

Improving Access of Disadvantaged  
Youth to Higher Education -  
Findings from a Longitudinal Cohort Study

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ABSTRACT

Research into programs and strategies which improve access of disadvantaged youth to higher education and reduce attrition has been undertaken at the University of Tasmania, in the context of a longitudinal cohort study of factors affecting retention. The findings from the retention study reveal that increases in equity cannot be assumed because overall participation rates are growing. These can only be achieved through better targetting of outreach programs to disadvantaged groups, and through greater institutional responsibility and accountability in the development of procedures for monitoring student progress. As part of this process the development of indicators of student disadvantage, and the national coordination of institutional data gathering on access and equity, is suggested. The special situation of disadvantaged high ability early leavers is discussed and the challenge they present to outreach programs.

a) Introduction

Australian Higher Education has experienced unprecedented growth in recent years. The student enrolment in Australian higher education in 1991 was 543,538 - a 10% increase on the previous year, with an unmet student demand of up to 50,000 students. The growth of higher education, especially since 1987 has been dramatic with a 57% increase over the decade 1982 to 1991. Preliminary figures from DEET for 1992 show a further increase to 559,337 a slower rate of increase of 2.8%.

The DEET policy document on Higher Education (DEET 1988) states unequivocally:

"The Government is committed to improving access to and success in the higher education system. This goal is critical to our ability to realise the full potential of all Australians and to produce the highest quality graduates" (DEET 1988, p.20, para 2.2).

Yet how to achieve this goal to some extent remains as elusive

as ever. As the document points out significant barriers to full participation still exist for disadvantaged groups - such as those from families with low income levels, from rural areas, aboriginals, members of migrant and ethnic groups and people with disabilities. In addition, although women account for more than half the enrolments in higher education "they remain concentrated in a narrow range of courses and disciplines" (DEET, p.21, para 2.2). The 'Finn' Review (1991) has continued the thrust towards greater equity of access in all post compulsory education, and makes special mention of the need for encouragement of greater participation of disadvantaged groups in higher education. Almost total participation to Year 12 completion within the next few years is seen as an essential prerequisite to such a development.

It might be assumed that increases in equity and access for disadvantaged groups to higher education are a natural consequence of recent huge increases in general intake. This is what we have called in our research "contingent equity" i.e. increased equality of opportunity which is contingent upon an overall growth in student places (Abbott-Chapman, Hughes and Wyld 1991, p.16). However, a number of research projects conducted since 1984 at the University of Tasmania as part of a longitudinal cohort study of retention (funded by ARC, DEET, ARGs, Commonwealth Schools Commission) suggest that this does not usually follow, but has to be planned for by higher education institutions through specially targeted equity and access programs, which include a monitoring component (Abbott-Chapman, Hughes and Wyld, 1992, Chap.20).

The various studies have concentrated upon ways of improving access of disadvantaged students entering higher education directly from schools, for little is known in detail about mature age students and their characteristics, although they comprise a substantial proportion of all higher education intakes, and we need to know more about them.

Attempts to increase access at the University of Tasmania for disadvantaged students from a range of groups defined in terms of socio-demographic indices, rurality, disadvantaged regions, including the West and North West of the State, physical disability and gender have been undertaken by the University's administration against the backdrop of the Federal government's Social Justice Strategy (1989), the University of Tasmania's Policy on Equity and Access (1990), and changes observed nationwide in characteristics of the student population. Our research has helped to inform Administration in mounting equity and access programs, and advised policy

decisions.

The research into programs and strategies which help to improve access of disadvantaged youth to Higher Education has been undertaken at a time when institutions of Higher Education throughout

Australia are undergoing great change. Institutional amalgamations, within overall higher education restructuring and recent dramatic expansion of student numbers all put stresses and strains upon institutions, their administration and academic staff, and to some extent make the implementation of student equity programs more difficult. This is why a thorough appraisal by institutions of their movement towards equity goals, and their utilisation of current research findings in developing strategies, is imperative.

The University of Tasmania is undergoing great changes and can be said to be within a period of organisational transition. At the beginning of 1991 the University of Tasmania and the Tasmanian State Institute of Technology amalgamated to become the Hobart and Launceston campus of the University of Tasmania. Findings on intake trends discussed in this paper relate to both higher education institutions which were separate when the work was being done.

#### b) Background to the Study

Since 1984 a research team in the Youth Education Studies Centre, University of Tasmania has been undertaking longitudinal 'retention' analysis of two cohorts - the 1981 and 1986 Year 10 students. These cohorts of around 7,000 students each, throughout Tasmania, and in the government and non government sectors, have been studied through examination of enrolment data, questionnaire surveys and interviews, with the objective of tracing their educational career paths and identifying social and educational factors which encourage longer term retention, and discourage attrition.

As part of the analysis the records of those students who entered the University of Tasmania and the TSIT and their subsequent university performance have been studied, in relation to a range of personal and background characteristics. These include for instance subjects and levels taken at School Certificate (Year 10) on which is based the School Assessed Ability Potential

Index (SAAP) and student performance at Higher School Certificate Level (Year 12) on which is based the Grade Index (GRIND). Tertiary Entrance Scores are not used in Tasmania. In addition information on gender, school attended at Year 10 and Year 12, plus home residence and other background factors are taken into account. The enormous data base built up has enabled us to draw up student study profiles of successful tertiary students, and to relate these to personal and background factors.

While socio-economic status of students is not known in terms of occupation and/or income of parents, surrogate measures of socio-economic status have been used based upon area of home

residence coupled with census data, and an index of educational and social access called the Social Map. The Social Map is a 9 point index ranging from inner Hobart right through to the rural and isolated areas. The methods whereby socio-demographic indices are applied to retention data are described in one of our early works on the project (Abbott-Chapman, Hughes and Wyld, 1987, Chapter 9).

Other studies have used surrogate measures of SES in relation to educational participation (for instance Linke 1985, DEET 1987).

The longitudinal and ongoing nature of the study has also enabled us to monitor changes in intake of university students between 1984 and 1990 to look for trends in background characteristics which might suggest that increasing equity for members of disadvantaged groups is being attained at entry to University (this is the aspect mainly dealt with in this paper). At the same time by building 'study profiles' of student entrants as they progress through University we have been able to distinguish patterns of early leaving and to establish what sorts of institutional programs and practice make it more possible both to recruit and to retain members of disadvantaged groups. These programs and practices will not be discussed in this short paper.

Findings published in numerous reports and articles and also in two recent books (Abbott-Chapman, Hughes and Wyld, 1991; Abbott-Chapman, Hughes and Wyld 1992) form the basis for this paper. It is of necessity only a very brief summary of some of the main points from our research.

c) Challenges Faced by Higher Education Institutions - the Developmental Model

The challenges faced by higher education institutions in Australia today seem to reflect the belief of government that universities should more directly serve their communities, that they should more closely reflect the composition of the general population rather than a privileged elite, and that they should be held accountable to the government and society for what they teach and what they research.

"Future general funding allocations will have direct regard to the progress made by institutions

towards achieving agreed equity goals" (DEET 1988, p.55, para 5.2).

This may be called the 'developmental' model of the university, in which the institution reflects changes going on in society and spearheads developments both social and economic.

This does not always sit well with more traditional and sometimes elitist models of higher education, nor with collegial models of control, so that there is resistance to further targeting of disadvantaged groups in some quarters (Donath 1991, p.14). This is especially true of some academic staff who may already be suffering the effects of pressure of student numbers and overcrowded facilities.

"The tension between the setting of national goals and the 'traditional' view of institutional and academic autonomy still presents an uneasy framework for change" (Abbott-Chapman, Hughes and Wyld 1991, p.11)

The need for administration to undertake strategic planning and make explicit to all stakeholders what is meant by and what are the benefits of increased accountability and responsiveness to student clients is underlined by our study, if efforts to improve access of disadvantaged students is to be achieved (Abbott-Chapman, Hughes and Wyld, 1991, pp.51-58).

In brief strengthening of policy and practices are required in the following areas:

- ~ Base line data on student characteristics
- ~ Measures of quantitative and qualitative change

- ˘ Targeting of groups, activities and resources
- ˘ Accountability for monitoring changes

i) Base line data on student characteristics is essential if changes are

planned which it is hoped will alter the composition of the student body in whatever way. Until the precise situation is known with regard to the composition of the student population in terms of these key variables any attempts to bring about changes will be meaningless because their effect will be

impossible to quantify. Most universities have vast stores of data about their

students, even more now because of Federal government reporting requirements, but in many cases these data are not routinely interrogated in a research sense to provide answers useful for policy and planning. However, establishing that kind of capacity in some form of statistical analysis function of a basic kind, or where institutional resources permit some sort of separate research function, is a first step and an essential prerequisite for any kind of planned response.

This point has been recently strongly emphasised by Dr Bruce Chapman in assessing the impact of AUSTUDY upon retention of disadvantaged groups through to higher education. Dr. Chapman notes the strong data bases which have been already established by the ACER and the Tasmanian YES Centre and urges greater coordination of studies at national level (Chapman 1992, p.235).

ii) Measures of quantitative and qualitative change over time  
Measures of change can only take place once reliable base line data, and methods for interrogating these data, have been established. Measures may take a variety of forms, but the most common would be regular statistical audits of a particular set of student characteristics - for instance those presented by enrolment forms - at set times every year.

Measures of change over time depend entirely upon the stated goals and objectives of the institution and the directions in which change is required (e.g. increase of certain target groups in certain target faculties). Simple counts of students with particular characteristics will then hopefully give way to more complex analysis of courses in which particular types of student are enrolled, how different types of student progress, patterns of student attrition and so on. (Very few systematic studies of student attrition have been

undertaken at institutional level - see West and Hore 1987: Price et al 1991).

iii) Targeting of groups, activities and resources  
Targeting involves being informed and understanding not only the characteristics of the student group involved, but their social and educational context, and factors likely to encourage or discourage their participation. Straight statistical headcounts, and broadly based programs cannot

be thought of as "targeting". A certain research capacity and understanding is required - usually in the context of program monitoring and evaluation. The "targeting" function is usually best carried out in consultation or collaboration with the institutional research resource or function, wherever that is located, or in utilising outside expertise or experience which bears upon the problem.

Most institutions find "targeting" very difficult and in the main do not adequately undertake this task. It is often hard for administration/management to know how or why to 'target' particular groups because it requires stepping outside the day to day pressure of routine operations and taking a wider and longer-term view. The institution should therefore acquire expertise from outside or use expertise within academic faculties to enable it to take that wider, longer view. The University of Tasmania is developing this function through its office of Policy and Planning in the newly amalgamated institution.

iv) Accountability for monitoring changes  
Accountability for monitoring changes, is the way in which ad-hoc and sometimes fortuitous involvement in the monitoring process, becomes formalised and regularised as part of the reporting and monitoring functions for the administration itself. Whether it be the Registrar, Assistant Registrar, Committee on Equal Employment Opportunity or whatever - some institutional structure is needed which will take responsibility for the routine collection of base line data, establishment of measures of change towards goals, program targeting and to which those engaged in these exercises are accountable. Otherwise what goes on will be ad-hoc, piece-meal, event driven and only inadequately fed into University planning.

Since these exercises relate closely to basic University objectives and goals, and to how the University sees its role in the community, the accountability and responsibility should lie at the highest levels of decision making and planning. Yet even where concerted efforts are made at every

level to increase the participation of disadvantaged groups there may be resistances to change within the

groups themselves.

Despite the concern for equity of access to higher education which developed during the 1960s up to the present time a wide range of research studies have continued to show that higher education exhibits "social bias in favour of the more privileged sections of the community" (Anderson and Vervoon 1983, p.15).

A variety of other studies have portrayed the same sorts of inequality in access to post-compulsory education, with discussion of the values, social, cultural and economic factors which result in inequality of participation. (Connell et. al 1982, Saha 1983, Brewster, Rigg and Ely, 1984, Carpenter 1985, Beare 1985, Power et al 1986, 87, Simpson 1987, Williams et al 1987, Adams, Ball et al 1989 and Anderson 1990 for instance.) Our own work in Tasmania has also shown that:

"Social background factors and socio-economic status, as expressed through socio-demographic indices and regional differences, play a large part in deciding who will "survive" up to each succeeding stage of post compulsory education up to tertiary level" (Abbott-Chapman, Hughes and Wyld 1989, p.xi).

The abolition of student fees by the Whitlam government in 1974 designed to bring about greater social equality in tertiary access resulted in rising participation rates, but did not result in markedly greater access to higher education for those from socio-economically disadvantaged backgrounds.

In Tasmania, not only do students in Hobart's better off suburbs complete Year 12 in a ratio of 5:3 compared with less well to do areas of Hobart, but compared with students from rural and isolated areas the ratio is 2:1. At university entry the ratios are 2:1 and 7:1. (Abbott-Chapman, Hughes and Wyld 1986, 1987 and 1989).

d) The Ability Pool from which Higher Education Students are Drawn

Of course the "screening out" process in terms of impact of background factors on post compulsory participation begins

much 'lower down' the system at Secondary School level, and even for some in Primary School. The first step in increasing access of disadvantaged youth to higher education is therefore to try to ensure that there are more qualified young people of disadvantaged backgrounds entering the "ability pool"

from which University entrants are drawn i.e. at Year 12 completion.

The setting of national targets for Year 12 completion of 95% (Finn Report 1991; Carmichael 1992) and the development of "alternative pathways" to further and higher education is designed to assist this transition. Our findings raise questions about the speed with which increases may be achieved in the Year 12/Higher education transition rate for disadvantaged students, and tend to support the view put forward by the Finn Review that:

"Despite current high levels of unmet demand the Committee believes that higher education institutions have a responsibility to provide access via pathways other than the traditional route directly from successful completion of Year 12. Of particular importance are effective and comprehensive articulation arrangements with TAFE, and special entry provisions for disadvantaged groups" (Finn Report 1991, p.114).

Our findings also suggest that TAFE still represents the most acceptable 'pathway' for highly disadvantaged groups. In our earlier cohort as many as 26% of students from rural and disadvantaged areas chose TAFE courses immediately after Year 10 in preference to more 'academic' studies (1986, p.83). Though this is changing now there is still a strong preference among rurally disadvantaged groups for 'work related' training (Choate, Cunningham, Abbott-Chapman and Hughes, 1992).

The national Year 12 completion rate for 1991 stood at 71.3% and is still rising. However, within that overall figure there are enormous variations - Tasmania the most rural of the States is lowest, but even New South Wales with its large population base and high degree of urbanisation does not perform as well as expected.

Table 1 overleaf shows these variations in Year 12 completion rates between States.

Table 1

Apparent Retention Rates of Secondary Schools Students  
to Year 12 States and Territories 1986 to 1990  
(in order of percentage retained in 1986)

States	1986	1987	1988	1989	1990	1991
ACT	77.7	79.0	81.4	85.6	86.9	95.6
SA	57.5	62.5	66.6	66.7	72.1	83.5
QLD	54.8	60.2	66.9	69.7	73.8	79.6
WA	50.3	54.4	59.2	61.8	64.2	71.1
VIC	46.8	52.5	56.9	60.5	65.4	75.7
NSW	44.4	47.1	51.3	54.7	58.6	61.4
NT	34.1	40.7	45.0	47.7	57.5	73.6
TAS	30.3	33.0	37.6	39.7	44.7	52.6
Australia	48.7	53.1	57.6	60.3	64.0	71.3

It is instructive to note that in terms of rate of increase since 1986, Tasmania is the highest with 73.6%, and excluding ACT, the lowest rate of increase is NSW with 38.3%.

The transition between Year 12 and Higher education also varies considerably between States in relation to the national average of 42%, and we should bear these points in mind in assessing how much progress towards 'equity of access' is being achieved by different Higher Education Institutions in different states.

"The forces working against increasing equity and access at the higher education level are therefore "intrinsic" organisational and value features of the institution itself, and 'extrinsic' factors which affect the size and character of the "pool" from which higher education students are drawn" (Abbott-Chapman, Hughes and Wyld 1991, p.18).

The move towards a more "open door" higher education institution has therefore to bring about changes in both these areas - no easy matter for any outreach program which is aiming to target 'disadvantaged' students however these are defined by the institution.

#### e) Measuring 'Disadvantage'

It is much easier for an institution to target specific disadvantage groups such as rural and isolated students, aboriginal students, particular ethnic groups etc. than to identify students from low socio-economic status backgrounds.

The development of an Index of Disadvantage is a matter of priority for DEET, since at the present time there is no standardised measure of socio-economic advantage/disadvantage used in higher education for the monitoring of student progress. As DEET's annual statistics collection does not include information on the characteristics of students normally used to assess SES (such as the educational qualifications and occupations of parents) the proposal is to use students' postcode of permanent home address (which is reported each year) by

applying the methodology which links postcode to SES. It is also envisaged in work being done by Dr Roger Jones of ANU that one or more of the indicators developed by the Australian Bureau of Statistics might be used.

This is the approach we have adopted in our own survey, though later refining the area of home residence from the larger postcode areas to the smaller SLAs (Statistical Local Government Areas). Our method differs also in using the school type (Independent Non Catholic, Catholic, Government High School and District (country) High School) as a multiplier of 1 to 4. In our statistical analysis we have used both multiple regression analysis and discriminant analysis to investigate the relationship of 'retention' to these socio-demographic and other background variables.

The socio-demographic variable is based upon the index value of the "Social Map" in relation to student's home address, in conjunction with the Income and Qualifications Indices, derived from Census information about populations living in the S.L.A. in which the home address is located. This socio-demographic status is then multiplied by the index of school attended at Year 10 - Independent Non-Catholic (1); Independent Catholic (2); Government High School (3) and government District High School (4) to produce "weights" which accentuate or alleviate the degree of disadvantage or 'educational handicap'. The model and the measures, which appear robust, are therefore based on educational as well as social disadvantage, and are appropriate to the problem under study. (See Abbott-Chapman, Hughes and Wyld, 1987, pp. 158-179 for discussion of discriminant analysis).

The equation for the construction of the 'Disadvantage'

index (1986 cohort) is as follows:

$$\text{DISADIND} = (\text{SOCMAP} - 0.25 (\text{INC} - 11.28) - 17 * (\text{QUAL} - .572) ) * \text{GR10TYPE}$$

over all students of the weighted income average

(11.28 is the average of INC, .572 is the average of QUAL.)

Disadvantage gains heavier weights down the scale as with SocMap (i.e. 1-9) while Income and Qualifications scales

work with disadvantage in an inverse relationship.

Within the model it is possible to allocate students to categories and thus produce discrete variables, or to work with their "raw" scores and thus produce continuous variables. It was thought to be more precise and to give a better "fit" for the purposes of this study to work with the continuous variables in the first stages of the discriminant analysis.

Having fine-tuned our index of disadvantage over various stages and our methods of analysis of student background factors, we have been concerned to find out firstly the proportion of students in each cohort (the 1981 and 1986 Year 10s) who could be described according to our model as "disadvantaged", and secondly the relative proportions of these who have gone on to upper secondary and higher education studies.

This enables us to relate characteristics of "survivors" at each succeeding educational level to the characteristics of the "pool" from which they are drawn.

One of the key problems in establishing which individual students our model defines as "disadvantaged", is to define the "cut off" point or points on an otherwise continuous numerical value scale. This must to some extent be artificial, although we have been as precise and reasoned as we could, and our rationale of each stage has been fully explained. In some cases for ease of analysis we have chosen a two or three category cut off. Much of the analysis discussed here works with the cruder 2 category index, but still works well, while findings discussed in our later work (1992) adopts a 3 category index.

Obviously though when we describe students as more or less "disadvantaged" it must be understood that this is within

the confines of our model and our indices.

Given these precise measures and "cut offs" we are then able to examine:

- i) Changes over time between the two cohorts with regard to "disadvantaged" students at the Year 12 completion (Higher School Certificate) level.
- ii) Changes over time between the two cohorts with regard to proportions of "disadvantaged" students entering higher education. This picture is compounded by differences in ability and performance levels, and by gender.
- iii) Factors related to any perceived changes or lack of perceived changes at the higher education level - including institutional differences.

"It is clearly harder for an institution to increase the proportion of disadvantaged students entering higher education if the pool of such students at Year 12 is static or growing only relatively slowly, than if the pool of able but disadvantaged students at Year 12 itself has substantially grown. This is why entry into higher education must be seen as part of a lengthy process and one which involves social as well as ability selection at every stage" (Abbott-Chapman, Hughes and Wylde 1991, p.94)

#### f) Monitoring Student Progress

The development of indices of 'disadvantage' is more than just an academic exercise, for there is a need for the institution to take responsibility for those 'disadvantaged' students who are encouraged to enter the University and to ensure they successfully complete their courses. The diversity of student intake, both direct and mature entry, and their different types of academic background and/or level of prior performance, place new demands upon both student and institution which must be met if adequate student performance and satisfactory completion of courses are to be achieved (Abbott-Chapman 1990).

The whole of higher education must be involved in a long term process in which the matching of student qualities and

expectations with those of the higher education institutions will ensure a productive outcome for both. Otherwise we are

destined to see not 'open door' institutions but 'revolving door' institutions (Cope and Hannah 1975) in which students stay for only a short time before dropping out of studies. We are already experiencing this effect to some extent at the Year 11, 12 level, with a growing proportion of directionless and unmotivated students and evidence of attrition (Batten 1991, Abbott-Chapman, Hughes and Wylde, 1992b).

While successful course completion is not the only measure of performance by the individual student, and rates of course completion or attrition are not the sole measures of quality provision of higher education, these are certainly important indicators of the educational health or malaise of both (Johnes and Taylor 1990).

In consequence they have often been made a focus for evaluating the quality of outcomes of educational provision. In this way improving access of disadvantaged students to higher education must be coupled with methods of monitoring their progress and the setting up of "early warning" systems to identify potential early leavers.

The Federal Government's Policy Statement of 1988 on impending national reforms of the higher education system targets the "long term expansion of higher education opportunities and greater equity of access to the system and its benefits" (DEET 1988, p.13). The Paper also draws attention to the need to measure how successful higher education institutions have been in moving towards achievement of these national goals. With this in view the policy statement lays great emphasis on student outcomes as expressed in graduate numbers rather than, or relative to, intake levels .

In terms of the developmental model of universities there is stress on both increasing equity of student intakes in terms of a range of specified background characteristics, and upon monitoring student progress in order to achieve satisfactory student outcomes. What does this mean in terms of institutional reforms in policy and practice which have to be put in place? The development of performance indicators and the establishment

of some sort of a framework within which to monitor student progress is now a matter of priority for higher education institutions (Hindess 1991), and is in many ways a prerequisite for design of appropriately targeted outreach programs. This is where researchers and administrators should come together in defining the institutional agenda.

g) Summary Findings on Access for Disadvantaged Youth at the University of Tasmania for the Two Cohorts.

For the purposes of this study the students from the 1981 and 1986 Year 10s (or the 1982/3 and 1987/88 Year 11, 12 cohorts) who entered the then Tasmanian State Institute of Technology and the then University of Tasmania have been treated as separate samples in order to measure any institutional effects.

The initial single factor retention differences between cohorts with regard to gender, school type, rurality and school assessed potential are presented in the following tables, in order to examine changes in entrant characteristics over time.

Table 2

Year 12 completion and Higher education entry  
(1981 and 1986 Year 10s)

	Retention 1981 cohort%	1986 cohort%	Year 12 completion only
TSIT	98.56	85.61	42.76
University of Tasmania	19.61	11.22	33.10
Total	17.45	22.67	

Table 3

Year 12 completion and Higher Education entry by gender

	Retention 1981 cohort only	1986 cohort	Female%	Male%	Female%	Male%	Year 12 compl.
TSIT	12.11	12.67	59.61	43.11	39.09	0.00	
University of Tas	26.22	27.22	93.82	32.02	25.22	28.72	8.8
Total	96.27	83.12	69.99	98.00			

Table 2 reveals that of the Year 12 completers there is a higher proportion in the second cohort who did not go on to Higher Education in either Tasmanian institution. In Table 3 we see that the decline in proportion of male students going on to higher education as a whole is much more marked than among female students. In both cohorts more female students than male (in absolute numbers and proportionately) went on to the then TSIT.

Table 4

Year 12 completion and Higher Education entry by  
School Assessed Ability potential (SAAP)

Retention	1981 cohort	1986 cohort	High	Medium	Low	High	Medium	Low	Year 12 only
4174732657478271	TSIT	106622134972	University	42893	499108	-	-	-	-
Total	195162828120798773								

In terms of school assessed ability potential no-one in the 'low' category went on to University, compared with 2 to the TSIT. The majority of University students were in the high SAAP category at Year 10 (which is highly correlated with grade scores at Year 12). Of greatest note in this table, however, is the large number of "high" school assessed ability potential students who did not go beyond Year 12. As many as 43.8% of those in the 1982/3 HSC cohort and 47.6% of those in the 1987/8 HSC cohort who are categorised as "high" ability potential did not go on to higher education. This represents a real wastage of human talent. We shall be exploring the problem of the "missing highflyers" in a later section as this relates to access and equity.

Table 5

Year 12 completion and Higher Education entry by Rurality

Retention	1981 Cohort	1986 Cohort	Hobart	Other towns	Rural	Hobart	Other towns	Rural	Year 12 only
396389132476640247	TSIT	32113402714239	University	2951735430722649	Total	172367522	68101008335		

We have abbreviated our Social Map Index for the purposes of this Table 5 to show the difference in urban and rural recruitment for these cohorts into higher education. For instance 41% of those in the Year 11, 12 cohorts living in Hobart went on to University from the first cohort - in other towns (including Launceston) the proportion dropped to 26% and for those living in the rural and remote areas the proportion was 24%. In the second cohort comparable figures were 38%, 22% and only 15%.

So not only did the overall proportion of university entrants drop as a proportion of the Year 12 pool, but the differences became more marked between urban and rural and remote students. For rural students, at entry to higher education as a whole, even the absolute numbers of students has dropped. This is

a disturbing trend which studies at ACER and elsewhere seem more generally to confirm. We will explore some of the reasons for this a little later.

The striking growth of Year 12 participation as a whole from students living in the medium sized towns and the rural areas - with rates of increase of 49% respectively - far outshining the modest 12% increase in participation of Hobart residents, bears witness to the increases in Year 12 participation in areas outside the main urban centre.

Table 6

Year 12 completion and Higher Education entry by School/College Type

Retention 1981 Cohort	1986 Cohort	Gov.	Non-Gov.	Gov.	Non-Gov.	Year 12 only
74560	24348	2110	866	6315	52	5TSIT14811
1342	3376	22	623	138	5	Total12415041663600

Table 7

Year 12 completion and Higher Education entry by Year 10 school type

Retention 1981 Cohort	1986 Cohort	Gov.	H.S.	D.H.S.	Non-Gov.	Gov.	Year 12 only
5834	7311	1877	1374	39	TSIT11211641382174	University2751024630523312	Total1970686211320181825

Tables 6 and 7 show shifts in participation of students from government and non government schools and Secondary Colleges at Year 10 and at Year 12. These tables appear to emphasise the higher rates of participation at post compulsory level of the non government sector students. At Year 10 non government school students comprise approximately 20% of the student population. At Year 12 completion they comprise 29% (first cohort) and 36% (second cohort).

There are however variations within the overall retention rates which make comparisons clearer. For instance among government students there has been a 49% increase in Year 12 completions, a 21% increase in TSIT enrolments, and only an 8% increase in University enrolments. Among non-government students comparable figures are 30%; 12.5%; and 8.5%.

If we take account of the transfer between sectors which occurs at Year 11 - generally about 12% of the Year 11 in

the Government Secondary Colleges is made up of 'non government' transfers - then we find a different distribution by Year 10 school type. We find that 37% of the Year 12 completers have been through the non government sector (1st cohort) and 35% (2nd cohort).

The real "success" story is the Country District High Schools whose share of the Year 12 cohort has risen from 4% to 8% over the five or six year period. Similarly, the participation of District High School students in higher education has also doubled - compared with a 14% rise among government (town) high school students and 25% rise among non government school students. Of course the District High School students come from a very much smaller base.

Nevertheless, this is an indication of one sort of disadvantaged group which is beginning to gain further access to higher education. We have noted this before (Abbott-Chapman, Hughes and Wyld 1991, p.111) and have linked the successful recruitment of more rural students from country schools to the activities of the University's School and College Access Program (SCAP) which acted as an outreach to schools and colleges throughout the State. Similar "school link" programs have been set up elsewhere, at Monash and the University of Queensland for instance, and provide valuable information, preparation and motivations services for disadvantaged young people.

These tables demonstrate clearly that despite the traditionally greater share of Hobart and 'advantaged' groups in Higher Education recent changes have taken place predominantly among rural, and small town, and District High School students - introducing a wider social mix. Retention of girls has also increased but, following the national pattern these have in the main gone into 'traditional' areas of Arts, Humanities and Education. How does this relate to overall "disadvantage" patterns in retention?

Greatest expansion of participation levels of 'disadvantaged' groups has taken place at Years 11 and 12, but with reduced follow through to Year 12 completion or Higher Education entry. Other findings have shown that the proportion of students who would be able to qualify to matriculate, as reflected in types and levels of subjects has declined in recent years as a proportion of the total Year 12 cohort from 56% to 46% (see

Abbott-Chapman, Hughes and Wyld 1991, p.65, Summary Table 2). This is why overall Year 12 completion rates as expressed in Table 1 are misleading as a guide to the ability pool from which higher education students are drawn, or as a guide to Year 12/Higher Education transition.

Using our Index of Disadvantage, described in an earlier section, we have examined the relationship between "disadvantage" and other background factors using 2 categories only initially to try to explain the relative lack of participation of disadvantaged youth at higher education level for our two cohorts. The Grade Index (GRIND) is based upon scores gained in the Higher School Certificate (soon to be replaced by the Tasmanian Certificate of Education).

Comparing the later cohort shows that the 'disadvantage' cut off is significant. In the analysis of ratio product for given limit values, values of the limit between 9.1 and 9.5 shows the range of maximum values with the value of 9.3 marginally the highest. Accordingly 9.3 was selected for initial analysis. The only way to manage the complexity of cut offs in our preliminary analysis has been to divide students into two groups - those of high and low disadvantage - though this is obviously an artificial device which acts as a method of focussing attention upon the essentials (Abbott-Chapman, Hughes and Wyld, 1991, pp.97-100).

Though the odds ratio for the low and high disadvantage students, as determined by the relationship of their disadvantage index to the limit value of 9.3 are very similar in value, loglinear analysis shows that the difference is statistically significant. Clearly the odds on even high academically scoring who are students above the 'disadvantage' limit (i.e. 9.3) proceeding to Year 12 is approximately only 40% compared to those students below the disadvantage limit. This demonstrates the 'penalty weight' of disadvantage vis a vis performance.

Table 8

Relative Improvement in the Inter-Censal Retention Odds

Group	Low Ability	High Ability	Lo Dis	Hi Dis	Lo Dis	Hi Dis
DisOverall	1.85	2.01	0.71	1.15	2.37	1.69
Female	2.37	1.69	1.11	1.15	1.53	2.83
Male	1.53	2.83	1.03	1.14	1.51	1.51
INC	1.51	1.51	0.94	1.15	1.15	1.15
IC2	1.21	1.90	0.91	1.11	1.71	1.69
HS	1.71	1.69	1.24	1.07	1.72	1.36
DHS	1.72	1.36	1.36	1.19	1.51	1.19
Hobart	1.53	1.11	0.60	0.95	1.29	1.51
Launceston	4.37	1.72	1.04	1.34	1.51	1.19
N.C.T's	2.29	1.51	1.19	1.19	1.19	1.19
Rural & Isolated	4.46	1.71	1.13	1.13	1.13	1.13

Table 8 above shows the gender, institutional and demographic variation

over the 4 disadvantage/academic groups. Note that the values entered in the table are multiples of 1.41, ie they show whether there has been an improvement above or below the overall improvement ratio of 1.41. Also the symbol \*\*\* indicates that there is a zero in the divisor, and a finite value is not possible.

In general the improvement in the retention to Year 12 odds over the five year period has favoured the low ability students. The change has been of the order of doubling. The main exceptions are the high disadvantage low ability students in the Hobart area, (1.1) and students from Independent Non-Catholic schools. This significant finding shows that we cannot take the increased numbers of students completing Year 12 as an indicator of increases in the pool from which higher education entrants are drawn. Year 12 completion rates are therefore as we have said misleading as a guide to future higher education recruitment.

For high ability students the most significant changes have been for District High School students, and for students from the Northern Coastal Towns and the rural and isolated areas. Given the students' ability the disadvantage weight has been lessened, in some cases by 50% (in terms of the increase in the retention odds over and above the overall increase). Of course the absolute magnitude of the numbers has to be taken into consideration, as some of the largest improvements have taken place in areas where the 1981 student numbers were very small. Much therefore depends upon the numerical base upon which changes have been made.

With respect to the ability pool from which higher education students are drawn, we can see that there has been a moderate increase overall in able students at Year 12, with significant increases within that pool of students from District High Schools, rural and isolated areas and from the North West region. The increase of students described as 'disadvantaged' who make up the pool of "qualified" students is less than that of the "advantaged" students, and of the less able "unqualified" students.

The odds of retention to Year 12 have increased over the five year period for all groups but almost tripling for the low ability potential students, and increasing by only 50%

or so for the high scoring students. The actual odds ratios have decreased slightly, indicating a marginal improvement in retention probabilities for low scoring students, a finding in accord with research showing major changes in

types of students going on to Years 11 and 12, and the greater social and ability heterogeneity of the student population (Abbott-Chapman 1990).

#### h) The Missing Highflyers

What has all this to tell us about the able students from disadvantaged backgrounds who do not go on to higher education, and sometimes no further than Year 10? We have made a special study of these students and found both gender and school differences as shown in Table 9

Table 9 below shows that highest loss of able (top two categories of the index) girls is from the High Schools and District High Schools and boys from the District High Schools - in all cases over 30%.

Table 9

Proportion of "High Flyers" missing from HSC Cohort 1986

	Female	Male	Ind. Non-Catholic	Ind. Catholic	High School	Dist. High School
Proportion missing	15.5%	18.1%	21.7%	25.6%	30.2%	25.7%
Proportion missing	32.8%	38.5%				

Surveys we have conducted on early leaving over a number of years have highlighted the importance of students wanting to leave early to get a job, which is in a sense easier for the 'bright' students. A study among 1990 Year 11, 12 students revealed that 17% would leave at once if offered a job, 27% were not sure and only 55% would stay in any case (Abbott-Chapman, Hughes and Wyld 1992, p.22).

Youthful concern about declining chances of getting a job within a poor youth job market has been widely reported by other researchers. A recent study found that 77% of students studies thought 'lack of jobs' was the issue of major importance to young people (Dwyer 1991, p.19). In our previous cohort study leaving to 'get a job' was the most quoted 'important' reason for early leaving (Abbott-Chapman, Hughes and Wyld 1986, p.81).

A recent study undertaken by ACER in 1990 of a nationally representative sample drawn from ACER's longitudinal study Youth in Transition observes that "a decline in fulltime job opportunities makes school a more reasonable alternative, particularly as unemployment benefits are not more difficult to obtain and AUSTUDY is more widely available. In this sense, therefore, schools may be enrolling a higher proportion of unwilling students: perhaps they would not be in school if sufficient jobs were available" (ACER 1991, p.5). Among the survey group 28% cited "I couldn't find the job I wanted" as an important reason for their decision to enrol in Year 12.

Further examination of the characteristics of the



This table shows that as one might hope the highest proportion of 'high' (in terms of finance) AUSTUDY recipients are in the 'high disadvantage' category (30.3%) while the highest proportion of Zero Austudy are in the 'low disadvantage' category (71.0%) with 60% of those in the medium disadvantage category also on Zero Austudy. One may query why 47% of those in the 'high disadvantage' category have 'Zero Austudy' at higher education level and wonder whether this reflects the deficiencies of a 'group' measure or a low rate of 'uptake'. We believe our findings support the latter argument.

For instance only a very small member of the highflyers not proceeding to higher education received any sort of award (31 of 43 or 7.2%) compared with the 'other' students - of whom 127 students out of 924 (13.7%) received awards - nearly twice the proportion of the highflyers. In terms of disadvantage whereas 14.5% of all 'other' students in the high disadvantage category received some sort of senior secondary award 13.3% of the high flyers did. But in the medium disadvantage category only 8.7% of highflyers received awards compared with 16.1% of the other students. Even of the more advantaged (low disadvantage) students only 4.4% of highflyers received awards compared with 11.3% of other students. These results reflect the academic/economic (dis)advantage nexus.

i) Implications for University outreach programs

These findings have implications for university outreach, because not only course choice, course preparation, and general orientation require attention in giving students realistic expectations and in encouraging motivation, but a package of other information and support is needed which will encourage the decision to stay. While "course commitment" appears to be the single most significant factor persuading young people to persist in studies beyond compulsory level right through to higher education, other personal and financial factors may compound a loss of motivation and make the student 'at risk' of drop out (West and Hore 1987; Abbott-Chapman, Hughes and Wyld 1992). This is especially true of disadvantaged students.

What however encourages disadvantaged students to persist once they reach university? Our continuation study of what happens to disadvantaged students for whom access to the university is increased gives some clues.

(Abbott-Chapman, Hughes and Wyld, 1992) In examining the range of factors

which impact upon student performance at university, and those which tend to reduce attrition we were compelled to conclude that a good record of prior performance more than anything else seems to enable disadvantaged students to overcome pressures to leave.

"The overall findings suggest that prior performance is the single most important factor influencing student progress and performance at University. This holds true even for quite highly disadvantaged students. However, lower ability students are deterred by disadvantage and by other external factors and by lack of study motivation and course commitment. Lower ability students from advantaged homes may be encouraged to "hang on" longer than their prior performance would otherwise indicate. There are exceptions, such as the high ability disadvantaged girls who leave before university entrance, but in the main those of higher prior performance are likely to make better progress and complete courses more successfully than those of lower prior performance whatever their background" (Abbott-Chapman, Hughes and Wyld, 1992, p.121).

These findings have a message not only to Universities wishing to improve access and equity, but also to schools and colleges in preparing able young people for higher education. Where young people for whatever reason are inadequately prepared institutions of higher education have a duty to set up various sorts of remedial help in the form of orientation courses, bridging courses and special tutorials.

Given that recent studies reported in the Higher Education News (Sept. 1992) that an increasing number of students appear also to be entering TAFE with the object of later accessing higher education it would seem that information, orientation and preparation of students coming through "alternative pathways" may also become of greater priority.

Outreach programs seeking to improve access of disadvantaged students should also perhaps target the "missing highflyers" at Years 11 and 12, and concentrate upon not only getting more of these disadvantaged able youth into the universities, but assisting them to stay and complete their courses.

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