

CHAPTER SEVEN - CONCLUSIONS AND RECOMMENDATIONS

Restatement of the problem and research questions.

Previous research suggests there is limited data to indicate why students choose the subjects they do for the senior years of schooling (Haeusler and Kay, 1997). It is further suggested (Oates, 1990) that the subjects studied are shaped by the interactive influences of interests, aptitudes and opportunities. The research to date has been mainly concerned with national data (Ainley et al., 1990; 1994) with some studies conducted at a state level (Hobbs, 1987) some in regional areas (Haeusler and Kay, 1997) and some studies conducted in single sex schools (Johnston and Spooner, 1992).

This study sought to add to research findings by undertaking a case study in a comprehensive high school using the findings of other research conducted throughout Australia as a guide. The questions asked were; firstly, what are the influences upon students to choose the subjects they do? This question sought to understand some of the complex inter-relationships between factors such as gender, ethnic background, socio-economic status, Aboriginality and state and federal policies affecting education. Secondly, what subjects do students choose? The purpose was to examine both student subject preference and final subject choice given the possibility of too constraints of the education system and the school. Thirdly, why do students choose the subjects they do? This question sought to explore the intrinsic, extrinsic, instrumental, organisational and significant other reasons for subject choice in the context of the case study.

Conclusions

Influences on Students Subject Selection

The influences upon students' subject selection for the senior years of schooling covers a wide range of inter-related factors, some of which the students themselves are not aware of, or have thought about. The extent to which these individual factors affect an individual student was beyond this research study but there are a number of factors that were significant and cited in the literature (see Figures 1 & 2, page 17).

A major influence found in the study that crosses the barrier of influence to reason for subject choice is the underlying significance of the TER and the associated regulations governing the functioning of the HSC in NSW. In the questionnaire data the TER did not appear to be important except for 3 unit Maths, Physics and Chemistry which was consistent with other studies. However, the significance of the TER was noted when the majority of the students interviewed at School A indicated that they considered the consequences of the TER in their subject selection process. When asked their perception of the TER, students suggested that it was a mark and that 50 was a pass. This perception is one that was also held by a year twelve group of students in School A when asked the same question. Students also indicated that some of their parents had the same perception of the TER.

Within School A the process of managing the subject selection of students starts with an explanation of the regulations governing the functioning of the HSC (see page 68). Even with the explanation a number of students found that having to study English, one unit from KLA group 1, one unit from KLA group 2 and that they counted towards their TER score, was restrictive (see page 87). This was particularly the case with boys who wanted to undertake maths, science and technology type courses rather than humanity subjects. However, the way the lines were constructed within School A, to cater for the regulations of the Board of Studies in NSW and university prerequisite subjects, tended to favour the boys who wanted the maths, science and technology combinations. This finding is consistent with research by Lamb (1996) (see page 34).

The full impact of socio-economic status was not able to be determined in this study as students were not asked the level of family income as it was considered too invasive given the relatively small sample. Studies from the early 1980's suggest that the level of family income is significant in retention and participation in schools (see page 30). Other studies found that parental occupation and associated levels of income were significant in the subject selection process of their children (see pages 36-37). Given the context of the case study socio-economic status did not appear to be significant in this study. Only 3.6% of the students came from

homes where both parents were either unemployed and/or undertaking homeduties. All of these students were undertaking courses that would contribute to a TER. The percentage of students from single income families or with no income from work was virtually the same as the percentage of students who were financially supported, to varying levels, through AUSTUDY and Abstudy. There was no difference in the choices of subjects made by this group of students compared to the group as a whole.

In this study there were seven NESB students and seven Aboriginal students which together made up 12.6% of the sample (see page 81). In relation to the NESB students in this study the findings were similar to that of other research studies where students of a NESB were found to be more likely to select maths-science combinations of courses (see pages 38, 82 and 93ff).

The Aboriginal students in the study also selected courses that were similarly found in other studies by Ainley et al. (1994) where Aboriginal students had high enrolments in Physical Education courses (see pages 39 and 94). In this study four of the seven students selected both Personal Development, Health and Physical Education and Sport, Lifestyle and Recreation.

What Subjects did Students Choose?

The choice of subjects, within the study, took into account both the subject preferences of students given no constraints on them and their final choice of subjects. The influence of gender as it relates to subject selection was of interest in the study.

Gender as an influence on subject selection has been researched quite extensively in recent years. Hobbs (1987) and Ainley et al. (1994) found that males predominate in Maths, physical sciences and technical studies while females predominate in languages, Home Economics and arts courses. Johnston and Spooner (1992) found that females were less likely to take specialised and vocational courses compared to males (see pages 32-36). In this research it was found that a greater percentage of males (62.3%) than females (44%) chose either 2 unit or 3 unit Maths (see Table 8,

page 96). At the interviews the girls justified why they undertook the Maths course they did by relating it to post-school training and work. For instance, no girls chose building and engineering as an occupational future; engineering requiring 3 unit Maths for entry to tertiary courses. Girls indicated that Maths in Society was sufficient for the course they wanted to do in the future and if they did well in the course compared to 2 unit Maths their TER was enhanced. This supported the Stobart et al. (1994) finding that girls regarded Maths more in functional terms (see page 33).

In the sciences there were certainly more males (29.5%) than females (10%) in Physics. At the interviews both girls and boys indicated that their perception of Physics was that it was a difficult course to do and understand. A possible reason why males persisted with Physics is that it is a necessary prerequisite for tertiary entrance into engineering courses and useful for a range of trades and science related courses and careers (see Table 5, page 86). This same perception, by girls, was not shared for Chemistry with 23% of males and 24% of females doing the course although the girls interviewed did say that Chemistry was hard. Another factor is that Chemistry is more a prerequisite course for health and science courses where 12% of girls and 14.75% of boys indicated these courses were part of their future educational and occupational goals. For Biology 24.6 % of boys and 30% of girls selected the course. In the un specialised Science for Life course, it was found that more females (18%) than males (9.8%) selected the course which supports the Johnston and Spooner (1992) finding that girls are more likely to choose mixed rather than specialised courses. However, the same can't be said for the reasons to take Biology and Chemistry which were well supported by girls.

Research suggests that the traditional academic curriculum tends to favour males (see page 33). Given that more males than females in this study, except for Chemistry, selected the traditional academic courses of 2/3 unit Maths and Physics then this research is consistent with other studies. Participation by males, compared to females, was higher in courses such as Engineering Science and Industrial Technology and females were predominant in French, Visual Arts, Textiles and Design, EEC and Food Technology which is also consistent with other research

studies. On the issue of gender, when raised at the interviews, both the girls and boys indicated that it was not important to them in choosing the subjects they did. The girls indicated that they did not feel intimidated in choosing a subject that was male dominated and intimated that they were supported in their choice of subject by the teachers of their classes.

It was found that the participation by boys and girls in other courses did not support the findings of previous research. For instance, in the Industry Studies - Hospitality course that is a specialised Vocational Education course there was a 20% female participation compared to 49% male participation. In Drama males (11.5%) were predominant as compared to females (6%) whereas in Legal Studies there was 26% female participation compared to 13.1% male participation.

Other research studies indicate that females are moving more towards the subject selection patterns of males but the reverse is not true (see page 33). In this study it was found that girls were dominant in subjects such as Chemistry, Business Studies and Legal Studies. However, it was also found that boys dominated in subjects such as Geography, Drama and Music suggesting that males may be starting to select subjects that were previously considered 'female type' courses. Although some of the subjects selected by students in this study is consistent with other research there was no indication that the students believed that their selections were based on gender. It certainly is an influence but other factors appear to be more important.

Unencumbered, students had a wide range of course preferences (see page 90ff). No clear pattern emerged with both traditional academic courses such as 3 unit Maths, Physics and Chemistry preferred to the same extent as Personal Development, Health and Physical Education, Visual Arts and Sport, Lifestyle and Recreation. Also courses that were dominated by males such as Agriculture, Computer Studies and Industrial Technology were preferred to the same extent as courses preferred by females such as Food Technology, Visual Arts and Legal Studies. Further, some of the CEC's attracted significant preferences such as Photography and Sport, Lifestyle and Recreation.

At the other end of the preference scale were courses such as Economics, General Studies, Modern History, Italian and 3/4 unit Science. These academic courses, by this group of students, were of least interest to them as course preferences. However there was no evidence to suggest that vocational education courses or the CEC's had taken their place as Industry Studies - Hospitality and Metals and Tourism Sector Services were also low on subject preference (see Table 6, page 90).

What students selected has been explained on page 110. Certainly the influence of gender is evident as is preferences for certain subjects which suggests there are other factors important to students in their final choice of subjects.

Why Students Select the Course they do for the Senior Years of Schooling?

The reasons students indicated for their selection of subjects are explained on pages 111-114. The conclusions reached are consistent with the research of Ainley et al. (1994) where they found a strong link between selecting subjects based on interest and enjoyment and selecting subjects based on their importance for future education/training and/or work (see page 44). Students who had specific careers or training in mind were conscious of the course requirements for entry into these fields and choose appropriate subjects. A number also choose courses of particular interest which is consistent with the counselling provided to students by School A during the subject selection process.

Students indicated that, overall, their parents were not significant as reasons for why they choose particular courses. The subjects where parents were most influential was 2 unit Maths, Computer Studies and Textiles and Design. Broadly however, the study was consistent with the findings of Garrett (1985) and Haeusler and Kay (1997) where they found parents were of little influence on their children in selecting subjects for the senior years of schooling (see page 41). The research of Johnston and Spooner (1992) suggests that the influence of parents is more complex than simply stating them as reasons for subject choice (see page 41). They found, as did Connell et al. (1982) that the family relationships have a vital impact

on students and the decisions they make (see page 37). In this study students did indicate that they discussed subject selection and future study options with their parents but indicated that they had the final choice of what subjects they selected. This aspect is discussed further in the chapter under recommendations.

Implications:

There are some implications from this research from a theoretical perspective, for professional practice and at an educational systems level.

1. Theoretical

A conceptual model of subject selection was developed as a means of understanding the direct and indirect influences upon students and the reasons why students selected the subjects they do for the senior years of schooling (see page 46). The development of a conceptual model was based on the findings of other research studies that had identified a range of factors that were found to be relevant and significant to students' selection of subjects for their final years of schooling. The model shows the inter-relationship between the various factors. Along with the findings of other studies, this research suggests that the model is a useful foundation for understanding the inter-relationships that exist and a focal point on which to base processes of subject selection in the school.

Although the quantitative data is important in determining the numbers and percentages of students undertaking particular courses and identifying some of the reasons for their choice it was the interviews with individual students and with teachers in the context of the case study that provided the depth of understanding of the influences upon and reasons for selecting certain courses in the senior school. Such qualitative studies could greatly enhance the understanding of the influences upon and the reasons for subject selection by students in the senior years of schooling, especially if conducted on a broader scale.

2. Practical

Associated with the influences upon students and the reasons for their choice is the process of subject selection used within a school situation to assist students make

the best choice possible for them. What was found from this study was that the process is extensive and exhaustive but that some students did not fully understand the ramifications of their choices; such as not selecting courses from both KLA group 1 and group 2, not undertaking the correct number of units or choosing inappropriate courses for future education or training. An implication for School A, in particular, and for perhaps other schools, is that they need to have clear channels of communication to students and their parents so that the students have enough information and time to make the most appropriate selection of courses.

A further implication for schools is to be conscious of the process of subject selection for the senior school in relation to the needs of all students and not only those who want to undertake tertiary study and those who want to study certain courses. Schools need to be aware of the possible gender bias that may be generated by the way the lines in the school timetable are developed.

3. Systemic

A major influence identified in this research was that of the TER and the regulations governing the HSC in NSW by the Board of Studies. Associated with this is the subject prerequisite requirements placed on students for entry into certain tertiary courses. Although students indicated that the TER was not the main reason for their selection of courses for the senior school they did say that the TER was an underlying consideration in all their decision making. Firstly, they had to decide if they wanted a TER. Secondly, if they did want a TER they had to make sure that the combination of courses was correct and that the appropriate level in some subjects, such as Maths, was selected.

At School A 34% of the students indicated that they wanted to attend university but 89% indicated that they wanted a TER. There appears to be a misunderstanding of what the TER means both by students and the wider community. That single figure, the TER, appears to be seen as the HSC and an indication of the worth of the student, not only for academic study but for work in the wider community. An implication for the education system is to inform the

community of the nature of the HSC and the TER and the different pathways available to students for their study and future.

Recommendations:

1. Further Research

The research by Johnston and Spconer (1992) and Connell et al. (1982) in relation to the influence of the family is an important area for further study. In undertaking this kind of study a greater emphasis needs to be given to qualitative methods of research, especially interviews of parents and students both separately and together to gain an insight into the complexity of influential factors on families as students make their selection of courses for the senior years of school. Certainly if the resources were available for this study more interviews of students and their parents would have been undertaken as the full impact of family influence could have provided greater depth to the study.

A further area for research would be to undertake a longitudinal study of a broad cross section of students and to explore the relationship between intrinsic reasons for selecting subjects in the senior school of interest and enjoyment of subjects and extrinsic reasons for selecting courses for their future education and training value. Ainley et al. (1994) alluded to the relationship between the two reasons in their study. Further research in this field would also be of value in the present climate of educational change with vocational education a major consideration by the NSW Department of School Education and the variety of potential pathways that students have available to them to undertake post school education, training and work. This would help in finding answers to the statement of Ainley et al. (1990; 1994) when they indicated that the subjects chosen by students are considered important in shaping educational and occupational futures.

2. The School

The relationship between intrinsic and extrinsic reasons mentioned above also has relevance to the school as well. The process of subject selection is managed well within School A, however there are still some students who have difficulty with the process for what appears to be a variety of reasons. Firstly, nearly a quarter of the

students in the study had little idea of what they may like to do after they had completed high school. This is not a crucial issue in itself but is important in the context of the following.

Secondly, about 30% of students changed at least one of their subjects from the beginning of term four 1996 to the end of term one 1997. If students had chosen subjects for the 'right' reasons in the first place why was it necessary for them to change and what were the reasons for their changes? It is recommended that the school keep a record of the reasons why students change their courses. If it is in relation to future education and training or because of a particular interest or enjoyment of the subject then the change would be consistent with the findings in the study. If, on the other hand, the majority change because of the teacher of the course or the influence of parents, which was indicated by some students in the interviews, then a process of careful counselling of students needs to be implemented to reduce the number of changes. Counselling of teachers may be necessary as well in this process if they are discussing possible subject changes with students.

Thirdly, students and their parents need to be made aware of the various pathways that are available to them after students finish their high school education so as to take advantage of the options to suit their individual needs. Although the school did offer the students counselling in this area, which Johnston and Spooner (1992) indicated was a necessary part of the subject selection process, it was voluntary. Although parents were invited to make appointments to come into the school to discuss subject selection and post school options the number who did so was small in comparison to the cohort of students. A discussion with each student would be recommended in an attempt to reduce the number who had little idea of what they wanted to do after completing school and to reduce the number of changes to courses. Certainly any changes to the Board of Studies rules governing the HSC in NSW would have a significant impact on this aspect of the subject selection process into the senior years of secondary education.

3. The System

The underlying influence of the TER and the mandatory regulations of the HSC are constraints on students and tends to maintain the traditional academic curriculum at a time when 33% of HSC students attend university, when the clientele of the senior secondary school is changing and when governments are emphasising vocational education and training for students. There needs to be less emphasis on the TER as a score and its perception that it is an overall mark for a student's HSC and more of an emphasis on the subjects that the student have undertaken and the relevance of these courses of study to future education, training and work options. The recommendations of *Securing Their Future* (McGaw, 1997) propose some changes to this aspect of the HSC and the response by government and the Department of School Education in NSW will be important for the future of many students who use the HSC as a credential for something else other than the traditional pathway to tertiary education.

BIBLIOGRAPHY

- Abendroth, R.B. (1985). *Research factors that affect skills centre enrolment*. Spokane, Wellington: Spokane Area Vocational Skills Centre.
- Ainley, J., Batten, M. and Miller, H. (1984). *Patterns of Retention in Australian Government Schools*. Hawthorn, Victoria.: Australian Council for Educational Research.
- Ainley, J., Jones, W. and Navaratnam, K.K. (1990). *Subject choice in senior secondary school*. Canberra: AGPS.
- Ainley, J. and Sheret, M. (1992). *Progress through high School: A study of senior secondary schooling in New South Wales*. ACER Research Monograph No. 43, Hawthorn, Victoria, ACER.
- Ainley, J., Robinson, L., Harvey-Beavis, A., Elsworth, G. and Fleming, M. (1994). *Subject Choice in Years 11 and 12*. Canberra: AGPS.
- Appelbaum, R.P. (1970). *Theories of social change*. Chicago: Markham.
- Australian Bureau of Statistics. (1993). *Schools Australia 1993*, Canberra: ABS.
- Australian Bureau of Statistics. (1994). *Schools Australia 1994*, Canberra: ABS.
- Australian Education Council, (1989). *The Hobart Declaration on Schooling*. Canberra: DEET
- Bailey, K.D. (1978). *Methods of Social Research* Collier-Macmillan, London.
- Bartlett, L. (1991). Nothing but facts, sir: Curriculum reform as a function of corporate federalism. In *Hard Times: Labor's Restructuring of Schooling*. (Knight, J., Lingard, R., and Porter, P. Eds) Oxford, Farmer Press.
- Beare, H. (1989). From 'educational administration' to 'efficient management': The new metaphor in Australian Education. Paper presented at the Annual Meeting of the American Educational research Association, San Francisco, March, 26-31.
- Beukes, J.H. (1986). *Motivation for postschool training and job entry: Factors that influence the choice of standard I.O pupils*. Pretoria, South Africa: Human Sciences Research Council (ERIC ED 273 790)
- Board of Studies, (1991). *Curriculum Requirements for NSW Schools*. Sydney: Board of Studies, pp. 2 - 3.
- Board of Studies, (1996). *The Report of the Gender Project Steering Committee*. Board of Studies, Sydney.

- Bogan, R., and Taylor, S. (1975). *Introduction to Qualitative Research: A Phenomenological Approach to Social Sciences*. Wiley, New York.
- Braithwaite, J. (1986). *Staying or leaving? Commonwealth financial assistance to secondary students*. Sydney: School of Education, Macquarie University, NSW.
- Braithwaite, J. (1989). Why stay? Why leave? A comparison between school stayers and leavers. *Education Research and Perspectives*, 16 (2), pp 44-56.
- Breton, R. (1972). *Social and academic factors in the career decisions of Canadian youth*. Ottawa: Manpower and Immigration.
- Brown, S., and Fitzpatrick, J. (1981). *Girls, boys and subject choice*. A report on sex differences in participation rates in WA government schools (Discussion paper no. 11) Perth: Education Department of Western Australia, Research Branch.
- Buddle, P. (1985). TTBLOCKER: a timetable computer programme (unpublished).
- Byrne, E. (1987). Discussion Paper 8, Maths as a Critical Filter. University of Queensland WISTA Policy Review Project.
- Care, E., and Naylor, F. (1984). The factor structure of expressed preferences for school subjects. *Australian Journal of Education*, 28, pp 145-153.
- Carmichael, L. (Chair), (1992). *Australian Vocational Certificate Training System*. Canberra, Commonwealth of Australia.
- Carrick, J. (Chair), (1989). *The Committee of Review of New South Wales Schools*. Sydney: Ministry of Education and Youth Affairs.
- Chapman, J., and Thomson, N. (1981). *School and tertiary student participation and the level of family income*. (Working paper No. 81-14). Adelaide, SA: Department of Economics. University of Adelaide.
- Cohen, D. and Maxwell, T. (1985). *Blocked at the Entrance*. Armidale: Entrance publications.
- Cohen, L., and Manion, L. (1994) *Research Methods in Education*, 4th Edition, London: Routledge.
- Collins, C. (1992). Upper secondary education in Australia: Differing responses to a common challenge. *Journal of Curriculum Studies*, 24 (3), 247-260
- Commonwealth Schools Commission, (1983). *Participation and Equity in Australian Schools*. Canberra: Commonwealth Schools Commission.

- Connell, R.W. (1980). 'Problems of class and schooling', in *Who Owns the Curriculum?* (Victorian teacher unions and parents organisations), pp 27-32.
- Connell, R., Ashenden, D., Kessler, S. and Dowsett, G. (1982). *Making the Difference: Schools, Families and Social Division*. Sydney: Allen and Unwin.
- Connell, W.F. (1970). Myths and traditions in Australian education. *The Australian Journal of education*, 14, (3), pp 253-264.
- Cooney, G. (Chair), (1997). Report on the Scaling of the NSW Higher School Certificate. Technical Committee on Scaling. NSW Vice-Chancellor's Conference.
- Costa, A. (1987). Restructuring Learning From the Inside Out: a forward to the future. In *If Minds Matter: Volume One*. Alexandria, VA, pp 93-100.
- Cusick, P.A. (1973). *Inside high school: The student's world*. New York: Holt, Rinehart & Winston.
- Dawkins, J. (1988). *Strengthening Australia's Schools: A Consideration of the Focus and Content of Schooling*. Canberra: AGPS.
- Denzin, N.K. (1970). *The Research Act in Sociology: A Theoretical Introduction to Sociological Methods*. The Butterworth Group, London.
- Department of Employment, Education and Training (DEET), (1987). *Completing Secondary School in Australia: A socio-economic and regional analysis*. Research and Statistics Branch, Canberra.
- Duffy, D.E. (1989). *The statistical analysis of discrete data*. Springer-Verlag, New York.
- Earley, R.D. (1981). Girls, school and work: Technological change and female entry into non-traditional work areas. *Australian Journal of Education*, 25, pp 269-287.
- Elsworth, G.R., and Day, N.A. (1989). *Factors associated with student choice of mathematics, science and technology*. Paper prepared for the report of the working group on education for science and technology. Melbourne: Ministry of Education.
- Finn, B. (Chair), (1991). *Young People's Participation in Post - compulsory Education and Training; Report of the Australian Education Council Review Committee*. Canberra, AGPS.
- Fullan, M. (1993). *The New Meaning of Educational Change*. London, Cassell Educational Limited.

- Garratt, L. (1985). Factors affecting subject choice at A-level. *Educational Studies*, 11, pp 127-132.
- Graetz, B. (1991). 'Gender, Equity and Participation in Australian Education', *New Education*, pp. 1-13.
- Guba, E. G. and Lincoln, Y. S. (1989). *Fourth Generation Evaluation*, SAGE Publications, California.
- Haeusler, C. and Kay, R. (1997). School subject selection by students in the post-compulsory years. *Australian Journal of Career Development*. Vol. 6, No. 1, Autumn 1997, pp 32-38 ACER
- Harris, M. (1971). *Culture, man and nature*. New York: Crowell.
- Hartley, R. and Maas, F. (1987). *Getting a lot further: Some factors influencing decisions which ethnic families make about children's schooling and post-school futures*. Melbourne: Australian Institute of family Studies.
- Hobbs, T. (1987). *Senior Secondary Subject Selection by Boys and Girls*. Research Services Branch, Brisbane: Dept. of Education.
- Holland, J.L. (1985). *Making Vocational Choices: A theory of vocational personalities and work environments*. Englewood Cliffs, N.J.: Prentice-Hall.
- House, E.R. (1980). *Evaluating with validity* Sage: . California
- Issacson, N. and Bamburg, G. (1992). Can Schools Become Learning Organisations? *Education / Leadership*, November.
- Johnston, S. (1990). *Retention Rates: More than just counting heads*. Dept. of Education, Queensland.
- Johnston, S. & Spooner, A. (1992). *Where Do I Go From Here? An Analysis of Girls' Subject Choices*. Victoria. Australian Education Council
- Jones, J. (1990). Outcomes of girls schooling: Unravelling some social differences. *Australian Journal of Education*, 34 (2), pp 153-167.
- Jones, W., 1989. *Secondary School mathematics and Technological Careers* (ACER Research Monograph No. 32). Hawthorn, Victoria: ACER.
- Keeves, J. (1987). *Equitable Opportunities in Australian Education*. Melbourne: Dept. of Education, Victoria.
- Kenny, W.R. and Grotelueschan, A.D. (1984). Making a Case for Case Study. *Journal of Curriculum Studies*, 16, (1), pp 37-51.

- Laird, D.J. (1982). *Educational Policy and Administration: The Implications for Curriculum Change of Selected Developments in the NSW State Secondary School System*. Ph.D. Thesis, University of New England.
- Lamb, S. (1996). 'Gender Differences in Mathematics participation in Australian Schools: some relationships with social class and school policy', *British Educational Research Journal*, Vol. 22, No 2, pp 223-240.
- LeCompte, M. D., and Goetz, J.P. (1982). "Problems of Reliability and Validity in Ethnographic Research", *Review of Educational Research*, 52, pp 31 - 60.
- Leedy, P.D. (1993). *Practical Research: Planning and Design (5th edition)*. Macmillan.
- Lewis, E.O. (1913). Popular and unpopular school subjects. *Journal of Experimental Pedagogy*, 2 (2), pp 89-98.
- Maas, F. (1988). *Involvement in Education and Receipt of Financial Assistance Among a Group of Low Income families in Victoria*. Melbourne: Australian Institute of Family Studies.
- Maxwell, T.W., Hansford, B., and Bennett, T. (1997). Aboriginal Students' Perceptions of School. *McGill Journal of Education*, 32, (2) pp 99- 116.
- Mayer, G. (Chair), (1992). *Employment - Related Key Competencies: A Proposal for Consultation*. Melbourne: The Mayer Committee.
- Maykut, P. and Morehouse, R. (1994) *Beginning Qualitative research*, The Falmer Press. London
- McGaw, B. (1997). *Shaping Their Future: Recommendations for reform of the Higher School Certificate* Department of Training and Education Co-ordination, NSW. Sydney.
- McKenzie, P. (1989). *Secondary school size, curriculum structure and resource use: A study in the economics of education*. Doctoral dissertation, Monash University.
- McKenzie, P., and Alford, K., (Eds) (1990). *The labour market relevance of secondary schooling: perspectives of year 12 school leavers who do not enrol in higher education*. Hawthorn, Victoria. ACER.
- McKenzie, P. (1990). Education and employment scenarios for youth during the 1990's. *Youth Labour Market Issues*, 1, (13), pp 1-6.
- McMahon, M. (1992) Examining the context of adolescent career decision making. *Australian Journal of Career Development*. Vol. 1, No. 1, pp 13-18: ACER.

- Meade, P. (1982). *An evaluation of the Secondary Allowance Scheme*, Canberra: AGPS.
- MEYA (Ministry of Education and Youth Affairs), (1989). *Excellence and Equity: New South Wales Curriculum Reform*. Sydney: NSW Ministry of Education and Youth Affairs.
- MEYA, (1990). *Education Reform Act*. Sydney: NSW Ministry of Education and Youth Affairs.
- MEYA, (1993). *Directions: Vocational Education for the Higher School Certificate through schools and TAFE Colleges in New South Wales*. Sydney: NSW Ministry of Education and Youth Affairs.
- Middleton, M. (1992). "Education in the Post Third Wave World". Paper presented as part of a staff inservice course, Armidale, November 1992.
- Mitchell, D. (1996). *Survey of Vocational Education*. LIEN: Armidale.
- Myhill, M., Herriman, M., and Muligan, D. (1994). *Subject and Career Choice of NESB Youth*. Bureau of Immigration and population Research, Canberra, AGPS.
- NSW Department of Education, (1974). *Aims of Secondary Education in NSW*. Sydney.
- NSW Department of School Education, (1993). *Quality Assurance Report*.
- NSW Department of School Education, (1995). *Schools as Learning Communities: a discussion paper*. Training and Development Directorate, Sydney.
- NSW Department of School Education, (1997). *Agenda '97*. DSE: Sydney.
- NSW Department of School Education - Dual Accredited Vocational Courses; Information Package. Sydney.
- Oates, J. (1990). Opportunities, achievement and choice: Women and minority students in science and mathematics. *Review of Research in Education*, 16, pp 153-222.
- Parker, L. and Offer, J. (1987). Girls, boys and lower secondary school achievement: The shifting scene 1972-1986. *Unicorn*, 13 (3), pp 148-154.
- Print, M. (1993). *Curriculum Development and Design*. 2nd edition. Sydney, Allen and Unwin.
- Pritchard, R.A. (1935). The relative popularity of secondary school subjects at various ages. *British Journal of Educational Psychology*, 5, pp 157-179; 229-241.

- Russell, G. and Smith, J. (1979). Girls can be doctors ... can't they? Sex differences in career aspirations. *Australian Journal of Social Issues*, 14, (2), pp 91-101.
- Schwartz, M.S. and Schwartz, C.G. (1955). Problems in participant observation. *American Journal of Sociology*, 60. pp. 343-354.
- Scott, B.W. (Director), (1989). *Schools Renewal: A Strategy to Revitalise Schools within the New South Wales State Education System*. Milson's Point: Management Review: NSW Education Portfolio.
- Senge, P.M. (1990). The Leader's New Work: Building Learning Organisations. *Sloan Management Review*, No. 7. Fall.
- Shakespeare, J.J. (1936). An inquiry into the relative popularity of school subjects in elementary schools. *British Journal of Educational Psychology*, 7 (2), pp. 147- 164.
- Stake, R.E. and Day, J.A. (1978). Research methods used. In R.E. Stake and J.A. Easley (eds.) *Case studies in Science Education*, Center for Instructional Research and Curriculum Evaluation, University of Illinois: Urbana-Champaign. ERIC ED 156 498.
- Stobart, G., Elwood, J., and Quinlan, M. (1992). 'Gender Bias in Examinations: how equal are the opportunities?', *British Educational Research Journal*, 18, (3).
- Sweet, R. (1988). The Youth Labour Market - A Twenty year Perspective. *The Bulletin of the National Clearinghouse for Youth Studies*. 7 (3), pp 31-36.
- Taylor, S. (1983). School choices and life chances. In R.K. Browne and L.E. Foster (Eds). *Sociology of Education* (Third Edition). Melbourne: Macmillan.
- Teese, R. (1989). Australian private schools, specialisation and curriculum conservation, *British Journal of Educational Studies*, 37 (3), pp 235-252.
- Teese, R., Davies, M., Charlton, M. and Polesel, J. (1995). *Who wins at school? Boys and girls in Australian secondary education*. Dept. of Education Policy and management. The University of Melbourne. Victoria.
- Universities Admissions Centre (UAC), (1996). *UAC Guide: a guide to undergraduate university courses in NSW and the ACT*. UAC Pty. Ltd., Sydney.
- Wax, R.H. (1971). *Doing fieldwork: Warnings and advice*. Chicago; University of Chicago Press.
- Williams, T. (1987). *Participation in Education*. Hawthorn: ACER. Victoria.

- Williams, T., Long, M., Carpenter, P. and Hayden, M. (1993). 'Entering Higher Education in the 1980's', Dept. of Employment, Education and Training, Canberra.
- Woods, P. (1976). The myth of subject choice. *British Journal of Sociology*, 27 (2), pp 130-149.
- Yates, L. (1993). *The Education of Girls: Policy, Research and the Question of Gender*, ACER, Melbourne.
- Yin, R. (1989). *Case Study Research Design and Methods*, Revised Edition, Sage: California.

APPENDIX A - STUDENT QUESTIONNAIRE.

The following information will be very useful for me to understand what you choose for your senior years of schooling and why you choose the subjects you did. This information is part of a research activity at the University of New England.

AS YOU ARE ASKED NOT TO PUT YOUR NAME ON THESE SHEETS YOUR HONEST ANSWERS WOULD BE VERY MUCH APPRECIATED.

SECTION 1: BACKGROUND INFORMATION

1. Gender: Male
Female
2. Nationality: Yes
No
 Aboriginal/Torres Strait Islander Yes
No
 Non - Australian (please state country) _____

3. What was the country of birth of your parents?

(Tick one box in each column)

	Mother	Father
Australia.....	<input type="checkbox"/>	<input type="checkbox"/>
Other English language country (eg. Britain, Canada, USA).....	<input type="checkbox"/>	<input type="checkbox"/>
Northern Europe (eg. Germany, Holland)	<input type="checkbox"/>	<input type="checkbox"/>
Southern Europe (eg. Italy, Greece).....	<input type="checkbox"/>	<input type="checkbox"/>
Asia (eg. China, Japan, Vietnam).....	<input type="checkbox"/>	<input type="checkbox"/>
Pacific (eg. Fiji, PNG).....	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

4. What is the present occupation of your father or guardian?

5. What is the present occupation of your mother or guardian?

6. Do you enjoy school?

- Don't like school
- Somewhat enjoy school
- Enjoy school
- Very much enjoy school

7. **When you first identified the subjects you most wanted to do, please list your first three choices in order and state the reason you wanted to do them?**

SUBJECT	REASON
1.	
2.	
3.	

8. **When do you intend to leave school?**

At the end of the year

At the end of year 11

After the HSC

9. **After you leave school, what do you intend to do?**

Job

Apprenticeship/traineeship

Attend a TAFE course

Attend a Private College

Attend University

Other (please state) _____

10. **What career or job do you hope to have after finishing your training?**

SECTION 2: SUBJECT CHOICES

In the following table could you please indicate:

1. The subject you have chosen in each line
 2. The reasons for choosing this subject, including what/who influenced your choice.
- Influences could include combinations of the following: parents/family, friends, teachers, interest in the subject, enjoy the subject, do well in the subject, necessary for future studies, Tertiary Entrance Rank, the organisation of the lines, the subject I wanted wasn't offered.

PLEASE BE HONEST IN YOUR ANSWERS.

LINE	REASONS
ENGLISH	
LINE 2 3 UNIT MATHS 2 UNIT MATHS MATHS IN SOCIETY MATHS IN PRACTICE	
LINE 3 BIOLOGY INDUSTRY STUDY (METALS) PHYSICS FOOD TECHNOLOGY PDH PHOTOGRAPHY	
LINE 4 CHEMISTRY BUSINESS STUDIES DRAMA MODERN HISTORY PDH SCIENCE FOR LIFE ECONOMICS GENERAL STUDIES	

<p>LINE 5 AGRICULTURE ART LEGAL STUDIES FRENCH GEOGRAPHY INDUSTRY STUDIES (HOSPITALITY) ENGINEERING SCIENCE</p>	
<p>LINE 6 ANCIENT HISTORY JAPANESE COMPUTER STUDIES MUSIC TEXTILES & DESIGN ABORIGINAL STUDIES INDUSTRIAL TECHNOLOGY SPORT, LIFESTYLE, RECREATION SKILLS FOR LIVING</p>	
<p>LINE 7 3 UNIT MATHS EXPLORING EARLY CHILDHOOD PHOTOGRAPHY SPORT, LIFESTYLE, RECREATION</p>	
<p>Other subjects studied elsewhere, eg TAFE, OHS, off line (Please state)</p>	

SECTION 3: SOME MAY YES

There are many subjects offered each year. It would be useful to know why you didn't consider or choose certain subjects. In the table below could you give reasons for not choosing the subjects specified.

SUBJECT	REASON
Economics	
Industry Studies (Metals)	
Modern History	
Design & Technology	
4 Unit Science	
Hospitality (CEC)	

If you have any other comments in relation to subject choice and reasons for subject choice please write them here?

Thank you for your time in filling out this survey
David Mitchell

APPENDIX B - ASCO CATEGORIES

Occupational classifications

The eight occupational categories used in most of the tables in this report were compiled from Australian Standard Classification of Occupations (ASCO) major and minor groups in the following way:

Business and management professionals/paraprofessionals—managers and administrators (major) plus business professionals and investment, insurance and real estate salespersons (all minor).

Building and engineering professionals/paraprofessionals—building professionals and engineers, and engineering and building associates and technicians (all minor).

Health and science professionals/paraprofessionals—health diagnosis and treatment practitioners, natural scientists, medical and science technical officers and technicians, nurses (all minor).

Teaching and social professionals/paraprofessionals—school teachers and other teachers and instructors, social professionals, miscellaneous paraprofessionals except arts support workers (all minor).

Arts and related professionals/paraprofessionals—artists and related professionals (minor) plus performing arts support workers (unit).

Police, defence, air and sea—police air and sea transport technical workers (minor) plus our category for 'non-specific defence'.

Trades—as for major group trades.

Clerical/sales/service/operators—clerks, sales and personal service workers (except investment, insurance and real estate salespersons), plant and machine operators and drivers, labourers and related workers (all minor).

APPENDIX C - PRELIMINARY COURSES 1997

PRELIMINARY COURSE CHOICES FOR 1997

From the following list of subjects, choose courses to the value of 10 or 11 units. English is not listed as it is compulsory and makes up 2 units of study.

Board Developed Courses - 2 units unless specified

Aboriginal Studies	_____	Agriculture	_____
Ancient History	_____	Applied Studies - 1 unit	_____
Biology	_____	Business Studies	_____
Chemistry	_____	Computing Studies	_____
Design & Technology	_____	Drama	_____
Economics	_____	Engineering Science	_____
Food Technology	_____	French	_____
French Z	_____	General Studies-1 unit	_____
Geography	_____	German	_____
German Z	_____	Industrial Technology (B)	_____
Industry Studies - Hospitality(B)	_____	Industry Studies - Metals (B)	_____
Italian Z	_____	Japanese	_____
Legal Studies	_____	Life Management Studies	_____
Mathematics - 3 unit	_____	Mathematics - 2 unit	_____
Maths in Society	_____	Maths in Practice (B)	_____
Modern History	_____	Music 2 unit related	_____
Music - course one	_____	Physics	_____
PD/Health/PE	_____	Science - 3/4 unit	_____
Science for Life (B)	_____	Textiles & Design	_____
Tourism Sector Services(B) #	_____	Visual Arts	_____

Content Endorsed Courses - 1 unit unless specified

Automotive Engines #	_____	Building Construction #	_____
Exploring Early Childhood	_____	Fabrication/Welding Skills #	_____
Hospitality CEC	_____	Hospitality Essentials #	_____
Hospitality - Coffee Shop #	_____	Hospitality - Fast Food Op.#	_____
Hospitality - Mise - En - Place #	_____	Photography	_____
Office Studies - Computing #	_____	Sport, Lifestyle & Recreation	_____
Studies in Religion	_____	Skills for Living	_____
TRAC - Retail 2 unit	_____	TRAC - Office 2 unit	_____

Other Endorsed Courses - 1 unit

Japanese for Tourism and Hospitality _____

Open High School: _____ (choice, if any)

Key

B Category B subject for calculation of the TER
Joint Secondary Schools TAFE course

NAME: _____ ROLL: _____

CAREER/COURSE CHOICES: _____

Signed: _____ Signed: _____
(student) (parent/guardian)

PRELIMINARY SUBJECTS AND LINES FOR 1997

NAME: _____

ROLL GROUP: _____

Please place a cross (X) next to the subject you wish to study for your Preliminary Year. **REMEMBER** you must do a minimum of 12 Units and if you want a **TEAR** you must have 10 UNITS of Board Developed Courses and you must have at least one (1) Unit from KLA group 1 (Science, Maths, Technology) and one (1) Unit from KLA Group 2 (Social Science, Creative Arts, Cultural Studies, PDI).

IF YOU HAVE ANY PROBLEMS PLEASE SEE MRS WALSH

LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7
ENGLISH	3U Maths	Biology	Business Studies	Agriculture	Aboriginal Studies	3U Maths
	2U Maths	Food Technology	Chemistry	Visual Arts	Ancient History	Photography (1U)
	Maths in Society	Industry Studies (Metals)	Drama	Engineering Science	Computer Studies	Sport/Lifestyle/ Recreation (1U)
	Maths in Practice	PDI/PE (1U)	General Studies (1Unit)	French	Industrial Technology	Early Childhood (1U)
		Photography (1U)	PDI/PE	Geography	Japanese	
		Physics	Science for Life	Industry Studies (Hospitality)	Music - Course 1 & 2	
				Legal Studies	Skills for Living (1U)	
					Sport/Lifestyle/ Recreation (1U)	
					Textiles & Design	

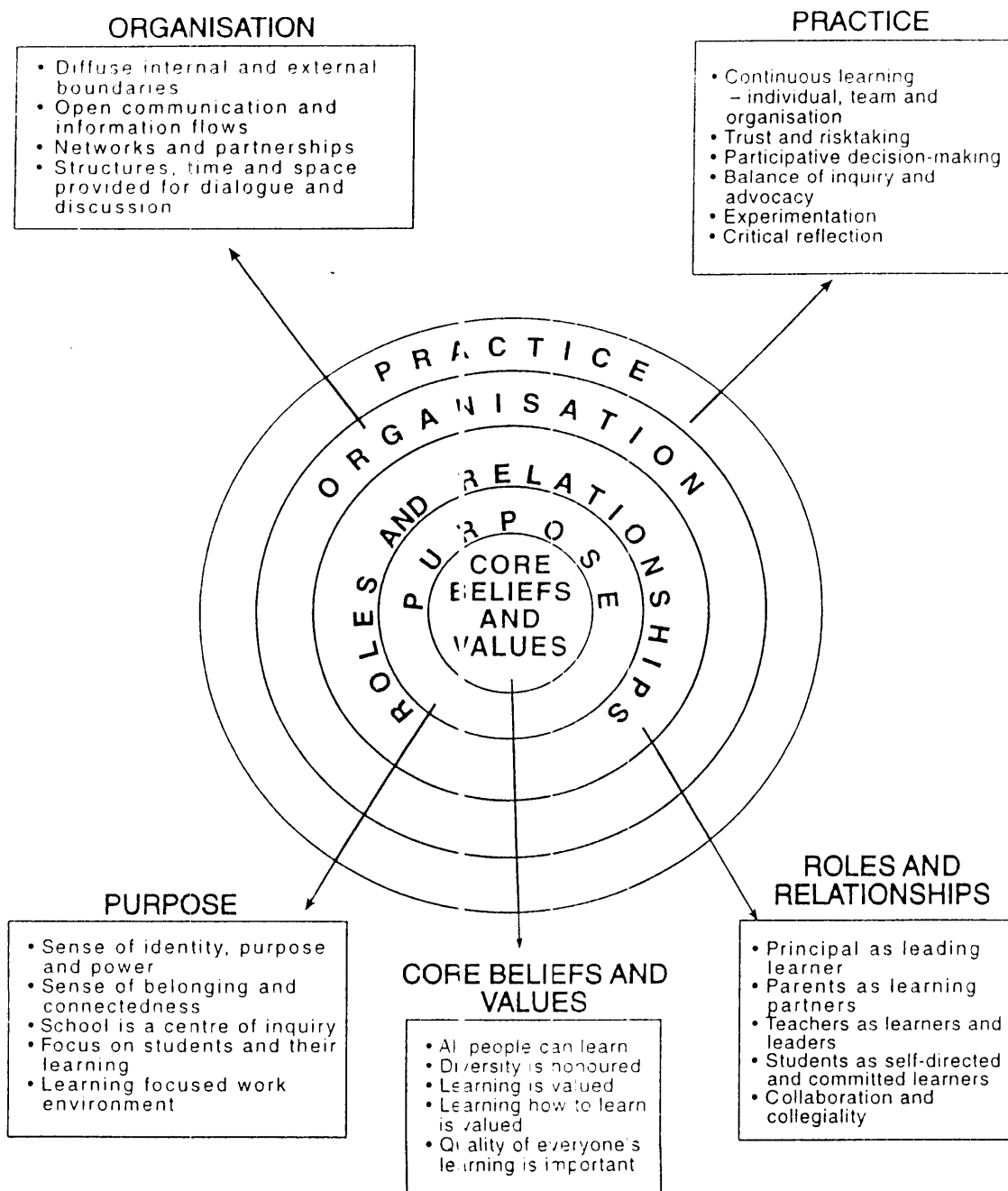
OFF LINE: German
General Studies

TAKE: Tourism Sector Services (2Unit)
Hospitality - Fast Food Operations
Automotive - Engines
Fabrication/Welding Skills
Building Construction Skills

APPENDIX E - INTERVIEW SCHEDULE

1. What subjects are you currently studying in the senior school?
2. Why did you choose particular subjects or combinations of subjects?
3. Were the subjects that you chose for the senior school influenced by the subjects that you studied in the junior school?
4. How much influence did your parents have in the subjects you selected?
5. Was the TER a significant influence in your choice?
6. Was your future education/training more important in your decision than the TER?
7. How much of your choice was affected by the organisation of the lines?
8. Does the school offer a wide enough range of subjects for selection?
9. What is your perception of subjects like Physics, Chemistry, Personal Development, Health and Physical Education?
10. What is the gender distribution like in these classes and do you think girls are disadvantaged in any way in these subjects?
11. The rules for the HSC set out by the Board of Studies dictates certain KLA groupings for the senior course. Do these constraints affect you in any way or would you have changed your subjects if they didn't exist?
12. Was the discussion about the HSC and its requirements in Careers classes last year any help to you in making your decision about subjects?
13. Were Careers classes useful in helping you to develop an understanding about future jobs and the requirements necessary to gain entry to them?
14. How are you finding the work load in the senior school? Is it harder than you expected?

APPENDIX F - SCHOOLS AS LEARNING COMMUNITIES



APPENDIX G - RULES AND REGULATIONS FOR THE HSC

COURSES FOR THE SENIOR YEARS OF SCHOOLING COMMENCING IN 1996

ELIGIBILITY TO PRESENT FOR THE H.S.C.

Students seeking a N.S.W. Higher School Certificate must have:

- * been granted a N.S.W. School Certificate, or
- * attained such other qualifications as the Board considers satisfactory.

An individual's intellectual capacity and/or level of performance are not factors determining eligibility for the award of an H.S.C. or entry to the examination. The basis of the H.S.C. is the completion of required courses of study and experiences.

COURSE STRUCTURE

The Senior Years of Schooling are comprised of two components:
Preliminary Courses, and
HSC Courses

For AHS, courses undertaken in the first three terms of the Senior Years of Schooling will make up the **Preliminary Course**. These courses constitute assumed knowledge for **HSC Courses**.

NUMBER OF COURSES AND SUBJECTS

Students undertaking Preliminary Courses at Armidale High School in 1995 will be required to follow a program of study involving:

- * 12 units of study including 2 units of English; and
- * at least 1 unit from the Key Learning Areas of Science, Mathematics and Technological and Applied Studies (Key Learning Area Group 1); and
- * at least 1 unit from the Key Learning Areas of Language Other Than English, Human Society & its Environment, Creative Arts, Personal Development, Health & Physical Education (Key Learning Area Group 2); and
- * at least 5 subjects.

For HSC courses commencing Term 4, 1995, and into 1996, students will be required to follow a program of study involving a minimum of:

- * 11 units of study including 2 units of English; and
- * at least 1 unit from the Key Learning Area Group 1; and
- * at least 1 unit from the Key Learning Area Group 2; and
- * 4 subjects.

Group	Key Learning Area
	English
1	Mathematics Science Technological and Applied Studies
2	Human Society and its Environment Languages other than English Creative Arts Personal Development, Health & P.E.

Students may undertake a combination of Board Developed Courses, Content Endorsed Courses and Other Endorsed Courses to make up the 12 required units for Preliminary Course and the 11 required units for HSC Courses.

At least 6 of these units must be Board Developed courses in the Senior Years of Schooling for the student to be eligible for the award of a Higher School Certificate (H.S.C.). The other 6 units in the Preliminary year and 5 units for the H.S.C. can be chosen from any courses.

Courses are rated in units. One unit is equal to 4 periods per 10 day cycle at Armidale High School. Two units are equal to 8 periods per 10 day cycle and so on. There are courses of 1, 2, 3 and 4 units.

REQUIREMENTS FOR THE CALCULATION OF A TERTIARY ENTRANCE RANK (TER)

The Tertiary Entrance Rank will be computed as follows:

1. The TER will be based on the scaled aggregate of the marks in the best ten (10) units in recognised HSC courses, subject to the following restrictions
 - (a) at least one (1) unit of English must be included;
 - (b) at least one (1) unit from each Key Learning Area Group must be included; and
 - (c) at most two (2) units of Category B subjects may be included. Category B subjects are indicated with a (B) next to them under the heading of Courses offered in 1994.

2. The TER may include units accumulated by a student over a total of five (5) years, provided that:
 - (a) exam marks in different years will be compared by scaling each subject as far as possible to the same distribution,
 - (b) if a student repeats a unit, only the last attempt will be available for inclusion in the TER.

TYPES OF COURSES

Board Developed Course This is a course of study which has been designed by the Board of Studies (referred to as the Board) and which is suitable for implementation in all schools. For each Board Developed course there is a syllabus designed by the Board and students are examined by the Board at the external H.S.C. examinations and assessed by the School. These courses are used to calculate the TER. Only students who wish to consider entrance to university need to do at least ten (10) of these units.

Content Endorsed Course: (CEC) The Board has noted that some Other Endorsed Courses tend to be more popular than others and in many instances, their content, rationale, and aims appear to be similar. These courses have been collected, modified slightly to cater for a wider candidature, and reproduced for the information of all secondary schools in N.S.W. Similar to ordinary Other Endorsed Courses, they are assessed by the school and they are not examined at the final H.S.C. examinations.

APPENDIX H - TABLES

Table 19

Nationality of Students (N = 111)

Nationality	Number	Percentage
Australian	97	87.4
Aboriginal/Torres Strait Islander	7	6.3
Non - Australian	7	6.3
Total	111	100

Table 20.

Students' Enjoyment of School

	Girls (No.)	Girls (%)	Boys (No.)	Boys (%)	Total (No.)	Total (%)
Don't like school	5	10	7	11.5	12	10.8
Somewhat enjoy school	22	44	25	41	47	42.4
Enjoy school	21	42	25	41	46	41.4
Very much enjoy school	2	4	4	6.5	6	5.4
Total	50	100	61	100	111	100