

University of Western Sydney Students at Risk: Profile and Opportunities for Change

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Abstract

Many studies have acknowledged a shift from elite to mass participation in Australian higher education over the last decade. As the diversity of the student intake rises there is a growing interest in the factors predicting their success or failure. This article identifies a set of variables predicting University of Western Sydney (UWS) student academic performance and retention in various data on 8,896 undergraduate students commencing at the university in 2004. The study then integrates a number of characteristics associated with low probability of success in a profile of UWS students. This means that such students either had relatively poor academic achievements or did not complete their studies or both. These characteristics include: part-time attendance type, mature age, non-English speaking background and low socioeconomic status. Further, the study discusses a range of targeted pro-active interventions and support services to be focused on the discipline areas with high concentrations of students at risk.

Keywords: Students at Risk, Factors, Interventions, Support

Many writers have acknowledged a shift from elite to mass participation in Australian higher education over the last decade (Elson-Green, 2006a; Elson-Green, 2006b; Harman, 2006; McIlveen, Everton, & Clarke, 2005; McKenzie & Schweitzer, 2001). As the diversity of the student intake rises there is a growing interest in the factors predicting their success or failure (Burton & Dowling, 2005; Simpson, 2006; Tinto & Pusser, 2006; Woodman, 1999).

Two criteria for university student success commonly recognised in the literature are academic achievement (e.g., McKenzie & Schweitzer, 2001; Tait & Entwistle, 1996; Tangney, Baumeister, & Boone, 2004) measured by grade point averages (GPA), earned credits or passing letter grades; and student retention and completion of their programs (e.g., Braxton, Hirschy, & McClendon, 2004; Johnes, 1990; Kuh, Kinzie, Schuh, & Whitt, 2005; Tinto, 1999). Inversely, students 'at risk' are defined in many of the above studies as those who tend to leave before completing their program (and not re-enrol later) or those demonstrating academic underachievement.

Both anecdotal and research evidence suggest a positive relationship between student academic performance and retention (Ashby, 2004; Krause, Hartley, James, & McInnis, 2005; Rickinson & Rutherford, 1996; Yorke & Longden, 2007). However, evidence for the idea that the predictors of student retention and the predictors of student performance are not the same goes back to the work of Kember and Harper (1987). More recently, one outcome of research

by McKenzie and Schweitzer (2001) led them to conclude that ‘high academic achievement is not necessarily related to retention and poor academic performance does not always result in attrition’ (p. 29).

The predictors of student success are traditionally divided into academic and non-academic factors. The latter group may be further subdivided into psychosocial, cognitive and demographic predictors (McKenzie & Schweitzer, 2001). Another categorisation of such predictors distinguishes factors, events or student attributes outside of university that are not easily amenable to institution action, as opposed to those clearly within the institution’s ability to influence (Tinto & Pusser, 2006). Some predictors of student success have a well-developed empirical record supporting them while others need to be explored further. Without attempting to adhere to any classification, the predictors having a high level of consensus among researchers regarding their contribution to student *academic performance* are:

- previous academic performance and education qualifications
- university entry score
- previous course performance as students move through their studies
- gender (women show higher academic achievements than men)
- age (students in their late 20s and 30s are more likely to perform better than younger or older students)
- socioeconomic status (SES) (the higher, the better achievements).

Less agreement among researchers is evident about possible predictors of student academic performance such as admission type (school leavers vs. mature students), attendance mode (full-time vs. part-time), field of education (FOE), employment commitments (full-time, part-time or unemployed), level of student involvement in campus life (measured by various indicators), language background and ethnicity. There have been a number of attempts to predict university performance using psychosocial self-report tests of self-efficacy, self-control, study skills, motivation, resilience and other personal characteristics. However, the reliability of self-report data seems tenuous. As summarised by Yu, Ohlund, DiGangi, and Jannasch-Pennell (2001), participants may tend to report what they believe the researcher expects to see, report what reflects positively on their own abilities, or may not always be able to accurately recall relevant information.

Much of the theory and research exploring the individual, social and organisational variables contributing to student *retention* consistently report the following key predictors:

- previous academic performance and education qualifications
- university entry score
- previous course performance as students move through their studies
- attendance mode (full-time students have higher retention rates)
- admission type (proportionally more current school leavers retain in higher education compared to mature students, however, they are more likely to change institutions compared to mature students)
- residence (international students have higher retention rates than locals)
- SES (higher SES students have higher retention rates within the sector, however, students with high SES tend to change institutions to a proportionally greater extent than other SES categories)
- type of housing (on-campus residents have higher retention rates than non-residents)
- participation in orientation and similar programs (higher retention among participants)

- student level of awareness about course or institution before enrolment
- student personal adjustment and involvement in campus life.

There is also less agreement among researchers regarding the effects of student gender, age, employment, language background, ethnicity and FOE on student retention and completion of their studies.

Though informative, the above findings may differ from a specific set of variables contributing to student success in each given university. The profile of the University of Western Sydney (UWS) student population has changed over the last 10 years. The university has increased numbers of students from various equity groups such as non-English speaking background (NESB), first in the family to attend university, students from low socioeconomic groups, mature age and part-time students, students with disabilities and Indigenous students (Department of Education, Science and Training [DEST], 2005). As increasing numbers of students from formerly underrepresented groups come to the university, there is a need to improve understanding of variables contributing to student success.

Thus, the aims of this research were: (1) to test a set of possibly explanatory variables for their unique and combined contributions to the prediction of UWS student success, (2) to develop an updated profile of UWS students at risk based on the outcomes of the above analyses, and (3) to discuss how the university can improve the targeting of interventions and support services for students with low probability of success.

Method

Participants

The participant subsamples below are presented in four sets in the same order they were analysed. The study examined various data on 8,896 undergraduate students commencing at UWS in 2004. Of those students:

- 361 left UWS in the first year having previously applied to and received offers from other institutions
- 1,755 left UWS in the first year without applying to other institutions, while 6,780 were retained at UWS
- 709 left UWS in the second year without applying to other institutions and 24 left having previously applied to and received offers from other institutions, while 6,047 either completed their program or continued at UWS
- 666 left UWS in the third year without applying to other institutions and 4 left having previously applied to and received offers from other institutions, while 4,737 either completed their program or continued at UWS.

Table 1 summarises the segments of student population examined in this study.

Table 1
Dynamics of UWS Students Commencing in 2004 by Year

	2004–05		2005–06		2006–07	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Continued at UWS	6,780	76.21	5,152	57.91	3,160	35.52
Completed program			640	7.19	1,469	16.51
Left applying to other institutions	361	4.06	24	0.27	4	0.04
Left without applying to other institutions	1,755	19.73	709	7.97	666	7.50
Deferred returned later			255	2.87	108	1.21
Total	8,896	100.00	6,780	76.21	5,407	60.78

It appeared reasonable to assume that a large majority of students who left UWS having previously applied to and received offers from other institutions moved to these institutions, while most students who left UWS without applying to other institutions did not immediately re-enrol anywhere. This assumption, particularly in terms of first-year attrition, is supported by the outcomes of both the UWS 2004 Exit Survey of 1,520 students who enrolled in February 2004 and withdrew later in the year, and a national study investigating attrition from first-year undergraduate degree courses of 4,390 domestic students carried out in 34 Australian universities (Long, Ferrier, & Heagney, 2006). Table 2 shows comparable proportions of student retention and movement from the above sources.

Table 2
Comparative Data on First-Year Undergraduate Student Movement

<i>Data source</i>	<i>UWS records (2004)</i>	<i>UWS Exit Survey (2004)</i>	<i>Long, Ferrier, & Heagney (2006)</i>
Retained at the same university	76.2% of population		79.5% of population
Applied/moved to other institutions	4.1% of population and 18.0% of total attrition	25.5% of total attrition	6.9% of population
Left without applying to other institutions	19.7% of population and 82.0% of total attrition	74.5% of total attrition	13.7% of population

Variables and Statistical Procedures

In this study the dependent (response) variables were:

- student retention (retained or completed program vs. left and applied to other institutions or left without applying to other institutions) and
- mean GPA at the point of student departure from UWS (treated as both dependent and explanatory variable).

The independent (possibly explanatory) variables included:

- University Admission Index (UAI)
- admission type (current school leavers vs. mature students)
- attendance type (full-time vs. part-time)
- attendance mode (internal vs. external or mixed)
- residency (international vs. domestic)
- Aboriginal or Torres Strait Islander descent (ATSI)
- disability
- language background (English-speaking background [ESB] vs. non-English-speaking background [NESB])
- gender
- age
- SES (low vs. medium or high) and
- Broad FOE (10 variables)¹.

Logistic regression analysis in terms of various, possibly explanatory, variables treated as covariates was used to predict the odds of student retention at UWS compared to leaving with or without applying to other institutions. A forward stepwise procedure that selected the best set of all predictor variables and deleted those that did not contribute enough to the model was employed. It was decided to analyse only the first-year data for those UWS students who left the university having previously applied to other institutions, as the corresponding second and third year subsamples were very small.

Analyses of variance (ANOVA) and covariance (ANCOVA) were used to test the main and interaction effects of the categorical independent variables on GPA, controlling for the effects of extraneous variables if required. The GPA variable was tested for normality of distribution, homogeneity of variance and covariance and allowed for parametric tests. Given the large number of observations, there was a concern that many statistically significant differences between various groups of students in terms of GPA may carry little meaning in practice. Thus, ANOVA was supplemented by the effect size measures. The effect size, reported as Cohen's *d* (Cohen, 1988), is the mean difference between two groups standardised against their pooled standard deviation. An effect size between 0.2 and 0.5 is generally categorised as small, between 0.5 and 0.8 as medium, and above 0.8 as large. These measures also provided supporting information on the percentage of overlap between the groups compared.

The GPA variable was also assessed by stepwise multiple regression analysis with UAI and Student Age as predictors. This strategy was employed to identify a 'stronger' predictor among two variables and to test whether student GPA could be influenced by a combination of university entry score and student age. The level of significance for all tests was set at $p < .01$.

¹ Agriculture, Environmental and Related Studies; Architecture and Building; Creative Arts; Education; Engineering and Related Technologies; Health; Information Technology; Management and Commerce; Natural and Physical Sciences; and Society and Culture.

Results

Student Attrition

As all students who withdrew from UWS in 2005 and applied to other institutions were domestic students, the Residence variable was removed from the first part of this analysis. Table 3 presents a summary of logistic regression analysis for both student attrition scenarios.

Table 3

Summary of Logistic Regression Analysis for Variables Predicting UWS Students Withdrawing With or Without Applying to Other Institutions

<i>Criteria/Predictor variables</i>	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>Exp(B)</i>
<i>Withdrew applying to other institutions N = 361</i>						
Age	-.09	.02	15.65	1	.000	0.91
Architecture and Building	.88	.29	9.11	1	.003	2.42
SES (high vs. medium)	.37	.12	9.44	1	.002	1.44
Admission type (current school leavers)	.57	.15	14.38	1	.000	1.77
GPA	.54	.07	64.69	1	.000	1.71
Constant	-2.69	.56	22.98	1	.000	.07
<i>Withdrew without applying to other institutions—first year N = 1,755</i>						
Attendance type (full-time)	-.97	.11	75.79	1	.000	.38
Admission type (current school leavers)	-.34	.10	10.51	1	.001	.72
Language background (ESB)	.53	.10	27.64	1	.000	1.70
GPA	-.52	.03	224.69	1	.000	0.59
Constant	.59	.19	9.39	1	.002	1.81
<i>Withdrew without applying to other institutions—second year N = 709</i>						
Age	.02	.01	10.02	1	.002	1.02
Attendance type (full-time)	-.63	.14	20.72	1	.000	.53
Language background (ESB)	.64	.11	32.10	1	.000	1.90
GPA	-.68	.04	257.77	1	.000	.51
Constant	-.12	.27	.19	1	.667	.89
<i>Withdrew without applying to other institutions—third year N = 666</i>						
Attendance type (full-time)	-.56	.14	16.67	1	.000	.57
Language background (ESB)	.34	.11	10.14	1	.001	1.41
GPA	-.64	.04	208.17	1	.000	.53
Admission type (current school leavers)	-.31	.11	8.38	1	.004	.73
Constant	.82	.21	16.00	1	.000	2.27

It was found that the odds of applying to other institutions rather than continuing studies at UWS were significantly higher for young students, particularly for the 17–20 age group, identified by the subsequent chi-square test, current school leavers, those with high SES, particularly compared to medium SES, and with high GPA. The Architecture and Building FOE was the only field predicting significantly higher likelihood of UWS students applying to other universities compared to all other FOEs. In the logistic regression model each of nine FOEs was compared to the 10th FOE. The subsequent chi-square test showed that the

proportion of UWS students in Architecture and Building who applied to other universities before leaving UWS was considerably higher compared to any other field of study.

As shown in Table 3, in the first and third years the odds of leaving UWS without applying to other institutions rather than continuing studies were significantly higher for part-time and mature students, those with ESB and low GPA. It is important to note that 24.7% of mature students studied part-time, while among recent school leavers only 2.6% were part-time students ($\chi^2(9) = 592.96, p < .001$). The profile of second-year students with higher odds of early withdrawal was about the same. One exception is the Age variable that emerged in the model instead of Admission Type. Specifically, every one-year step up the Age scale resulted in a 2% more chance of early withdrawal from UWS for a second-year student. It appeared that, in the first and third years, the relationship between Age and odds of early withdrawal was less regular than in the second year. Therefore, Admission Type became a stronger predictor of attrition than Age in years one and three. A total of 95.5% of recent school leavers are 17 and 18 years of age, while there were comparable proportions of mature students within many older age groups. Neither the remaining independent variables nor any interaction terms contributed significantly to the model and were removed by the procedure.

Grade Point Averages

Table 4 presents the results of the one-way ANOVA comparing student mean GPA by various categorical independent variables and the corresponding effect sizes. The results are sorted by significance of difference between means from high to low. The mean GPA was significantly different across Language Background (lower for NESB), Gender (lower for male), SES (lower for low SES), Residence (lower for international students), Attendance Type (lower for full-time), and Admission Type (lower for mature students). In cases of multi-level factors, such as SES or Attendance Mode, the effect sizes compared means of two most contrasting groups.

Table 4

Results of the One-Way ANOVA Comparing Student Mean GPA by Categorical Variables and Effect Sizes

<i>Factors</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>d</i>
Language (ESB vs. NESB)	4.31	1.10	3.82	1.23	385.83	.000	.42
Gender (female vs. male)	4.23	1.11	3.93	1.26	127.46	.000	.25
SES (low vs. high)	3.89	1.23	4.25	1.14	50.74	.000	.30
Residence (domestic vs. international)	4.13	1.18	3.97	1.19	19.43	.000	.14
Attendance type (full-time vs. part-time)	4.09	1.18	4.21	1.22	10.33	.002	.10
Admission type (school leavers vs. mature students)	4.14	1.11	4.06	1.23	7.29	.001	.07
Disability (no vs. yes)	4.11	1.18	4.01	1.19	2.36	.124	.09
Attendance mode (internal vs. external)	4.10	1.18	4.30	1.26	1.43	.239	.16
ATSI (no vs. yes)	4.11	1.18	3.96	1.23	1.21	.272	.12

Only three of the differences between the groups had noteworthy effect sizes (d range = .25 — .42), with a non-overlap of 18.0% to 28.5% in the distributions of GPA across Language Background, Gender and SES. The very small effect sizes (d range = .07 — .14) for Residence, Attendance Type, and Admission Type may imply that the statistically significant differences between mean GPA for these variables were artefacts of the large number of

observations, with about 89.5% to 94.6% of overlap between the groups examined. The results also showed considerable differences between many FOEs in terms of mean GPA. Specifically, Education, Creative Arts, Society and Culture, and Agriculture, Environmental and Related Studies showed higher mean GPA values compared to Management and Commerce, Natural and Physical Sciences, Information Technology (IT), and Engineering and Related Technologies (d range = .31 — 1.08). This difference appeared to be strongly influenced by student language background and gender. The NESB students were predominantly studying in all four fields that scored lower on GPA and were absent from those scoring higher ($\chi^2(9) = 599.74, p < .001$). Male students were mainly in the fields of IT, Engineering, and Management and Commerce ($\chi^2(9) = 1269.73, p < .001$).

Being controlled for Age and UAI using a univariate one-way ANCOVA, the effects of Language Background, Gender and SES on GPA remained significant: ($F(1, 6235) = 252.88, p < .001$), ($F(1, 6235) = 80.94, p < .001$), and ($F(2, 6087) = 18.97, p < .001$). However, a notable drop in the F -values for all factors and a large F -value for UAI (range = 371.40 — 385.33) suggested that this covariate influenced the effects of Language Background, Gender and SES on GPA. This influence may be explained by such facts as ESB students having higher UAI than NESB, females having higher UAI than males, and students with high SES having progressively higher UAI than those with medium and low SES. A two-way ANOVA with GPA as the dependent variable and Language Background and SES as factors revealed that an interaction of these factors had no significant effect on GPA.

The results of the stepwise regression analysis where student Age and UAI were the predictor variables and GPA was the criterion revealed that UAI was a more powerful predictor of GPA than Age; however, both variables were selected by the procedure. The small aggregate $R^2(2, 6236) = .073, p < .001$ suggested that a combination of GPA and Age could account for only 7.3% of variance in GPA, and that the value of p was affected by the size of the sample. Thus, the weak relationship was statistically significant.

Discussion

Interpretation of the Results

The study's findings provide evidence that those UWS students who leave the university having previously applied and received offers from other institutions tend to be:

- young (particularly in the 17–20 age group)
- recent school leavers
- those with high SES
- having high GPA
- studying Architecture and Building at UWS.

The student characteristics integrated in this profile indicate the implicit capacity to change university in terms of students' relatively young age (20 or younger), and thus, enough mobility and time for changing directions; their sufficient financial resources; and academic confidence. The profile is well aligned with the outcomes reported by Long, Ferrier and Heagney (2006). Their study suggested that students who changed universities had mostly progressed on to university immediately after leaving school and some were still determining their academic pathways, while others were changing their mind about their own interests and

talents. Movement between universities was also associated with varying student perceptions of some institutions as more prestigious, offering better courses and career prospects than others. Obviously, in this case, the university's ability to intervene is somewhat limited, as these students are not 'at risk' in the commonly understood sense.

However, the university is still interested in keeping those who leave to go to other institutions — their withdrawal has a serious impact on planning and status of programs and on the university generally. Anecdotal evidence from UWS staff suggests that UWS could retain some of these students. There are initiatives aimed at successful students already in place at UWS, including leadership skills initiatives and advanced programs offered in certain FOEs. Insufficient information provided to prospective students about the course or institution before they enrol has recently been highlighted as a major reason for student transfers to other institutions (Yorke & Longden, 2007). This may also be the area UWS can focus on in order to retain potentially successful students.

The study outcome regarding the Architecture and Building FOE predicting high likelihood of UWS students applying to other institutions could be due to the realignment of the UWS colleges and schools in 2004. In the process of this realignment the School of Construction, Property and Planning — offering courses in architecture and building — did not continue as a separate school as it was small and struggled financially. It appears reasonable to assume that many students opted to study in clearly labelled and separate architecture schools at other institutions.

The odds of leaving UWS without applying to other institutions are found to be significantly higher for:

- students with low GPA
- part-time students
- mature age students
- ESB.

In turn, low GPA is associated with such student characteristics as:

- NESB;
- male; and
- low SES.

A number of conclusions can be drawn from these outcomes. First, UWS students with a NESB tend to carry on with their program even if they have academic difficulties, while ESB students with fewer difficulties are more likely to withdraw. This, at least in part, confirms one finding of McKenzie and Schweitzer (2001) stating that 'high academic achievement is not necessarily related to retention and poor academic performance does not always result in attrition' (p. 29). Second, though strongly linked to attrition by research, including this study, the 'low GPA' category is heterogeneous and may include groups of students with both high and low probability of early withdrawal.

Third, an important reason for UWS student early withdrawal, apart from academic problems, appears to be work and family commitments typical for part-time and mature students. This outcome aligns well with the conclusion of Long, Ferrier and Heagney (2006) that scarce time for study and financial concerns are important issues for many part-time and

mature students (Long, Ferrier, & Heagney, 2006). It is also consistent with the data on student finances and employment from 18,954 students surveyed in 37 Australian universities (James, Bexley, Devlin, & Marginson, 2007). That data show that a considerably higher proportion of UWS part-time undergraduate students report being employed full-time compared to the national averages (cf. 64.6% and 48.9%). It is not surprising that higher proportions of employed UWS undergraduate students compared to the national data agree or strongly agree that work adversely affects their study (cf. 59.7% and 53.6%). Finally, being a male student and from low SES will increase the probability of academic difficulties and, by implication, the probability of early withdrawal from UWS.

Targeted Interventions and Support Services for Students at Risk

Identifying students at risk is important in order to improve the targeting of pro-active interventions and support services for them. The initial strategies discussed here will be further refined using the outcomes of the parallel research conducted by the UWS Student Support Services, with input from the UWS Student Learning Unit and Professional Development Unit, in order to develop a university-wide framework of students at risk. Thus, the intervention will be multilayered and will involve collaborative processes across the university, as well as national and international examples of successful strategies.

It is common knowledge that students do not always seek help while trying to adjust to the demands of university life or when they have academic difficulties. Some of them may seek assistance only after their difficulties are obvious and advanced. The UWS Student Learning Unit offers a number of free study assistance workshops and programs to all students early on in the semester, and some of these programs could be specifically focused on localised groups of students with low probability of success.

For example, this research confirms what other studies have consistently shown — that NESB students have significantly higher probability of academic difficulties compared to ESB students. By definition, many NESB students (about 30% of whom at UWS are from overseas) may take time to adjust to the Australian accent, style and fluency of lecturers' speech, terminology, idioms and abbreviations used in lectures and tutorials. The UWS data show that NESB students are predominantly studying in Management and Commerce, Natural and Physical Sciences, IT and Engineering. Therefore, staff teaching in these discipline areas should be particularly encouraged to use a range of teaching and communication tactics tailored to the needs of NESB students. These tactics may include: speaking very clearly; avoiding colloquialisms, abbreviations and long sentences; provision of adequate silent periods while communicating; using simple visual aids to aural comprehension; distributing concise lecture notes; provision of definitions of key terms and an outline of content prior to a presentation; provision of clear and simple written guidelines for all tasks and assignments, and 'model' answers that highlight good practice. Language tuition, peer study groups, linking students with different cultural backgrounds and study experiences, and discipline-specific study skills programs should also be promoted in the FOEs with high concentrations of NESB students.

Among the factors that may increase the academic disadvantage of low SES students, Ramsay et al. (1998) highlight loss of confidence (at times the result of inadequate educational preparation), isolation, withdrawal of emotional support from family and peer group, lack of role models and poor study environment and resources. The UWS data show that low SES students predominantly tend to study in IT and Education. Therefore, transition

to university and ongoing support programs particularly developed to meet the needs of students from low SES should be promoted in these discipline areas. Such programs may include: mentor support by way of linking new and experienced students from similar courses and similar residential areas or backgrounds; high quality comprehensive orientation, including the use of self-teaching and orientation materials written by students from a similar background who have successfully managed the transition on how they did it; study and computer skills programs; introduction of specific people to contact when in need, including key academic staff, library staff, mentors, counselling and IT staff.

The research outcomes suggest that UWS part-time and mature age students have significantly higher odds of leaving UWS without applying to other institutions as compared to full-time students and current school leavers. Further, the proportion of part-time students is significantly higher among mature students than among current school leavers. Management and Commerce and Health are the FOEs with the greatest concentration of both part-time and mature age students. Tailored programs developed to meet the needs of these groups should be promoted in these discipline areas.

The reasons students attend part-time are often financial. Long, Ferrier, and Heagney (2006) report significant correlations between full-time employment (working 35 hours or more a week) and older students, living with a spouse and children, not receiving government income support and enrolled part-time. Therefore, colleges and schools should find ways to reach out to part-time and mature students with information on the availability of and application for financial aid. Such aid may be provided in the form of scholarships, emergency funds, containing non-tuition costs such as books, internet access, printing costs, library fines and parking fees and fines. Colleges and schools may also want to examine the curriculum and course organisation in regard to convenient timetabling, and class duration and frequency suitable for part-time study. Availability of sufficient teacher–student interaction and individual attention, including regular consultations outside class hours may also be an issue for part-time students and need to be closely maintained. It is necessary to ensure that part-time and mature age students make full use of all offered services and facilities, such as childcare, food services, sports facilities, shops and newsagencies. Increased use of IT and email for students may also be very beneficial for part-time students and should be actively communicated to them. However, anecdotal evidence from UWS students seems to indicate that not all e-learning facilities and strategies have immediate positive uptake. We often assume that students have pre-existing IT skills when they commence university, which is not always true. Thus, facilitating computer skills training for those part-time students in need may deserve attention.

Limitations and Further Research Needs

The results of this study should be interpreted with caution due to a number of limitations. First, the data on student SES may not be entirely reliable, as it was collected on the basis of residential area and could be subject to misclassification of individuals. More reliable indicators of socioeconomic status of students, such as average income from all sources, could be advantageous for future research. Further, the classification of an individual as being from NESB because they live in a home where a language other than English is spoken is prone to error. It is clear that many individuals, exposed to English language environments such as kindergarten or school from early ages, can become bilingual and quite proficient in English even if they speak a different language at home. Therefore, either an objective measure of English language skills has to be employed in further research instead of

NESB, or the Department of Education, Employment and Workplace Relations (DEEWR, formerly DEST) definition of those in NESB as not only speaking a language other than English at home but also being a resident in Australia for less than 10 years should be used. Further, there are studies (e.g., Dobson, Birrell, & Rapson, 1996) reporting that specific NESB groups, such as Arabic speakers, struggle academically more than others, while Chinese, Vietnamese, Korean and Eastern European students do better than English-language speakers. Thus, NESB category may need to be considered as a number of various groups of people rather than as a whole. Finally, the data on UWS student employment status and mean hours of paid work per week during each semester could benefit further research into students at risk, as such variables can be stronger predictors of earlier withdrawal than either Attendance or Admission Types.

Despite these limitations, the study provides useful insights into a current profile of UWS students with low probability of success, and identifies a number of areas in which to target interventions and support services.

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