48</td>
</tr>
<tr>
<td>Phys Ed¹</td>
<td>6</td>
<td>48</td>
<td>1</td>
<td>-47</td>
</tr>
<tr>
<td>World studs²</td>
<td>12</td>
<td>98</td>
<td>11</td>
<td>-87</td>
</tr>
<tr>
<td>Maths</td>
<td>20</td>
<td>105</td>
<td>234</td>
<td>129</td>
</tr>
</tbody>
</table>

¹ Subjects included in this code: (Year 12) Phys Ed, Dance, Drama, and (Year 9) Phys Ed, Sex Ed, First Aid.
² Subjects included in this code: (Year 12) Geography, History, Australian Studies, International Studies, Environment Studies and (Year 9) Geography, History, Social Studies.
A breakdown by Gender shows that there were no statistically significant gender differences although a larger sample may confirm what appear to be trends in poorest subject nominations. (Males: $t_{(12)} = 1.11$ and Females: $t_{(13)} = 0.97$, $p > .05$).

Table 18 show males and females' poorest subject choices.

It should be remembered that Subjects specified as the poorest subjects in 1989 logically would be the first ones the student would consider dropping - unless active intervention on the part of school, parents and peers was implemented to discourage the student's decision. English, of course, cannot be 'dropped' no matter how poorly one believes one is performing.

Table 18. Gender analysis of "poorest" subjects by self-assessment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td>46</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>Phys Ed</td>
<td>6</td>
<td>8</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>World Stud</td>
<td>12</td>
<td>33</td>
<td>65</td>
<td>4</td>
</tr>
<tr>
<td>Maths</td>
<td>20</td>
<td>38</td>
<td>67</td>
<td>90</td>
</tr>
</tbody>
</table>

As was stated earlier these four subjects experienced the greatest shift in student perceptions as to how well the student was performing, although only Mathematics and World Studies were statistically significant at $p < .05$. Full details of tests and scores are contained in Appendix 3.

4.6.2.1. POOREST SUBJECT - ENGLISH

In 1992, twice as many boys as girls believed that they did not perform well in English. Between 1989 and 1992, there had been a 50% increase in the number of boys believing English was their weakest subject, but, the percentage increase for girls for the same period was almost 150%.

Looked at in relation to the size of the respective samples this means that 8% of girls at VCE see English as their poorest subject, but 25% of boys consider it so.

As an English specialist this causes the writer some concern.

4.6.2.2 POOREST SUBJECT - MATHS

Concern was expressed earlier about the changing perceptions of the girls in the sample with regard to Maths. We see, again here, highly significant increases in the number of girls suggesting that mathematics is their worst subject. Intervention and career counselling with girls has, we are told, increased the participation of girls in
mathematics, but it would seem that we have not increased their belief in their abilities in the area.

One hundred and twelve girls (1 in 3 girls in our sample) do not attempt a Maths at Year 12, 144 females (2 in 5) believe Maths to be their poorest subject and 22 (less than 7 in 100) consider it their best subject. Presumably the 49 remaining consider their Maths performance as "O.K."

In our discussion of Mathematics we should not forget, of course, that a group of males do not complete a maths at Year 12. These 50 students or 1 in 5 of the male population also believe that the subject is not necessary for their future career choice (although one wonders about an aspiring Engineer and an aspiring Doctor!) or feel they do not perform well enough in the subject to include it in their Year 12 syllabus (or both).

In all subjects - with the exception of Mathematics - the likelihood of a student who had dropped a subject still choosing to nominate it as their poorest subject, was, the writer would suggest, minimal. In Mathematics this was not the case.

Approximately 1 in 3 students (regardless of sex) who had dropped maths still nominated it as their poorest subject in Year 12. The 'hangover' of anti-maths sentiment appears to remain after mathematics has been dropped. Whether this may lead to a rejection of maths and maths-related areas in the future (even longterm in advising their own children?) deserves further study.

4.6.2.3 "NO MATHS" STUDENTS

As with the two maths' students earlier the writer analyzed the "no-maths" students responses. Table 19 shows the average RSPM and OLSAT scores for this group of 112 females and 50 males of "no maths" students in relation to their 2-maths counterparts and the total sample.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>FEMALES</th>
<th>MALES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All females</td>
<td>NO maths</td>
</tr>
<tr>
<td>RSPM (mean)</td>
<td>106.9</td>
<td>104.4</td>
</tr>
<tr>
<td>OLSAT (mean)</td>
<td>89.5</td>
<td>87.2</td>
</tr>
</tbody>
</table>

An analysis of this data revealed that there was a statistically significant difference (but only at p < 0.1) between the RSPM scores of those students who did not complete a maths when compared with the scores of all students (RSPM: \( t_{(1)} = 3.470, p < .1 \)). The OLSAT at p < .1 was, however, not significantly different for the No Maths group when compared to that of all students (\( t_{(1)} = 2.066 \)).

In looking for differences between the score of those students who do not complete a maths compared to those who complete two maths, no statistically significant differences were found across the two groups. The mean RSPM of the No Maths
student compared to the two Maths student was not statistically significant ($t_{(1)} = 1.656, p > .05$) nor was the OLSAT ($t_{(1)} = 2.325, p > .05$)

Nor were there statistically significant differences attributable to gender on the RSPMs of the two groups ($t_{(1)} = 0.5998, p > .05$) or the OLSATs ($t_{(1)} = 0.1807, p > .05$)

As was suggested earlier in the discussion of the two maths students, there are indications that ability and achievement scores for this sample appear to relate more directly to the selection, non-selection and dual selection of mathematics at Year 12 for girls than they do for boys. This 'trend' whilst not statistically significant is based upon the greatest variation on the RSPM occurring between no maths females and 2 maths females where the ability scores differ by some 9.3 points in favour of the two maths girls. The OLSAT variation, similarly, is more than twice as large as for males - being 13.8 for no maths/2 maths girls and 5.5 for no maths/2 maths boys. Further research drawing upon a larger sample may affirm or refute such a 'trend', particularly with respect to females.

When the poorest subjects of this no maths group were analyzed we found that at Year 9:

(a) only 26.6% of males and 34.8% of females saw maths as their poorest subject. This means that approximately 70% of these no maths students in Year 12 felt they had been 'passable' - at the least - in maths three years earlier. It needs to be recalled that the present research suggests that nearly 27% of girls nominate Maths as their best subject at Year 9 but only 6.7% at Year 12. (A drop by a factor of four)

(b) In 1989, 16% of the boys and 11.6% of the girls who will later choose not to complete a Maths at Year 12, feel that Science is their poorest subject at school.

(c) In 1989, 10% of the 'no maths' boys and 15.2% of the 'no maths' girls felt that the 'world' studies group of Geography, History and Social Studies was their poorest subjects.

When asked their poorest subjects at Year 12, the same group now reveals that:

(d) 8% of the boys and 12.5% of the girls nominate Biology as their poorest subject. The only other 'science' subject nominated is Physics for 1 male and 2 females.

(e) 8% of males and 9.8% of females believe Subject 9 (Accounting, Information Technology) is now their poorest subject.

(f) 6% of males and 8% of females believe Subject 9 (Legal Studies, Business Management, Economics, Politics) is now their poorest subject.

(g) and, in an exception to all other subjects, 32% of males and 25.9% of females who did not complete a Maths at Year 12 still nominate Maths as their poorest subject. As was commented upon earlier the 'hangover' or the spectre of an anti-maths sentiment lingers on.
In summary, it would appear that Year 9 students who believe that Maths and Science are their poorest subjects are most likely to drop maths by Year 12. The 'no maths' group at Year 12, regardless of sex, are less likely to be positive about their ability in Maths, Science and Technology - particularly Information Technology - subjects than their classmates.

Of the males not completing a maths 27% and 25% wish to take up University and TAFE courses respectively in 1993. Of the remainder: 25% will seek work; 8% will repeat Year 12 and 15% will seek apprenticeships/training. In contrast, 50% and 23% of girls will seek University and TAFE courses respectively; 6% will study in other Institutions and 6.5% will seek apprenticeships/training. A further 7% will seek employment, 0.8% will repeat and after a year off 7% wish to go to University.

What this means is that 80% of the girls and 52% of boys in this no maths group wish to pursue further study. The decision they have made to drop mathematics has severely narrowed the University options (if not TAFE options) available to them. Has this important decision, the writer would ask, been made in the full knowledge of its ramifications and after appropriate consultation with the Career Counsellor?

4.6.2.4 POOREST SUBJECT - PHYSICAL EDUCATION GROUP

Whilst not statistically significant \( t_{(13)} = 0.97, \ p > .05 \) there has been, since 1989, a substantial change in the number of females, in particular, who no longer consider physical education as their poorest subject. Although this group includes Dance, Drama, Sex Education and First Aid, well in excess of 95% of the nominations for poorest subject in 1989 were P.E. (None by the way for Sex Ed!)

A similar warning exists that, of course, students may well have dropped P.E. before Year 12, but it will be recalled 41 females (12.5%) and 29 males (11%) completed VCE Physical Education in our sample. State percentages appear to be around 15% for males and 15.5% for females - which is substantially higher than the National percentages of 2.8% and 1.8% (Statistical Annex, NRS4, 1991:25).

Perhaps more work on girls' participation - and as a by-product boys' participation - has been instigated in Victoria to achieve figures five times the National average. There have been a number of Projects of National Significance (e.g. Turning On The Turned-Off Girl in Physical Education, 1986) which highlighted concerns of sexual harassment from boys and the poor attitude of male teachers towards girls and girls' sports.¹

¹. Although Projects of National Significance such as Turning On The Turned-Off Girl in Physical Education (1986) would have been in place by the time of the 1989 Questionnaire it is likely that their full impact had not been felt through the Secondary curriculum - such Projects often filtering up through the Primary curriculum. Single sex Physical Education classes, as an example, whilst discussed in National Significance Projects of the late 1980's are still the exception rather than the rule in our schools in 1992.
Concerned, too, by the increasingly 'unfit' female population graduating from Victorian and Australian schools active intervention has been encouraged including programs such as single sex PE classes throughout the Secondary years and increasing the ranks of female role models in PE Teaching. However, whilst "Teacher" was the top female occupational career choice there was only one female PE Teacher-aspirant, compared to four males in the present sample.

As well as the establishment of the Victorian Institute of Sports, and the esteem in which this Institute and its students are held, Victoria's 'push' on PE is reflected in the number of Government schools who offer PE at a Unit 4 level. When this is compared with the frequency of other subjects being offered, Physical Education ranks 10th.

Table 20 gives VCABs' 1992 figures.

Table 20. Comparison of the number of Government schools offering subjects at a Unit 4 level

<table>
<thead>
<tr>
<th>Subject</th>
<th>No of schools</th>
<th>% 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>358</td>
<td>100.0</td>
</tr>
<tr>
<td>Information Tech.</td>
<td>330</td>
<td>92.2</td>
</tr>
<tr>
<td>Legal Studies</td>
<td>319</td>
<td>89.1</td>
</tr>
<tr>
<td>Physics</td>
<td>316</td>
<td>88.3</td>
</tr>
<tr>
<td>Accounting</td>
<td>313</td>
<td>87.4</td>
</tr>
<tr>
<td>Chemistry</td>
<td>306</td>
<td>85.5</td>
</tr>
<tr>
<td>R &amp; D (excl Exts)</td>
<td>297</td>
<td>83.0</td>
</tr>
<tr>
<td>Graphic Comm.</td>
<td>285</td>
<td>79.6</td>
</tr>
<tr>
<td>Human Devel</td>
<td>276</td>
<td>77.1</td>
</tr>
<tr>
<td>Physical Education</td>
<td>269</td>
<td>75.1</td>
</tr>
</tbody>
</table>

1. As no Total number has been supplied, the number of schools teaching English 4 has been used as a base. N = 358

4.6.2.5 POOREST SUBJECT - 'WORLD' STUDIES GROUP

Looking at the overall population, regardless of sex, the change in the group's perceptions of Subject 12 - which the writer has chosen to call "world" studies - was statistically highly significant in its declining nominations with only 11 students nominating it as their poorest subject compared to 98 students in 1989 - a decline of almost 10 to 1. However, when each sex is considered separately an analysis of variance reveals that there is no significant statistical effect, although the results particularly for males are approaching the rejection region. (Females $t_{13} = 0.97, p >.05$; Males $t_{13} = 1.11, p >.05$)
Twice as many females as males feel they do not perform well in areas such as Geography, History and Social Studies at Year 9. Almost 1 in every 5 students considers this area to be their poorest in 1989.

It is the writer's contention that the decline in the number of student nominations in 1992 is due primarily to students not enrolling in these subjects at Year 12, and hence not being in a position to nominate them as their poorest.

In support of this the writer would cite the low numbers of students who participate in these subjects at Year 12 when they are elective. In subject rankings of popularity History, as an example, is the highest of this subject group at the 20th rank in popularity with only 6.7% or 37 students enrolled in it; this is in contrast to Year 9 where all students (and this would include the 591 students of the sample) are obliged to complete two of either History, Geography or Social Studies.

Thus, it would appear that there is a move away from the subjects rather than a change in attitude of self-performance which accounts for the overall statistical effect of being an 'outlier' - obviously statistically significant and capable of biasing the remaining data.

Little appears to have been written about the low number of student enrolments across the State in these subject areas, and none are specified by the DSE as priority areas - as is, for example, LOTE.

Seven separate History (Unit 4) are on offer through VCAB, during 1992 only 6 were taught in Government Schools. Only two of these - Australian History and Revolutions - were widely taught, Australian History being offered in some 36% of Government Schools and Revolutions in 11%. Any of the other four History Unit 4 areas occur in less than 10% of schools.

On reviewing the figures the writer would question the necessity of seven units on offer for a total of only 8.5% of the student population; four drawing less than 1% of the total Victorian student population. (Although as we shall see later there are some 32 Languages Other Than English on offer for an even smaller student population.)

The number of History Unit 4 enrolments for the State's Government Schools is shown in Table 21.
\(N = 30,472\)

<table>
<thead>
<tr>
<th>History - Unit 4</th>
<th>No. of Males</th>
<th>No. of Females</th>
<th>Total</th>
<th>% of all students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian History</td>
<td>663</td>
<td>1150</td>
<td>1813</td>
<td>5.9</td>
</tr>
<tr>
<td>Culture Contact in the Pacific</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>History of Western Ideas</td>
<td>28</td>
<td>49</td>
<td>77</td>
<td>0.25</td>
</tr>
<tr>
<td>Koori History</td>
<td>0</td>
<td>15</td>
<td>15</td>
<td>0.05</td>
</tr>
<tr>
<td>Nationalism and the Modern State</td>
<td>10</td>
<td>7</td>
<td>17</td>
<td>0.06</td>
</tr>
<tr>
<td>Revolutions</td>
<td>260</td>
<td>326</td>
<td>586</td>
<td>1.9</td>
</tr>
<tr>
<td>The City in History</td>
<td>19</td>
<td>76</td>
<td>95</td>
<td>0.31</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>980</strong></td>
<td><strong>1623</strong></td>
<td><strong>2603</strong></td>
<td><strong>8.54</strong></td>
</tr>
<tr>
<td><strong>% of Student Population</strong></td>
<td>3.22</td>
<td>5.32</td>
<td>8.54</td>
<td></td>
</tr>
</tbody>
</table>

4.7 ATTITUDES TO SCHOOL

Students were asked to record their attitudes to school using a 3 X 3 rating matrix. The writer was unhappy with the design of this section of the questionnaire believing that it did not reveal as much as it might have, but in order to directly compare current attitudes with the students' responses in 1989 (McGuigan, 1992) the rating scale was kept.

For statistical purposes each Attitude attracted a rating as follows:

School is...

(i) Boring So So Exciting  
1           3            5  
(ii) Hard So So Easy  
1           3            5  
(iii) Fun So So Not Nice  
1           3            5  

It became necessary to add "0" for Not Specified.

Unlike McGuigan (1992) in his analysis of the original responses the writer has chosen not to separate the above into 7 distinct categories. McGuigan chose to group together all "So So" responses. The rationale for the decision in the present study stems from what must be considered a different philosophy in viewing the students' responses. It is the writer's belief that trends are more distinguishable when one considers the eighteen all around attitudes - each with three categories - which have responses \( N \gg 6 \).
Having examined responses to the 1989 and 1992 surveys, this writer, unlike McGuigan, does not believe that "333" ("so so /so so/ so so") was the "easy" option - akin to, possibly, the "donkey vote" - nor a sign of indecision.

The present writer believes that "000" - leaving the survey blank - was the "easy" option and a few students chose to take it (four in 1989 and thirteen in 1992). Any other response on a student's part was a considered step. To circle "hard" - and nothing else - was to make a comment on schooling, just as to circle "333" was to show a considered middle position between extremes: school was neither boring nor exciting, nor was it hard or easy, and school's "O.K." - neither fun nor not nice.

McGuigan (1992) suggests that "333" equates to "ambivalence". Whilst the writer does not deny that this may be true, it is also possible that "333" indicates a position on the student's part of total disinterest, unconcern and non-involvement in school matters. If there is any likelihood that this is the case, then "333" should not be labeled with the misnomer of "ambivalence".

That there is some likelihood of this has been suggested in the work of previous researchers.

In a study of Sydney's youth by Connell, Stroobant, Sinclair, Connell and Rogers (1975:229), the researchers found a predominantly neutral attitude to school:

> The consensus is a tepid, neither here nor there, wishy-washy refusal to praise or condemn. The majority of teenagers, it appears, just tolerate the school. And the average of tolerance sits at much the same level over the school years...and in different kinds of school and different social classes.

Similarly, in her study of Victorian Year 12 students in the 1980's, Margaret Batten (1988:5) concluded in her overview of post-compulsory schooling:

> It would seem, from the evidence of student opinion and perceptions, that for most students the colour of their secondary schooling experience is pale grey; for some students the colour deepens to black, for some it lightens towards white, but for the majority of our adolescent population, life at school is not the stimulating, illuminating and worthwhile experience that educators would want it to be.

The writer feels that for students in the 1990's 'pale grey' appears still to be the favoured educational 'colour'.

Indeed, as we shall see, the major and only significant change was the increase from one half of the sample of students to two-thirds of the sample who found schooling without extremes - "so...so" - Batten's (1988:5) "pale grey".

In looking at student responses of greater than, or equal to, six we have covered 90.9% of the 1989 population's responses, and 90.0% of 1992.
An analysis conducted on the following data, excluding the highly significant change in "333", indicated that no other changes were statistically significant, ($t_{(16)} = 1.20, p > .05$), although $t$ is approaching the rejection region. Thus, the major and only significant change was the increase from one in two students to two in three students who found schooling without extremes - "so...so": a "pale gray" - an 33% increase since 1989.

Table 22 shows the eighteen resultant attitude categories, regardless of gender, for the present sample under study.

(To assist the reader with comprehension and comparison of this data, a copy of the attitude rating matrix is provided above the table).
Table 22. "School is..."

<table>
<thead>
<tr>
<th></th>
<th>Boring</th>
<th>so so</th>
<th>Exciting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Hard</td>
<td>so so</td>
<td></td>
<td>Easy</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Fun</td>
<td>so so</td>
<td></td>
<td>Not Nice</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

"0" - Not Specified

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>so so / so so / so so</td>
<td>333</td>
<td>260</td>
<td>50.0</td>
<td>352</td>
<td>66.7</td>
<td>92</td>
</tr>
<tr>
<td>so so / easy / so so</td>
<td>353</td>
<td>59</td>
<td>11.3</td>
<td>8</td>
<td>1.5</td>
<td>-51</td>
</tr>
<tr>
<td>so so / so so / not nice</td>
<td>335</td>
<td>11</td>
<td>2.1</td>
<td>27</td>
<td>5.1</td>
<td>16</td>
</tr>
<tr>
<td>so so / hard / fun</td>
<td>311</td>
<td>8</td>
<td>1.5</td>
<td>7</td>
<td>1.3</td>
<td>-1</td>
</tr>
<tr>
<td>so so / easy / so so</td>
<td>353</td>
<td>23</td>
<td>4.4</td>
<td>5</td>
<td>0.9</td>
<td>-18</td>
</tr>
<tr>
<td>so so / hard / so so</td>
<td>313</td>
<td>14</td>
<td>2.7</td>
<td>27</td>
<td>5.1</td>
<td>13</td>
</tr>
<tr>
<td>so so / hard / not nice</td>
<td>315</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>1.7</td>
<td>9</td>
</tr>
<tr>
<td>so so / so so / fun</td>
<td>331</td>
<td>51</td>
<td>9.8</td>
<td>23</td>
<td>4.4</td>
<td>-28</td>
</tr>
<tr>
<td>so so / - / -</td>
<td>300</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>1.5</td>
<td>8</td>
</tr>
<tr>
<td>boring / so so / not nice</td>
<td>135</td>
<td>16</td>
<td>3.1</td>
<td>15</td>
<td>2.8</td>
<td>-1</td>
</tr>
<tr>
<td>boring / hard / not nice</td>
<td>115</td>
<td>3</td>
<td>0.6</td>
<td>7</td>
<td>1.3</td>
<td>4</td>
</tr>
<tr>
<td>boring / easy / so so</td>
<td>153</td>
<td>6</td>
<td>1.2</td>
<td>0</td>
<td>0</td>
<td>-6</td>
</tr>
<tr>
<td>boring / so so / so so</td>
<td>313</td>
<td>25</td>
<td>4.8</td>
<td>12</td>
<td>2.3</td>
<td>-13</td>
</tr>
<tr>
<td>exciting / so so / fun</td>
<td>531</td>
<td>25</td>
<td>4.8</td>
<td>7</td>
<td>1.3</td>
<td>-18</td>
</tr>
<tr>
<td>exciting / - / fun</td>
<td>301</td>
<td>6</td>
<td>1.2</td>
<td>0</td>
<td>0</td>
<td>-6</td>
</tr>
<tr>
<td>- / so so / -</td>
<td>030</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1.1</td>
<td>6</td>
</tr>
<tr>
<td>- / - / fun</td>
<td>001</td>
<td>9</td>
<td>1.7</td>
<td>2</td>
<td>0.4</td>
<td>-7</td>
</tr>
<tr>
<td>- / - / -</td>
<td>000</td>
<td>4</td>
<td>0.8</td>
<td>13</td>
<td>2.5</td>
<td>9</td>
</tr>
</tbody>
</table>

TOTAL 520 100 528 99.9 8

Did all students change their attitude to school?

Two out of three students did, or 67.3% of the sample. Of those whose attitude remained consistent, the details are as follows:
Table 23. Consistent attitudes to School 1989 to 1992

<table>
<thead>
<tr>
<th>Attitude - &quot;School is...&quot;</th>
<th>Code</th>
<th>Number of students</th>
<th>% of the Total 591</th>
</tr>
</thead>
<tbody>
<tr>
<td>So so / So so / So so</td>
<td>333</td>
<td>178</td>
<td>30.1</td>
</tr>
<tr>
<td>So so / So so / Boring</td>
<td>331</td>
<td>5</td>
<td>0.85</td>
</tr>
<tr>
<td>So so / Hard / So so</td>
<td>313</td>
<td>3</td>
<td>0.51</td>
</tr>
<tr>
<td>Boring / So so / So so</td>
<td>133</td>
<td>2</td>
<td>0.34</td>
</tr>
<tr>
<td>So so / So so / Not Nice</td>
<td>335</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>So so / Easy / So so</td>
<td>353</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>So so / Easy / Fun</td>
<td>351</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>Boring / Easy / Not Nice</td>
<td>155</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>Exciting / So so / Fun</td>
<td>531</td>
<td>1</td>
<td>0.17</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>193</td>
<td>32.65</td>
</tr>
</tbody>
</table>

As can be seen above 193 students (32.7%) of our 591 sample hold the same attitude to school which they held some 3 years ago. In the main this attitude may be expressed as "school is neither boring nor exciting, neither hard nor easy, and it's O.K. - neither fun nor not nice".

The 178 students who held this attitude across the three years are 50.6% of all those students who feel this way in 1992. This would indicate that these 178 students are joined by an almost similar number of students who have changed their opinion about school over the last three years. Whether the new "so so" students have moved from positions of feeling positive or negative about school will be discussed in Section 4.7.2 Ranking of Attitudes.

4.7.1 "SCHOOL IS SO SO...SO SO...SO SO..."

An analysis of the RSPM and OLSAT scores for this "333" attitude group reveals the following distributions for the 58% of all males (153 of 264 males) and 60.9% of all females (199 of 327) who responded this way.

When a t-test was performed to see whether the means on the RSPM of the '333' attitude group were statistically significantly different from the means of the total students at each school, the resultant $t_{(12)} = 1.688$ was not significant at $p < .05$, but is within 0.1 points of significance at $p < .1$.

School #115 was excluded from the calculations as no students recorded "333" attitudes in this school (N = 6). Why this school should be the exception the writer cannot hypothesize. Another school with a similarly small sample size (#119) recorded 3 of the 5 as "333", but at School #115 the six students had six different attitudes, covering the range from negative to positive - there appears to be no common theme at the school.
Table 24. Distribution of RSPM by School for the "333" attitude group.

<table>
<thead>
<tr>
<th>RSPM score</th>
<th>126</th>
<th>123</th>
<th>133</th>
<th>112</th>
<th>124</th>
<th>127</th>
<th>130</th>
<th>128</th>
<th>119</th>
<th>115</th>
<th>132</th>
<th>111</th>
<th>120</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70-84</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>1.7</td>
</tr>
<tr>
<td>85-99</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>78</td>
<td>22.2</td>
</tr>
<tr>
<td>100-114</td>
<td>21</td>
<td>22</td>
<td>11</td>
<td>9</td>
<td>25</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>11</td>
<td>15</td>
<td>10</td>
<td>41.5</td>
</tr>
<tr>
<td>115-129</td>
<td>15</td>
<td>20</td>
<td>12</td>
<td>7</td>
<td>14</td>
<td>5</td>
<td>9</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>11</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>&gt;129</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>2.6</td>
</tr>
<tr>
<td>No RSPM</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5.14</td>
</tr>
<tr>
<td>333 Mean</td>
<td>108</td>
<td>112</td>
<td>108</td>
<td>107</td>
<td>105</td>
<td>106</td>
<td>109</td>
<td>105</td>
<td>100</td>
<td>95.3</td>
<td>109</td>
<td>110</td>
<td>102</td>
<td>102.4</td>
<td></td>
</tr>
<tr>
<td>School Mean</td>
<td>106</td>
<td>107</td>
<td>109</td>
<td>103</td>
<td>109</td>
<td>111</td>
<td>109</td>
<td>108</td>
<td>102</td>
<td>97.2</td>
<td>105</td>
<td>111</td>
<td>108</td>
<td>101.2</td>
<td></td>
</tr>
<tr>
<td>333 n</td>
<td>44</td>
<td>48</td>
<td>33</td>
<td>22</td>
<td>47</td>
<td>16</td>
<td>22</td>
<td>14</td>
<td>12</td>
<td>3</td>
<td>24</td>
<td>40</td>
<td>27</td>
<td>35.2</td>
<td></td>
</tr>
<tr>
<td>sample n</td>
<td>79</td>
<td>80</td>
<td>47</td>
<td>35</td>
<td>75</td>
<td>20</td>
<td>29</td>
<td>20</td>
<td>28</td>
<td>5</td>
<td>48</td>
<td>65</td>
<td>54</td>
<td>59.6</td>
<td></td>
</tr>
<tr>
<td>% of sample</td>
<td>55.7</td>
<td>60.0</td>
<td>70.2</td>
<td>62.9</td>
<td>62.7</td>
<td>80.0</td>
<td>75.9</td>
<td>70.0</td>
<td>42.9</td>
<td>60.0</td>
<td>00.0</td>
<td>50.0</td>
<td>61.5</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

The overall average RSPM score for this "333" group is 108.8 for males and 107.5 for females, not significantly different from that of the overall sample's 107.9 males and 106.9 for females.

The OLSAT scores for this same group are statistically not significant - from that of the other students at each school (t_{12} = 0.7973, p >.05). Overall, males scored 93.8, compared to 91.4 for the total sample, and females 93.1 compared with 89.5 for the sample. The OLSAT scores are distributed as in Table 25.
### Table 25. Distribution of OLSAT by School for the "333" attitude group

<table>
<thead>
<tr>
<th>OLSAT score</th>
<th>126</th>
<th>123</th>
<th>133</th>
<th>112</th>
<th>136</th>
<th>124</th>
<th>137</th>
<th>130</th>
<th>128</th>
<th>119</th>
<th>115</th>
<th>132</th>
<th>111</th>
<th>120</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;68</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>69-84</td>
<td>3</td>
<td>8</td>
<td>15</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>15</td>
<td>5</td>
<td>84</td>
<td>23.9</td>
<td></td>
</tr>
<tr>
<td>85-100</td>
<td>15</td>
<td>29</td>
<td>16</td>
<td>12</td>
<td>28</td>
<td>7</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>18</td>
<td>10</td>
<td>16</td>
<td>44.6</td>
<td></td>
</tr>
<tr>
<td>101-116</td>
<td>18</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>12</td>
<td>12</td>
<td>84</td>
<td>23.9</td>
</tr>
<tr>
<td>117-132</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>13</td>
<td>3.7</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>No OLSAT</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>333 Mean</td>
<td>102</td>
<td>94.2</td>
<td>86.0</td>
<td>88.9</td>
<td>95.1</td>
<td>98.5</td>
<td>95.0</td>
<td>84.8</td>
<td>86.7</td>
<td>92.0</td>
<td>91.5</td>
<td>91.3</td>
<td>96.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Mean</td>
<td>101.2</td>
<td>90.9</td>
<td>85.1</td>
<td>87.6</td>
<td>94.7</td>
<td>93.1</td>
<td>91.2</td>
<td>84.4</td>
<td>90.8</td>
<td>91.6</td>
<td>75.0</td>
<td>91.0</td>
<td>93.9</td>
<td>97.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>333 N</td>
<td>44</td>
<td>48</td>
<td>33</td>
<td>22</td>
<td>47</td>
<td>16</td>
<td>22</td>
<td>14</td>
<td>12</td>
<td>3</td>
<td>0</td>
<td>24</td>
<td>40</td>
<td>27</td>
<td>59.6</td>
<td>59.6</td>
</tr>
<tr>
<td>sample N</td>
<td>79</td>
<td>80</td>
<td>47</td>
<td>35</td>
<td>75</td>
<td>20</td>
<td>29</td>
<td>20</td>
<td>28</td>
<td>5</td>
<td>6</td>
<td>48</td>
<td>65</td>
<td>54</td>
<td>59</td>
<td>100</td>
</tr>
<tr>
<td>% of sample</td>
<td>55.7</td>
<td>60.0</td>
<td>70.2</td>
<td>62.9</td>
<td>62.7</td>
<td>80.0</td>
<td>75.9</td>
<td>70.0</td>
<td>42.9</td>
<td>60.0</td>
<td>60.0</td>
<td>50.0</td>
<td>61.5</td>
<td>50.0</td>
<td>59.6</td>
<td></td>
</tr>
</tbody>
</table>

The "333" attitude group can be seen to account for almost 60% of the sample's attitude to school and the reader will recall that this has been the only attitude coding to show statistically significant increases between 1989 (one in two students) and 1992 (two in three students).

#### 4.7.2. RANKING OF ATTITUDES

There has been a change in the attitude of the student body to school and this is able to be quite dramatically illustrated in a ranking of the Attitudes of students to school in both 1989 and 1992, as in Table 26.
Table 26. Ranking of Attitudes to School in 1989 and 1992

<table>
<thead>
<tr>
<th>Rank in 1989</th>
<th>&quot;School is...&quot;</th>
<th>Rank in 1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>So so / So so / So so</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>So so / Easy / So so</td>
<td>10.5</td>
</tr>
<tr>
<td>3</td>
<td>So so / So so / Fun</td>
<td>4</td>
</tr>
<tr>
<td>4.5</td>
<td>Boring / So so / So so</td>
<td>7</td>
</tr>
<tr>
<td>4.5</td>
<td>Exciting / So so / Fun</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Exciting / Easy / Fun</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>So so / Easy / Fun</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Boring / So so / Not Nice</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>So so / Hard / So so</td>
<td>2.5</td>
</tr>
<tr>
<td>10</td>
<td>So so / So so / Not Nice</td>
<td>2.5</td>
</tr>
<tr>
<td>-</td>
<td>No comment</td>
<td>6</td>
</tr>
<tr>
<td>-</td>
<td>Exciting / Easy / So so</td>
<td>8</td>
</tr>
<tr>
<td>-</td>
<td>So so / Hard / Not Nice</td>
<td>9</td>
</tr>
<tr>
<td>-</td>
<td>So so / - / -</td>
<td>10.5</td>
</tr>
</tbody>
</table>

These rankings account for 86% of responses (508 of 591) in 1989 and 85.3% (504) in 1992.

An analysis to ascertain the rank correlation co-efficient for the above data revealed a negative correlation with an $r_T = -0.2445$, although this is not statistically significant ($t_{(12)} = -0.8734$, $p > .05$).

The impression gained from the 1989 figures, however, is one which is a good deal more positive than 3 years later. At Year 9 these students might be perceived of as saying that "School is all right, I can do it and it's not a bad place to be." There is a suggestion of the 'carefree' in the responses of the 467 students who represent Ranks 1 to 7 inclusive.

By 1992 when one looks at Ranks 1 to 7 inclusive (coincidentally also 467 students) there is a more definite negativity bought about by students choosing - in the main - the negative end of the spectrum, where they opted for the positive three years earlier, for example, one coding "353" (School is So so / Easy / So so) has moved from Rank 2 in 1989 with 59 respondents (10%) to equal 10th position in 1992 with only 8 respondents (1.4%).

4.7.3 1992 - OTHER ATTITUDES TO SCHOOL

An analysis of the ranked order for responses in 1992, is shown by gender with RSPM and OLSAT scores, in Table 27 below.
A statistically significant gender difference was found between males and females who recorded responses as below ($t_{10} = 2.433, p < .05$) on their RSPM scores. No such statistical significance was found on the OLSAT ($t_{10} = 1.049, p > .05$)

**Table 27. Ranked responses of "other" Attitudes by Gender**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Attitude, &quot;School is...&quot;</th>
<th>No of resp.</th>
<th>% of 591</th>
<th>% Male</th>
<th>% Female</th>
<th>Male RSPM</th>
<th>Female RSPM</th>
<th>Male OLSAT</th>
<th>Female OLSAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>So so/So so/So so</td>
<td>352</td>
<td>59.6</td>
<td>153</td>
<td>43.5</td>
<td>199</td>
<td>56.5</td>
<td>108.8</td>
<td>107.5</td>
</tr>
<tr>
<td>2.5</td>
<td>So so/So so/not nice</td>
<td>27</td>
<td>4.6</td>
<td>14</td>
<td>51.9</td>
<td>13</td>
<td>48.1</td>
<td>103.9</td>
<td>109.6</td>
</tr>
<tr>
<td>2.5</td>
<td>So so / Hard / So so</td>
<td>27</td>
<td>4.6</td>
<td>11</td>
<td>40.7</td>
<td>16</td>
<td>59.3</td>
<td>103.1</td>
<td>108.8</td>
</tr>
<tr>
<td>4</td>
<td>So so / So so / Fun</td>
<td>23</td>
<td>3.9</td>
<td>10</td>
<td>43.5</td>
<td>13</td>
<td>56.5</td>
<td>103.7</td>
<td>106.1</td>
</tr>
<tr>
<td>5</td>
<td>Boring/So so/Not nice</td>
<td>15</td>
<td>2.5</td>
<td>10</td>
<td>66.7</td>
<td>5</td>
<td>33.3</td>
<td>108.5</td>
<td>114.4</td>
</tr>
<tr>
<td>6</td>
<td>No comment</td>
<td>13</td>
<td>2.2</td>
<td>5</td>
<td>38.5</td>
<td>8</td>
<td>61.5</td>
<td>93.2</td>
<td>110.5</td>
</tr>
<tr>
<td>7</td>
<td>Boring /So so/So so</td>
<td>12</td>
<td>2.0</td>
<td>7</td>
<td>58.3</td>
<td>5</td>
<td>41.7</td>
<td>109.3</td>
<td>107.0</td>
</tr>
<tr>
<td>8</td>
<td>Exciting/Easy/So so</td>
<td>10</td>
<td>1.7</td>
<td>5</td>
<td>50.0</td>
<td>5</td>
<td>50.0</td>
<td>109.4</td>
<td>117.4</td>
</tr>
<tr>
<td>9</td>
<td>So so/Hard/Not nice</td>
<td>9</td>
<td>1.5</td>
<td>2</td>
<td>22.2</td>
<td>7</td>
<td>77.7</td>
<td>108.5</td>
<td>109.6</td>
</tr>
<tr>
<td>10.5</td>
<td>So so/ Easy/ So so</td>
<td>8</td>
<td>1.4</td>
<td>5</td>
<td>62.5</td>
<td>3</td>
<td>37.5</td>
<td>116.8</td>
<td>116.3</td>
</tr>
<tr>
<td>10.5</td>
<td>So so/ - / -</td>
<td>8</td>
<td>1.4</td>
<td>3</td>
<td>37.5</td>
<td>5</td>
<td>62.5</td>
<td>99.0</td>
<td>101.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>504</td>
<td>85.4</td>
<td>225</td>
<td>44.6</td>
<td>279</td>
<td>55.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some interesting observations of gender differences in the RSPM and OLSAT scores include:

(a) whilst more boys than girls expressed boredom at school, (and at the same time stating school was neither easy nor hard as well as not nice - Ranking 5) the boys concerned scored 5.9 points lower on the RSPM than the girls who expressed this attitude.

(b) students who found school likewise boring, so so and so - this time neither fun nor not nice - (Ranking 7), were males of similar RSPM as Ranking 5 but the girls in this category scored 7.4 points less than the girls of Ranking 5. The OLSAT score, too, was 5.4 points higher for the girls who openly declared school was "not nice".

Girls' rankings would seem to indicate that those who show high ability (high RSPM score) with high achievement (high OLSAT score) are more likely to find school "Not Nice" than their lower ability, lower achievement counterparts.

There is insufficient data to confirm such an indication given the restricted sample size, but this is an area worthy of further attention.

(c) Similarly, an interesting observation is that those males who found school hard and not nice (not being either bored or excited by it - Ranking 9) scored less than one point different on the RSPM for males who found it easy and exciting (Ranking 8) but
there was an 18.9 point variation in the two sets of OLSAT scores. The "hard and not nice" group scoring 18.9 points lower.

Such a finding cannot be more than commented upon given such a small sample size.

4.7.4. SUMMARY - ATTITUDES

We spoke on page 48 of the impression gained from the student rankings of their attitudes towards school (ranks with N=66) in 1992, as Year 12s, compared with those of 1989 as Year 9s.

When students rank their attitudes, the top 7 ranks in 1989 (reflecting the attitudes of some eight out of ten students (79.4%)) show that whilst 4.2% of the sample were bored none perceived school as "not nice" or hard. 96% of them saw school as easy, fun, exciting or so so - singly or in combination.

By 1992, these top 7 rankings which still account for the same percentage of students' attitudes (79%) are now predominantly not positive towards school.

Only 23 students, less than 4%, are students for whom school is fun - they are neither bored nor excited by it, neither is it hard nor easy. A similar percentage (4.5%) are bored by school; 6.1% find it hard and 8.6% find school "not nice". Two in three now find school to be without extremes: "a pale gray".

Put generally, some 8 out of 10 of these students in Year 12 in 1992 - who as a group are the first full (i.e 2 year) VCE students - hold attitudes which are not positive towards school: finding it not nice, hard, boring, or just 'so so' - singly or in combination.

Obviously there is a need for further investigation to try to find out just what happens in three years to bring about such changes.

4.8 OCCUPATIONAL CHOICE

4.8.1. GENERAL

Students were asked to give some indication of the job that they would really like on completing their studies. For the majority of students, with only a handful of exceptions, this correlated with the latter section on the questionnaire indicating the field of tertiary study they wished to enter.
The responses given by this handful of students to this section could be considered as either 'flippant': a male specifying "garbo", but applying for a Bachelor of Science at the University of Melbourne and indicating a "B" average for his VCE marks; or, as "mismatched" that is, declaring a job choice - such as park ranger - but applying at a University to complete a Bachelor of Computing. The "mismatch" was the larger of the two.

Approximately 12 students who specified "don't know" under the job section (23%) were applying for a Bachelor of Science. This degree, it should be noted, is one which allows a number of occupational outcomes from Astronomer to Zoologist. Hence, the field of specialty at the present point may be unknown. Their job choice was, however, recorded as "Don't Know".

Where students supplied alternative occupations (approximately 10%), for statistical purposes the first occupation mentioned was taken.

In the area of alternative occupations the writer makes a comment in passing that when boys gave alternatives, and this was nowhere near as common as girls, they appeared in most instances to fall within the same professional category, for example an environmental scientist or a veterinary surgeon. When girls provided alternatives in career choice it appeared to the writer that the choices fell in widely discrepant categories: a nurse or a hairdresser; a teacher or an air hostess.

In keeping with this, boys specified a first and second preference for study, most usually changing just the place of study. Girls, who specified alternatives as well as those with only one job choice on the completion of their studies, appeared more frequently to opt for a first preference of, say, teaching and then a second preference of a 'less professional' form of study, for example, Beauty Therapy at a TAFE. It appears to the writer that the girls seemed to have some career aspiration but were almost prepared in advance not to get their first choice, and lowered their aspirations considerably for their second choice. Boys, it appeared, simply moved areas.

One can assume that for some girls the first aspiration may be unattainable - desire and ability will be discrepant; but the writer is concerned that in some instances desire and ability will be matched and that some factor - perhaps low achievement or social conditioning - will make the attainment of the first option only a "dream" where it could have been reality.

This the writer believes has an impact on the figures showing a higher number of females increasing their career aspirations between 1989 and 1992. The writer wonders whether, in fact, the girls truly did increase their aspirations or whether the 1989 career choice became 1992's (lower professional) alternative, a suggestion to which this small sample lends some support. This is an area that the writer plans to pursue.
4.8.2. "THE JOB I'D REALLY LIKE..."

In keeping with McGuigan (1992), students' responses to this question were coded using the Australian Standard of Classification of Occupations (ASCO) 1986. Occupational choices were broken down into the following main headings and assigned the corresponding numerical value:

1. Managers and Administrators
2. Professional
3. Para-professionals
4. Trades
5. Clerks
6. Sales and Personal Services
7. Plant and Machine Operators
8. Labourers and related fields

It was necessary for the writer to add:

0. Don't know
11. Repeating Year 12

To ensure that all student responses were identically classified the writer re-analyzed the 1989 responses as well as the 1992. Comparing these responses the following can be stated:

In 1992,

(a) 34% of students surveyed (201 of 591) aspired to careers in the same professional category as they had in 1989. 45.3% of these were male, 54.7% female. Of these 201 students, 90 or 44.8% were identical occupations to those cited by the student in 1989.

(b) 19.1% of students surveyed (113 of 591) lowered their occupational category choice from that which they specified in 1989. Of these 49.6% were male, 50.4% female.

(c) 25.7% of students surveyed (152 of 591) raised their occupational category choice from that which they selected in 1989. Of these 38.8% were male, 61.2% female. (The writer has raised some doubt as to the veracity of the female figure, however, on the previous page.)

(d) 12.7% of students surveyed (75 of 591) made up their mind on a career since they were asked in 1989, that is, they moved from "don't know" into one of the categories. Of these 44% were male, 56% female.

(e) 5.9% of students surveyed (35 of 591) became unsure of their career choice between 1989 and 1992. Of these 51.4% were male, 48.6% female.
(f) 2.5% of students surveyed (15 of 591) were consistently unsure of their career choice between 1989 and 1992. Of these 46.7% were male, 53.3% female.

4.8.2.1 1992 CAREER CHOICES BY ASCO CATEGORY

The job that students would really like on leaving school was analyzed by gender with the results listed in Table 28.

Table 28. 1992 Career choices by gender

<table>
<thead>
<tr>
<th>ASCO Category</th>
<th>Male</th>
<th>% of 264</th>
<th>Female</th>
<th>% of 327</th>
<th>Persons</th>
<th>% of 591</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mgrs &amp; Administrators</td>
<td>17</td>
<td>6.4</td>
<td>11</td>
<td>3.4</td>
<td>28</td>
<td>4.7</td>
</tr>
<tr>
<td>2. Professional</td>
<td>75</td>
<td>28.4</td>
<td>91</td>
<td>27.8</td>
<td>166</td>
<td>28.1</td>
</tr>
<tr>
<td>3. Para-Professional</td>
<td>61</td>
<td>23.1</td>
<td>113</td>
<td>34.6</td>
<td>174</td>
<td>29.4</td>
</tr>
<tr>
<td>4. Trades</td>
<td>47</td>
<td>17.8</td>
<td>25</td>
<td>7.6</td>
<td>72</td>
<td>12.2</td>
</tr>
<tr>
<td>5. Clerical</td>
<td>3</td>
<td>1.1</td>
<td>16</td>
<td>4.9</td>
<td>19</td>
<td>3.2</td>
</tr>
<tr>
<td>6. Sales &amp; Personal Serv</td>
<td>20</td>
<td>7.6</td>
<td>44</td>
<td>13.5</td>
<td>64</td>
<td>10.8</td>
</tr>
<tr>
<td>7. Plant &amp; Machine Ops</td>
<td>1</td>
<td>0.4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>8. Labourers &amp; rel fields</td>
<td>7</td>
<td>2.7</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>0. Don't know</td>
<td>27</td>
<td>10.2</td>
<td>25</td>
<td>7.6</td>
<td>52</td>
<td>8.8</td>
</tr>
<tr>
<td>11. Repeat Year 12</td>
<td>6</td>
<td>2.3</td>
<td>2</td>
<td>0.6</td>
<td>8</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>264</td>
<td>100.0</td>
<td>327</td>
<td>100.0</td>
<td>591</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The following may be inferred from this data:

(a) Twice as many males as females see themselves in senior management / administration roles. (Two in 31 persons compared with one in 31 persons)

(b) Approximately equal percentages from both sexes aspire to careers which involve extensive study and skills training to achieve a "professional" status. (34.8% of males compared with 31.2% of females)

(c) Almost 50% more females than males chose the para-professional occupations. This category includes major occupational groups such as teaching and nursing.

(d) In the trade areas boys outnumber girls more than 2 to 1, with, as we shall see, the most preferred occupation in this area for girls being that of Chef.

(e) In the clerical type occupations females outnumber males 5 to 1 with males preferring to elaborate on their choice of occupation, calling the position "VDU Operator" or "Property Valuations Clerk". Females with one exception - Clerk of Courts - used the term Secretary or Clerical.
(f) Twice as many girls as boys chose the Sales and Personal services area. Boys, again referring to themselves as "Sales Reps" and "Marketing Promotions", rather than "sales".

(g) Category 7, Plant and Machine Operators, was the smallest of all selected Categories, with only one person electing to pursue a career in this area. The male concerned wished to be a "Surf-board shaper (in a factory)" and whilst the writer may doubt the seriousness of this (and a handful of other occupations) the occupation stands as a serious choice just as "spy" and "archaeologist" do.

(h) As with the previous Category, only males mentioned careers in labouring and related fields. These careers included "garbo", "corn picker" and "gardener". As with the surf-board shaper, in (g) above, the seriousness of at least two of the seven males is doubtful: the "garbo" had applied for a Bachelor of Science course and the "corn picker" had previously made a number of disparaging comments on his questionnaire. These occupations are, however, legitimate ones and have been recorded as such.

(i) With two-thirds of their Year 12 completed approximately 35% more boys than girls are unsure as to what career they will pursue - 1 boy in 10; 1 girl in 7.

(j) A school term before results are finalized four times as many boys as girls plan to repeat Year 12. Overall about 1.5% of the sample.

Appendix 4 contains a school breakdown of this data.

4.8.3 THE PREFERRED OCCUPATIONS

4.8.3.1 MALE OCCUPATIONS

A listing of the top 25 Occupations chosen by males in response to the question, "The job I'd really like to have on completing my studies is..." appears in Table 29. This listing accounts for the choices of 79.5% (210 of 264) male students. Four students (1.5%) were planning to repeat Year 12 and the remaining 19% are spread over specific occupations drawing one or two students only.
Table 29. Top 25 Male Occupations

<table>
<thead>
<tr>
<th>Rank</th>
<th>ASCO Class</th>
<th>Description</th>
<th>No of resp</th>
<th>% of 264</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>Don't know</td>
<td>26</td>
<td>9.8</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Engineer (Civil, Elect, Chem)</td>
<td>21</td>
<td>8.0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Computer Programmer</td>
<td>19</td>
<td>7.2</td>
</tr>
<tr>
<td>4.5</td>
<td>2</td>
<td>Accountant</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>4.5</td>
<td>1</td>
<td>Own Business/Snr Mgr</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>Architect</td>
<td>11</td>
<td>4.2</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>Scientist (Various including Vet, Environmental, Astronomer, Biologist)</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>8.5</td>
<td>3</td>
<td>Police</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>8.5</td>
<td>4</td>
<td>Motor Mechanic</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>Graphic Artist/Designer</td>
<td>8</td>
<td>3.0</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>Carpenter/Cabinet maker</td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td>13.5</td>
<td>1</td>
<td>Hotel Manager</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>13.5</td>
<td>4</td>
<td>Electrical Mechanic</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>13.5</td>
<td>3</td>
<td>Teacher</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>13.5</td>
<td>2</td>
<td>Lawyer</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>17.5</td>
<td>3</td>
<td>Pilot</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>17.5</td>
<td>1</td>
<td>Sports Manager</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>17.5</td>
<td>2</td>
<td>Doctor</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>17.5</td>
<td>3</td>
<td>Physio or Chiropractor</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>21.5</td>
<td>4</td>
<td>Film Industry (Dir., Script wr)</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>21.5</td>
<td>3</td>
<td>Draughtsman</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>21.5</td>
<td>4</td>
<td>Sound Engineer</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>21.5</td>
<td>6</td>
<td>Travel &amp; Tourism (not flight att)</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>24.5</td>
<td>1</td>
<td>Stockbroker</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>24.5</td>
<td>2</td>
<td>Pharmacist</td>
<td>3</td>
<td>1.1</td>
</tr>
</tbody>
</table>

The majority of male preferred occupations are classified in ASCO Categories 1 - 4. Fifteen of the top 25 occupations - accounting for 126 or 60% of student choices - are in Professional or Para-professional fields; 12.4% or 26 in senior management and only 10.5% are in what could be considered 'traditional' trades.

The only classification nominated below Category 4 is the Category 6, Travel and Tourism, and according to Maureen Egan, President of Pacific and Australian Travel Association (anecdotal evidence, Dec 1992) this is one of the largest growth areas in TAFE/University courses. Still dominated by women this is a growing area of male interest. As a career Travel and Tourism is ranked towards the end of the male choices, but is high in the occupations for females at Rank Number 7. (This is separated in both instances from the Occupation of Flight Attendant or Air Hostess)
In conjunction with their preferred job on leaving school students were asked to state where they plan to "be" in 1993. These "outcomes" involved choices such as:

1. Going on to further study
   (a) at a University
   (b) at a TAFE College
   (c) at another institution
2. Try to find employment as..............
3. Take a year off before returning to study
4. Other. ......................................

Generally this section of the questionnaire was badly handled by the students with understandable confusion over recent tertiary amalgamations. The writer attempted to reflect student intentions in this area, which revealed that:

(a) **43.9% of males (116 of 264) plan to go to University** or University Colleges in 1993. Almost half of the sample want entry into University degree courses.

(b) **15.5% of males (41) plan to study TAFE sector courses** in 1993

(c) **4.2% of males (11) plan to go to other Institutions** such as Defence Force Academies (4); College of Arts (1); Academy of Sound Engineers (3); Police/Ambulance Training Colleges (2) and Not Specified (1)

(d) **One in five or 20.8% of males (55) plan to find Employment.** The largest group of these (34) plan to find positions as Apprentices/Trainees (this includes all those who elected a 'trade' as a career); 6 males would take "anything" and the remaining 15 specified jobs including sales, messenger boy, musician, soldier and customs officer.

(e) **One in thirteen or 7.6% of males (20) had decided to take a year off.** Nine of these (45%) planned to go on to University in 1994; four (20%) to TAFE courses in 1994. Three (15%) after taking a year off would take up a planned job, whilst four would, after a year off, take any work they could get.

(f) **4.5% of males (12) had other plans for 1993.** Ten (83.3%) were planning to Repeat Year 12; 1 planned on going on the Dole, and another, Overseas on a Scholarship. Whilst ten males specified in this section of the questionnaire that they were intending to Repeat Year 12 (under the section Other), four of them chose to specify a "job [they'd] really like on leaving school" - hence there is a disparity in the figures for (only) male Repeating students. The figure of ten males, recorded in this "Outcomes" most accurately reflects immediate plans.
4.8.3.2 FEMALE OCCUPATIONS

The top 25 occupations chosen by the 327 females in our sample are listed in Table 30. This listing accounts for the choices of 74.7% (245 of 327) female students. Two students (0.6%) were planning to repeat Year 12 and the remaining 24.5% are spread over specific occupations drawing one or two students only. (The comparison is made with male rankings).

Table 30. Top 25 Female Occupations (with Male rankings for comparison)

<table>
<thead>
<tr>
<th>Rank</th>
<th>ASCO Class</th>
<th>Description</th>
<th>No of resp</th>
<th>% of 327</th>
<th>Male Rank</th>
<th>Male N</th>
<th>Male %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Teacher</td>
<td>23</td>
<td>7.0</td>
<td>13.5</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>Don't know</td>
<td>21</td>
<td>6.4</td>
<td>1</td>
<td>26</td>
<td>9.8</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Nurse</td>
<td>20</td>
<td>6.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Accountant</td>
<td>19</td>
<td>5.8</td>
<td>4.5</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Psychologist</td>
<td>14</td>
<td>4.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>Scientist (Various including Vet, Environmental, Biologist)</td>
<td>13</td>
<td>4.0</td>
<td>7</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>Travel and Tourism</td>
<td>12</td>
<td>3.7</td>
<td>21.5</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>Physio/Occupat'l Therapist</td>
<td>12</td>
<td>3.7</td>
<td>17.5</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>Childcare worker</td>
<td>10</td>
<td>3.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>Lawyer</td>
<td>9</td>
<td>2.8</td>
<td>13.5</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>Artist/Art and Design</td>
<td>9</td>
<td>2.8</td>
<td>10</td>
<td>8</td>
<td>3.0</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>Business - Not Specified</td>
<td>9</td>
<td>2.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>Police</td>
<td>8</td>
<td>2.4</td>
<td>8.5</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>14</td>
<td>6</td>
<td>Air Hostess</td>
<td>7</td>
<td>2.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17.5</td>
<td>3</td>
<td>Mothercraft Nurse</td>
<td>6</td>
<td>1.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17.5</td>
<td>5</td>
<td>Secretary</td>
<td>6</td>
<td>1.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17.5</td>
<td>3</td>
<td>Social worker/welfare wrkr</td>
<td>6</td>
<td>1.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17.5</td>
<td>3</td>
<td>Vet Nurse</td>
<td>6</td>
<td>1.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17.5</td>
<td>4</td>
<td>Chef</td>
<td>6</td>
<td>1.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>3</td>
<td>Fashion Designer</td>
<td>5</td>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23.5</td>
<td>4</td>
<td>Photographer</td>
<td>4</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23.5</td>
<td>6</td>
<td>Actress</td>
<td>4</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23.5</td>
<td>1</td>
<td>Business Manager</td>
<td>4</td>
<td>1.2</td>
<td>4.5</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>23.5</td>
<td>4</td>
<td>Film Industry (Director etc)</td>
<td>4</td>
<td>1.2</td>
<td>21.5</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>23.5</td>
<td>1</td>
<td>Hotel Manager</td>
<td>4</td>
<td>1.2</td>
<td>13.5</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>23.5</td>
<td>3</td>
<td>Dental Nurse-Therapist</td>
<td>4</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

245  74.7

A rank correlation co-efficient of $r_s = -0.3844$, indicates that in the ranking of preferred occupations those occupations nominated by girls show a negative correlation to those chosen by boys. This negative correlation is highly significant. ($t_{(24)} = 2.086, p <.02$)
The majority of female occupations are in ASCO Category 3: Para-professional. Occupations in this category account for 11 of the 25 selections (44%) and 109 of the 245 students (44.5%). Whereas males chose seven Professional Category 2 occupations in their top 25, females have chosen only 4: Accountant, Psychologist, Scientist and Lawyer.

This professional category involves some 55 females or 22.4% whereas it accounted for 35% of male choices. Only 6.9% of females specified Category 1 occupations - a little over half the percentage specified by males. In Categories 5 and 6, Clerical and Personal services, 29 females or 11.8% selected occupations compared with only 1.8% of males.

Looking at "outcomes", where these girls plan to "be" in 1993:

(a) 55.4% of females (181 of 327) plan to go to University or University Colleges in 1993. Over half want entry into University degree courses.

(b) 22.3% of females (73) plan to study TAFE sector courses in 1993.

(c) 2.4% of females (8) plan to go to other Institutions such as College of Arts (4); Dental School (2); School of Nursing (1) and Nanny School (1)

(d) One in eleven or 8.9% of females (29) plan to find Employment. The largest group of these (9 or 33.3%) will take any work they can find; 6 plan to find positions as Apprentices/Trainees, 6 in sales/office work; 3 as Vet nurses; 2 as Dental Nurses; 1 in childcare; 1 into the Defence Forces and 1 into the Police Academy.

(e) One in twelve or 8% of females (26) have decided to take a year off. Thirteen of these (50%) plan to go to University in 1994; 5 (19.2%) to TAFE Courses in 1994; 2 (7.7%) to other institutions such as The Academy of Beauty Therapy and 6 (23%) to unspecified outcomes after their year off.

(f) 1.5% of females (5) had other plans for 1993. Two (40%) were planning to Repeat Year 12; 1 to travel; 1 to take up a Student Exchange and 1 to be a mother.

(g) Compared with some 9 males (3.4%) only 5 females (1.5%) gave no indication of their intentions for 1993.

4.8.3.3 SUMMARY - PREFERRED OCCUPATION

Overall, regardless of gender, 50.0% of our sample - 297 students - wish to move onto to further study at a University or University College. A further 19.3% - 114 students - wish to take up positions in TAFE courses. 19 students (5.8%) plan to study at other Institutions.

Almost 7% of our sample (40 students) hope for Apprenticeships or Traineeships - primarily in Trade areas.
The latest figures released for the Government school sector show these to be optimistic, perhaps even unrealistic, expectations - as Table 31 shows:

**Table 31. Destination of 1990 National school leavers in 1991**

(Government schools only)

<table>
<thead>
<tr>
<th>Type of Tertiary Institution attended or Labour Force status in 1991</th>
<th>Males Number</th>
<th>Males Percent</th>
<th>Females Number</th>
<th>Females Percent</th>
<th>Persons Number</th>
<th>Persons Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Education Institution</td>
<td>19300</td>
<td>23.6</td>
<td>22900</td>
<td>28.1</td>
<td>42200</td>
<td>25.9</td>
</tr>
<tr>
<td>TAFE/Technical College</td>
<td>21100</td>
<td>25.8</td>
<td>16500</td>
<td>20.2</td>
<td>37500</td>
<td>23.0</td>
</tr>
<tr>
<td>Other</td>
<td>1800</td>
<td>2.3</td>
<td>4600</td>
<td>5.7</td>
<td>6500</td>
<td>4.0</td>
</tr>
<tr>
<td>Not Attending Tertiary Inst'n</td>
<td>39400</td>
<td>48.3</td>
<td>37400</td>
<td>46.0</td>
<td>76900</td>
<td>47.1</td>
</tr>
<tr>
<td>- Employed (FT or PT)</td>
<td>25200</td>
<td>30.9</td>
<td>21600</td>
<td>26.6</td>
<td>46800</td>
<td>28.7</td>
</tr>
<tr>
<td>- Unemployed</td>
<td>11500</td>
<td>14.1</td>
<td>11900</td>
<td>14.6</td>
<td>23400</td>
<td>14.4</td>
</tr>
<tr>
<td>- Not in Labour Force</td>
<td>2700</td>
<td>3.3</td>
<td>3900</td>
<td>4.8</td>
<td>6600</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>81600</strong></td>
<td><strong>100.0</strong></td>
<td><strong>81400</strong></td>
<td><strong>100.0</strong></td>
<td><strong>163000</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>


In 1993 The Victorian Tertiary Admission Centre (VTAC) suggests that just over 50 percent of the 45,000 VCE applicants will get Tertiary places. Whilst this is better than in 1992 - where conservative estimates suggest 18,000 students missed out on Tertiary places - it is a dramatic reduction on previous years. In 1991, 74% of VCE students got into courses and in the two proceeding years the rate was 80% according to VTAC. *(Herald-Sun, Dec 16, 1992: 49 - 56).*

If just over 50% of students desiring Tertiary places are expected to be successful then, depending upon the student's "Scaled score" (the replacement of the old Anderson Score) similar success percentages should hold for our aspirants.

Given slightly lower than National percentages for TAFE enrollments (19.3% in our sample compared with a 23% National figure in 1991) it may be expected that as Victoria's largest provider of post-secondary education and training, more of our sample may move their preferences into this sector.

In terms of Apprenticeships it is interesting to note that the only requirement laid down for an Apprenticeship by the Victorian State Training Board is that the applicant be at least 15 years of age, yet the 40 students who specified Apprenticeships as their chosen outcome for 1993 were all well in advance of this. Two explanations for older-age apprentices exist: firstly, the students specifying "apprenticeship" may not have intended to suggest a formal contract/agreement with the Employer and the State Training Board - they have used the term as a synonym for a trainee or junior (unofficially) "learning the ropes", or, secondly having identified an ever-diminishing number of Apprenticeships available to them students have elected to stay on to Year 12 in the hope of placing themselves in a more favorable light with prospective employers: proving themselves more capable of the further study and
dedication demanded by either block or day release study in the mandatory TAFE component of their program than a 15 year old.

The answer lies most probably somewhere in a combination of these.

4.8.4 SAME OCCUPATION IN 1989 AND 1992

Ninety students in our sample of 591 (15.2%) were consistent in their choice of career between 1989 and 1992. These students were drawn from 13 of the 14 schools, the only school not to be represented being #119, with its responding population of only 5 males. Of the other schools, on average 15% of the student population held to the career decisions they made at Year 9.

Using the ASCO Categories, Categories 1 through 6 were represented. Categories 7 and 8 were not, as was the case previously in the student selected occupations. One can suggest that whilst few students might aspire to be Plant and Machine Operators (Cat 7) or Labourers (Cat 8) economic necessity or job availability may move students into these fields. The one male in our sample whose career could be called "Brickie's Labourer" worded his career as "Apprentice Bricklayer", moving from the labouring (Cat 8) into the Trade area (Cat 4).

Identical career choices across the two survey years as represented by each of these ASCO Categories is presented graphically in the Pie Chart, Figure 4.

This chart may be annotated such that:

Cat 1. Managers and Administrators 2.2%
Cat 2. Professional 30.0%
Cat 3. Para-Professional 43.3%
Cat 4. Trades 12.2%
Cat 5. Clerical 5.6%
Cat 6. Sales and Personal Services 6.7%

100%
Fig 4. Distribution of careers using ASCO categories for those students who did not alter career choice between 1989 and 1992.

4.8.4.1. ANALYSIS OF CHOICES - CATEGORY 1 AND 2

Category 1: (2 male students)
Both nominees in this area were male. One (with one of the highest RSPM in this sample at 131 points) wanted to be a Business Manager, the other wanted to own his own Hotel and manage the business.

Category 2: (27 persons - 16 males, 9 females)
Occupations nominated have been separated to include gender and the average RSPM and OLSAT scores of the persons who nominated each occupation.

Table 32. "Professionals" by gender and average scores

<table>
<thead>
<tr>
<th>Description</th>
<th>No of Males</th>
<th>No of females</th>
<th>Males AVERAGE</th>
<th>Females AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>RSPM</td>
<td>OLSAT</td>
</tr>
<tr>
<td>Lawyer</td>
<td>3</td>
<td>4</td>
<td>102.7</td>
<td>102.0</td>
</tr>
<tr>
<td>Accountant</td>
<td>3</td>
<td>2</td>
<td>110.0</td>
<td>99.3</td>
</tr>
<tr>
<td>Architect</td>
<td>4</td>
<td>1</td>
<td>111.0</td>
<td>90.8</td>
</tr>
<tr>
<td>Psychologist</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>1</td>
<td>1</td>
<td>99.0</td>
<td>116.0</td>
</tr>
<tr>
<td>Vet</td>
<td>1</td>
<td>1</td>
<td>118.0</td>
<td>118.0</td>
</tr>
<tr>
<td>Archaeologist</td>
<td>1</td>
<td></td>
<td>120.0</td>
<td>87.0</td>
</tr>
<tr>
<td>Biologist</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietician</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineer</td>
<td>1</td>
<td>13</td>
<td>111.0</td>
<td>88.0</td>
</tr>
<tr>
<td>TOTALS</td>
<td>14</td>
<td>13</td>
<td>110.2</td>
<td>100.2</td>
</tr>
</tbody>
</table>
Perhaps at the outset the reader should recall that traditionally a score of 115+ on a measure of ability has been considered the minimum requirement for the successful completion of a University degree, with at least average performance on an achievement test. As will be noted throughout the discussion in this section many students appear to nominate careers which involve substantial academic rigor yet their performance on the RSPM and OLSAT on this occasion would seem to suggest that difficulties will be encountered in obtaining and perhaps completing the course selected.

One would, as an example, be concerned as to the abilities of the male wanting to be an Architect with a RSPM of 93 and an OLSAT of 83, who suggests his best mark at VCE will be a "C". Or, the girl who wishes to be a Lawyer, RSPM 97 and OLSAT 84, who is completing only 4 subjects (no language, no maths) and believes she will score "B"s and "C"s. These expectations would seem to be very unrealistic.

It must be mentioned that these are not isolated 'mismatches' and certainly many more 'mismatches' appeared in the wider sample who have arrived at their career choice more recently. The writer would be interested in knowing the nature and scope of the Career Counselling which each student has undergone to ensure that the student is aware of appropriate subject choice and accurately understands the academic rigors involved in the chosen course. Realizing, of course, ultimately the choice rests with the student.

In the more popular careers chosen by this small sample - Lawyer, Accountant - males and females are equally represented. Two careers dominated by men - Architecture and Engineering - in this sample show 4 males/1 female and 1 male respectively. Taking the total sample of 591 our Architects will swell to 11 males and 2 females; our Engineers to 21 males and only 1 female (who plans to go into the Defence Forces to be trained). On the results of our sample these two occupations continue to be strongly gender specific.

With the means for both the RSPM and OLSAT being 100, the reader should recall that the distribution of OLSAT scores was positively skewed for the total group with averages for females at 89.5 and males at 91.4, hence whilst the OLSATs listed above appear alarmingly low for such rigorously academic disciplines they are proportionately higher than the OLSAT scores for the wider group from which these students are drawn.

A word about Accountancy; it was mentioned earlier that this group appears to be particularly "business" subjects' oriented and 12 males and 19 females (5.2% or 31 students) were desirous of being Accountants when they completed their studies. Overall, students placed Accountancy 4th in popularity for each sex when a listing was drawn up of the top 25 occupations. Anecdotal evidence based on discussions with career counsellors in schools and Accountancy teachers in the TAFE sector would indicate that as both a subject and as a career this field has become increasing popular. The only explanation for this - and it was offered by a number of educators - was that as career it offered the highest 'exit' (that is, first year out) salary.
Nationally, too, this interest is reflected in Tertiary accredited Economics and Business subjects. In 1986, 13.1% of students (13.9% males; 12.4% females) enrolled in these areas making these subject choices the 5th most popular tertiary courses. By 1991 the percentages had increased to 14.1 males and 14.7 females and the subjects had moved to 3rd most popular. *(Statistical Annex, NRSA, 1991: 25)*

### 4.8.4.2. ANALYSIS OF CHOICES - CATEGORY 3

**Category 3: (39 persons - 16 males, 23 females)**

Occupations falling within this category are para-professional ones which, whilst requiring considerable study and skill, are in the main Diploma-based as opposed to the Professional/Degree based Category 2.

Table 33 below shows the data comparisons for these Para-professional nominees.

*Table 33. "Para-Professionals" by gender and average scores*

<table>
<thead>
<tr>
<th>Description</th>
<th>No of Males</th>
<th>No of Females</th>
<th>Males AVERAGE</th>
<th>Females AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>RSPM</td>
<td>OLSAT</td>
</tr>
<tr>
<td>Teacher</td>
<td>3</td>
<td>5</td>
<td>106.7</td>
<td>97.3</td>
</tr>
<tr>
<td>Computer Progm'er</td>
<td>6</td>
<td></td>
<td>99.8</td>
<td>90.4</td>
</tr>
<tr>
<td>Nurse</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vet Nurse</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artist/Graphic Art</td>
<td>2</td>
<td>2</td>
<td>106.0</td>
<td>112.0</td>
</tr>
<tr>
<td>Police</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalist</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draughting</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental Nurse</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>16</strong></td>
<td><strong>23</strong></td>
<td><strong>108.3</strong></td>
<td><strong>95.6</strong></td>
</tr>
</tbody>
</table>

Females are almost 60% of the Para-professional occupational group with 16 females (70%) nominating what could be considered the gender-specific occupations of teaching and nursing.

The writer will deal in some detail later in this section about the students who have elected to pursue careers in Teaching - including our three males here (2 PE Teachers and 1 Music Teacher) and the 5 females (3 Not specified, 1 Special Education, and 1 Kindergarten) - but it is of some concern to the writer that 3 of the 4 females who nominated Veterinary Nurse as their chosen occupation had higher RSPM scores than those who elected teaching - in two instances by as much as 28 points!

In fairness to the Teachers in our sample, the same Vet Nurses are likewise higher scoring on the RSPM than the two students who wished to be Vets. The main
difference in favour of the Vets is an OLSAT score 24.5 points higher on average than the Vet Nurses. As has been said and will be said again, the OLSAT score reflecting as it does achievement levels appears a crucial determinant in girls' choices.

Where the highest RSPM scores were seen in the Vet Nurse category the lowest scores, male or female, were for those women who elected to be Police. Those who saw their future career in the Police Force had RSPM scores averaging 95.7 (11.2 points under the average for all females) and OLSAT scores averaging 83.3 (6.2 points lower).

4.8.4.3 ANALYSIS OF CHOICES - CATEGORY 4

Category 4: (11 persons - 9 Males, 2 Females)
This group of occupations comprises what we know of as the "trades", dominated in both this and the larger sample by males. The most common occupations included:

Mechanic: 3 Males (27.3%) One of these three has neither an RSPM or OLSAT score, whilst another has only an RSPM. Hence to give an average score for this group is possibly unrepresentative. From the data available one can cautiously suggest an average RSPM of 92.5, and an OLSAT of 70.0 The subjects covered by the three varied greatly, 2 chose "automotive" (Not a VCE subject), plus another non-VCE subject (eg woodwork) and English and one other VCE subject. The third elected to complete, S&N, Accounting, Drama and Legal studies - the last student may make a formidable and interesting business man/mechanic.

Carpenter: 3 Males (27.3%) All three students, predictably, completed Woodwork (Not a VCE subject), all three completed a Maths and two Graphic Communication, the third choosing Accounting and Business Management instead. The average RSPM score for the three was 117.0 and the OLSAT 84.3. Thus it would seem that whilst the students do not perform well on the OLSAT which mimics schoolwork their performance is not reflective of their true abilities. This RSPM score is one of the highest for any of the ASCO Categories of occupations being, as an example, 11 points higher than those choosing teaching.

Chef / Pastry Cook: 2 females (18.2%) This is the only female representation in this 'trade' category. Both girls are from the same school and whilst one has suggested she will seek an Apprenticeship as a Chef in 1993 the other has chosen to look for work in any field. Their subject choices are an interesting mix, only one doing Human Development which one might have expected to see both completing. Both completing Textiles and neither attempting a maths. The average RSPM is 111.0 and the OLSAT 87.0.

Defence Forces: 2 males (18.2%) One of these two young men plans to go straight into the Navy, the other plans to complete a University course then enter the Army. Apart from each student completing a maths and English their syllabus is completely different. An average RSPM 106.5 and an OLSAT of 94.5
Other: 1 male (9.1%) the last student in this 'trade' area wishes to "go into films" ideally wanting to be a Director. His syllabus includes C&A, Literature, Graphic Communication, Physics and English and he believes his marks will range from "B"s to "C"s. He would like to complete an Arts Course.

4.8.4.4 ANALYSIS OF CHOICE - CATEGORY 5

Secretary / Clerk: 5 females (100%) Traditionally the mainstay of female occupation - the Clerical area - is no longer highly sought after. Only 9 of 591 (1.5%) students chose the secretarial / clerical field and 5 of the 9 chose this area when they were in Year 9. The majority of these students have chosen Legal Studies and Information Technology, 3 of the 5 are attempting a Maths; 4 of the 5 Human Development. Four plan to take a Secretarial Studies Course at a TAFE whilst the fifth plans to take any work available. The average RSPM for this group is 103.0 and the OLSAT 94.6.

4.8.4.5 ANALYSIS OF CHOICE - CATEGORY 6

Sales and Personal Services: 6 persons - 5 females, 1 male
The female occupations here include Florist, Hairdresser, Travel Agent, Actress and Air Hostess. Their subject choices share little in common apart from a predominance of the 'newer' VCE subjects such as Textiles, Health Education, Media, Environmental studies. Only 2 of the 5 attempt a Maths, 3 of the 5 Human Development. Three plan on TAFE courses in 1993 including the Hairdresser, Actress and the Travel Agent, the florist will seek an Apprenticeship, and the Air Hostess will find employment in Sales. The average RSPM for the group is 100.8 and the OLSAT only 71.6. The OLSAT scores here comprise two of the lowest in the whole 591 student sample (being 63 and 69) but in this group not one member has an OLSAT score over 80, and only one over 72 which is -2sd from the mean.

The one male in this sample wishes to be a Service Technician. He plans to study at a TAFE and specialize in Computers. His subjects support his choice: Maths, Physics, Information Technology, Graphic Communication and English. He did not complete the RSPM but scored 86.0 on the OLSAT.

4.8.5 ATTITUDES TO SCHOOL - SAME OCCUPATION 1989 AND 1992

In relation to their attitudes to school 73.3% of these students who had committed themselves to a career in the Professional and Para-professional fields some three years earlier recorded school as being "333" - neither boring nor exciting, neither hard nor easy, neither fun or not nice. The figure for the 591 students was 59.6% so it would seem that making up your mind on a career may lead a student to take less of an extremist position in their attitude to school, conversely, perhaps to be committed to one career you may need to be less of an extremist to begin.

Of those 24 who displayed different attitudes:
(The following is presented with the caution that a larger sample would be required before any inferences could be drawn)

(a) 6.7% or 6 students compared with the overall 4.5% found school to be "Boring...." (1...). With an average RSPM 114.8 and an average OLSAT 99.0, this group of students included the highest and lowest score on the RSPM for this sample of 90 - a female at 131; a male at 74.

(b) 5.6% or 5 students compared with the overall 1.7% found school to be "Exciting..." (5...). An average RSPM of 112.6 and an average OLSAT of 88.8. This is an interesting result given that whilst these students are +1 sd on ability, they are -1sd on achievement. The "bored" group above are only 2.2 points higher on the RSPM but 11 points - the better part of a standard deviation - higher on the OLSAT.

(c) 8.9% or 8 students compared with an overall 17.4% found school to be "...Hard ..." (...1...). With an average RSPM of 102.0 and an average OLSAT of 95.5 these students found school hard in a variety of combinations. Their RSPM score is 5 points under the overall averages for the total sample of 591, whilst their OLSAT exceeds the average by as much.

(d) 4.4% or 5 students - other attitudes.
With an average RSPM 106.7 and an average OLSAT 105.9, the writer can only suggest that this group of students with an equal highest RSPM score and the second highest OLSAT score have personal reasons - unbeknownst to the writer - for their individual variations. The five students concerned are in different schools and in five different chosen occupations. Whatever their reasons they feel quite different to all their peers in this sample of 90 students.

4.8.6 CHANGING ASPIRATIONS

4.8.6.1 DECLINING ASPIRATIONS

As was stated in the introduction to the occupation section 19.1% of students surveyed (113 of 591) lowered their occupational category choice from that which they specified in 1989. Of these 49.6% were male, 50.4% female.

An examination of the Category students were moving from - and to - revealed that:

(a) for both males and females the largest single category shift was from Category 2 to Category 3. 44.6% of males and 52.6% of females chose to revise their career aspirations from the Professional to Para-professional level.

(b) where students revised their career aspirations downwards from 1989, females were more than twice as likely as males to move to Category 6 (Sales and Personal Services) that is, 17.8% of males (one in five) compared to 40.4% (two in five) of females.
(c) of the 56 males whose aspirations declined 10 (17.9%) moved from the "Trades" Category (Cat 4) as did 4 females (7%). This is keeping with the sex ratio in selection of the Category where males nominate careers in the area more than twice as often as females.

4.8.6.2 INCREASING ASPIRATIONS

The reader is asked to recall that the writer feels that there is a factor operating in the female choices whereby the girls will seemingly increase their aspirations but on analysis of the raw data it seems that girls often supply an alternative career which is predominantly - three or four ASCO categories lower. Thus, in taking only their first mention, as we are here, to ensure comparability we may miss some subtle although underlying intention.

As we did with the declining aspirations we review where the moves are occurring from as well as to.

Males: Males increased their aspirations from all ASCO Categories - moving upwards from all Categories (2 - 8). Although moving from all Categories the greatest number of males shifted from Category 3 (Para-professional) (27.1%) and Category 4 (Trades) (44.1%) and the most favoured Category for their new level of aspiration was Category 2 - Professional - where some 46% of the males moved. This is a slight net gain for this Category in that it will be recalled some 44.6% of males left Professional for Para-professional occupations. (see above)

Overall the Trades Category was most depleted of original nominees with 10 males exiting through declining aspirations and 26 males exiting through increasing aspirations. Some 30% of males who changed their aspirations did so - away from "trades'.

Ninety percent of males moved into Category 1, 2 and 3 from other categories: 45.8% entered Category 2; 25.4% entered Category 3, and, 18.6% into Category 1.

Therefore, over the three years since 1989, twice as many male students have chosen to increase their aspiration into occupations as Managers and Administrators as have chosen to leave it, there has been a small increase in the number of Professional nominees, and, whilst there has been movement into and out of the category there has been no net gain or loss for Para-professionals.

Females: The movement upwards of females from Categories 5 and 6 (Clerical and Sales and Personal Services) accounted for 51.6% of all the female moves upward. This is countered by 50.8% of females lowering their aspirations into these two categories, resulting in a small net loss to the category through movement. (It should be recalled that no females nominated Category 7 and 8 occupations.)
Category 4 losses were once again substantial with 21 girls aspiring upwards out of the "trades" area. When added to the 4 girls whose lowering aspirations moved them from the area some 16.6% of girls changed aspirations away from this area.

Females were twice as likely to move out of the lower categories (Cat 5 and 6) than were males out of Categories 5, 6, 7 and 8 combined.

The move into Categories 1, 2 and 3 was slightly higher than for boys, being 92.5% of all destinations chosen. The move into the Professional Category was 41.9%; the Para-professional 39.8% and the Management/Administration 10.8%.

The overall picture is remarkably similar to that of males with the exception of the Para-professional category. Over the three years since 1989 twice as many females have chosen to nominate careers in Management and Administration as have left it, there has been small (9 students) gain in the Professional category but over twice as many girls chose to aspire to careers in the para-professional category as those who declined from it. (This is in comparison with boys for whom there has been neither gain nor loss in this area.)

The trend in the present sample appears to be that the longer girls stay on at school, the more likely they are to increase their career aspirations. Should further research confirm that the longer you retain girls in education, the greater their career aspiration then this would indeed provide a good argument for female retention. In America, as an example, such an increase in aspiration has been found to occur only when direct counselling/intervention takes place with the girls (Kerr,1983, 1991).

4.8.6.3 FROM THE CERTAIN TO THE UNCERTAIN

The reader will recall that 5.9% of the students surveyed (35 of 591) became unsure of their career choice between 1989 and 1992. Of these 51.4% were male, 56% female.

Of the boys who became unsure, 61.1% originally had chosen careers in Category 2 or 3 this figure compares with some 47% of girls.

It should be noted that 7 of the 17 females (41%) came from one school (#120) and that the seven represent over one quarter of all the girls in our sample from this school. In retrospect, it would be interesting to see whether some factor - a careers' discussion for example - may have precipitated this move to indecision. Not one male in the school became uncertain by comparison and the change in seven students is almost twice as large as the next closest figure.

An examination of the 'exited' category shows that:

(a) Of all the students who are now uncertain of a career originally some 38.9% of males and 23.5% of females had nominated Professional whilst some 23% of both sexes originally nominated Para-professional.
(b) Originally, 16.7% of males had nominated the Trades area and 5.5% of males the Managerial. (There were no females in either category)

(c) 29.5% of females only had nominated the Clerical area.

These five categories were the only ones affected and with the exception of the seven female students mentioned, the sample (small as it is) appears to shows no significant gender or category differences.

4.8.6.4 FROM THE UNCERTAIN TO THE CERTAIN

75 students in our sample of 591 chose a career since they were last questioned in 1989. Their choices are shown in Table 34.

Table 34. Deciding on a career since the 1989 survey

<table>
<thead>
<tr>
<th>Occupational Description</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
<th>Persons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mgrs &amp; Administrators</td>
<td>4</td>
<td>12.1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>2. Professional</td>
<td>9</td>
<td>27.3</td>
<td>16</td>
<td>38.1</td>
<td>25</td>
<td>33.3</td>
</tr>
<tr>
<td>3. Para-Professional</td>
<td>5</td>
<td>15.2</td>
<td>18</td>
<td>42.9</td>
<td>23</td>
<td>30.7</td>
</tr>
<tr>
<td>4. Trades</td>
<td>8</td>
<td>24.2</td>
<td>3</td>
<td>7.1</td>
<td>11</td>
<td>14.7</td>
</tr>
<tr>
<td>5. Clerical</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2.4</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>6. Sales &amp; Personal Serv</td>
<td>6</td>
<td>18.2</td>
<td>4</td>
<td>9.5</td>
<td>10</td>
<td>13.3</td>
</tr>
<tr>
<td>11. Repeat Year 12</td>
<td>1</td>
<td>3.0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td>44.0</td>
<td>42</td>
<td>56.0</td>
<td>75</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In making up their minds 81% of the girls have decided on careers in Categories 1 - 3, whilst only 54.5% of boys decided on these categories. Overall, the students choices do not contradict their selections in the wider sample nor any of the trends which have been discussed.
4.8.7 CHosen Occupation - Teacher

4.8.7.1 Background and General Information

McGuigan's (1992) research in 1989 included a section on the (then) 23 students aspiring to be teachers. On the basis of what he found, McGuigan summarized that "the level of student aspiring to become teachers is not inspiring" (1992:125). The writer decided to review the 31 students who now wish to enter Teaching to ascertain whether the situation has improved.

Of the 31 students wishing to become teachers 77.4% are females. National figures indicate that just under 74% of teaching staff in Primary schools are females, as are just over 50% in secondary schools. (NRS4, 1991:4)

Of the seven males in our sample, 3 wish to teach PE, 1 music, 1 Physics and 1 not specified (although the subjects would indicate PE). This compares with the 24 females who nominated areas as follows:

- 7 Primary
- 5 Kinder/Early childhood
- 1 PE
- 1 Special Ed
- 1 Music
- 1 Art
- 1 Home Economics
- 1 English
- 6 Not specified

4.8.7.2 Subjects

Including English the number of subjects studied by the 31 teachers is 30. The most popular of these by enrolments, excluding English, are:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development - Home Economics</td>
<td>21 students</td>
<td>67.7%</td>
</tr>
<tr>
<td>Mathematics (includes 3 who do 2 maths)</td>
<td>17 students</td>
<td>54.8%</td>
</tr>
<tr>
<td>Biology’</td>
<td>16 students</td>
<td>51.6%</td>
</tr>
<tr>
<td>Psychology</td>
<td>12 students</td>
<td>38.7%</td>
</tr>
<tr>
<td>Legal Studies</td>
<td>8 students</td>
<td>25.8%</td>
</tr>
<tr>
<td>History</td>
<td>7 students</td>
<td>22.6%</td>
</tr>
<tr>
<td>Literature</td>
<td>6 students</td>
<td>19.4%</td>
</tr>
<tr>
<td>Physical Education</td>
<td>4 students</td>
<td>12.9%</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>3 students</td>
<td>9.7%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>3 students</td>
<td>9.7%</td>
</tr>
<tr>
<td>Music</td>
<td>2 students</td>
<td>6.5%</td>
</tr>
<tr>
<td>LOTE</td>
<td>2 students</td>
<td>6.5%</td>
</tr>
<tr>
<td>Media Studies</td>
<td>2 students</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

The remaining 16 subjects were single person enrolments. Two of these were not accredited VCE subjects: Woodwork and Catering.
4.8.7.3 NUMBER OF SUBJECTS

(a) 19.4% or 6 aspiring teachers attempted English plus 3 subjects. The overall sample's percentage was 12.0%.

(b) 74.2% or 23 aspiring teachers attempted English plus 4 subjects. The overall sample's percentage was 83.7%.

(c) 6.2% or 2 aspiring teachers attempted English plus 5 subjects. The overall sample's percentage was 3.6%.

4.8.7.4 TOP 3 SUBJECTS IN POPULARITY FOR ASPIRING TEACHERS

(a) HUMAN DEVELOPMENT - HOME ECONOMICS

The popularity of Human Development has been briefly touched on elsewhere. The attraction and the perceived importance of this subject is apparent in the high number of females who enrol in the subject both in the wider sample (128 or 39.1%) and here. Overall 67.7% of aspiring teachers chose Human Development, this being 79.2% of females and 28.6 % of males.

(b) MATHS

MALES: Three of the seven males (42.9%) attempted two maths at Year 12; three males attempted one maths, and one student - the aspiring English and English Lit Teacher - did not complete a math at Year 12 but attempted five subjects plus English, these included Literature, Legal studies, Psychology, Politics and Human Development - Home Economics.

FEMALES: 45.8% of females (11) attempted one math at Year 12. Thirteen students or 54.2% - one in two - of all female teachers did not attempt a Maths at Year 12.

In the larger 591 student sample 34.3% of females - 1 in 3 - did not attempt a math at Year 12. Even when this group of aspiring teachers is compared with the girls who did not change career aspirations between 1989 and 1992 (a group one could believe made selective subject choices based on a consistently desired occupation) the percentage of girls not completing a maths is 41.6% some 12.6% lower than the figure for teachers. More than 50% of the "No maths" teachers would be entering the Primary/Early Childhood area, the remainder included 3 non-specified and 3 specialists: Special Ed, Music and Art.

Intending teachers do not choose maths as a subject, even when the majority of them will subsequently be required to teach maths to children.
(c) BIOLOGY

On the ranking of subject popularity for the 591 student sample Biology was ranked second for females with 35.5% of all girls enrolled in it. Whilst considerably lower for boys with only 16.7% enrolled, Biology held 11th place in popularity. In our sample of aspiring teachers, Biology holds 3rd place overall. Four of the 7 males - all PE oriented - included Biology in their subjects; the three specialists: Music, Physics and English did not.

Twelve of the 24 females (50%) included Biology whether their specialty was English, Music or Primary teaching. This study, and Statewide figures would confirm that Biology is widely held by females as their most favourite science subject.

Apart from one female studying Chemistry, and the male (Physics) teacher studying Physics, Biology was the only science subject taken by these aspiring teachers.

Out of 31 'teachers' studying 120 subjects, 'teachers' chose a 'hard science' only twice (2/ 120) or 1.67% of the time. This is a very poor basis on which to build high technology classrooms or to inspire students in the field of 'hard' sciences.

4.7.7.5 RSPM SCORES FOR ASPIRING TEACHERS

The RSPM scores for aspiring teachers were compared to those of the overall sample, the differences were not significant. \( t_{(1)} = 0.067, p > .05 \)

The RSPM scores for this group were analyzed by gender and show the following distribution:

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70-84</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>85-99</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>100-114</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>115-129</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>&gt;129</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean - 'teachers'</td>
<td>107.9</td>
<td>105.8</td>
<td>106.2</td>
</tr>
<tr>
<td>Mean - all students</td>
<td>107.9</td>
<td>106.9</td>
<td>107.4</td>
</tr>
</tbody>
</table>

As in the case of the wider population from which this sample of aspiring teachers was drawn, the distribution of RSPM scores is negatively skewed. Whereas under a normal distribution we would predict that 16% of scores would fall +1s.d from the mean our sample shows a distribution of 19.4% in this range. It will be recalled that
this percentage is, whilst greater than predicted, well less than the 591 students' distributions which placed 30.5% at this level.

This lower percentage is reflected in the mean RSPMs for this group. Our males are exactly at the mean for all males, whilst our females are 1.1 points lower than for all females.

Recalling the earlier comments concerning an ability score around the 115+ for successful completion of University studies our aspiring teachers may be in for some long nights of study. Only 6 teachers bettered this score on the RSPM, of whom three just made it.

4.8.7.6 OLSAT SCORES FOR ASPIRING TEACHERS

Similarly, the OLSAT scores for this group of 31 students were examined against the OLSATS for all students and were not statistically different ($t_{11} = 1.725$, p >.05), and the OLSAT scores are distributed thus:

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;68</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>69-84</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>85-100</td>
<td>2</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>101-116</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>117-132</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean - 'teachers'</td>
<td>101.3</td>
<td>91.3</td>
<td>93.6</td>
</tr>
<tr>
<td>Mean - all students</td>
<td>91.4</td>
<td>89.5</td>
<td>90.5</td>
</tr>
</tbody>
</table>

Looking firstly at the mean scores for our "Teachers" our males are close to 10 points higher than for all males; the girls 1.8 points higher. Considering that the OLSAT, has a mean of 100 the males who are electing a career in teaching are performing at an average level in terms of achievement in the academic sphere when normative figures are taken and performing some 10% better than their male grade peers. The girls are only performing marginally better than their grade peers and not up to the 'average' as established by Australian norms. As the OLSAT reflects achievement levels on 'school-like' tasks there is some concern whether the girls who aspire to be teachers will achieve at even 'average' levels in their tertiary courses.

Conversely, the OLSAT distribution for this group of aspiring teachers is positively skewed with, in this instance, 25.8% of scores being greater than the mean of 100. Where we might have predicted some 16% of scores +1s.d we have 3.2%, an almost
identical figure to that of the wider sample. At -1s.d almost 26% of this group's scores are placed - we would have predicted only 16%.

Summarily, whilst it can be seen that our "teachers" have slightly higher achievement levels than the wider sample from which they are drawn the fact that only 8 of the 31 (25.8%) have actual scores over 100 would suggest that the probability for success is not high.

Since McGuigan (1992:99) spoke of being "uninspired" by our would-be teachers in 1989, little appears to have changed. Whilst more students have chosen teaching (and the reader will recall it is the most popular choice as an occupation for girls) it would appear that additional numbers, and even different students, have not raised the standard on either the RSPM or OLSAT.

Eight of these 31 students (3 males and 5 females) have wanted to be teachers since 1989 and their long-standing motivation to be a Teacher cannot be dismissed. They, and those newly selecting Teaching have, presumably, planned their syllabus and careers in consultation with the Careers Counsellor allocated to each of their schools.

The writer has to ask whether these Counsellors are aware of the ability and achievement levels of their students and how they counsel if they are not.

Similarly, the 'System' needs serious review. If we look for, and expect to find, excellence (a now popular word) in our Teaching and our students then we must start at the point of origin. It is imperative that the entry scores be raised to entice back the able applicant, and to deter those whose abilities we would question with the education of our children. The image of teachers in the eyes of the public - and this includes potential teaching candidates- will not be raised and excellence attained until this is done.

As the mother of two Primary school children, the writer is more than "uninspired" by this group aspiring to be teachers. Assuming they are representative of the wider State trends, as they appear to have been in all aspects so far, then the writer is concerned for the very well-being of the education system and the children within its care.

4.9 LANGUAGES OTHER THAN ENGLISH (LOTE)

4.9.1 BACKGROUND

The last area of student learning the writer wishes to examine is the LOTE area. The DSE has set an ongoing priority the increase in the number of secondary (and primary) students learning a language other than English. In Government secondary schools - and complemented by the Victorian School of Languages Centres - more than 10,500 students were enrolled in 37 languages other than English in 1991. Whilst 80% of Year 7 and 72% of Year 8 students study a language other than English there is a sizable drop in the numbers pursuing their language to Year 12. (NRSA, 1992:46)
Eight priority languages have been targeted for training and retraining purposes. These are French, German, Japanese, Italian, Indonesian, Chinese, Modern Greek and Vietnamese. The selection of these eight languages, according to the National Report on Schooling in Australia - Victorian Section, corresponds to Year 12 enrolment preferences.

The present sample comprises 71 LOTE learners - 12% of the entire sample - of which 45 (63.4%) are female and 26 (36.6%) are male. The sample's languages have notable exceptions to the DSE's priority language learning list with not one student undertaking Chinese, Indonesian or Italian at Year 12.

The majority of languages studied agrees strongly with the family name of the student indicating a native and/or parental native language other than English.

4.9.2. LANGUAGES STUDIED

Table 37 shows the range of languages studied

<table>
<thead>
<tr>
<th>Language</th>
<th>Males</th>
<th>Females</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Greek</td>
<td>17</td>
<td>31</td>
<td>48</td>
<td>65.7</td>
</tr>
<tr>
<td>German</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>11.0</td>
</tr>
<tr>
<td>French</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Spanish</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Macedonian</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Turkish</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Khmer</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Not Specified</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>27¹</td>
<td>46²</td>
<td>73</td>
<td>100.1</td>
</tr>
</tbody>
</table>

1. N = 26 Male LOTE learners: 1 male completed both French and German
2. N = 45 Female LOTE learners: 1 female completed both French and German

The above Table shows N = 73 as two students in the total of 71 LOTE learners studied more than one language: these languages being French and German. Both students are from the one school #124.

The ratio of females to males in our sample is higher in favour of females when compared with State figures which show that in 1992 the number of females completing a language equalled 1615 or 10% of all females, and males equalling 1026 or 7.2% of males. (Source - VCAB Data Base 1992; figures released to the Writer)
A review of LOTE learners across the State is contained in Appendix 5, and the ten most popular languages studied at Year 12 Unit 4 are contained in Table 38.

**Table 38. Ranking of top 10 Languages studied in Government schools by enrolment in 1992**

<table>
<thead>
<tr>
<th>Language</th>
<th>Number of Govt Schools teaching Language</th>
<th>Total Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Modern Greek</td>
<td>32</td>
<td>598</td>
</tr>
<tr>
<td>2. Vietnamese</td>
<td>17</td>
<td>361</td>
</tr>
<tr>
<td>3. Chinese</td>
<td>14</td>
<td>240</td>
</tr>
<tr>
<td>4. French</td>
<td>27</td>
<td>225</td>
</tr>
<tr>
<td>5. German</td>
<td>25</td>
<td>192</td>
</tr>
<tr>
<td>6. Turkish</td>
<td>8</td>
<td>187</td>
</tr>
<tr>
<td>7. Italian</td>
<td>22</td>
<td>157</td>
</tr>
<tr>
<td>8. Spanish</td>
<td>10</td>
<td>117</td>
</tr>
<tr>
<td>9. Japanese</td>
<td>12</td>
<td>107</td>
</tr>
<tr>
<td>10. Indonesian</td>
<td>10</td>
<td>94</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>2278</strong></td>
</tr>
</tbody>
</table>

Source: VCAB Data Base; released to the Writer

The above 10 languages account for 86.3% of all languages studied at Unit 4 level. As can be seen the DSE's eight priority languages are indeed popular student choices, but Turkish at Ranking 6 and Spanish at Ranking 8 have not been included.

Given that Spanish is taught at 10 Government schools in the State and Turkish at 8 we might query why these languages do not appear as DSE priority languages. It may well be that Spanish and Turkish language learners consist of 'second generation' native speakers and that the popularity shown for these languages is centered in certain communities, whereas, by contrast, Indonesian may have shown itself as 'appealing' to native Australian speakers perhaps spread throughout the State. The validity of this statement would rest in an analysis of the 94 Indonesian learners and of where the nine Indonesian-teaching schools are based.

The decision to prioritize a language is a complex matter and factors favouring Indonesian over either Turkish or Spanish would include geographical proximity and trading relations.
4.9.3 OTHER SUBJECTS

The writer has always held the belief that LOTE learners at Year 12 would in the main be Humanities-based students. A review of the subjects studied by the LOTE learners in our sample suggests that this is not the case.

Subjects of each student were analyzed as following one of four orientations: 'Maths/Science', 'Business', 'Humanities' or Undifferentiated (where the orientation could not clearly be distinguished). The following figures emerged:

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Male</th>
<th>Female</th>
<th>Persons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maths / Science</td>
<td>10</td>
<td>6</td>
<td>16</td>
<td>22.5</td>
</tr>
<tr>
<td>Business</td>
<td>9</td>
<td>18</td>
<td>27</td>
<td>38.0</td>
</tr>
<tr>
<td>Humanities</td>
<td>3</td>
<td>12</td>
<td>15</td>
<td>21.1</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>4</td>
<td>9</td>
<td>13</td>
<td>18.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>26</td>
<td>45</td>
<td>71</td>
<td>99.9</td>
</tr>
</tbody>
</table>

As can be seen over 60% of our LOTE learners are completing a syllabus either Maths/Science or Business. Should a language be studied in a Humanities or Undifferentiated orientation (39.4%) then it is three times more likely that the student is a female.

The writer was interested why Maths/Science and Business students would chose to complete a language. It appeared that the language usurped the place of either a second Maths in the Maths/Science orientation or Legal Studies in the Business - both of these subjects being important to the orientation.

Several reasons might be suggested for attempting a language other than English at Year 12. These may include:

(a) **The student wants to do the subject.** Whether we perform well in something or not, we all have preferences. For many, simply liking the subject is enough motivation.

(b) **The student needs to do the subject.** Looking at their chosen course a student believes a language is necessary. A course such as a Bachelor of Arts may specify a Language or Maths as a usual entry requirement. This may be a reason for a number of the Undifferentiated or Humanities students, but the Maths/Science students would have the Maths requirement and the Business students would not be interested in a B.A.

(c) **The student feels they do well in the subject.** This might be particularly true where the language is a 'family' language or the student believes they have a 'flair' for
the language. However, only 18 students (only 25% of LOTE learners) saw LOTE in 1992 as the subject in which they usually do best.

(d) **The student must do the subject.** This may be true where the expectations in the family home are such that the student feels compelled to study a 'native' language. It is unlikely that this would be an explanation for the 16 (22.5%) students with Anglo-Saxon surnames, although parents here may stress the value of the 'foreign' language.

(e) **The student believes the subject is a 'relief' from the others studied,** in much the same way as Human Development has been considered as a relief from academic rigors. The intrinsic value of the relief subject in this instance is that unlike Human Development the LOTE has the value of being accepted by all Tertiary courses as a component of the Student's 'Scaled Score'. As a "fifth" subject, the student may feel that they can achieve a good score for little - or comparatively little - work, especially where the language is a 'native' one.

(f) **The student feels a part of a community/school community spirit.** This may be related to 'doing a subject because your best friend is doing it'. For many communities - and the Greek community could be included in this - the maintenance of their (native) culture and language is paramount.

Twenty-three students (one third of our sample) came from one school #133, and the school needless to say is based in a strong Greek Community. In looking at the other schools where Greek was studied it was found that 5, 6 or 7 students usually studied it - if there was a Greek sounding name on the roll then the student studied Modern Greek. Perhaps this is akin to heritage-peer pressure and to be of Greek extraction and not study Greek would make one an outsider in the class or even the school.

4.9.4. **RSPM SCORES OF LOTE LEARNERS**

RSPM scores were extracted for the LOTE learners in our sample of 591 students. The Distribution of the scores for these 71 students is shown in Table 40.

*Table 40. Distribution of RSPM Scores for LOTE Learners by Gender.*

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>70-84</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>85-99</td>
<td>4</td>
<td>13</td>
<td>17</td>
<td>24.3</td>
</tr>
<tr>
<td>100-114</td>
<td>13</td>
<td>13</td>
<td>26</td>
<td>37.1</td>
</tr>
<tr>
<td>115-129</td>
<td>4</td>
<td>18</td>
<td>22</td>
<td>31.4</td>
</tr>
<tr>
<td>&gt;129</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>LOTE Mean</td>
<td>104.4</td>
<td>109.0</td>
<td>107.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>107.9</td>
<td>106.9</td>
<td>107.4</td>
<td></td>
</tr>
</tbody>
</table>

NB. 1 male did not complete the RSPM. N= 70
Given that 60% of our sample were Maths/Science or Business oriented, and that these are both areas where we have found that the girls who participate have high RSPM scores we might have expected that the LOTE girls would equally perform above the wider sample of girls on the RSPM. This they did by some 2.1 points, although this is not as greater an increase on the overall average of 106.9 as we saw in the specific areas.

At 104.4 which is 3.5 points under the average for all males, LOTE males are 6 points and 4 points lower on the RSPM than males in the Professional and Para-professional categories respectively. These two categories are the ones from which these LOTE boys are selecting their occupations.

As in our other distributions for the RSPM the LOTE distribution is negatively skewed. At +1s.d where we might have predicted 16% of scores we see 34.3% - our largest percentage of any specific area's distribution. A result attributable one could suggest to the large number of females whose RSPM scores were +1.s.d from the mean - one in four females.

4.9.5 OLSAT SCORES FOR LOTE LEARNERS

The OLSAT scores were analyzed for this LOTE group and are presented in Table 41.

<table>
<thead>
<tr>
<th>Score</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;68</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>69-84</td>
<td>14</td>
<td>14</td>
<td>28</td>
<td>40.6</td>
</tr>
<tr>
<td>85-100</td>
<td>7</td>
<td>21</td>
<td>28</td>
<td>40.6</td>
</tr>
<tr>
<td>101-116</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>15.9</td>
</tr>
<tr>
<td>117-132</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>&gt;132</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>LOTE Mean</td>
<td>85.6</td>
<td>89.3</td>
<td>87.9</td>
<td>99.9</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>91.4</td>
<td>89.3</td>
<td>90.5</td>
<td>99.9</td>
</tr>
</tbody>
</table>

As with so many of our analyses of the OLSAT we see large differences between it and the RSPM which also has a mean of 100. In this instance there is approximately a 20 point difference between the RSPM and the OLSAT, with the OLSAT (reflective of achievement levels) being the lower value.

In comparison again with Categories 1 and 2 figures, for those desiring occupations in Professional and Para-professional areas, the OLSAT scores are well down for this group of LOTE learners desiring similar outcomes. At the Professional (Cat 2) level
the scores are down 15 points for males and 10 points for females; whilst at the Para-
professional level males are still 10 points lower and females equal to the average.

With in excess of 91% of both sexes of LOTE learners wanting to go onto University or TAFE study, their poor performance on this achievement measure together with their average, or below average, ability scores may see the student who has chosen to study a language other than English at Year 12 experience some difficulties in the academic course of study they have chosen.
CHAPTER 5

DISCUSSION

5.1 "THE PAST"

The present research has attempted to ascertain just who our Year 12s are and in what ways they are different from the young people they showed themselves to be three years ago when they were Year 9s.

The 'Hypothetical' Year 9:

Work?... I do O.K, probably could do better. School?...(Shrug of shoulders)...some of the kids enjoy it. Subjects?...Well the boys are best at maths...and the girls at English...and Maths. At lot of the class don't like History...Social studies - that sort of stuff. Lots of the girls think they're no good at Phys.Ed too. Job?...probably something well paid... professional...maybe exciting...Some of the girls want to be hairdressers, actresses...you know, that sort of thing.

Generalizing, we have learned that today's Year 12s performed better on both ability and achievement tests than the rest of the group tested at Year 9 - this is most probably a distillation effect. Having made a choice to stay on to Year 12 our young man or woman has some understanding that compared to the rest of the class of Year 9s s/he manages the work reasonably well but at the same time, possibly has some idea that s/he could perform better.

Given that McGuigan and Start (1991) are correct in their suggestion that the ACER Australian norms overestimate the raw value of the RSPM by some 5 points, then our young adult whilst performing better than many of their Year 9 peers is, by Australian standards, not performing at even the mean expected.

The students' performance on the measure of achievement, the OLSAT, should be of concern to all educators. The findings from McGuigan's 1989 testing of 2,829 students in Year 9 (from which the present students were drawn) indicated gross underachievement. Many of these students may not have been, and will not be, tested until they reach Year 12, and, at Year 12 eight out of ten of these students will be granted their VCE Certificates.

In 1993 and beyond in their attempt at further study many of these students may face some shock when their expectations are not matched by achievement - and possibly their ability. Without some prior understanding of their achievement and ability levels, "first year out" must seriously damage the self-esteem of many youngsters who
find for the first time that the beliefs they hold about their ability/achievement levels are based on no solid data.

5.1.1 UNDERACHIEVEMENT

The causes for underachievement are many, and a few educational researchers are even in conflict as to whether underachievement exists. Anastasi (1976), as an example, sees most underachievement as simply test error: a statistical artifact of imperfect measures of measurement. When looking at present students as separate from the wider sample tested in 1989, 75% regardless of sex show achievement scores approximately 20 points lower than ability scores. (In the wider sample a discrepancy of 30 points was found). Either discrepancy is perhaps too wide to be accounted for by Anastasi's 'statistical artifact'.

McGuigan (1992:56) suggests some possible reasons for the poor performance on the OLSAT including poor skill levels, fatigue, lack of desire, lack of (extrinsic) motivation and, what might be called, poor attitude.

The reader should recall that the OLSAT unlike the RSPM calls upon skills in reading, comprehension, vocabulary, mathematical abilities and perseverance. To suggest that learning disabilities, where the students lack the necessary skills to read and answer questions, is a possible reason for such widespread low scores on the OLSAT is to suggest that 3 in 4 of our Year 9 students are learning disabled - a proposition which is not proven and quite unacceptable. Thus whilst possibly a reason for a small percentage of the population scoring poorly on the OLSAT; as an across-the-board answer it has no proven basis in fact.

Fatigue, superficially, appears as a possible contributing factor to the poor OLSAT scores. However, McGuigan (1992) informs us that on reverse order testing, that is, OLSAT followed by the RSPM, the large differences between scores remained. (Start and McGuigan, 1990) Therefore, fatigue attributable to order effect seems unlikely.

The possible explanations of lack of desire and lack of motivation, with or without a poor attitude, intuitively make the most sense, and have the 'best fit' with the current thinking on underachievement.

Many writers have suggested that major contributors to underachievement are poor self-esteem and an external locus of control - that is a reliance on external rather than intrinsic evaluation (Kerr, 1991; Rimm, 1988). In the testing situation, therefore, to tell students that the results of the (OLSAT) testing would have no bearing on their school assessment would result in students with an external locus of control seeing little reason to try their best; for these students there is no internal reward or self standards by which they measure themselves.

Poor self-esteem may be a major contributor for the females, in particular, who scored poorly on the OLSAT. Batten (1989:187) in her study of Year 12 Victorian students administered the Coopersmith Self-Esteem Inventory and the Rotter Locus of Control
Scale to all students early in Year 12 and again late in the year. Whilst there was found to be no significant outcome or significant gender difference in the Locus of Control Scale, females recorded significantly lower levels of Self-Esteem at both pre and post test.

For other students the fact that the OLSAT mimics school work may be a signal to 'turn off' and, again, with no external rewards for completion treat the testing situation with little respect. "Poor attitude" may also play a part here with students randomly selecting answers, partially reading questions, selecting answers with a pattern so that they spell obscenities and refusal to answer at all; in fact all of these were instances cited as occurring in the testing by McGuigan (1992).

That a well-developed internal locus of control can affect one perceptions of self, one's assessment of abilities and achievements and one's attitude towards school can be seen in the comments of a Year 12 girl from Batten's (1989:155) study:

This year has made me more aware of my abilities, and how I can put them to better use. My confidence has been boosted when I've made certain accomplishments (in work) because I've considered this year pretty hard (to begin with). I'm a little worried though, as it has seemed a lot easier than I expected. That's another thing I've developed this year, the ability to look at my self-performance, and objectively assess it. People and relationships, feeling and communication have all become important to me this year.

As we shall see in our next section on "the present" for Year 12s, few can express such positive outcomes for their last year of secondary schooling.

5.1.2 ATTITUDES TO SCHOOL

Underachieving or not our Year 9 students perceive school as neither black nor white; to use Batten's (1989:5) words, school is perceived as a "pale grey". As a group, when asked to rank their attitudes towards school, this "so so" attitude is at the top in Year 9. A look at the other rankings of Year 9 attitudes, however, shows a spirit of almost positive, carefree ease: school is fun, or easy, or exciting - even all three! It seems that many of our Year 9s enjoy their schooling experience - or should one say the experiences they have at school? Which, of course, may be two different things.

5.1.3 SUBJECTS

Not yet able to make major choices in their subjects, the range of personal likes and dislikes are many in Year 9. What will become in Year 12 very clear subject preferences based on gender are only just beginning. Mathematics is considered the best subject by the majority of boys and English by girls - although Mathematics is a close second. Business subjects and the Human Development subjects which three years later will be so popular are barely mentioned;1 History and the social studies

group are considered by 1 in 4 Year 9s as their poorest subjects. Physical Education, for the multitude of reasons discussed earlier including teacher's attitudes, boy's harassment and a de-emphasis of the value of female sport and female sports people, is ranked the poorest subject of a large number of girls but not a single boy.

5.1.4 CAREER ASPIRATIONS

Perhaps less subtly than at Year 12, the Year 9 career choices reflect not only perceived high status (male) occupations but also media imagery and peer group influences. Male career choices are dominated by not only traditional professions such as Doctor, Lawyer and Engineer and a fair share of traditional trades, but are filled too with the heroic, adventurous and fantastic - spy, fighter pilot, actor, pimp. For girls, career choices reflect what Kerr (1992) calls the "cult of romance" as well as what the current writer calls the 'Nightingale' syndrome, that is the actress, hairdresser, beauty therapist or nurse.

As we shall see many boys in Year 12 'upgrade' their career occupations leaving the 'spy' behind, but many girls find social and peer-group acceptance in their choice of careers that have little status or recognition and continue to hold onto these aspirations; thus as we have seen, the aspiring Vet nurses have higher ability scores than the aspiring Vets.

It should be recalled that a female's perceived view of her own abilities is greatly enhanced by parents and teachers encouraging her to further education, but that that encouragement is almost entirely mediated by the student's view of the job utility of college or university study (Carpenter and Western, 1989). If a female student believes that being a clerk is just as good a career choice for herself as is a four year Bachelor of Commence and her parents and peer group concur, (or conversely discourage four years of study) then the pressures the female may be subjected to are likely to be complex, conflicting, discouraging and contradictory. This, together with Milligan and Thompson's (1992) suggestion of the economic naivete of most of the girls in their sample, may lead a more than able girl into the workforce rather than pursuing further study.

It has even been suggested that women may need to be reared in high-social-status families or be strongly determined to achieve academically (with the support of parents and teachers) if they are to maintain high levels of aspirations against what appears to be a general expectation that such levels are inappropriate for women. (Carpenter and Western, 1989:82)

5.2 "THE PRESENT"

It is three years later and our Year 9s are now in the midst of, what for many of them is, the greatest academic challenge they have faced, and certainly the only external criterion. School life revolves around Work Requirements and CATs. Career choices
must be considered. Most are now 18 years of age. There are slightly more girls to boys at this Year level.

The 'Hypothetical' Year 12:

*Work*?...*I do O.K. probably could do better though it seems a bit harder now. *School*?...(shrug of the shoulders)...*Lots of us don't think it's much...*Subjects*?...*Well, you know, guys are better at Maths and Science subjects...the girls just don't seem to like those things...*Girls seem to be really good at English and things like Human Development and Biology but not many guys do those subjects. *Job*?...*Engineering, computers maybe Accounting. Accounting seems to be really popular with both boys and girls...Lots of the girls want to be teachers, nurses, you know...the "helping professions" *Future*?...*I want to be rich, happy...probably married."

5.2.1 ATTITUDES TO SCHOOL

Whilst the preferred 'colour' of school is pale grey, and there are now even more students who feel this way, the colour is tinged more to the 'black' end of the spectrum. The carefree days of Year 9 have past and school for many Year 12s is hard and not a pleasant place to be.

Despite the rigours of Work Requirements and CATs, school is boring to a number of young adults. The group most likely to express boredom are boys of all abilities and achievements as well as girls who at Year 9 were high scoring on both the RSPM (+1s.d or greater) and on the OLSAT (mean or higher) compared to their grade peers.

This generalized male negativity confirms Margaret Batten's (1989) findings and her comments in that study can only be reiterated here. "Attention should perhaps be focused on finding out what it is in the school environment that makes males respond in such an adverse way to school in general, to their teachers, to social relationships, and to seeing their school work as relevant and worthwhile." (p 152)

As educators we must face the fact that only 4 in every 100 students at Year 12 in this study have a positive attitude towards school and enjoy their learning experience.

We must admit that despite the objectives of the VCE to improve learning outcomes and the experiences of all students or of documents such as Ministerial Paper No. 6, few students appear to "enjoy their own learning" or "gain satisfaction and confidence from their developing abilities" (Ministerial 6: 10.1).

5.2.2 SUBJECTS

Barring the restrictions of timetabling, our students are now able to select the school subjects which they will study.
The formulation of a school timetable for Year 11 and 12 must accommodate some 25 - 35 unit descriptions and as such the timetable must follow a path of the least number of potential clashes. This, to an experienced timetabler, is often based not only upon student indications of subject enrolments (as these often change over 7 weeks of holidays and the first weeks back at school) but also on a previous knowledge that students who do 'X' don't usually do 'Y'.

Often, and not solely in co-educational settings, these decisions are based on expectations to do with the gender of the student. Thus a timetabling decision was explained by a Psychology teacher as: "We have found that the girls who don't want to study a science will often take Psychology, so Psychology is run at the same time as Physics" (Anecdotal evidence, conversation with the writer). Figures drawn from the present study suggest that there are 6 girls to every boy in a Psychology class, and conversely, 4 boys to every girl in Physics and whilst we have seen that there are a multitude of reasons for the low levels of female participation in the Sciences it is imperative that we ensure timetabling decisions are not among them.

For many students, however, subject decisions are based solely on 'need': a University or other Institution of higher education has laid down certain mandatory subject pre-requisites. This most often concerns subjects such as the two mathematics, Physics and Chemistry and, ipso facto, boys.

Subjects such as Maths, Physics and Chemistry account for 42% of male subject choices, but only 24% of girl's choices.

One wonders what message non-maths/science girls as well as maths/science girls must receive when they review a timetable and perceive a school placing value on subjects few of them, by comparison to boys, take.

The situation is more equitable in the Business area with 21% of females and 18% of male subject choices. Females appear prepared to carry on with their participation in this area, with careers as Accountants being ranked fourth in popularity for both boys and girls.

Quite apart from need there are other factors operating in subject choice: factors such as like and dislike (of both the subjects, the teachers of subjects and the parents' preferences or biases); peer group influences (this was seen to be quite clearly a factor looking at within school enrolments in some subjects) or self-assessment of one's ability in one subject compared with another (where the move from Year 11 to Year 12 most usually involves studying fewer subjects).

5.2.3 CAREER ASPIRATIONS

Whether the choice of a career determines the subjects studied or the subjects determine the career chosen, the fact that more boys study the traditionally 'serious' academic (Maths and Science) subjects allows them entry to a greater range of higher education courses and as such greater occupational choice. A quick glance at VTAC's
Handbook confirms that only 10 - 15% of courses do not require at least a pass in a Mathematics at Unit 4 level.

55% of girls plan to study at either a University or University College but 1 in 3 of these do not attempt a Maths and so it follows that the range of higher education courses available to them is more restricted than that available to the 80% of their male counterparts who do study Maths to Year 12.

In looking at specific occupations chosen as the job most preferred by the student on leaving school, the top six preferences for males (being 36% of all their preferences) were in Senior Management (14%), Professional (Engineers, Scientists, Accountants, Architects - 64%) and Para-professional fields (Computer Programmers - 22%).

A review of the girls' preferred occupations shows a slightly different perspective when their top six preferences are analyzed. These preferences accounting for 33% of female choices are Professional (Accountants, Psychologists, Scientists - 45%), Para-professional (Teachers, Nurses - 43%) and Sales and Personal Services Fields (12%).

It needs to be reiterated here that these are desired outcomes and that the student's actual acceptance into these courses within a higher education institution is by no means guaranteed.

It should also be pointed out that in the main, incidences of "mismatch", that is inappropriate subject choice for the course specified or job preferred, was far more common for girls than boys.

Similarly, when asked to evaluate the marks they would receive in VCE for their subjects - and it has been found that girls are far more accurate in their assessment than boys (Carpenter and Western, 1989; Batten, 1989) - the marks indicated by many of the girls electing careers in Science, Psychology and Teaching were such that a first round offer at the first or second institution of their choice would be unlikely.

By way of a passing comment only, it is interesting to note that there were only a few examples of "over-achievement", that is, where the OLSAT score was greater than the RSPM score. Where the discrepancy was more than one or two points the student was always male, and the courses the student nominated were within the Professional sphere, namely Engineering, Law or Medicine. Where the "over-achiever" specified the marks he anticipated for VCE, whilst the marks still appeared to be less than that required for a first-round offer, those same marks also appeared to be greater than the ability (RSPM) score would have led one to predict. It might be interesting to follow the fate of these 'over-achievers' to see just what they end up doing.

5.2.4. CAREER COUNSELLING

One area of importance in these students' lives that cannot be over-emphasized is the role of Career Counselling. It is imperative that students have access to information about not only the academic demands of the career they have chosen but also some
idea of the type of work and areas of interest that people within that occupation display.

In this sample the relatively narrow range of careers specified by both males and females would seem to indicate that they are simply not aware of the 12,099 occupational titles (Dictionary of Occupational Titles) potentially available to them, and concentrate their preferences on what they perceive (often erroneously) to be high status, well paid careers.

The supervised and directed selection of Work Experience placements and mentorships in Professional and Para-professional fields appears to be presently under-utilized.

Milligan and Thompson (1992: 35) examined the type of Work Experience Placements chosen by 263 Year 11 students in 1991. They found that less than 1 in 5 of these placements were in the Professional or Para-professional areas but 65% of boys were placed in traditional trade areas and 51% of girls chose placements in clerical or Sales and Personal service fields.

In the writer's experience as an employer in a Service industry that received many Work Experience Students, the Milligan and Thompson breakdown (above) is fairly representative of placements in Work Experience Programmes in schools.

It also, as the present study has found, runs contrary to the desired outcomes of the now Year 12 students.

A number of questions therefore need to be asked:

- was the work experience chosen on the basis of the fantastic and romantic notions of careers so many Year 9s expressed?

- was the selection of a place for work experience chosen after discussions with a Counsellor, or, as has been the writer's experience, were students told to "go and find a place that would take them for two weeks"?

- was placement with Professionals - or mentorships - discussed with students who were showing a preference for careers in a professional area? (Remember that 15% of students in the present study stayed with occupations they had chosen in Year 9)

- were non-traditional gender placements encouraged, supervised and de-briefed accordingly? (Often the experience of girls going into "male" fields is that girls are less competent and less reliable than men. See as an example the experience of one girl in Milligan and Thompsons' (1992) study, contained in Appendix 6)

- is the Career Counsellor at the school a specialist in that field who is able to devote themselves full-time to information, advice, counselling and Work
Experience placement? Are they a person skilled in the use of various inventories designed to assist the counselling process such as the VPI (Holland, 1953)? This field is now far too vast and quick changing to be handled by a full time teacher on a 0.4 secondment to Careers Counselling.

The area of Careers Counselling appears to be under-valued in the school context and is in need of immediate review. Whilst it could be considered as under-valued in the school context, the area of Career Counselling is foremost in achieving the aims students have for Year 12. On a scale of 18 items, as an example, the three most important aims of Year 12 were considered by students to be (in order): (a) preparation for a future career; (b) providing the skills and knowledge to get a good job, and (c) advice on careers and further education. (Batten, 1989:63)

The writer is aware that even with appropriate career counselling students will still make inappropriate choices, but is this a reason not to upgrade the skills in this area or not to review the position of Careers Counsellor to, perhaps, an AST 2 or 3 (Advanced Skills Teacher) status in a school? Or perhaps, at the least, between neighbouring schools?

5.3 "THE FUTURE"

It is now 1993 and as this year unfolds it will reveal just how many of our young men and women have embarked upon achieving the goals and aspirations they have set for themselves.

Will 64% of males and 80% of females really continue on with their studies at some Institution in 1993? Will 44% of males and 55% of females be accepted into University or University Colleges?

The answer is most likely "no". On the basis of their self-assessment many students perceive themselves as obtaining what could be called a 'mediocre' ("Ds"/"Cs") to a 'solid' ("Cs"/"Bs") pass. Such passes do not usually admit students into the Bachelors of Arts, Engineering, Law, Architecture, Commerce or Science at the more popular (and here one can often read 'prestigious') Universities and Colleges that are their first and second preferences.

Longitudinal studies in the transition from school to work tell us, that young women who obtain a poor pass (by their standards) will more often than their male classmates refuse an 'offer' from a University or College should it be forthcoming (Carpenter and Western, 1989; Batten, 1989). It should be recalled here, that for many women alternative career paths have already been planned: one in the professional/para-professional area involving several years of study and one an alternative 'shorter' course at a TAFE or in employment involving some on-the-job training.

One might imagine that young women having already acknowledged the possibility of another path accommodate more readily to what might be considered lesser
aspirations. They accommodate - downwards - to their 'failure' and internalize its cause.

Young men, however, rarely offered alternatives to their career path, and when they did they were of a similar Professional level involving an equal amount of rigorous academic study - just in another discipline. How must they feel when first, second and perhaps even third round offers pass them by. Already negative about school and the education system (more so than their female classmates) some will berate the system, its teachers, their parents, the economy and their bad 'luck'. They may become even more embittered, loudly questioning the value and quality of the education they received. Young men externalize their failure.

We know from TAFE enrolment figures that more young men will move into the TAFE area than originally planned to. Accounting, at Frankston TAFE as an example, has received applications from 500 students for 80 places. (Frankston is located 26km from Melbourne's Central Business District).

Whilst more young men will try to move into on-the-job training or Apprenticeship schemes (be they formal arrangements with the State Training Board or not), the opportunity and resources for on-the-job training and apprenticeships for women "has not been and is still not equitable" (Kirner, 1992:186) with participation rates in apprenticeships for women being around 6.4% of all apprenticeships, if one excludes hairdressing. (*Half Way to Equal, 1992: 186*)

We know from employment figures that many more of our young men and women will end up in the workforce in occupations in ASCO Categories 5 through 8. These categories received the least interest from the sample - with the exception of Travel and Tourism in Category 6. But we are surrounded by people performing Category 5 - 8 occupations, and these were traditionally the mainstay occupations of early school leavers of 15 years, or women returning to the workforce. Whilst this is no longer the case with increasing part-time and casual workers taking the place of full-time employees, these occupations are still occupations one often 'drifts' into through circumstance or chance - one rarely aspires to them. These are areas where one may achieve competence without needing high levels of prior academic achievement.

No one in our sample, for example, had the aspiration to be a labourer (Category 8); few wanted to go into Sales (Category 6); no-one dreamed of working on a production line (Category 7) and more girls than planned will look for work in Clerical occupations or take up six-monthly Certificates and one year Secretarial Diplomas in TAFEs and Private Colleges. Assuming work can be found, it is these areas into which our 1992 employment-seeking students will move.

One year from now, a review of these categories, along with the increased participation in the Trades area (Cat 4) may see us accounting for 30% of students in our sample. (These categories presently represent 15% of nominations). Such growth in these Employment areas appears realistic when compared, for example, to Batten's study (1989) where between 33% and 56% of students were employed within one year of leaving school, some 90% of whom were in ASCO Categories 4 to 8.
But it must be accepted that a number of students in these occupations will be under-employed, that is working part-time although desiring full time employment. With estimates that nearly one in four teenagers in the labour market are currently unemployed and will remain so for about 6 months, school leavers may face the decision that a part-time job is better than no job at all, though in the nature of 'part-time' there is insecurity of employment, exclusion from training schemes and generally poor career prospects.

Sadly, we know that many more than just the one young man who "planned to go on the dole" will find this their only option.

For other students it may mean a return to school. These could be called the "hidden unemployed" (Blakers,1992:189), for they would leave if jobs were available. This study found that before the end of Year 12 some 2% of students intended to repeat, as options for further study retreat perhaps three or four times this number will opt to return to school; just as "several thousand" did in 1992. *Herald-Sun, 1992:49*

### 5.4 THE VCE

The Government which implemented the VCE set a target of 70% retention by 1995 (a target already exceeded in 1992), and the working towards the longer term goal of near-universal full secondary education by the year 2000. *(VCAB Planning Guide, 1989)*

Having stayed until Year 12 students must make a decision as to whether they see an occupational advantage in continuing with their education to obtain a qualification which may bring with it the benefits of higher income, status and personal satisfaction - or so they believe. To others, quite simply, further education - any further education - is preferable to unemployment, or, unfulfilling or unsatisfactory employment.

Some in our sample of 591 Year 12s will have that decision made for them.

In this sample the writer would suggest that based on the available data perhaps in excess of 50% will have to accept offers to courses they were not committed to as their first and second preferences slip by.

Some, of course, may not be offered preferences at all and such a situation has in previous years caused great bitterness in students, their parents and the media. For although 80% will pass VCE, how well they pass seems fairly guarded from public scrutiny and will remain so, whilst schools must "ensure that assessment policies do not emphasize comparisons between students" (Ministerial 6:9.8(d))

It is tragic that the reality of achievement and competition has been prevented until "school is out". Many of these students for the first time in perhaps their secondary
schooling have been assessed and compared by higher education institutions and academically have been found 'wanting'. This leads many to rue their decision to stay on to Years 11 and 12, and in the words of a young woman who packs groceries:

I don't like to think about the future at the moment. There seems to be nothing to look forward to. I seem to wish we could go back in time to when I was in Grade 10. I should have got a job then and not done Year 11 and 12. Most of my friends have gone to college or Uni... 

*Is Anyone Listening?* (1992:31)

5.5 LIKELIHOOD OF SUCCESS

Students in our sample will accept offers for preferences high on their list just as many may accept offers for courses they have little interest in.

Considering the generally dismal performance on the achievement measure (OLSAT) and the very average ability scores (RSPM), the writer can but suggest that when one takes into account their own less-than-inspiring assessment of their grades and the selection of what often appears to be an unrealistic career choice, there seems little likelihood for success for many of the present sample in their chosen field of study.

5.6 PRIORITY AREAS

In completing the present study a number of areas have presented themselves as ones which the writer believes need to be urgently addressed. These are all equally important and no attempt has been made to rank them:

- The problem of underachievement must be recognized within our Government schools, and steps taken to increase achievement levels in our students that more appropriately match their ability levels. To do this it goes without saying that there needs to be an admission that a problem exists.

- There should be regular ability and achievement testing within all schools, so that we can learn the extent of the problem of underachievement as well as ensuring students form a more realistic self-concept; one that comes with a true understanding of one's capabilities, strengths and weaknesses.

- That the notion of mixed ability classrooms filled with grade-for-age peers, be re-thought in the true spirit of just what "challenging, purposeful and comprehensive...educational achievement" (Ministerial 6:9.1) may mean to students at the higher end of the ability curve.

- That Career Counselling within the schools take on a higher profile in keeping with the importance of its role for all students in secondary school - not just Years 11 and 12.

- That as much as can be, is done to improve the education experience for girls.
Including a consideration for more Girls' High Schools, or at least single sex classes in mathematics, science and P.E., and the speedier implementation of a gender inclusive curriculum.

• That more women actively be recruited from areas outside teaching, if necessary, to provide role models in non-traditional female areas so that both boys and girls may experience women as capable performers in 'male' dominated areas whilst still maintaining their femininity.

• That a study be undertaken to ascertain just why it is that so many boys in particular hold negatives attitudes towards school.

• That a review of teacher training and its methods of selection take place so as to ensure that superior quality graduates are selected into and attracted to teaching as a profession.

• To ensure that both graduates and skilled teachers stay in the profession and continue to improve their knowledge and skills base that a comparable salary structure to that in private industry be implemented.

• That some rationalization of subjects be looked at with respect to low enrolment VCE Units

• That if the present structure of the VCE is to be maintained that a study be undertaken as to the possibility of completing the required number of Units in a shorter period of time. Lessons here could be learned from training programs in private industry which have used criterion referencing for many years, allowing employees to complete work requirements to pre-determined standards but with no minimum time limits.

• That a data bank of student performance levels etc be established so that educational institutions, both secondary and tertiary, can monitor their own performance against that of the "industry standard"
CHAPTER 6

CONCLUSIONS
AND
SUMMARY OF FINDINGS

6.1 OVERVIEW

This study attempted to draw a profile of Victorian students in what could be considered the most crucial year of their schooling, Year 12. The students in this sample are among the 30,500 Year 12s who are the first to complete the full two-year Victorian Certificate of Education.

As might have been expected, as the 'survivors' to Year 12, these students' scores on the Raven's Standard Progressive Matrices (RSPM) and the Otis-Lennon School Ability Test (OLSAT) are significantly higher than the overall group of Year 9 testees from which they were drawn. Given this fact, however, this Year 12 group still show such low achievement scores when compared to the Australian norms, that their academic success in the University Degree Course that some 50% wish to complete must be doubtful.

In this study students were asked to complete a Questionnaire containing some items of direct comparison to the Questionnaire completed by each of them three years earlier in 1989. Particular areas of interest to this study in direct comparison with the earlier (1989) data included:

- The Job I'd really like on completing my studies is...
- The school subject in which I usually do best is...
- The school subject in which I do not do so well is...
- School is...

Particular and specific areas of interest in the 1992 Questionnaire included:

- Subjects studied at VCE
- In 1993 I plan to...
- 'Special interest' groups such as "no maths", "two maths", Languages other than English (LOTE) and those students who aspire to be teachers.

At each stage of the Questionnaire, statistical analysis was undertaken in an attempt to search for statistically significant differences in RSPM scores, OLSAT scores, ranking of preferences or differences attributable to gender. The purpose of highlighting such differences being as support (or perhaps even as a rationale) in explaining why our Year 12s behaved as they did.
Both the subject choices of students as well as their career choices still appear to be strongly sex-typed, with fewer girls represented in the maths/science area at school. As was discussed, their selection away from these areas significantly limits the outcomes available to girls. Hence we find courses leading to occupations within the 'helping' professions dominating female higher education choices - such courses, often, not requiring the study of a unit of mathematics at Year 12.

The careers girls choose have a strong negative correlation with those that boys choose.

A number of priority areas arising from the present study, including underachievement, ability and achievement testing and gender differences, are discussed and targeted as needing urgent attention.

6.2 SUMMARY OF FINDINGS

6.2.1 ABILITY AND ACHIEVEMENT

(a) The 1992 sample scored significantly higher on a measure of ability (RSPM) and an achievement measure (OLSAT) than the 1989 sample from which they were drawn. This indicated that proportionally more weaker students dropped out than stayed on.

(b) The change in OLSAT scores between 1989 and 1992, was three times that of the RSPM during the same period. This suggested the proportion of students weak in achievement was much higher than the proportion weak in ability.

(c) There were no significant differences in scores between boys and girls. The average male RSPM score was 107.9, with an average OLSAT of 91.4. The average female RSPM was 106.9, with an average OLSAT of 89.5.

(d) The level of achievement in the fourteen schools should be some cause for concern in that the level is significantly below what would be expected against Australian norms.

(e) It was found that three in four students - regardless of sex - are achieving under an average Australian level i.e. under the mean of 100 on the OLSAT.

(f) A comparison of actual scores by school and by gender show a discrepancy of some 16.5 points for males and 17.4 points for females between the measure of general ability (RSPM) and the measure of school ability (OLSAT), with the achievement score - the OLSAT - being at the lower end.
6.2.2 "BEST" AND "POOREST" SUBJECTS BY SELF-ASSESSMENT

(a) In an analysis of "best" subjects the only subjects which had undergone statistically significant changes in student perceptions were 'business' subjects and mathematics.

(b) When boys are asked to nominate the subject in which they usually do best, at Year 9 and at Year 12 they nominate Mathematics as their first choice; one in two boys in 1989 and 1 in 5 in 1992.

(c) For girls, Mathematics at Year 9 is close to an equal top choice with English, more than 1 in 4 girls choosing Maths; by 1992 less than 7 girls in 100 nominate it as their best subject.

(d) At Year 12, 13.9% of students attempted two maths; boys outnumber girls two to one.

(e) One in three girls do not attempt a maths at Year 12; 1 in 5 boys do not.

(f) Those females who enrolled in two maths at Year 12 had, three years earlier, achievement scores 11.5 points higher than the average female and general ability scores 6.8 points higher. The OLSAT scores were statistically significantly different for this two maths group when compared with all other students.

(g) Ability and achievement scores appear to relate more directly to the selection, non-selection and dual selection of mathematics at Year 12 for girls than they do for boys.

(h) Females considered English their best subject in 1989 and in 1992.

(i) In 1992, twice as many boys as girls believed that they did not perform well in English, and by 1992, there had been a 50% increase in the number of boys believing English was their weakest subject.

(j) 8% of girls at VCE see English as their poorest subject, but 25% of boys consider it so.

(k) One in 3 girls do not attempt a Maths at Year 12, 2 in 5 believe Maths to be their poorest subject and less than 7 in 100 consider it their best subject.

(l) Of all students who do not complete a maths at Year 12 only 1 in 4 boys and 1 in 3 girls saw maths as their poorest subject three years ago.

(m) Rank correlation co-efficients show there is only a low degree of agreement between the subjects chosen by boys and girls.
6.2.3 ATTITUDES TO SCHOOL

(a) The only statistically significant attitude change was that more students, in equal percentages of each sex, elected a "so so" or "pale grey" attitude to school. From one half the sample in 1989 to two-thirds the sample in 1992.

(b) One in three students hold the same attitude they did three years ago.

(c) The RSPM and OLSAT scores for this "so so" group were not significantly different from the group as a whole.

(d) More boys than girls expressed boredom at school; with the boys concerned scoring nearly six points lower on the ability measure than the girls who expressed this attitude.

(e) Having a career plan which spanned 1989 to 1992 did not appear to change students attitudes to school. Almost 75% of this group still considered school "so so".

(f) In 1992 less than 4 students in 100 have attitudes to school which are positive.

(g) Put generally, some 8 out of 10 students in Year 12 in 1992, have negative attitudes towards school: finding it hard, not nice or boring - singly or in combination.

(h) Three years ago within this same group of students only 4.2% of students expressed boredom - not one expressed not nice or hard.

6.2.4 CAREER ASPIRATIONS

(a) A rank correlation co-efficient showed that the preferred occupations nominated by girls is negatively correlated to those occupations chosen by boys. This correlation was highly significant (p <.02)

(b) Twice as many males as females see themselves in senior management/administration roles.

(c) Approximately equal percentages of both sexes aspire to careers which involve extensive study and skills training to achieve a "professional" status

(d) Almost 50% more females than males choose the para-professional occupations. This category includes major occupational groups such as teaching and nursing.

(e) In the trade areas boys outnumber girls more than 2 to 1, with the most preferred occupation in this area for girls being that of Chef.

(f) In the clerical-type occupations females outnumber males 5 to 1
(g) With two-thirds of their Year 12 completed 1 boy in 10 and 1 girl in 7 are unsure what to do.

(h) A school term before results are finalized 5 times as many boys as girls plan to repeat Year 12. Overall about 2% of students.

(i) 43.9% of males plan to go to University or University Colleges in 1993 compared with 55.4% of females.

(j) 15% of students, in approximately equal numbers by sex, have not altered their career choices between 1989 and 1992. Of these career choices 73% were in Professional and Para-professional areas.

(k) 5% of the sample wish to become teachers; 77.4% of these are female.

6.3 CONCLUDING REMARKS

On the basis of the present study generally there were two recurrent themes which presented themselves as needing immediate action. The first of these themes was the need for what could be termed "educational feedback".

The present study found that three in four students in the present sample are achieving under an average Australian level, that is, under the mean of 100 on a normed measure of achievement (OLSAT).

There must surely be regular ability and achievement testing within all schools, so that we can learn the extent of the problem of underachievement and devise and implement strategies to raise student achievement to the level indicated by their ability.

It is tragic that the reality of achievement and competition has been prevented until "school is out". As educators do we not have the responsibility - to ourselves, to our students and to their parents - to ensure students form a realistic self-concept? A self-concept that comes with a true understanding of one's capabilities, strengths and weaknesses.

By not allowing educational feedback too, we compound the impact of gender differences - our second theme.

As educators and administrators many of us fail to understand or even recognize the existence of gender differences. Thus we fail to intervene to correct for gender imbalances in our school environment, our curricula and our classrooms.

There is still much to be done in the area of improving education experiences - including outcomes - for girls. Widespread recognition and acceptance would be only the beginning.
For those who teach in the secondary years the present study found little agreement and most often disagreement between the subjects girls and boys chose - or were directed towards - to study. Poor subject choices for whatever reason at the time where electives are offered, and this is most usually at Year 9, means that prerequisites to subjects studied in later years are missed. This is true for all students - but most particularly true for girls. Yet, do we watch, intervene or care about our students' choices? In fairness, some do. But many do not.

A pattern of girls opting for less rigorous subjects is perpetuated into girls' higher education aspirations for the subjects they 'dropped' are often those which allow a student the widest possible choice from the range of TAFE and University courses. Frighteningly, the anti-maths sentiments of these students may linger to affect the judgements they may make with respect to, perhaps, even their own children. The cycle continues.

Two themes run through this study: the lack of educational feedback and gender issues. The writer would suggest based upon the evidence of the present study that the educational rhetoric of the last decade is of little value if we as educators and administrators continue to deny that these problems and differences exist within our schools. Similarly, a genuine commitment to rectify these problems, whilst important, needs to be put into practice. Such practice can only be shown to be having an effect at the school level if some objective assessment procedures are employed to monitor our - and our students' - performances. Both student and teacher deserve a realistic self-concept based on their capabilities, strengths and weaknesses.
REFERENCES

Department of Education, Employment and Training, (1992) *It's all because we're girls: An exploration of classroom practices and girls' learning with a focus on discipline*. (A Project of National Significance) AGPS: Canberra


VCAB Data Base (1992) Computer Printout released to the author by Graeme Jane, Director, VCE Operations Branch


APPENDIX 1

THE QUESTIONNAIRE
WHO AM I?

My name is: ........................................... ...........................................
first name                                    family name

My date of birth is  ......      ......      ......
day        month       year

School attended in 1992 ..........................................................

The job I'd really like to have on completing my studies is ..........................................................

The School subject in which I usually do best is ............

The School subject in which I do not do so well is ............

My favourite school subject is ...............

The subject I am not keen on is ...............

School is: (Please circle the appropriate number)

boring  so-so  exciting
1.  2.  3.  4.  5.

hard  so-so  easy
1.  2.  3.  4.  5.

fun  so-so  not nice
1.  2.  3.  4.  5.

I will stay at school to complete VCE.

(please circle one) definitely perhaps no

I am studying ...... subjects for VCE

how many?

These subjects are:

........................................... I think my VCE mark will be .... %

........................................... I think my VCE mark will be .... %

........................................... I think my VCE mark will be .... %

........................................... I think my VCE mark will be .... %

........................................... I think my VCE mark will be .... %
I think my VCE mark will be ....%  
I think my VCE mark will be ....%  

In 1993 I plan to:  
1. Go on to further study:  
   (circle one)  
   a. at a University  
   b. at a TAFE College  
   c. At another institution  

2. Try to find employment as a  
   please specify  

3. Take a year off before returning to study.  

4. Other. Please specify.  

If planning on further study in 1993 or 1994 the course I  
would most like to study is  

at ...........................................  
name of institution  

My second preference would be ...........................................  

at ...........................................  
name of institution  

In FIVE years' time I plan to be:  
(circle as many as appropriate)  
   a. studying  
   b. working full time  
   c. married  
   d. living overseas  
   e. other - specify  

My father's occupation is ...........................................  

My mother's occupation is ...........................................  

Please tell us about your hopes and aspirations for the Year  
2,000 AD on the reverse side of this sheet.  

Best wishes for VCE and thank you for your help in 1989 and  
today.  

ME AND THE YEAR 2,000 AD
APPENDIX 2
Subject Assessment

Code List:

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Raw Data - "Best" and "Poorest Subjects" by Year and by Gender

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APPENDIX 3

Responses to "The school subject in which I usually do best is..." and "The school subject in which I do not do so well is..." in 1989 and 1992

"The school subject in which I usually do best is..." regardless of gender

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Since Yr 9 students only do Science in general (16) and Year 12 students elect from Science (16), Biology (17), Chemistry (18) and Physics (19) for the purposes of the test, Code Numbers 17, 18 and 19 will be included in 16. Thus...

| 16 | 38 | 60 | 22 |

We need to exclude subjects 9 and 20 as they had highly significant changes and as such will bias the test.

Rejection region is Test Statistic > 1.771 p = 0.05
"The School Subject in which I do not do so well..." regardless of gender

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It is obvious here that subjects 12 and 20 have had significant changes between 1989 and 1992 - hence they will be omitted, so as to not unfairly bias the test.

Rejection region: Test statistic > $t_{n-1, .05}$ that is 1.796
APPENDIX 3 CONT'D

Males - "The School Subject in which I usually do best is..."

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Rejection region: Test statistic = \( t_{14, 0.05} > 1.761 \)

If we exclude subject 20 because it is an outlier, that is, it has experienced a more significant change than any other subject, then \( T = 0.65 \). Should we include subject 20 as the figure is not as large as the other outliers then \( T = 0.40 \)

Males - "The School Subject in which I do not do so well is...

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We omit subject 20 from the test because whilst 52 is not as extreme as some of the changes in past tests, it is more than double the next highest positive number (Subject 1, 21 students). This number's inclusion would bias the test.

Rejection Region = Test Statistic \( t_{(13, 0.05)} > 1.782 \)
APPENDIX 3 CONT'D

Females - "The School Subject in which I usually do best is..."

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Rejection Region is Test Statistic $> t_{n-1,.0} \Rightarrow$ Test Statistic $> 1.761$

Females - "The School Subject in which I do not do so well is...

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We omit 77 from the test as it is an extreme outlier.

Rejection Region - Test Statistic $> 1.782$
### APPENDIX 4

**Career Choice by School and Gender**
*(For a description of ASCO Categories refer Page 52)*

#### Males - Career Choices by School

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APPENDIX 5

Language Participation at Unit 4 level in Victorian Government Schools - 1992

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APPENDIX 6

What students learn in work experience is not always what one would expect or hope. Milligan and Thompson (1992:34) recount the case of Ludmilla.

Ludmilla's work experience

Ludmilla is a quiet girl who attends a Catholic co-educational college. She has been supported by her teachers and parents to pursue her evident interest and considerable skill in wood-work and carpentry. The school placed her with a cabinet making shop as part of its work experience program. It was a disaster. The two male cabinet makers would not let her touch the tools; she spent the time doing odds and ends, clerical and unskilled jobs. The main thing she learned, according to her teacher, was that girls don't belong in cabinet makers' shops. In her 'thank you' letter to the shop, Ludmilla expressed appreciation to the cabinet makers for their tolerance for having a girl and enclosed, as they requested, 'a photograph of herself in a nice frock'. She now no longer wants to explore carpentry as an option.
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Author/s:
Byrne, Gail R.

Title:
Past, present and future: a year 12 profile

Date:
1993-01

Citation:

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Unpublished

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Past, present and future: a year 12 profile

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