



NATIONAL FORUM
FOR THE ENHANCEMENT OF TEACHING
AND LEARNING IN HIGHER EDUCATION



UNIVERSITY of LIMERICK
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An Investigation of the Impact of Learner Support Initiatives on Retention in ICT Programmes

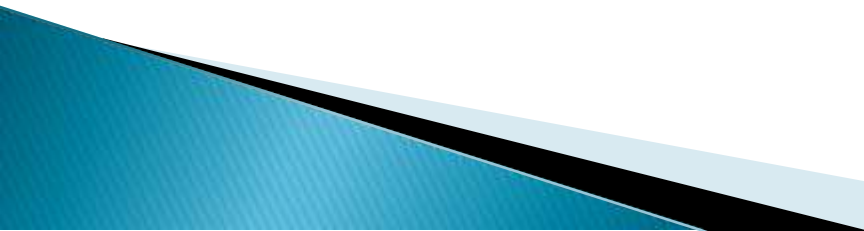
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Methodology

- ▶ Literature review of the most commonly adopted retention interventions in ICT undergraduate programmes at 3rd level institutions both nationally and internationally.
 - ▶ Data analysis of attendance at Supplemental Academic Learning Supports (SALS) & their correlation with 1st Year ICT student progression for the period 2010-2014.
 - ▶ Data analysis of attendance at SALS & their correlation with 1st Year ICT student performance for the period 2010-2014.
 - ▶ Analysis of responses of 1st ICT students of the class of 2015 to survey on their perceptions of retention issues and the SALS services provided by the Learning Centres.
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Factors Influencing Student Retention

Belonging + Engagement + Quality Learning Experience = Retention + Success

- ▶ Factors Influencing Student Retention
 - Preparation for HE – Prior Attainment
 - Institutional and Course Expectations & Commitments
 - Academic & Learning Experience
 - Academic and Social Integration - Belonging
 - Quality of Institutional Support Services
 - Family Support & Personal Commitments
 - Financial Issues

- ▶ In most cases, students may have more than one reason for leaving their course

Factors Influencing Retention – ICT Specific


- ▶ A lack of student awareness of what the study of ICT/CS courses entails often resulting in students having misconceptions as to the type of subjects that they must master in order to succeed within these courses. - *Institutional & Course Expectations & Commitments*
- ▶ There is also evidence suggesting that the order in which the core ICT subjects are taught to students could be important. - *Academic & Learning Experience*
- ▶ Students entering ICT courses with limited problem solving abilities and maths skills. - *Prior Attainment*
- ▶ Most of the core ICT subjects involve planning and logic learning and hence learning these subjects requires a significant amount of time to practice. However, most ICT courses may not provide sufficient practicing time for students. - *Prior Attainment, Academic & Learning Experience*

Factors influencing Retention – ICT Specific

- ▶ ICT projects require students to perform analysis, design, coding, testing, as well as effective communication and working in teams from the early stage of ICT courses. This is hindered by entry level ICT students lacking these skills at this stage. - *Academic & Social Integration, Academic & Learning Experience, Prior Attainment*
- ▶ Many early stage ICT students report a lack of community identity and that ICT courses can lack socialisation aspects which would foster such community relationships. - *Academic & Social Integration*
- ▶ In many cases the attrition rate of female students in ICT courses is higher than their male counterparts; this is attributed to a number of departmental characteristics which maybe causing such imbalance. - *Academic & Social Integration*
- ▶ Learning core ICT subjects, such as computer programming, can be an intimidating experience for some students and detrimental to their self-efficacy. - *Academic & Learning Experience*

Effect of SALS Services on Student Retention

Quantitative Data Analysis Process

- ▶ **736 first year students** in four ICT programmes over five academic years.
 - ▶ Only students who progressed to and registered in the 2nd year of their original programme of enrolment, having successfully completed all required modules by the end of the 1st year, were counted as retained.
 - ▶ **Engaged** student: one who availed of 4 or more support sessions over the entire academic year; **Not Engaged**: one who availed of less than 4 support sessions over the entire academic year.
 - ▶ **At Risk** student: one who attained a final grade of C or lower in their core ICT module in the 1st Semester; **Not At Risk** student: one who attained a higher than C final grade.
 - ▶ Students participation in SALS services: average of ~ 60% each year.
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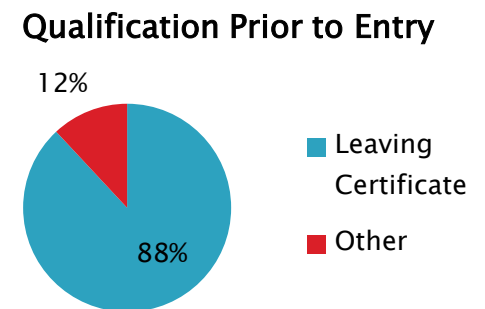
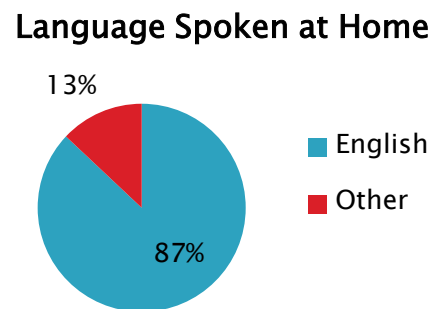
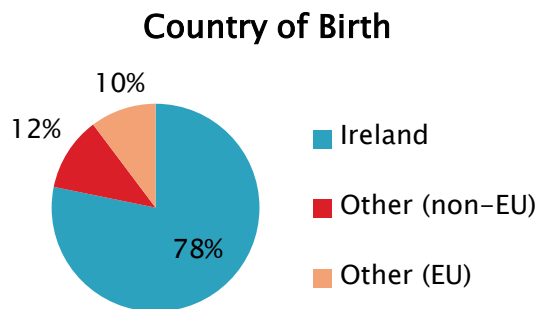
Historical Data Analysis – Main Findings

- ▶ Our SALS services seemed to align closely with best practice and characteristics of successful retention approaches.
- ▶ SALS services had a significant impact on the continuation and progression of ICT students (19% higher progression rate for **Engaged** over **Not Engaged** students).
- ▶ The impact is more significant in the case of the students identified as **At Risk** (26% higher progression).
- ▶ **Engaged** students achieve significantly higher rates of passing their core programming modules in both semesters, attaining at least a C3 grade ($\approx 16.5\%$ higher on average).
- ▶ There is a correlation between the use of the services and achieving an **A** grade in both modules ($\approx 8.5\%$ higher on average).
- ▶ Engagement level of **At Risk** students is 8% lower than those who are **Not At Risk**.
- ▶ Identified other potential markers for early identification of **At Risk** students, e.g. course match, CAO points, perceived prior knowledge in core subjects.

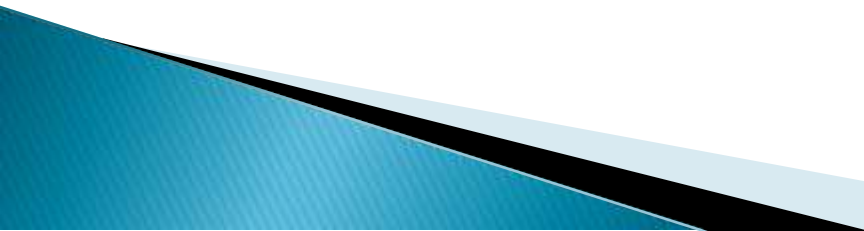
Effect of SALS Services on Student Retention

Qualitative Data – Student Survey


- The survey comprises 34 multi-choice, closed and open-ended questions.
- 78 responses were received.
- 42% of respondents stated that they have availed of the support services at least once. Also, 47% of all respondents fall into the **At Risk** category.
- 28% of respondents were very certain about their choice of career before enrolling on their current programme of study; 10% very uncertain of their choice. However, no correlation was found between these figures and the students **At Risk** status.




Student Survey – Main Findings

- ▶ Students whose current programme of study has not been their 1st choice are twice as likely to fall into our **At Risk** category.
 - ▶ Students who consider themselves weak at computer programming and maths are significantly more likely to be **At Risk**.
 - ▶ Students who had considered leaving their current programme of study were nearly twice as likely to fall into our **At Risk** category.
 - ▶ Module difficulty seems to have been a significant factor in making students consider leaving their programme with 65% of these falling into the **At Risk** category.
 - ▶ 60.5% of respondents felt that the SALS services have helped them achieve higher grades and/or pass their exams.
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Preliminary Recommendations 1

- ▶ The SALS model would be highly beneficial in any HE institution offering ICT programmes.
 - ▶ There is a need to mainstream these services at institution level with pro-active partnerships between all stakeholders to reach all targeted students.
 - ▶ A more pro-active policy and mechanism for identifying and targeting **At Risk** students needs to be agreed and implemented in a timely, systematic and continuous manner.
 - ▶ Expansion of the SALS services with a specific focus on collaborative and student-centred learning approaches in order to further nurture independent and engaged learners and social inclusion.
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Preliminary Recommendations 2

- ▶ It is essential for any successful retention initiative to be inclusive of all stakeholders. No single entity can effectively achieve all retention objectives on its own. As such, retention is the responsibility of all staff in an institution.
 - ▶ SALS units should expand their out-reach activities to target pre-entry students in order to excite and inform them about computing and ICT-related study programmes and careers.
 - ▶ SALS units should be given the support and opportunities to further develop their research activities in this context in partnership with relevant academic departments and staff in order to undertake further in-depth investigations.
 - ▶ It is also essential that the T&L National Forum and associated funding bodies should facilitate more longitudinal research projects; giving researchers involved more time and resources.
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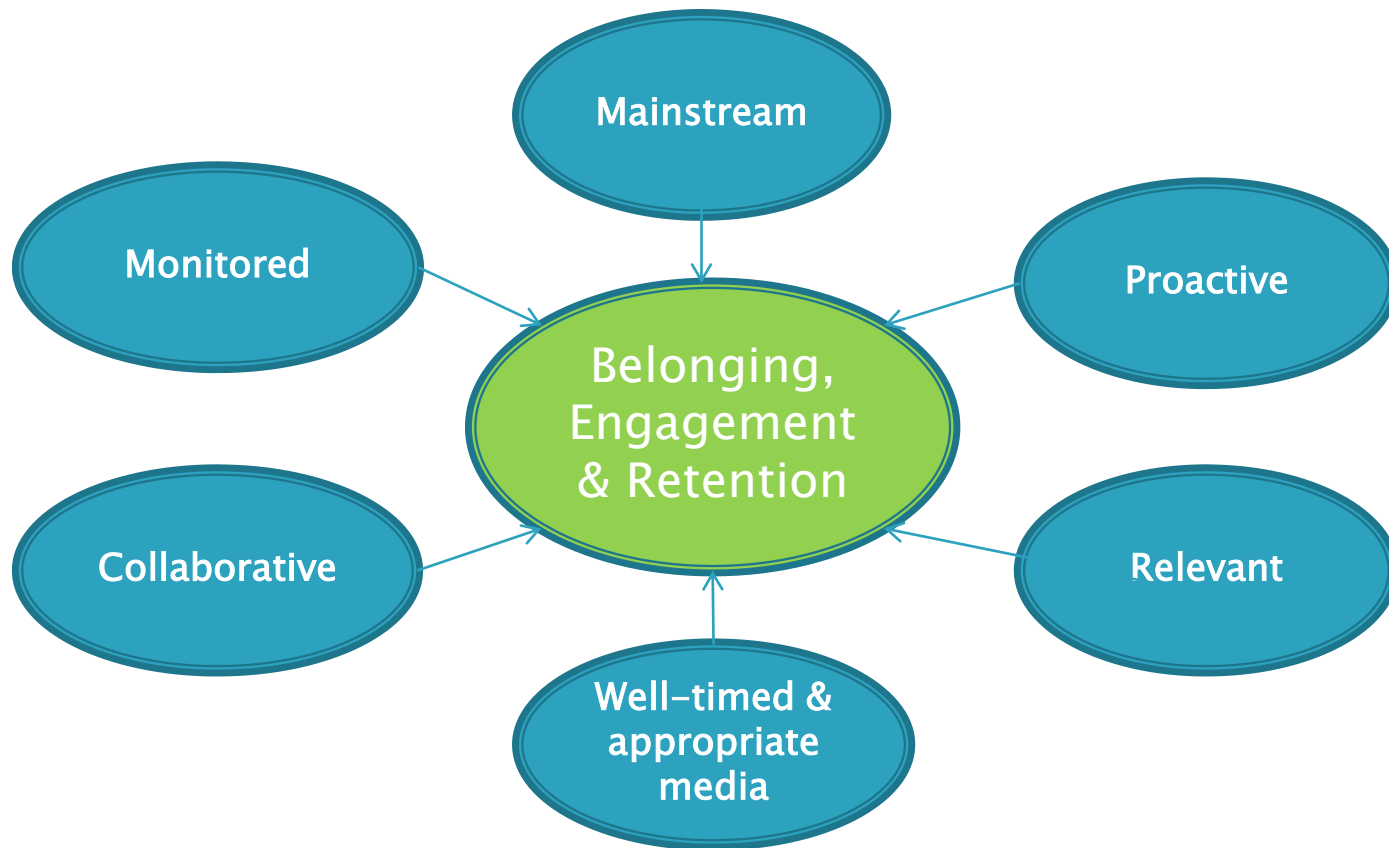
Issues Encountered

- ▶ Availability and timely access to required data.
 - Access to Student Record System
 - Coherence Between Data From Available Sources
 - Data Protection Act
 - Ethical Approval
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Any Questions?



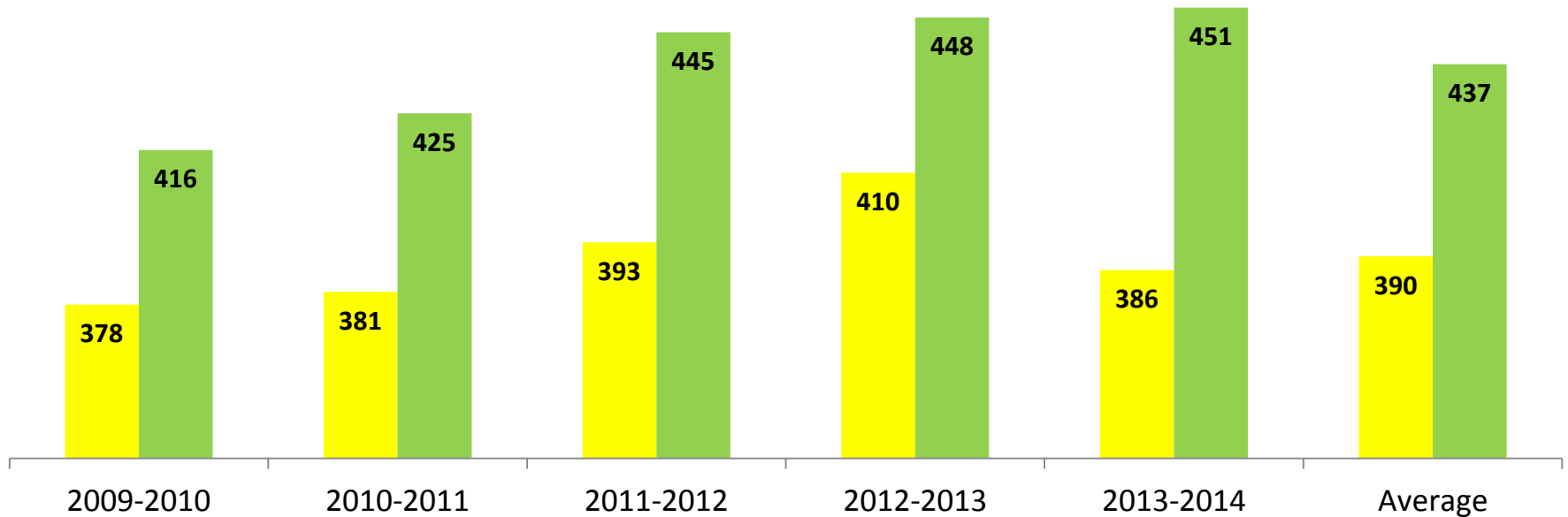
Characteristics of Effective Retention Approach



Courtesy of Thomas, Liz. "Building student engagement and belonging in Higher Education at a time of change." *Paul Hamlyn Foundation* 100 (2012).

Students' CAO Data Analysis

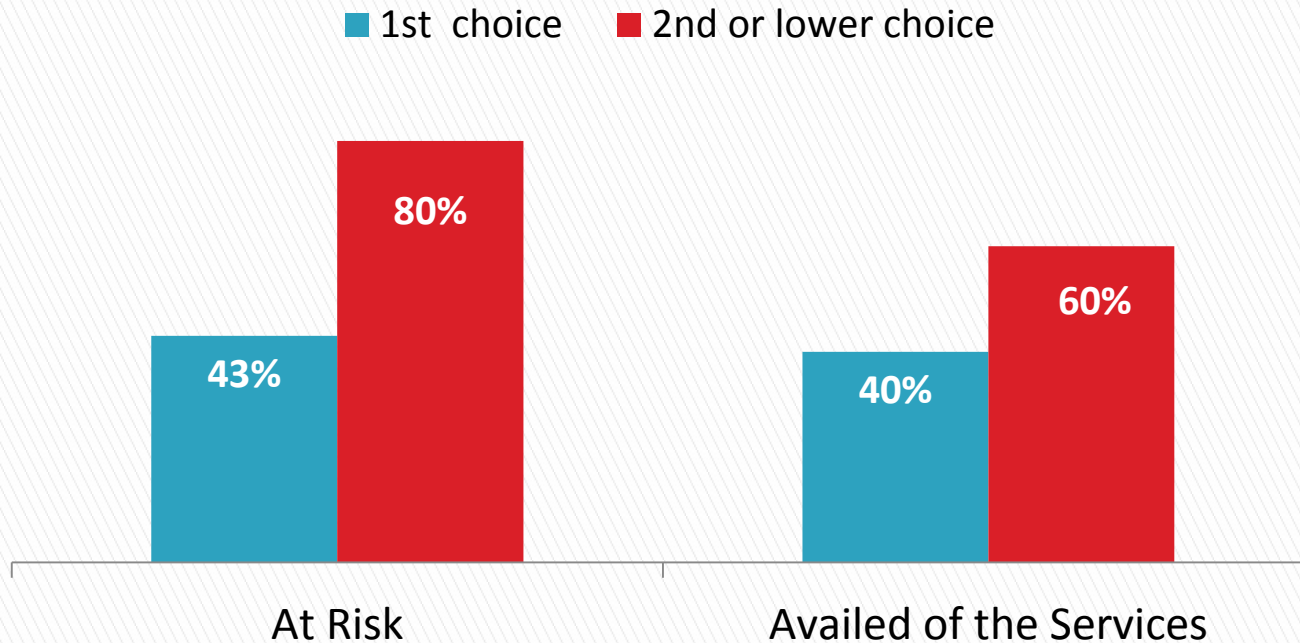
- Average CAO Points of Students who did not Progress to 2nd Year
- Average CAO Points of Students who Progressed to 2nd Year



Of the bottom 25% of students (ranked by CAO points), between 72% and 86% were identified as **At Risk** and that between 49% and 70% of this cohort did not progress to the 2nd year of their programme.



Programme Choice and At Risk Status & Engagement

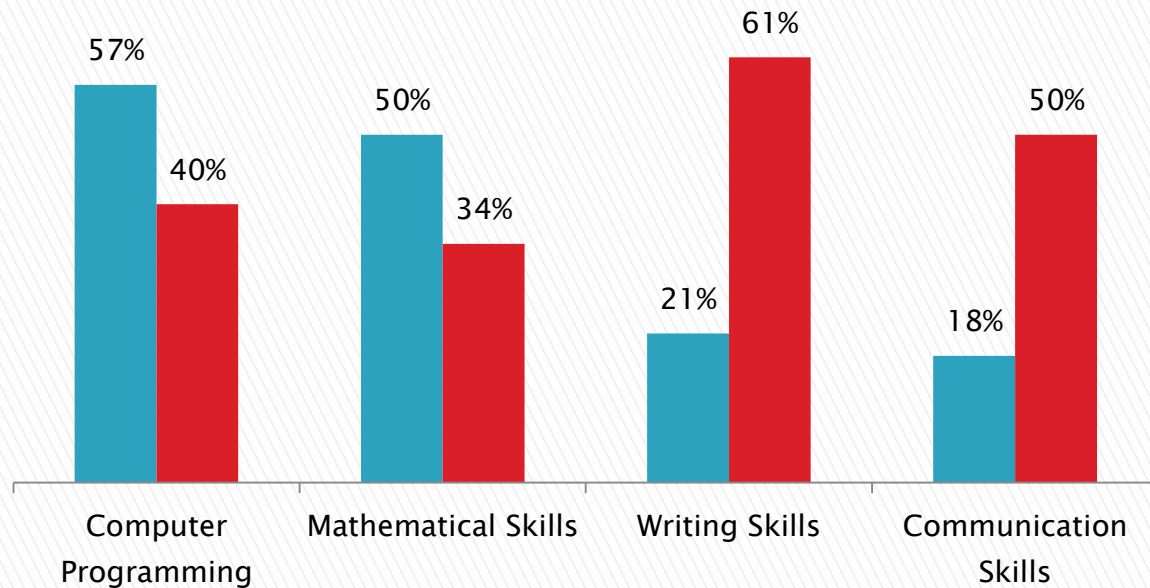


- Also, students who chose their programme of study for reasons such as “earning good money” and “The best I could get with my entry score” are more likely to be **At Risk**.
- Students whose programme of study fully matched their prior expectations were least likely to be **At Risk** and more likely to avail of our support services.



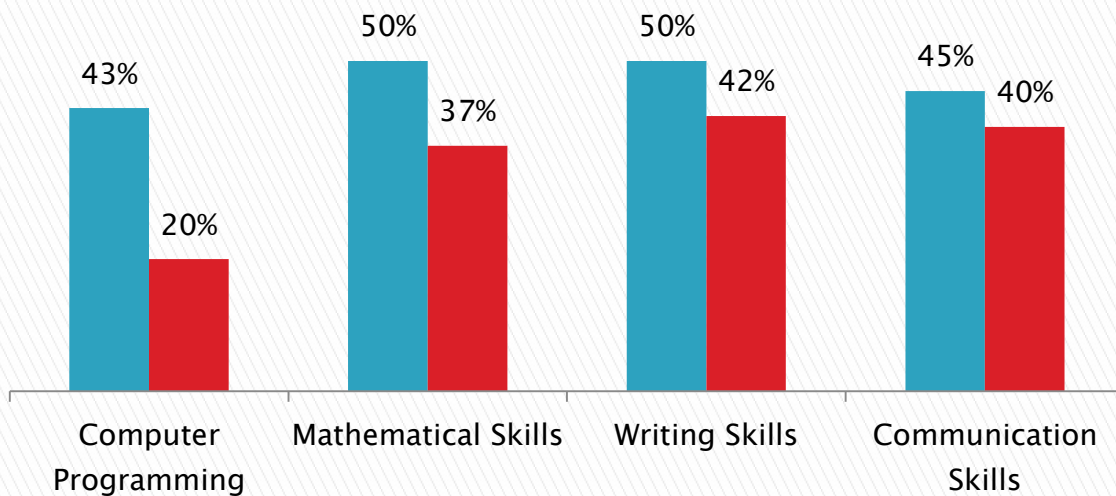
■ Weak and At Risk ■ Strong and At Risk

Prior Skills & At Risk Status



■ Weak and Aailed of the Services ■ Strong and Aailed of the Services

Prior Skills & Engagement



Students Reasons For Considering Leaving Their Programme Of Study Or Staying On

- ▶ 33% of respondents have considered, at this stage, leaving their current programme of study with 65% of these falling into the **At Risk** category. For the 67% who had not considered leaving only 38% fell into the **At Risk** category.
- ▶ 23% of those students who considered leaving their programme availed of our SALS services, whereas 27% of those who did not consider leaving availed of the services.

Students' reasons for considering leaving their programme of study

Subject difficulty of the course (I am falling behind in some subjects)	4.08
Course was not as I expected	2.81
Unsure of my career objectives	2.68
Difficulty in managing my time (e.g. part-time job, family commitments etc.)	2.46



Students' Difficulties with Modules

- ▶ 74% of respondents indicated that they have had difficulties with one or more modules on their current programme.
- ▶ 44% of these, had difficulty with an ICT core module, 33% with a maths module, and the remaining 23% with other modules (e.g., accounting, chemistry, engineering mechanics).
- ▶ Module difficulty seems to have made 30% of students to consider leaving their programme out of which 65% fall into the **At Risk** category.
- ▶ 41% of those who had considered leaving due to module difficulty had availed of SALS services, compared to 59% of those who had not considered leaving.



Student Perceived Utility of SALS Services in Achieving Their Goals

- ▶ 60.5% of respondents felt that the services have helped them achieve higher grades and/or pass their exams.
- ▶ About 31% indicated that the services they availed of have helped them integrate into their academic programme and/or make new friends from the same course.

Answer Options	1 - Strongly Disagree	2	3	4	5 - Strongly Agree
I achieved higher grades than I would have without the support.	3%	5%	21%	28%	33%
I passed my exams.	4%	8%	20%	31%	29%
The support has helped me to understand the more difficult content of my modules.	5%	8%	24%	28%	29%
I enjoyed meeting and working with people from the same course and have made new friends.	12%	15%	33%	19%	9%
The support helped my integration into my course.	13%	15%	25%	21%	12%

- ▶ For students who availed of the SALS services, the percentage who found the service helpful or very helpful were 60% for the Drop-In Services, 68% for the PSLG Sessions and 55% for the Targeted Sessions.

