REPORT ON TRACK AND CONNECT SEMESTER 1, 2013

JORDI AUSTIN, DIRECTOR, STUDENT SUPPORT SERVICES
FELICITY KiERNAN, PROGRAM MANAGER, STAR TEAM
August 2013

Executive Summary

Track and Connect is an early identification and linkage program for students studying in their first semester of first year. The program is an initiative of the Student Transition and Retention (STAR) team within Student Support Services, with strong collaboration from three faculties, School of Business, Faculty of Science and the Faculty of Engineering and IT. The program has been funded from Student Services and Amenity Fees (SSAF funding). This program was developed as a result of the recommendations to the SEG Education committee on improving the First Year experience.

The pilot program for 2013 has demonstrated significant impact on student retention, with overall attrition rates halved across the target courses. Significant reductions in student attrition prior to the HECS Census date were achieved across all units of study. There has been improved student success, and demonstration of the tangible benefits to both students and faculty of early identification and support mechanisms.

This paper outlines the mechanism of action for the program, the results from Semester One, 2013 and highlights recommendations for future programs.

The Track and Connect program in Semester 1, 2013

The program is run through central Student Support Services in close collaboration with the faculties. This facilitates a consistent approach to students across the university, while still allowing the information provided to students to be targeted to the relevant faculties’ practices. Students were able to discuss issues that they were not comfortable raising with their faculties. The central approach also lends itself to scaling as the program expands.

Faculties nominated courses seen as “stumbling blocks” for significant numbers of students. Demographic and academic risk markers were combined to produce “at risk” student lists for these courses. Contact was made from the STAR team by trained students at key decision points in semester (week 4 – prior to HECS census date, week 7 – prior to DNF date, week 13 – prior to exams). The students were contacted and provided with advice, referrals to in-faculty and central support, and transition information. Contact was through emails and phone calls.

Results

The average withdrawal rate for the 4 units decreased from 19% in 2012 to 7% in 2013. The total number of students withdrawing from these 4 units in S1, 2012 was 486 (including W, DNF & DF). In S1, 2013, the total was only 163. Assuming that the entire gain was in domestic student numbers, and using the 2010 figure of $14,000 cost per student lost, this is a saving to the university of at least $4.5 million. As the costs of the program totalled $40k, this represents a return of 1:112 spend to savings.
Table One: Attrition rate in 2013 with the Track and Connect program compared to 2012 Attrition.

The change to the attrition rate is even starker when examining only the students who drop out before HECS Census date. The withdrawal rate in 2013 in these courses was between a third and a sixth of the attrition rate in 2012.

Although there was a slight increase in failure rates overall, there was also an increase in the number of students receiving distinctions and HDs.

When combining all of the possible poor outcomes for the course students, the good outcomes (Pass through to HD) noticeably increased as a percentage of the outcomes for all enrolled students, while the poor outcomes (W, F, AF, DF, DNF) decreased from 28% to 24%.
Recommendations arising from this semester

The positive results indicate that this program could be extended to other barrier courses with high attrition or failure rates across the university undergraduate cohort.

**Recommendation one** – expansion of the STAR Track and Connect scheme to other faculties with high attrition or high failure rates in first year undergraduate studies.

Best results and greatest impact of the program were achieved within courses where ‘real time’ assessment data was made available for the STAR team from the faculty. This enhanced the relevance and timeliness of contact with students, enabling students to connect with faculty and central resources and support mechanisms, hence altering from a failing trajectory to a success trajectory.

**Recommendation two** – additional resources be allocated at both the central and faculty sides to ensure timely return and updating of risk status for all courses involved in the program. Funding for both the centre and the faculties together would amount to $145,000.

**Recommendation three** – Expansion of analysis for identified cohorts to units not impacted by Track and Connect. For example, further analysis should be undertaken to identify if the success plus retention for the Bachelor of Liberal Arts and Sciences (BLAS) in ATHK1001 generalises to better success plus retention for these students across the other first year BLAS units.

Ongoing developments for the program to assist broader impact would include upgrading IT software to provide system uploads of results, and reducing administrative burden at the Faculty and central side.

**Recommendation four** – work to be undertaken on IT solutions to support this program with more timely academic and attendance results at key points, as well as demographic flags, reports, and other early alert mechanisms.
Track and Connect Pilot Study

Background

Understanding the high rates of attrition observed in first year students is key to implementing support programs that can assist these students in their transition. The current literature in the fields of retention, attrition and the First Year Experience identifies the first two to six weeks as the crucial timeframe in which students engage and connect with their tertiary institution\(^1\).

From a theoretical perspective, Tinto (2005) notes that the actions performed by a tertiary institution can enhance or constrain its students’ persistence in the university environment. His work describes actions that enhance student persistence, including:

- Institutional commitment, that is, resources devoted to the program, incentives for those involved;
- Institutional expectations, in short, higher expectations lead to greater achievement;
- Academic, social and financial support;
- Feedback by assessment of academic skills, informed by early warning systems; and
- Involvement by students.

In 2011, the Planning and Information Office and Student Support Services at the University of Sydney conducted an Early Attrition Analysis of students enrolled between 2009 and 2011, who did not transfer courses or return to the University of Sydney as students. Key results indicated that in 2011, 548 students withdrew from the university before the HECS Census date (in the first four weeks), 631 students withdrew after six months of study (completed semester 1 but did not return in semester 2), and 1106 students withdrew after one year of study. This data also demonstrated trends in particular cohorts, including that students with a disability were most at risk 6 months after commencement, part time students are most at risk 6 and 12 months after commencement, students who are first in family are most at risk 12 months after commencement and students with TAFE qualifications were consistently at risk after commencement.

The Track and Connect project employs personal contact and enhanced support, cooperation and collaboration between faculty and central services to achieve student retention and success. The goal of this enhanced support is to increase student success in the first year, decrease the amount of unnecessary or early attrition, and encourage students’ persistence, engagement and sense of belonging at the University of Sydney.

Within the University, programs already exist that identify students once they have failed a unit. ‘Track and Connect’ has the potential to be a preventative tool. The program aims to identify, within the first 8 weeks of semester, students at risk of failure or discontinuation, who may not be accessing resources, and connect these students with the appropriate support services to help them succeed during the semester. This early intervention links students identified as at risk to sources of assistance, providing access to individualised, appropriate and timely information about services and support. The program promotes a skills based message; that asking for help is skillful and adaptive within the tertiary environment, leading to opportunities to obtain knowledge and resources that enhance academic progress.

---

2013 Program Outline

Faculties nominated the following units of study:

- ATHK1001 in the Faculty of Science
- BUSS1001 in the University of Sydney Business School
- ENGG1801 in the Faculty of Engineering and Information Technology and
- INFO1103 also in the Faculty of Engineering and Information Technology.

The nominated units were ones in which the faculties felt students were particularly at risk of failure or attrition and which are essential to progression. The attrition rates of new UAC domestic Undergraduate enrolments for these cohorts in 2012 compared to 2013 were:

<table>
<thead>
<tr>
<th>Unit</th>
<th>1 or more demographic risk flags in 2013</th>
<th>Attrition rate in 2013</th>
<th>Attrition rate in 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATHK1001</td>
<td>50%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>BUSS1001</td>
<td>26%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>ENGG1801</td>
<td>49%</td>
<td>4%</td>
<td>14%</td>
</tr>
<tr>
<td>INFO1103</td>
<td>47%</td>
<td>10%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Table Two: Demographic risk and attrition rate in 2013 with the Track and Connect program compared to 2012 Attrition.

In the first week of semester student lists were provided to the Track and Connect team and these lists were collated with demographic data declared at enrolment to identify each student by the ‘precursor’ factors as being potentially at risk of subject failure and attrition. Faculties then provided academic and attendance results to the STAR team as they became available, which were used to flag the ‘academic’ risk factors to allow students who were struggling to be provided with tailored, appropriate and timely information at key points throughout the semester.

The list of precursor, or equity, factors are as follows, and were identified by the Early Attrition Analysis and though trends observed within the faculties:

- Students admitted to the University via alternative entry schemes, including the Broadway, Mature Age Entry and Cadigal Alternative Entry Pathways;
- Students who are the first in their family to attend university;
- Students who come from a non-English speaking background;
- Students who live in a low socio-economic area;
- Students who identify as having Aboriginal or Torres Strait Islander descent;
- International students; and
- Specific to the Faculty of Engineering & IT, students who are in the lowest quartile of qualifying ATAR for their cohort, or who completed a level of HSC mathematics lower than Mathematics Extension 1, or equivalent.

---

2 University of Sydney, 2011
Procedure

The procedure varied across the different cohorts, depending on the ability of the faculties to provide the trigger information at the relevant points.

Three key dates (trigger points) for intervention were identified:
- Week four – just before the HECS census date;
- Week seven – just before the DNF date; and
- Week thirteen – just before exams.

All students across the four cohorts were flagged for demographic risk factors, creating a ‘risk profile’ for each individual. Information from faculties about assessment or attendance patterns at each intervention time point informed the development of messages to each individual. Where no up-to-date assessment or attendance information was available at the time point, a target email was sent to each student, based on their demographic risk factors alone. All students received either an email, a phone call or both at each contact point.

The best-case work flow was achieved with the Science faculty for the BLAS students, who provided up to date academic flag lists in weeks 3, 7 and 13. This facilitated more targeted contact to the at-risk students than was possible for the other faculty student cohorts.

All students were polite and those who responded to all the questions answered honestly and willingly. Those students who were experiencing difficulties in their first few weeks of university were particularly appreciative of the phone call.

Students were referred to their tutor/lecturer consultation hours and encouraged to make use of faculty resources, the Learning Centre, Disability Services, Financial Assistance Service, SLAM (Science Link-up And Mentoring) and CAPS (Counselling and Psychological Services). One student was advised to seek special consideration. Other inquiries included questions about ways to contact Track and Connect, the Student Card, CAPS workshops, the Career’s Centre, the Disability Services and when the mid-semester break was.

Students without flags or for whom no academic risks were present did not receive a phone call. These students were instead sent email with advice targeted to the relevant date. These emails were not targeted to demographic information. This email contact resulted in a number of further enquiries from students who had not been initially targeted by phone calls.
RESULTS

Change to Failure Trajectory

It appears that the Track and Connect interventions had a significant impact on changing the Failure Trajectory for students. Students’ information was monitored across the intervention time points to identify students experiencing ongoing academic difficulty. Of the 122 students appearing on the ATHK1001 call list, 26 students appeared more than once. Of these, 23 students appeared twice. Only 8 of the 27 students in week 13 were on any previous call list and only 5 of these appeared once before. Only 3 students were on all 3 lists, which appears to be a clear indication that early intervention is having an effect and reducing the likelihood of a student remaining at risk.

In other words, of the 96 students identified as at academic risk in week 3, only 18 remained at risk in week 7. The most striking results are the decrease in at risk students from 96 in week 3 to less than 30 in subsequent weeks across all intervention time points. The graph below demonstrates numbers of students at risk at each time point for the BLAS Science students.

Attrition and success

The main aim of the Track and Connect program is to reduce student attrition through early engagement. The true measure of the effect of the early engagement will become apparent over the course of the students degree, however, the early results are extremely promising. All units saw a decrease in attrition, with a decrease ranging from 6 to 21 percentage points.

In addition, when combining all of the possible poor outcomes for the course students, the good outcomes (Pass through to HD) noticeably increased as a percentage of the outcomes for all enrolled students, while the poor outcomes (W, F, AF, DF, DNF) decreased from 28% to 25%.
The graphs below illustrate the 2012 and 2013 Attrition and success patterns for all units in the Track and Connect program.

While not every unit saw a decrease in negative outcomes for all students enrolled in the unit of study, the majority of units saw a noticeable decrease, with a corresponding increase in the positive outcomes for students.

![Graph: All fail and withdraw as % of cohort](image)

**Figure 6: All W, F, AF, DF, DNF as percentage of enrolled students**

![Graph: All succeed as % of enrolments](image)

**Figure 7: All P, C, D, HD as percentage of enrolled students**

Strong results were achieved in the ATHK1001 unit, which not only saw a reduction in attrition, but also decrease of the fail rate compared to previous semesters. This reflects the work put into providing early, frequent and targeted feedback to this cohort. The weekly quizzes within the faculty course structure provided an early indication of at risk students for targeted intervention, but also provided a clear indication for students of their progress in the unit.
The attrition rate for ATHK1001 has halved this year, compared to 2012, while the rate of students passing and receiving credits has increased. When the results of only the students who complete the subject are examined (below), we can see that the absent fail rate decreased slightly, while the fail rate has decreased by 35%.

While the other units did not see the same scale of reduction in their fail rate, all saw a decrease in attrition to a third or less of the rate in S1 2012. Each unit also saw a flatter bell curve, with more students falling into both the absent fail/fail and the distinction/high distinction groups.
Figure 10: Percentage results for all students enrolled in S1 BUSS1001 in the School of Business.

Figure 11: Percentage results for all students enrolled in S1 ENGG1801 in the Faculty of Engineering and IT.

Figure 12: Percentage results for all students enrolled in S1 ENGG1801 in the Faculty of Engineering and IT.
Attrition by date

In all four courses, the greatest year on year reduction in attrition came prior to the HECS census date, thus significantly reducing the lost HECS income to the university. The next largest decrease in attrition is the group dropping out before the DNF date. Attrition after this date was already extremely low.

The only unit where attrition before the DNF date did not decrease (INFO1103) saw the largest single overall drop in attrition, from 31% to 10%.

ATHK1001: The largest drop in attrition was for students withdrawing before HECS Census date, from 16% to 5% of the total cohort. Overall, attrition dropped from 20% to 10%.

BUSS1001: The largest drop in attrition was for students withdrawing before HECS Census date, dropping to a quarter of the previous years’ withdrawal rate from 8% to 2% of the total cohort. Overall attrition dropped to a third of the previous years’ attrition.
**ENGG1801**: The largest drop in attrition was for students withdrawing before HECS Census date, dropping from 13% to 3% of the total cohort. Overall attrition dropped to less than a third of the previous years’ attrition.

![Figure 17: 2012 ENGG1801 attrition by date](image1)

![Figure 18: 2013 ENGG1801 attrition by date](image2)

**INFO1103**: The largest drop in attrition was for students withdrawing before HECS Census date, dropping by 22 percentage points to less than a sixth of the previous years' withdrawal rate from 26% to 4% of the total cohort. Overall attrition dropped to almost third of the previous years' attrition.

![Figure 19: 2012 INFO1103 attrition by date](image3)

![Figure 20: 2013 INFO1103 attrition by date](image4)

A study\(^3\) of seventeen Australian higher education providers estimated that in 2007 attrition cost the institutions $17,000 in tuition per international student per year, plus $3,288 in recruitment costs and $14,000 in tuition per local student per year, plus $500 in recruitment costs.

The total number of students withdrawing from these 4 units in S1, 2012 (including W, DNF & DF) was 486. In S1, 2013, the total was only 163. Assuming that the entire gain was in domestic student numbers, and using the 2010 figure of $14,000, this is a saving to the university of over $4.5 million.

---

\(^3\) This figure was calculated conservatively on the basis of the 2007 estimates provided by Adams, Banks, Davis and Dickson (2010), without considering inflation or increased course costs.
Recommendations arising from this semester

The positive results indicate that this program could be extended to other barrier courses with high attrition or failure rates across the university undergraduate cohort.

**Recommendation one** – expansion of the STAR Track and Connect scheme to other faculties with high attrition or high failure rates in first year undergraduate studies.

Best results and greatest impact of the program were achieved within courses where ‘real time’ assessment data was made available for the STAR team from the faculty. This enhanced the relevance and timeliness of contact with students, enabling students to connect with faculty and central resources and support mechanisms, hence altering from a failing trajectory to a success trajectory.

**Recommendation two** – additional resources be allocated at both the central and faculty sides to ensure timely return and updating of risk status for all courses involved in the program. The predicted cost for both the centre and the faculties together would amount to $145,000.

**Recommendation three** – expansion of analysis for identified cohorts to units not impacted by Track and Connect. For example, further analysis should be undertaken to identify if the success plus retention for the Bachelor of Liberal Arts and Sciences (BLAS) in ATHK1001 generalises to better success plus retention for these students across the other first year BLAS units.

Ongoing developments for the program to assist broader impact would include upgrading IT software to provide system uploads of results, and reducing administrative burden at the Faculty and central side.

**Recommendation four** – work to be undertaken on IT solutions to support this program with more timely academic and attendance results at key points, as well as demographic flags, reports, and other early alert mechanisms.

**References**


