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Maximising Student retention in the TU4Dublin: Lessons to be learned from the Early
College High School Initiative in the U.S.

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Abstract

Student retention is a key metric for the TUD (Technological University of Dublin), the first new University in 21st century Ireland. Failure to improve preparedness for some students at TUD will limit improved retention as supported by NELS88 and recent ESRI studies. An AIR (American Institute for Research) Impact Study review of the US based Early College High School Initiative (ECHSI) provides convincing evidence that credit based activities shared between colleges, universities, high schools, local government and local communities is working well and improves both access and retention, especially in disadvantaged areas. A TUD Irish version of ECHSI is proposed that uses developed resource such as the excellent Irish T4 project and can complement existing initiatives. Such access and retentions systems can be a key differentiator for a twenty first century new university that endeavours to provides universal access to all, create a real widely spread knowledge economy and demolishes the poverty traps that surround the three constituent campuses of TUD, the elephants in the room.

Keywords : Student Access, Retention, social disadvantage, ECHSI, TUD, non-presence rate, TUD. Poverty trap.

Introduction and Literature Review.

This paper presents an outline plan to improve the preparedness of some students coming from secondary school to the TUD. The plan is based on proven solutions elsewhere, modified for the special environments of the constituent campuses of the TUD.

First IoT (Institute of Technology) retention figures in Ireland are discussed, and then the intuitive feeling that students with better points do better is verified by a large dataset (NELS88) of published research and recent ESRI (Economic and Social Research Institute) studies.

Results of the US Early College High School Initiative (ECHSI) program, which started in 2002, are then presented. These show that credit based student work at second level, managed by both second and third level colleges and others, can create an arena of success in areas of disadvantage. One key idea here is 'credit based'; students get 'points' for participating. The educational core principles of ECHSI are also noteworthy.

Finally a short outline discussion of an Irish version of the ECHSI suitable for DTU is proposed. This will draw on experience of the excellent Leaving Cert Technology Program, the T4 program, which started in 2009 and is greatly underappreciated. The initiative will work with initiatives such as PLC, LCA and local knowledge based TUD access department initiatives. The Literature Review references are given in different sections of the paper

Access, Retention , NELS (National Education Longitudinal Study) and DTU.

The third level education participation rates in Dublin 7 (28%), near DIT, Dublin 11 (28%) near ITB , and Dublin 12 (29%) near ITT, postal codes, Figure 2, are sobering. The source is the TU4DUBLIN (TU4DUBLIN, 2012), the DTU submission document to the HEA (Higher Education Authority) . The DTU submission document seeks a long term target completion rate of 90% for level 6 and level 7 programs (page 16), ambitious and , in my opinion, unachievable unless radical changes are made to the preparedness of some students.

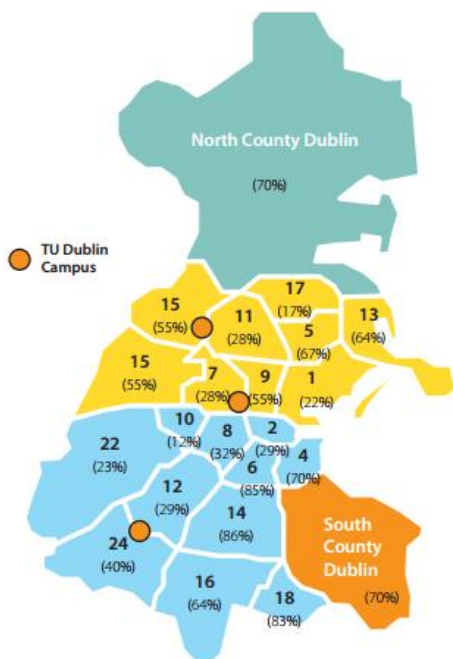


Figure 1 Third Level Participation Rates in Dublin Postal Code Areas.

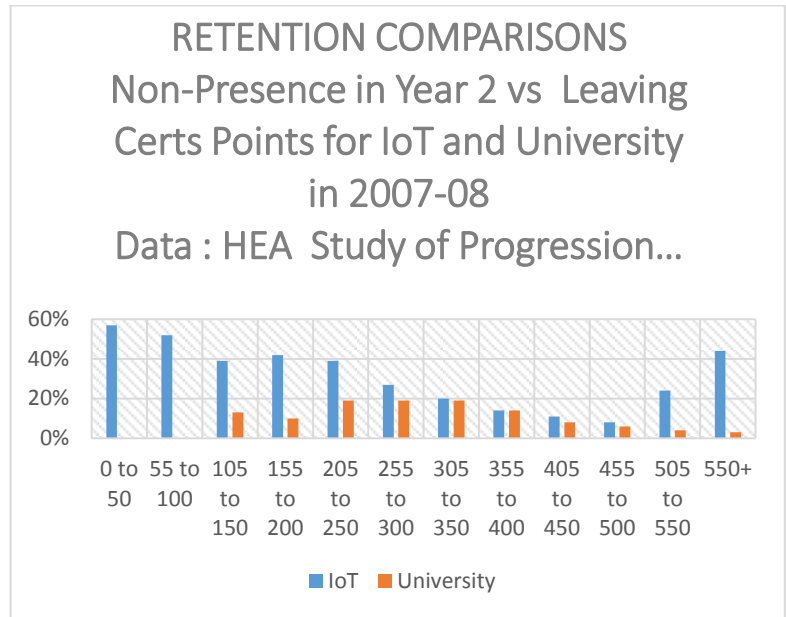


Figure 2 Retention Rates vs Points in 2007-2008.

In Ireland ‘points’ means leaving certificate points, the metric for third level access. In North America “Academic Credit” is broadly equivalent to points. In the NELS88 US longitudinal study a metric called ACCRES , academic resources, basically exam results and transcripts, was shown to be the key determinant for success, just like the Irish ‘points’ system. Using ‘ACCRES as a predictor has been quantifiably verified over large datasets extensively studied by Cabrera and Burkum and Adelman (Adelman, 2006) have detailed how students preparedness is the dominant factor in success. The graphic in Figure 2 confirms the key findings, that agree with the intuitive one that the better the academic record the more success.

IoTs (Institutes of Technology) attract students with lower average points than universities. Non-presence is a measure of retention in colleges, a student is non-present if he or she registers for year 1 and fails to register for year 2. Non-presence rates (smaller is better) are shown for IoT and Universities versus LC (Leaving Certificate) points in Figure 2.

The graph shows than non-progression is higher at lower points. Lower points apply to Level 6 (Higher Certificate) and Level 7 (Ordinary Degree) courses; the traditional university degree is a Level 8 course. The new DTU is committed to maintaining a strong Level 6/7 presence, see Appendix 2 of the 2012 submission document (TU4DUBLIN, 2012) . Basically traditional universities elude the challenge of low points by not accepting too many students below a certain threshold. It is clear from Figure 2 that more students less than 250 points struggle more than those above that number, **however it is the mission of the DTU to work with this cohort of students, 39% of the projected student body, who have huge potential.**

A new DTU will not mean that all students suddenly have 400 points or greater, the DTU will retain the same spread of points across Level 6 to Level 7 courses. The spread of points in 2014 DTU constituent college applicants is shown below in Table 1 for Level 6 and Level 7 courses only. Entry points do not predict teaching quality on a course, and not all students on lower points fail, but Figure 2 shows that larger numbers of students fail than on higher points. From inference students with an average of 284 points will have a non-present rate of 22%, the DTU steady state target non-present rate is 10%. Meeting this target for L6 and L7 calls for a two to one improvement. This will require better preparation through PLC course and other methods, but PLC courses alone do not have all the answers.

	Points	Percentage of LC students who got these points
Min	215	76.90
Average	284	64.8
Max	465	18.6

Table 1 Leaving Certificate (LC) Points of three constituent campuses of TUD for Level 7 and Level 8 programs 2014.

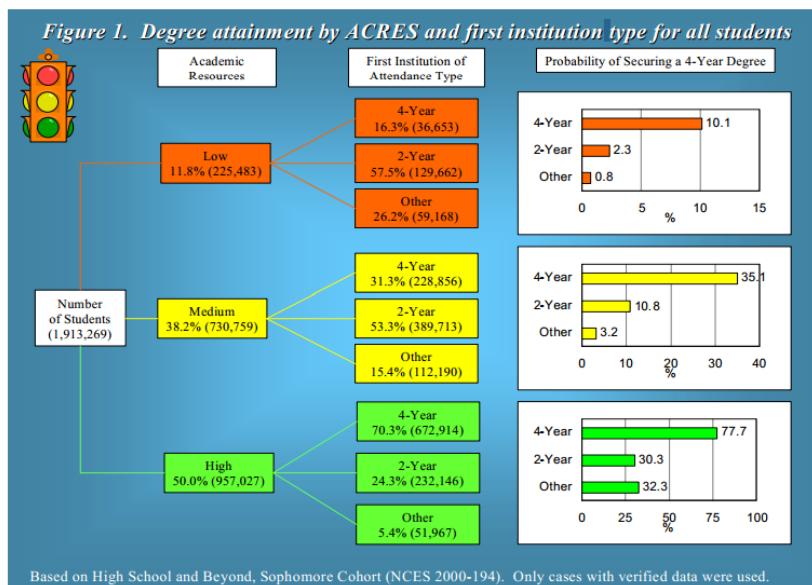


Figure 3 Academic Progression rates by students of different Academic Resource (ACRES), low (red), medium (yellow) and high (green). (Cabrera & Burkum, 2005).

Clifford Adelman, (Adelman, 2006) ,a senior researcher at the U.S. Department of Education reflects on the National Educational Longitudinal Study 1988 which tracked the progress of over 12,000 students from 1988 when they were aged around 14 (in 8th Grade) to 2000 when they were aged around 26. Combine the numbers 88 and 2000 with the acronym NELS and you get the name of the study NELS:88-2000. One of his conclusions is

“The core question is not about basic “access” to higher education. It is not about persistence to the second term or the second year following postsecondary entry. It is about completion of academic credentials—the culmination of opportunity, guidance, choice, effort, and commitment.”

The study details the numbers who did not enter third level education and those who did. Of those who did some completed courses and some did not. What is useful about the study ,beside its scale, is that one of its predictive parameters called ACRES, academic resources, **acts as a predictor of success**. The general finding was 66% completed a course, but there were wide differentials by socioeconomic status and by race/ethnicity.

In Ireland a longitudinal study of around 900 students has also been carried out , (ESRI, 2014). This focused more on student attitudes, and is different in many areas, however the areas of overlap show that many (a significant minority) are not prepared for third level

A key factor emerging from the in-depth interviews was the need to engage in self-directed learning in further/higher education, especially the challenges in managing deadlines, which was contrasted with the more directive approach adopted in school. Page xiii, (ESRI, 2014)

The following graphic Figure 4 is from page 37of the ESRI longitudinal report.

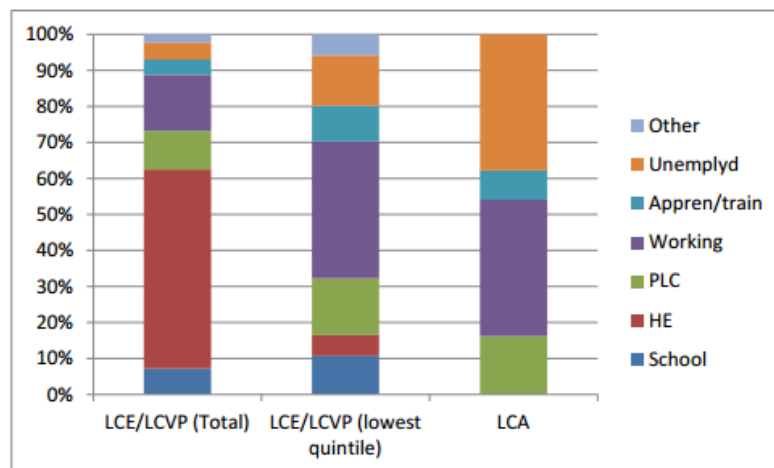


Figure 4 Status in October after leaving schools. Leaving School in Ireland Study. ESRI 2014

It shows the lowest quintile of LC Vocational Programs and the LCA (Leaving Cert Applied) program do not deliver significant numbers of college entrants.

It can be argued that that is not their sole function, but a disproportionate number of leaving certificate students in Dublin 7,11 and 12 (and large sections of D24 and elsewhere) take on LCA courses, adding to the difficulty of TUD achieving a 90% first year success retention (a 10% non-presence rate)

If the DTU retains a strong (but not exclusive) focus on Level 6 and Level 7 then something creative has to happen to improve retention, and it has to start **before** the students come to college. This means that academic credits must be offered by DTU to prospective applicants. The excellent work done by the TUD college access officers has made a real measurable difference, but the difference will remain relatively small compared to difference that a significant “academic credit” initiative (described in the next section) could make.

More details on the NELS88 study, including a simple model of college effectiveness based on Amdahl’s law, is described by Stockil (Stockil, A Model for Improving Student Completion Rates, 2014). The college effectiveness calculator is a very simple analytical model for identifying progression bottlenecks (Stockil, College Effectiveness Calculator (Desmos), 2014).

The Early College High School Initiative (ECHSI).

The ECHSI, Early College High School Initiative, was launched by the Bill and Melinda Gates Foundation in 2002. Early Colleges offer underrepresented groups the opportunity to earn BOTH a high school diploma and at the same time earn college credits, points in an Irish context, to get into a college.

A detailed study of the efficacy of this model published by AIR ((AIR) American Research Institute, 2013) , hereafter called the AIR report, shows that this method works. The key finding from pages 5..6 of the report are summarised in the table . It compares the outcomes of students who attended ECHSI schools on a lottery system, with those who participated in lotteries to attend EHCI schools but failed in the lottery and attended other schools called non-ECHSI schools. Since both groups wanted ECHSI access, it is a very precise comparison, and the sampling methodology avoids bias.

	Metric	Result
1	High School Graduation	86% for ECHSI vs 81% for non-ECHSI
2	College Enrolment	80% for ECHSI vs 71% for non-ECHSI
3	College Degree Attainment	22% earned a college associate degree (somewhat like Level 6 or Level 7 in Ireland
4	Impact from Subgroups	No significant difference, but any differences generally favoured subgroups .

Table 2 ECHSI vs non-ECHSI general results (2013)

The results are good on all metrics, a 5% improvement in metric 1 is significant. Metric 3 is very significant, it means that some students could attain enough credit to bypass the initial year of college on Level 6/7 courses. Academic credit can be obtained at high school (secondary school) in addition to graduation (leaving certificate), and it can work very well.

The five Core Principles of ECHSI are taken from page 7 of the AIR report

1. "Early college schools are committed to serving students underrepresented in higher education."
2. "Early college schools are created and sustained by a local education agency, a higher education institution, and the community, all of whom are jointly accountable for student success."
3. "Early college schools and their higher education partners and community jointly develop an integrated academic program so all students earn one to two years of transferable college credit leading to college completion."
4. "Early college schools engage all students in a comprehensive support system that develops academic and social skills as well as the behaviors and conditions necessary for college completion."
5. "Early college schools and their higher education and community partners work with intermediaries to create conditions and advocate for supportive policies that advance the early college movement"

ECHSI has had particular success with Core Principle 4. In addition to the core principles, a 3R acronym meaning rigour, relevance and relationship are used as a teaching philosophy.

Some of the working arrangements of some ECHSI institutes, AIR report page 18, are as follows

- Five Early Colleges offered advisories during the school day.
- Seven Early Colleges offered classes in the summer, evenings, or weekends/school breaks.
- Two Early Colleges had extended school days.
- Seven Early Colleges had block scheduling.

In a letter to the Presidents of the three TUD colleges (HEA, 2014) on 10th December 2014 the HEA asked the colleges, the consortium, four questions, two of them are:

The consortium should carry out further reflection on the particularly distinctive role and mission of the proposed new TU and how systems of governance and management can best deliver on this mission.

and

The consortium should have regard to the importance of stress testing and sensitivity analysis on student number projections.

It is suggested that the Access College modelled on the successful ECHSI, should be the distinctive ingredient of the modern university, designed in for day one. The Leaving Certificate Points system has its benefits but eliminating the poverty traps around the constituent colleges of the TUD is not one of them. Re stress testing and sensitivity analysis of student number projections, the 90% retention is impractical unless innovative action is taken to improve preparedness BEFORE the students arrive, this could be the distinctive feature of the TUD, the traditional universities have not address this reality, and ignore it by artificially inflating points, sometimes in an apparently misleading manner (Humphreys, 2014).

ECHSI for TUD – an outline proposal- the campus Access Schools.

Here is an outline proposal. Identify the feeder schools who are consistently underrepresented. Establish an Access School on each campus. Use a lottery if needed for student selection. The aim of the Access Schools is to work with local secondary schools, especially those from disadvantaged areas, but not limited to any single constituency, all schools are welcome ,social mix should be promoted, in order to offer extra credit activities that are accepted by the TUD as equivalent to LC points .

Staff the Access School with secondary schools teachers, college teachers, able administrators, and anyone with something to contribute who believe that such an initiative is really important and are fed up with Irish poverty traps.

One mode is that the Access School works with the selected schools as follows, four days are spend in the local school and one day in the Access School So the Access School can work with different students on different days. Many other models are possible. It can also provide some element of a social mix, identified by the ESRI (ESRI Research Bulletin, 2014) as a predictor of success

The Access College is based on the principle similar to the ECHSI, where necessary adjusted for an Irish context. In particular integrate the Access College with the PLC, LCA, LCVP and all activities being run by college access departments working with local knowledge.

The T4 project (Technology Subjects Support Service, 2009-2015) , Technology Project Support Services, which developed an excellent Technology Program for secondary schools, should be adopted. This excellent program teaches subjects of great relevance to a technological university. Too few schools are using this program.

Identify alternative assessment streams for reading, writing and spoken language that operate in conjunction with the standard LC models. One suggestion is a modified GRE language skills program (GRE (Graduate Record Examination), 2015) scaled for secondary schools. The key benefit here is the proven use of computer based testing, the cost of assessment can be low.

Before detailing many ways of designing a world class Access School, there must be a fundamental acceptance by most in TUD that this is really a significant part of the core mission of the new university. The key difference is that TUD gives academic credit, points; it significantly modifies the LC points systems to serve our communities, as well as using existing PLC course solutions and initiatives of the access offices that work with local knowledge.

If the management decide that Access Schools are key role for the TUD, then to avoid unnecessary delay the management and unions should ensure a symbiotically respective dialogue in order to rapidly set up such a system for TUD and no significant groups should be sidelined. It will be necessary to create something new with secondary schools, PLC colleges, and TUD access offices in a real partnership with local communities and local authorities. The local autonomy of the three campuses will be critical.

Summary

The success of a new university will be marked by how well we use educational methods and the skills based of the three colleges and their local communities to tackle the poverty traps , the elephants in the room, that surround the DTU constituent campuses. Simple reorganising, while marginally advantageous, will not solve anything, and the same poor areas today will still be poor in twenty years' time; we need a new approach, and an EHSCI inspired method that works with existing partially working solutions offered by LCA, LCVP and existing access offices, and the proposed new Access School is one way of doing that.

A problem has been identified (low completion and access rates especially in poverty trap areas), a solution that works (EHSCI) elsewhere has been described and an outline of an Access School modelled on similar principles that could succeed in meeting the 90% retention target has been sketched.

Is fearr bheith déanach ná ró-dhéanach.

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