The Course Experience of Year 12 Students

Results from Youth in Transition

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More Australian secondary students are staying at school to complete Year 12. Apparent Year 12 retention rates have more than doubled in the last 15 years. After averaging a little under 35 per cent for much

of the 1970s, apparent Year 12 retention rates peaked at 77 per cent in 1992 (ABS, 1994). This is one of the most significant changes in the history of Australian education. Together with increased participation in tertiary education, the increase in the number of young people completing Year 12 signifies a move toward mass postcompulsory education.

Equity in education is a recurring theme in government policy. The third of the Common and Agreed National Goals for Schooling in Australia includes the phrase To promote equality of educational opportunities . . . (AEC, 1992: viii). The Commonwealth Government operates the National Equity Program for Schools (NEPS) which includes the broad goal of [ensuring] that the range of outcomes from schooling for students in the target groups approaches the same range of outcomes as for the non-target group (DEET, 1994: 8). The targeted groups include students from low socioeconomic or non-English-speaking backgrounds, Aboriginal and Torres Strait Islander students, students who are geographically isolated and students with disabilities.

The increase in the proportion of students completing Year-12 has been associated with changes in the personal, social and educational profile of Year-12 students. In particular:

*the tendency for females to have higher Year-12 completion rates than boys -- a phenomenon which emerged in the mid-1970s -- has been maintained and extended so that throughout much of the 1980s and into the early 1990s the apparent Year 12 retention rate for females has been 10 percentage points higher than that for males (ABS, 1993).

*there has been some decline in the differences between the Year 12 completion rates of students from higher and lower socioeconomic backgrounds (Williams, et al, 1993).

*the proportion of high academic achieving students in the Year 12 population has declined (Williams, et al, 1993).

Comparisons of Year 12 completion rates for specified sub-groups can be used as indicators of equity of outcomes (if not of opportunity) in education. Similar comparisons of results of Year 12 assessment and entry rates to higher education also provide indicators of equity of educational outcomes. This paper deals with another indicator of equity -- differential access to a productive learning environment.

The quality of the learning environment is more difficult to measure than completion rates or academic results -- but it addresses an aspect of equality of opportunity rather than of equality of outcome. The measurement of the quality of the learning environment (as distinct from learning outcomes) in the context of assessing differences between specified sub-groups of the Year 12 population requires the use of

students' perceptions of their course. This approach has recently been used in the Australian higher education sector, albeit for the somewhat different purpose of providing measures of institutional (or, more correctly, departmental) performance (Long & Ainley, 1994).

Figure 1Youth in Transition Samples by Year and Age

While there is likely to be substantial individual variation in perceptions, there may be cause for concern if there is a systematic variation based on certain characteristics of the students. There are implications for the equity of postcompulsory education if course experience varies significantly across categories of students according to their personal or family background.

The Youth in Transition Data

Youth in Transition is a longitudinal study that has been conducted over the past sixteen years by the Australian Council for Educational Research. It now involves four national cohorts of people, designated by their year of birth as the 1961, 1965, 1970 and 1975 cohorts. Members of these cohorts receive a mail questionnaire each year. The questionnaire focuses on participation in education and work. Figure 1 displays the overall structure of the project, indicating the years in which each of the samples has been surveyed and the age of members of the four samples in each year.

The 1975 Youth in Transition Cohort

Members of the youngest cohort were born in 1975. Some 5 653 14-year-olds were initially contacted in their schools in 1989 when they completed achievement tests in reading and mathematics, as well as a questionnaire. At that time, sample members were spread across Years 8, 9 and 10 -- although the majority were in Year 9. Sample members have been surveyed each year since 1989, responding to detailed questions about the study and work they had undertaken during the year, and other questions, for instance about their family background, their living arrangements, and how satisfied they were with various aspects of their lives.
In 1992, when the majority of the members of the 1975 cohort were in Year 12, the annual questionnaire (administered at the end of the year) contained a section which asked respondents about their experiences of the course they had been doing during that year. There were 3957 respondents to the survey in 1992, of whom 2153 were in Year 12. These data permit an examination of the experiences of Year 12 of a national sample of young people. As well as information on their perceptions of their course, other contextual information about the

studentsí family background and their earlier school achievement was available from previous surveys. The course experiences of these respondents can be reported both for the group as a whole, and for sub populations categorised by gender, ethnic and social background and location. The effect of educational factors such as earlier school achievement and the type of course being studied in Year 12 on course experience can also be investigated using these data.

Measuring Students' Perceptions of Courses

There is an extensive literature on student evaluation of learning situations, although more commonly at the tertiary level. Student evaluation of particular units of study and of the teaching of individual staff is now routine in many universities, both in Australia and internationally. The set of items included in the Youth in Transition questionnaire were selected from the Course Experience Questionnaire, versions of which have been developed and tested over a number of years by Ramsden and colleagues (Ramsden & Entwistle 1981,

Entwistle & Ramsden 1983, Ramsden et al., 1989, Ramsden 1991). There are different versions of the questionnaire -- the items and the wording of items has been changed to reflect the purpose and context of the research. The 20 items included in the Youth in Transition questionnaire were selected because they had been used in studies of senior secondary students.

It is important that the items -- and the scales derived from the items -- have a history: Results reported here are lodged within a theoretical and empirical framework which lends them additional support. For instance, there is a research literature that suggests that clarity of goals and standards in courses is associated with better learning. And studentsí approaches to learning appear to be influenced by their perceptions of the learning environment (Ramsden, et al, 1989).

Responses to items in the course experience questionnaire

Table 1 shows the 20 statements to which members of the 1975 Youth in Transition cohort were asked to respond in 1992 when they were 17 years old. Students were asked to indicate the extent to which each statement was true of the course they had recently completed. The five response categories were:

5: always or almost always true of the course
4: frequently true
3: true half of the time
2: sometimes true; and
1: never or rarely true of the course.

Table 1Percentage Responses, Means and Standard Deviations for Year 12 Course Experience Items

Item
always true
frequ-
ently
half-
time
some-times
rarely true

Mean
Std.
dev.

n

1There were few opportunities to choose particular topics you wanted to study
17
21
18
24
20
48
34
2077

2The workload was too heavy
11
25
25
31
7
50
28
2103

3You usually had a clear idea of where you were going and what was expected of you
27
35
21
13
4
67

28
2102

4To do well in this course all you really needed was a good memory
9
16
26
29
21
40
30
2101

5In most classes we were able to work through what we had to learn in

the way that suited us best
10
23
29
24
14
47
29
2101

6Teachers seemed more interested in testing what we had memorised than what we had understood
9
13
19
28
31
35
32
2102

7It was often hard to discover what was expected of you in the course
8
11
22
31
28
35
30
2094

8We were generally given enough time to understand the things we were learning
11

28
25
23
12
51
30
2097

9Teachers made a real effort to understand difficulties students had with their work
25
32
21
15
8
63
30
2094

10The aims and objectives of the course were not made very clear
5
11
20
29
35
30
29
2103

11Teachers put a lot of time into commenting on students' work
10
22
28
25
15
47
30
2100

12There was a lot of pressure on you as a student
43
27
16
10
4
74
29
2098

13We often discussed with teachers how we were going to learn in the course
6
18
23
27
25
38
30
2095

14It would have been possible to get through the course just by working hard around exam time
7
10
13
20
50
26
32
2096

15Teachers made it clear right from the start what they expected of students
25
27
24
17
7
62
30
2096

16We were encouraged to develop our own academic interests as far as possible
22
 29
27
13
10
60

30
2093

17Feedback on student work was usually provided ONLY in the form of marks and grades
18

21
21
23
18
49
34
2091

18Teachers were extremely good at explaining things to us
10
26
36
21
8
52
27
2088

19Teachers worked hard to make their subjects interesting to students
12
27
32
20
9
53
28
2098

20The sheer volume of work to be got through in the course meant that you couldn't comprehend it thoroughly
14
20
28
28
10
50
30
2096

The percentages of Year 12 students who gave each of these five responses are displayed in Table 1 for each item. For instance, for the first item, There were few opportunities to choose particular topics you wanted to study, 17 per cent believed that this was always or almost always true, 21 per cent believed that it was frequently true, 18 per cent believed that it was true about half the time, 24 per cent believed that it was sometimes true, and 20 per cent believed that it was rarely true.
The mean and standard deviation of responses to each statement and the number of students who responded to each statement are also shown in

Table†1. The means and their standard deviations were calculated on a metric different from the 1, 2, 3, 4, 5 used in the questionnaire. Responses were first recoded from 1 to 0, 2 to 25, 3 to 50, 4 to 75 and 5 to 100. The recoding is designed to provide a summary measure which is intuitively meaningful. The recoding interprets, with only marginal simplification, a 1 as indicating that the item was true zero per cent of the time, a 2 as indicating that the item was true 25 per cent of the time, a 3 is indicating that the item was true 50 per cent of the time, a four as indicating that the item was true 75 per cent of the time, and a five as indicating that the item was true 100 per cent of the time. The result is a mean which has a fairly direct interpretation as the per cent of time the item was true.

The means presented in Table 1 provide a convenient summary of the distribution of responses for each item and allow ready comparison between items. For instance, Item 9, Teachers made a real effort to understand difficulties students had with their work, was judged to be true 63 per cent of the time. By comparison, Item 11, Teachers put a lot of time into commenting on student's work, was judged to be true only 44 per cent of the time.

While it is tempting to interpret individual items, the wording of an item may substantially influence the pattern of responses. For instance, Item 18, Teachers were extremely good at explaining things to us has a mean of 52. The word extremely means that the respondent was offering a very strong endorsement of the teaching he or she experienced if the always true response was given. Had the item not included the modifier extremely, no doubt the mean would have been higher. Even so, a mean of 52, given the wording of the item, might be considered quite high. There are, however, no benchmarks against which to make such a judgement.

The absence of benchmarks also implies that there are no absolutes. For instance, even if every student in the survey circled a 5 for Item 3, You usually had a clear idea of where you were going and what was expected of you, this would not necessarily indicate perfection. If the item had been worded slightly differently the percentages endorsing each category may well change. The distribution of responses to items such as these are notoriously subject to minor changes in wording.

Given these caveats, however, some general comments can be made on the absolute level of agreement (or disagreement) with some of the items. The statement endorsed by respondents as being most frequently true of their Year 12 course was Item 12, There was a lot of pressure on you as a student, which has a mean of 74. It did not seem that this pressure was necessarily restricted to exams, because Item†14, It would have been possible to get through the course just by working hard around exam time, received the least support with a mean score of 26.

Table 2Characteristics and Constituents of the School Experience Scales

The Scales
Mean
Std
dev.
No.
items

N

Alpha

Good Teaching Scale
0
10
7
2105
0.82

9Teachers made a real effort to understand . . .

11Teachers put a lot of effort into commenting . . .

13We often discussed with teachers how we were . . .

15Teachers made it clear right from the start . . .

16We were encouraged to develop our own . .

18Teachers were extremely good at explaining . . .

19Teachers worked hard to make their subjects . . .

Clear Goals and Standards Scale
0
10
3
2106
0.67

3You usually had a clear idea of where you . . .

7It was often hard to discover what was expected . . .*

10The aims and objectives of the course were not . . .*

Appropriate Workload Scale
0
10
4
2105

0.70

2The workload was too heavy.*

8We were generally given enough time to . . .

12There was a lot of pressure on you as a student.*

20The sheer volume of work . . .*

The other main feature to emerge from the results in Table 1 is that students have a fairly good idea of what is expected of them in Year 12. Two statements that were among those with the highest mean scores related to students having a clear understanding of what was expected of them; Item 3, which had a mean score of 67, and Item 15, with a mean of 62. On the other hand, two of the lowest mean scores were for other statements about aims and objectives being unclear Items 10 and 7, with mean scores of 30 and 35 respectively.

The value of instruments such as the Course Experience Questionnaire, however, lies in comparisons between groups of students -- not in reflections on the level of agreement or disagreement with particular items.

The Scales

Combining items into scales has a number of advantages. Not the least of these is parsimony. Instead of discussing 20 items, results can be presented for three scales:

*the Good Teaching Scale

*the Clear Goals and Standards Scale

* the Appropriate Workload Scale.

The structure and existence of these scales were confirmed by factor and item analyses. Table 2 shows how the items are grouped together and the name of the scale they form. Items were originally selected in the expectation of producing five scales with four

Table 3Calculation of scale scores

Item

Response

Reversal

Recode

3

3

3
50

7

2

4
75

10

1

5
100

Sum
225

Number of items
3

Raw score: 225/3=
75

Subtract raw CGS mean 50.77
24.23

Divide by raw CGS std dev. 14.84

1.63

Multiply by 10
16.3

items in each. In the event, two of the items for the proposed Student Involvement Scale proved to be strongly related to the Good Teaching Scale. Item 15, Teachers made it clear right from the start what they expected of students, was expected to form part of the Clear Goals and Standards Scale, but was more strongly related to the Good Teaching Scale. The four items for the proposed Appropriate Assessment Scale (Items 4, 6, 14 and 17) were not sufficiently strongly related to form a scale, nor did they relate to any other scale. In all, six items did not show suitable properties for inclusion in any of the scales.

Table 3 shows an example of the calculation of the scale score for one respondent for the Clear Goals and Standards Scale. There are three items in this scale (Items 3, 7 and 10). The respondent gave the responses 3, 2 and 1 respectively. Items 7 and 10 have the opposite sense to the scale (ie endorsement implies a lack of clarity or standards). The scoring for these two items is reversed - for Item 7 the 2 becomes a 4 and for Item 10 the 1 becomes a 5. These scores are calculated in a manner similar to the way in which the means for items were calculated. The scores are then recoded so that 5, 4, 3, 2 and 1 become 100, 75, 50, 25 and 0 respectively. These scores -- a 50, 75, and 100 -- are summed (225) and divided by the number of items (3). This result was then standardised to produce a scale with a mean of zero and a standard deviation of 10 by subtracting the raw mean for the Clear Goals and Standards Scale, dividing the result by the standard deviation and multiplying by 10.

Apart from parsimony, one of the benefits of using scales is that they use relationships between items to confirm the meaning of the item. For instance, student responses to Item 12, There was a lot of pressure on you as a student, might reflect pressures originating from outside the course itself. The high correlation between responses to this item and responses to Items 2, 8 and 20 suggests that responses are being influenced by course workload - this is what the items have in common. Scales, by focusing on what is common between items, tend to reduce the effect of any idiosyncrasies associated with particular items. We can (usually) be more confident about the meaning of scales.

Two consequences follow from the idea of scales as reflecting the shared meaning of a set of items. First, the standard deviation of a scale is (usually) less than that of the items from which it is constructed. The standard deviation of the unstandardised Clear Goals and Standards Scale shown in Table 3 (14.84) is about half the size of

the standard deviations of the items from which it was constructed (see Table 1).

Second, the extent to which items share a common variation can be measured. It is reflected in Cronbach's alpha - a coefficient of reliability which runs from 0 to +1. The values shown in Table 2 for this coefficient for the Clear Goals and Standards and the Appropriate Workload Scales, 0.67 and 0.70 respectively, approach the lower bound of acceptability. The reliability of the Good Teaching Scale, however, is quite reasonable.

The Good Teaching Scale††This scale is defined by behaviours associated with good teaching practice: providing students with feedback on their progress, explaining things, making the course interesting, motivating students, and understanding students' problems. High scores on the Good Teaching Scale are associated with the perception that these practices are present. Lower scores reflect a perception that these practices

occur less frequently.

There is a body of research which links this, and the other two course experience scales, to positive learning outcomes, albeit often in the context of university study:

> It looks as if changes in teaching (good teaching, greater freedom in learning and an avoidance of overloading) are likely to move students away from surface and towards deep approaches to learning, and to improved attitudes, thus improving the quality, at least, of what is learned (Ramsden & Entwistle, 1981: 381).

Although Eley emphasises that student learning is the result of many factors, both internal and external to a particular course, and that to some extent it is always idiosyncratic to the particular student, he makes the point that:

> . . . teachers are not powerless. There are course related variables which they can manipulate, and which can have an effect on the sorts of learning in which their students engage (1992:250).

These variables include good teaching and clarity of goals and standards in the course.

The Clear Goals and Standards Scale

The establishment of clear goals
and standards in a course is part of good teaching in a broader sense. Yet it is clearly possible for teachers to engage in the activities included in the good teaching scale and fail to establish clear goals for the course and clear expectations of the standard of work required

from students. The three items which form this scale jointly measure this component of teaching practice.

Ramsden notes:

> Aims and objectives are technical terms used to describe what students are expected to learn as a result of participating in our courses. Logically, there is no such thing as teaching if the teacher does not know what he or she wants students to learn (1989: 1).

The Appropriate Workload Scale

High scores on the Appropriate Workload Scale indicate reasonable workloads. These are students who disagreed with the proposition that The workload was too heavy and who agreed that We were generally given enough time to understand the things we had to learn. The interpretation of this scale raises two concerns. The first is an argument that runs something like this:

> What is wrong with heavy workloads and pressure? Heavy workloads are a reflection of a course demanding high standards from its students.

The evidence from research on student learning is that such high standards may be a mirage. Heavy workloads require students to adopt an approach to learning which emphasises skimming across the surface of topics without being able to spend the time to truly engage and understand the material they are meant to be learning. We are not talking about workloads that interfere with a student's social life - the scale is tapping a level of workload that interferes with a student's learning. Two of the four items in this scale explicitly make this link.

A second argument could be advanced to the effect that workload is both something that can not only be too high, but can also be too low. A course which required virtually no work from its students would score very high on this scale, but this could hardly be described as a good learning situation.

There is probably some truth in this claim. The point that should be made is that it appears that the courses being examined rarely, if ever, reach the too low level of workload. If they did, then we would be unlikely to observe the positive correlations between the Appropriate Workload Scale and the Good Teaching and Clear Goals and Standards Scales that have been found in this and other studies.

Student Background Variables

The central question to be addressed was whether there was systematic variation in studentsí perceptions of their courses according to their background characteristics. This section describes the background

characteristics which will be examined.

*Ethnic background is based on father's country of birth. Countries are broadly classified as Australia, other mainly English-speaking country, and non-English-speaking country.

*Parent's occupation is based on father's occupation. If information on father's occupation was missing, then motherís occupation was used. The six categories are a condensation of the ANU-2 occupational prestige scale (Broom et. al., 1977).

*Parent's education is based on mother's highest level of education. If information for mother's education was missing, father's eduction was used.

*Family wealth is based on a factor scale derived from respondents' reports on the nature of their accommodation and on the possession of certain consumer durables. The scale was then divided into quartiles and the middle two quartiles combined.

*Rurality is measured by the population density of the local government area in which the school of the respondent was located. This was school attended at age 14 in 1989. The distribution of densities was divided into quartiles with low population densities being defined as `rural` and high population densities as `urban`.

*Achievement is measured by standardised tests in literacy and numeracy that were administered to sample members in 1989 at age 14. A composite achievement score was produced and then divided into quartiles.

*Course type is based on the combination of subjects taken by the student in Year 12.

Further details on all these measures apart from course type are available in Williams et al (1993). Further information on the classification of courses is available in Ainley, et. al. (in press). Given that the classification of courses is perhaps the least obvious measure, a brief description here may be useful.

While most students in Year 12 have a very wide range of subjects from which to choose, there are patterns of choice which enable the identification of subjects commonly taken together. A classification of course types, based on those subject combinations, was developed in two national sample studies of subject choice among senior secondary students conducted in 1990 and 1993. (Ainley et al 1990 and Ainley et al in press). The 12 different course types included nine which had a special emphasis in a main area of study (in practical terms this meant students studied at least two subjects from that area of study), and

three were courses without a clear emphasis in any one area.

The nine specialised course types were designated as:
*humanities and social sciences
*English
*arts
*mathematics-science
* other science
*mathematics
*technical and applied
*economics and business
*other specialisations.

The three mixed courses were further defined on the basis of the extent to which they included subjects from the four key learning areas of English, Mathematics, Science, and Studies of Society and Environment:

*mixed-general†-†a course that included one subject from each of those four areas (but with no area represented by two subjects);

*mixed-core - if the English and Mathematics key learning areas were covered, and one of either Science or Society and Environment;

* mixed-eclectic - courses in which there was no specialisation, and subjects came from a diversity of areas.

Table 4 provides examples of subject combinations fitting each of the course types identified in the study.

Table 4Course Types and Subject Combinations

Course Type
Examples of Subject Combinations

Humanities & Social Sciences
oEnglish, Modern History, Geography, Economics, 2-unit Mathematics
oEnglish, History, Politics, Discrete Mathematics, Art
oEnglish Studies, Mathematics 1, Australian History, Geography, Indonesian

English
oEnglish, Literature, Political Studies, Legal Studies, French

Arts
oEnglish, Art, Music, Australian Studies, Home Economics
oEnglish, Art, Photography, Human Biology

Mathematics-Science
oEnglish, Mathematics B, Mathematics C, Physics, Chemistry
oEnglish, 3-unit Mathematics, Physics, Chemistry, Economics
oEnglish Studies, Mathematics 1, Mathematics 2, Chemistry, Biology, Modern History

Other Science
oEnglish, Reasoning & Data, Chemistry, Biology, Legal Studies
oEnglish, Mathematics in Society, Biological Science, Marine Studies, Information Processing & Technology, Geography

Mathematics
oEnglish, Mathematics B, Mathematics C, Economics, Chemistry

Technical & Applied
oEnglish, Electronics Technology, Industrial Technology, Computing Studies, Mathematics in Practice, General Science

Economics & Business
oEnglish, Mathematics 1, Economics, Accounting, Legal Studies
oEnglish, Business Mathematics, Accounting, Small Business Studies, Information Technology

Other Specialisation
oEnglish, French, German, History, Reasoning & Data

Mixed-General
oEnglish, 2-unit Mathematics, Modern History, Biology, Home Science, Visual Arts

Mixed-Core
oEnglish, Applied Mathematics, Australian History, Applied Computing, Indonesian

Mixed-Eclectic
oEnglish, Politics, Computing Studies, Art, Home Economics

Note:Subject components of major studies have been shown in bold.

Course experience and equity

Tables 5, 6 and 7 present means for the Good Teaching Scale, the Clear

Goals and Standards Scale and the Appropriate Workload Scale respectively categorised by student background variables. The values in these tables allow a discussion of the extent to which there is a systematic variation in course experience based on the background

characteristics of students. If means for the course experience scales vary significantly across categories of students according to their personal or family background there may be issues of educational equity. The following discussion will deal only with differences associated with gender, parental occupation, and course type. This discussion will provide the interested reader with the ability to interpret the values for the other background variables.

Table 5Observed and Adjusted Scores on the Good Teaching Scale by Selected Background Characteristics of Respondents

Table 6 Observed and Adjusted Scores on the Clear Goals and Standards Scaleby Selected Background Characteristics of Respondents

Table 7Observed and Adjusted Scores on the Appropriate Workload Scale by Selected Background Characteristics of Respondents

Figure 2Model Underlying the Analyses

Tables 5, 6 and 7 all have a similar structure. There are two sets of results -- the observed and the adjusted. The observed values are just that -- the observed statistics for each category. The adjusted results are unstandardised regression coefficients which have been standardised about the mean and weighted according to the number of cases in each category (see Andrews, 19??). They can, however, be considered to be means which have been adjusted for the effects of other variables.

Figure 2 shows the model underlying these categories. Course Experience is on the far right hand of the figure and is considered to be affected by, or the consequence of, the factors to its left.

The block of variables on the left hand side can be considered to be truly background variables. This block consists of gender, ethnic background, parental occupation, parental education, family wealth, rurality, and State in which the respondent's school was located in 1989. In Tables 5, 6 and 7 the adjusted means for each of these variables have been controlled for the effects of the other six variables in this block -- but not for the effects of the variables in the middle block.

There are three variables in the middle block in Figure 2. These are intervening variables rather than background variables per se. The adjusted means for each of these variables in Tables 5, 6 and 7 are derived from a regression equation in which all the variables in the

left and middle blocks have been included.

Standard errors are also presented in Tables 5, 6 and 7. These have been estimated by boot strapping techniques which take into account the complex sampling design used to select this cohort. They can, however, be interpreted in the same way as any other standard error. Since the overall mean for each scale has been set to zero, a mean for any given category which is more than two standard errors from zero can be taken to be statistically significant. Similarly, if the means for two categories are being compared, the square root of the sum of the squares of the standard errors provides an estimate of the standard error of the difference.

Gender and Course Experience

The Good Teaching Scale††Since this is the first of the variables to be examined, more detail will be presented in the discussion. The means are derived from scales for which the overall mean is zero and the standard deviation is 10. This implies that positive values are above the overall mean and negative values are below the overall mean. In Table 5 the mean for females (0.3)† is above the overall mean while the mean for males (-0.3) is below the overall mean.

The interpretation of the size of the means is also facilitated by the standardisation of the scales. Since the overall standard deviation is 10, a mean of 1 is 0.1 standard deviations above the mean. Values for means after the decimal point represent hundredths of a standard deviation. A measure of about half a standard deviation could be considered sizeable, a tenth of a standard deviation might be the smallest value worth considering, and a hundredth of a standard deviation of no importance whatsoever. The mean scores for the Good Teaching Scale for males and females are both trivially different from zero and trivially different from each other. When considered in the context of the size of the standard errors, both means are small. They are neither important, nor statistically significant.

Adjustment makes these means, and consequently the difference between them, smaller still. A difference of four hundredths of a standard deviation (ie between 0.2 and -0.2) is inconsequential.

The Clear Goals and Standards Scale††Table†6 shows that females have a higher mean score for the Clear Goals and Standards Scale than males. The differences between the means for males and females for this scale is 2.9 points, or almost three tenths of a standard deviation. The size of this difference is sufficient for it to be potentially important. The means also appear relatively large against their standard errors. The mean for females is more than twice the size of its standard error while the mean for males is more than one and a half times its standard error. The difference between males and females for

the Clear Goals and Standards Scale is statistically significant.

The adjusted means show the same size and direction as the observed means. The standard errors are slightly smaller - at least for the males. The observed differences are then not the consequence of any of the other six variables in the left hand block in Figure†2 ie ethnicity, parental occupation, parental education, family wealth, rurality or State. This is hardly surprising - gender is unlikely to be related to any of these variables in the general population. There is always the possibility, however, that in a group which is the result of educational and social selection, ie students who have completed Year 12, a relationship may not exist.

The cause of this gender difference, then, is not clear. It may be worthwhile investigating the possible effects of achievement and course type on this relationship. Whatever the cause, however, male Year 12 students have lower mean scores for this scale than female Year 12 students.

The Appropriate Workload Scale

The means for the Appropriate Workload Scale for males and females presented in Table 8 are of an order of magnitude similar to those for the Good Teaching Scale ie they are in the realm of hundredths of a standard deviation. The differences for the observed means are both insubstantial and statistically not

significant. The values do not change after statistical adjustment for the effect of other background variables.

Parental Occupation and Course Experience

The Good Teaching Scale

Table 5 shows the means for the Good Teaching Scale for the six categories of parental occupation. Some of these means appear to be reasonably sizeable. For instance, the mean for Semi-skilled is 1.7 -- ie nearly two tenths of a standard deviation above the overall mean. Similarly, the value for Managerial is 0.13 standard deviations below the mean. These means, however, are not very much bigger than their standard errors and are not statistically significant. If comparisons are made between pairs of categories, specifically the Semi-skilled and Managerial categories, differences can be found which approach statistical significance (without actually getting there).

There is a broader trend present in these results. The means for the three white-collar categories (Professional, Managerial and White-collar) are all below the mean while the means for the three

blue-collar categories are all above the mean. The failure to find statistically significant results for parental occupation is in part an artefact of dividing the sample among six categories. All else equal, the more categories, the larger the standard errors, the lower the likelihood of finding statistically significant differences. Further analyses not detailed in this paper have suggested that overall students with white-collar parents report a lower frequency of activities which could be said to be good teaching.

The adjusted means are smaller than the observed means. This indicates that some of the observed differences between categories of parental occupation are associated with differences due to other background characteristics. This is perhaps no more than might be expected. Parental occupation is likely to be at least moderately correlated with parental education and family wealth. Although the adjusted means show a similar trend to that evident for the observed means - that the means for the Good Teaching Scale are higher for students whose parents have lower socioeconomic status positions, the differences are no longer statistically significant.

The Clear Goals and Standards Scale

Table 6 shows the means for the Clear Goals and Standards Scale for the six categories of parental occupation. These means show little sign of an overall trend. The outstanding feature is the mean of 2.4 for the White-collar category. Even so, this mean is less than two standard errors from zero and hence cannot be considered as statistically significant. Adjustment, however, increases the size of this mean to 3.1, a value which is certainly significant. It seems that students with parents in white-collar occupations experience their Year 12 courses as having clearer goals than students with parents in any of the five other occupational categories.

The Appropriate Workload Scale

Table 7 shows the means for the Appropriate Workload Scale for the six categories of parental occupation. The difference between the means of the highest and lowest occupational prestige categories is 0.26 standard deviations - a sizeable difference. The comments made about the Good Teaching Scale can be repeated here to some extent. Means for the individual categories fail to reach statistical significance and differences between the means for any particular pair of categories approach, but do not reach, statistical significance. Again, this is an artefact of the sample being subdivided into six categories. There is a clear trend for students with parents from higher socioeconomic backgrounds to report experiencing less appropriate workloads. When analyses are

undertaken somewhat differently, this trend is significant. Again, adjustment of the mean reduces the absolute size of the means and the differences between categories. The trend evident amongst the observed means, however, is preserved and alternative analyses suggest that the relationship is significant. Students from higher socio-economic backgrounds are more likely to report workloads which interfere with their learning.

Course Type and Course Experience

The Good Teaching Scale

Table 5 shows the means for the Good Teaching Scale for the twelve course types. Even though the sample size is now divided among twelve categories, the mean for students who undertook an English course in Year†12 is strongly and significantly negative (-4.6). No other mean is statistically significant. After adjustment the absolute size of the mean for English is reduced only marginally †(-4.5) but the standard error increases - and hence the mean is no longer statistically significant, even though apparently large.

The Clear Goals and Standards Scale

None of the means for the clear goals and standards scale for any of the categories of course type in Table†6 is statistically significant. The category Technical-applied courses -- which includes the trade courses -- has a particularly low mean, albeit not significantly low. Statistical adjustment reduces the absolute size of the mean for the Technical applied courses, but the mean value for English increases to -2.7. Again, this is not a significant result.

The Appropriate Workload Scale

None of the means for the appropriate workload scale for any of the categories of course type in Table 7 is statistically significant. The categories of English and Mathematics have fairly low means, albeit neither is significant. Nor are any of the differences significant after statistical adjustment.

Conclusion

This paper has reviewed the responses of a national sample of Year 12 students to 20 items which related to the learning environment in their final year at school. These items were used to form three scales: the Good Teaching Scale, the Clear Goals and Standards Scale, and the Appropriate Workload Scale. It was suggested that access to a productive learning environment was an issue of equity. Mean scores for the scales were presented for categories of a number of student

background characteristics: gender, ethnicity, parental occupation, parental education, family wealth, rurality, school achievement, and course type. The results for gender, parental occupation and course type were reviewed and some (principally small) differences were found.

It was found that males had lower mean scores than females for the Clear Goals and Standards Scale. There were indications that students with parents in higher socioeconomic status occupations had lower mean scores for the Good Teaching and Appropriate Workload Scales. Sample sizes were too small to support strong inferences about the relationship between any of the scales and the type of course being studied.

The interpretation of these results is not clear. It seems unlikely that students from higher socioeconomic background are disadvantaged in terms of access to productive learning environments. It is possible that the scales are not measuring teaching and learning environments but that responses are a reflection of the dispositions and attitudes of the students themselves. There is, however, a substantial body of research which suggests that this is unlikely (Marsh & Overall, 1981; Marsh, 1987).

Further analysis of the data may clarify some of these issues. In particular, it is likely that differences between schools play an important role in the structure of this data.

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