

Transforming the Higher Education Experience of Students with Disabilities Through Innovative System Design and Accessible Data Visualisation

Dr Bairbre FLEMING^{a1} and Julie TONGE^a

^a*University College Dublin*

Abstract. This paper will outline the systematic approach taken in University College Dublin to ensure that students with a disability are adequately supported and have full and equal access to their chosen college course. UCD were early adopters of the mainstreaming model recognising that specialist services could not adequately support the increasing numbers of students declaring a disability and that a whole college approach was required. This paper describes the opportunistic changes to a student support structure that have consolidated mainstreaming and enhanced supports for students with disabilities in a large Irish university. Giving responsibility to specific roles throughout the college and sharing information in a systematic way ensures that consideration is given to all students with disabilities and not just those who have a visible disability or have the confidence to make themselves known to faculty and other staff. Knowledge of the diversity in the classroom has encouraged faculty to consider Universal Design in the construction and delivery of their courses and pockets of good practice have led to widespread recognition that this approach is not only beneficial to students with disabilities, but the entire student population which is becoming increasingly diverse. The systems we will describe include an integrated student record and Needs Assessment, the use of class lists to share information to target groups and a sophisticated exam reporting system, all of which have led to a streamlined service with minimal administrative requirements. We will also describe the business intelligence tools used to provide a visual representation of Widening Participation data for individual programme areas which ensures that College Principals are cognisant of their progress relative to national targets and where resources should be focused.

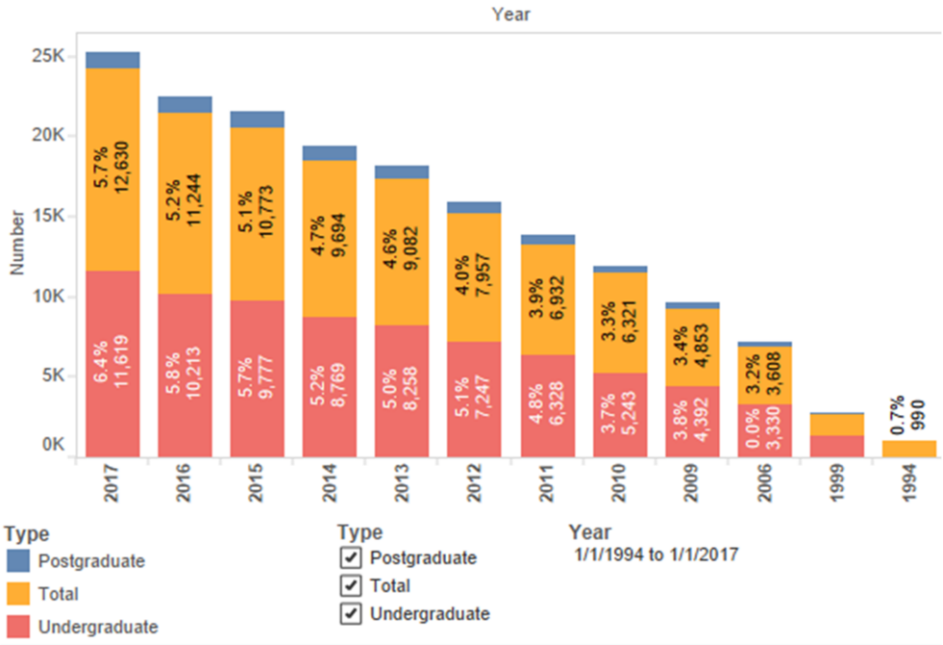
Keywords. access, higher education, widening participation, mainstreaming, inclusion, disability, support, data depiction

1. Introduction

The number of students with disabilities accessing Irish higher education has grown significantly in the last number of decades, with over 10.3% of the new entrants to Irish Higher Education reporting a disability [1]. The expansion has been particularly marked in the last decade [2] as illustrated in Table 1.

¹ Bairbre Fleming, Julie Tonge, University College Dublin, Ireland, julie.tonge@ucd.ie

Table 1. Proportions of students with disabilities participating in Irish Higher Education: Year on Year Changes (AHEAD, 2018)



These increases have been evident in this university also. Numbers of students with disabilities in UCD have risen from 100 students in 1994 (0.66% of the population), to 1564 students in 2017 [3], which represents 10% of the current undergraduate population. This increase in participation has necessitated changes in policy and practice. An illustration of this change is captured from our archives in a letter from a senior college officer to the Minister of Education at the time:

Our strategy in the college has been simply to consider and attend to the particular needs of each disabled student as it arises. The alternative would be to redesign and equip the entire College so that it would be ‘user friendly; to all disabled students and this, absolutely, is not realistic [4].

2. Catalysts for change

Happily, in the intervening thirty years what appeared unrealistic, has now become reality. National policy on access has explicitly stated that ... “Equity of access policies should be mainstreamed into the everyday life of higher education institutions to enhance the quality of the learning experience and progression outcomes for all students [5, p.16]. Our university has shifted its focus to widen access and ensure participation by diverse student cohorts, including those with disabilities. However, inclusion is not without its challenges for any group, including those with disabilities. Students with disabilities may face different barriers to higher education [6]. These can include difficulties relating

to learning activities, for example engaging in field work involved in certain courses, difficulties relating to assessment activities, for example difficulties reading examination papers or writing answers, or difficulties engaging in the social aspects of higher education for students with autistic spectrum disorders [7]. Consequently, the design and implementation of a disability support service needs to be well resourced and implemented. The paradox for this university is that as the numbers of students needing support was increasing, the numbers of staff available to support was not. The Employment Control Framework during the economic recession made it difficult to recruit or replace staff. The remaining staff complement was relying on paper records, and significant referral and co-ordination methods. Historically supports provided to students with disabilities were delivered by disability support staff and primarily on a one-to-one basis. Significant numbers of students were reliant on human supports and administrative liaison. These supports included note takers, who took notes at lectures. This support was not necessarily conducive to students developing independent learning skills. Critically, the provision of these supports required significant administrative coordination. This dilemma provided a catalyst for change in how disability support was structured.

Staff considered how they could offer supports to the hundreds of students disclosing a disability without increasing administrative support or liaison. What was developed has become a unique and efficient system that has provided a mechanism for mainstreaming support for students with a disability so that it is no longer the sole remit of a specialist support unit. Students with disabilities should avail of the same supports and services as every other student and the whole college is responsible for ensuring that they have full and equal access to all facets of college life.

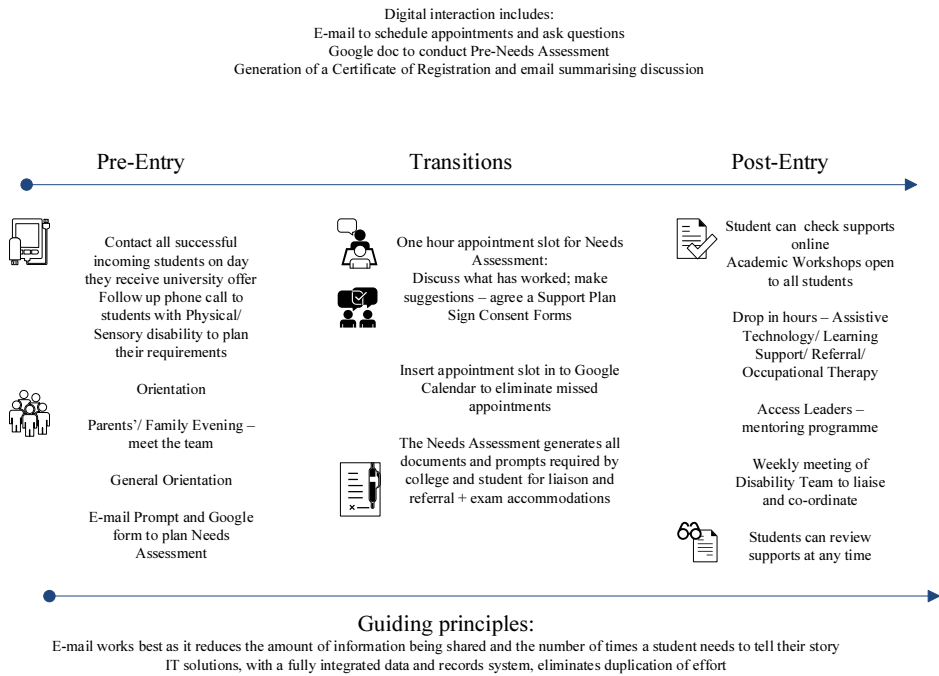
3. A new approach

The UCD model is a move from a reactive model of disability support which had been 'to consider and attend to the particular needs of each disabled student as it arises' to a systems-driven proactive model. Practical responses to a reduced staff complement which has enhanced student support by designing a model which leverages mainstreaming. This is achieved in several ways.

Systematic solutions are more efficient but can never replace the benefits of student interaction – which is why we prioritise and resource the one hour needs assessment for any student who requires it.

Reasonable accommodations had previously been managed in a bespoke or specific way. The new system has designed system solutions to minimise duplication of effort and to maximise student engagement. While it may seem counter-intuitive, the use of computer systems to liaise with students has increased the quality of the student engagement and offered more effective use of staff time. Staff time is now more focused on one-to-one time with students which are uninterrupted, and therefore more effective. Students are fully engaged with the process and can make choices on the extent to which they wish to use the support service.

One of the unintended consequences of this process is that the support service, which was originally for students, has now gained greater visibility. The new system of liaison and referral to the university module co-ordinators has prompted more interaction with staff. They are now more aware of the students with a disability in their classrooms and are more likely to contact the service for support and training.



4. Data depiction

This engagement with the broader constituency of the university has also advanced the other aspect of our presentation – how we communicate data to our colleagues. Data has been seen as a critical metric in determining how the university is performing in widening participation and in engaging with target groups. The university has been setting targets and gathering data on student participation and progression for several years. A Widening Participation Committee was established and one of its earliest tasks was around data collection. Those involved putting time and expertise into agreeing definitions for each of the target groups.

However, in a review of Access and Lifelong Learning, the review panel identified that ‘the University was not hitting its targets for access and there was a lack of clarity on whether the 15% target was for the University as a whole, for each College, School or for individual degree programmes [8]. Subsequently the WP Committee aimed to set clear and specific WP targets ... for Colleges and Schools, which stretch current performance’ [9].

Subsequently we shared the data across the university but recognised that the data without a context had limited merit. We then offered a basic 'UCD as a village of 100 people' to illustrate the metrics and currency of all the data we were gathering and put it in to programme-specific contexts. In the last year we have been exploring other ways of visualising and displaying our data. This has coincided with the launch of UCD’s *University for ALL*. The WP Committee has established our data strategy and has recognised the merit in making Programme level data available to all colleges in the

university so that they have an overview of the equity groups at an institutional level and programme level, with data gathered on admissions, progression and completion.

‘We visualise data to harness the incredible power of our visual system to spot relationships and trends’ [10].

Our current challenge is how to depict and communicate these various layers of data to colleagues to inform their practice and policies at local level. We explored the capacity of Business Intelligence tools to help describe our concepts and illustrate student groups and their participation rates in a visual manner. We started used Microstrategy to visualise our data relative to our targets. The process is in its early stages, and the data needs to be further collapsed and collated. However the programme data gives an indication of the trends in individual programmes relative to the broader population. The 'takeaways' are therefore just drafts to give committee members an indication of our progress to date and to demonstrate what we are aiming to do with the data.

It is hoped that by providing data at a programme level to senior faculty that those who are close to achieving the University's Widening Participation aspirations will be recognised and those who still have work to do will have a renewed impetus to improve. Access units cannot achieve Widening Participation in isolation but must work with the wider college to not only ensure access but also progression and completion for all students regardless of their status, background or disability. The moral argument for diversifying our college campuses is a strong one but it will never be achieved without providing relevant data to those with the authority to direct change.

This paper has described two different system solutions that evolved through opportunism and innovation. It is our expectation and vision that the innovative system designs and accessible data visualisations described here will help transform the Higher Education experience of students with disabilities.

References

- [1] Higher Education Authority, *Higher education: key facts and figures : HEA funded institutions 2016/17*. 2017, Higher Education Authority: Dublin.
- [2] AHEAD. *Data Centre: Year on Year Changes*. 2018 [cited 2018 24.05.18]; Available from: <https://www.ahead.ie/datacentre17-yearonyear>.
- [3] Access and Lifelong Learning, U., *UCD Widening Participation Committee Annual Report 2016/17*. 2017, UCD: Dublin.
- [4] Fleming, B. and M. Tracey, *From the Bench to Centre Field*. 2018, Access and Lifelong Learning Centre: Dublin.
- [5] Higher Education Authority, *National Plan for Equity of Access to Higher Education 2015-19*. 2015, Higher Education Authority: Dublin.
- [6] Taylor, M., et al., *Transforming support for students with disabilities in UK Higher Education*. Support for Learning, 2016. **31**(4): p. 367-384.
- [7] Taylor, M., M. Baskett, and C. Wren, *Managing the transition to university for disabled students*. Education & Training, 2010. **52**(2): p. 165-175.
- [8] UCD Quality Review, *Periodic Quality Review UCD Access and Lifelong Learning*. 2012
- [9] Access and Lifelong Learning, U., *Widening Participation Committee KPI Recommendations, Definitions and Data Collection Report*. 2013.
- [10] Wexler, S., J. Shaffer, and A. Cotgreave, *The big book of dashboards: visualizing your data using real-world business scenarios*. 2017, Hoboken, New Jersey: Wiley.