Faculty Partnership Programme
Case Studies

Case Study Information Table	
Case Study Title (Your case study should have a clear and interesting title. Your title should summarise the essence of your case study and highlight your method of inclusive teaching)	Leading Change: promoting, supporting and accelerating the adoption of inclusive teaching principles in the School of Civil Engineering
Your Name (including preferred title)	Dr Jennifer Keenahan
Abstract (max 100 words)	This project was a school-level initiative to promote, enhance, support and accelerate the adoption of inclusive teaching principles in the School of Civil Engineering (2021-2022). It focused on enrollments to the National Forum Digital Badge in UDL and uptake in the use of 'Ally' software for accessible learning content. A variety of activities sought to raise the profile of inclusive teaching and to entice faculty to engage in the change process. Results show a much greater engagement with inclusive teaching practices and indicate that the project has had a transformative impact.
School/ College	School of Civil Engineering
Discipline	Engineering
Level and Credits	NA
Student numbers	School: 800+ College: 2500+
Type of Case Study	Implementation and Leadership of UDL across a stage, programme, discipline, School or College.

Introduction and Context

Educational policy is driving widening participation, with greater proportions of students having a disability or specific educational need, coming from socio-economic groups classed as 'unskilled', joining as mature students, or coming from ethnic groups other than 'Irish'. As a result, it is imperative that teaching and learning practices develop in line with this modern-day student population. Universal Design for Learning (UDL) offers a teaching and learning framework for embracing diversity in classrooms. My project was a school-level initiative to promote, enhance, support and accelerate the adoption of UDL and inclusive teaching principles in the School of Civil Engineering (2021-2022). To support this, I had two goals in mind (Figure 1):

1. Encourage high uptake in the number of staff in the school enrolling on and being awarded the National Forum Digital Badge in UDL
2. Promote a high uptake in the use of 'Ally' software [1] in the school and support staff in improving their Ally scores

These goals are closely aligned with the goals of inclusive teaching practices, the goals of the University for All initiative at UCD, and the educational policy of driving widening participation. Students will directly benefit from having more accessible learning content available to them, and from their educators having received formal training in UDL. Teaching faculty could benefit through the necessity of fewer special accommodations for students with additional needs. Furthermore, these goals are Specific, Measurable, Achievable, Realistic and Time-bound (SMART).

This initiative will affect an average of 730 undergraduate students and 90 graduate students per year who are registered to Civil Engineering programmes. It also has the potential to affect over 1650 undergraduate students and 770 graduate students across the College of Engineering and Architecture where our modules are available as options or electives on other programmes.

The change process of this project is depicted in Figure 1. Before the start of this project, a total of two (13%) teaching faculty in the School of Civil Engineering and a total of 12 (6%) teaching faculty in the College of Engineering and Architecture had completed the Digital Badge in UDL. Our average 'Ally Score' for the school was 55.7%. Ally is a software that integrates into the virtual learning environment (VLE) and focuses on making digital course content more accessible. It automatically provides a range of alternative accessibility formats for files uploaded to the VLE. This gives students the flexibility to use a format that suits their needs.

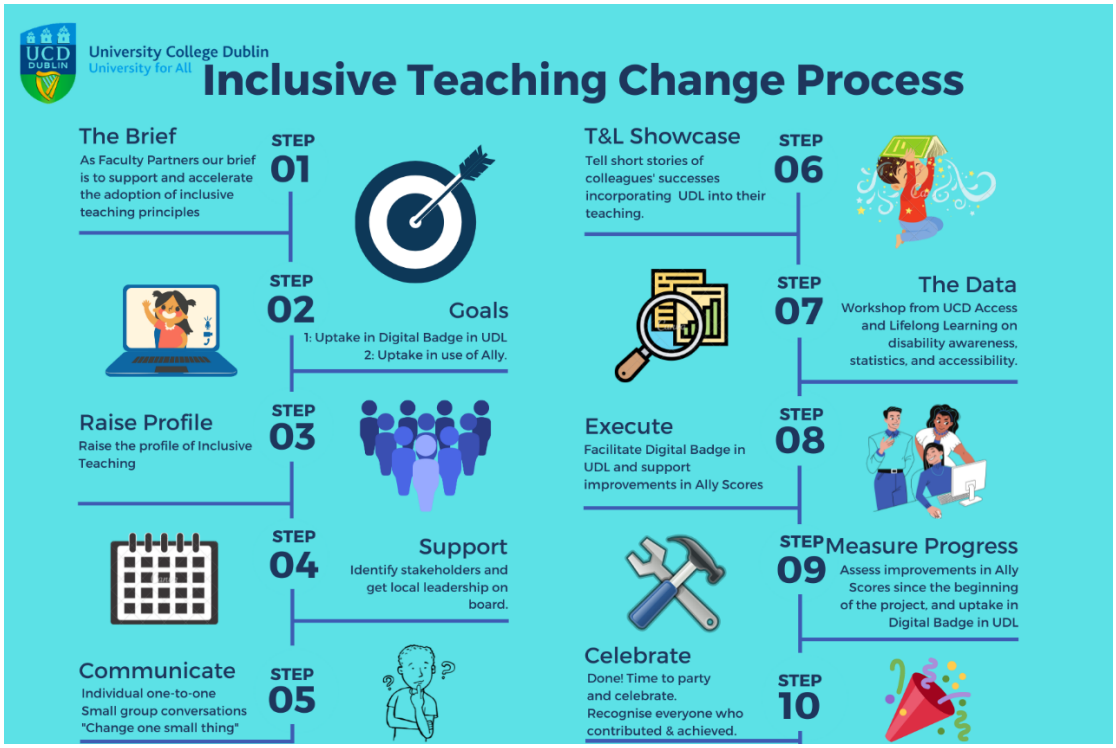

Figure 1: Inclusive Teaching Change Process

Raising the profile of Inclusive Teaching

At the beginning of the project, I thought it best to start by raising the profile of inclusive teaching in the school and college. In collaboration with the other Faculty Partners in the college, we organised a lunchtime outdoor 'welcome back to campus after the pandemic' event in September 2021 (Figure 2). Our idea was to bring people together having been apart for so long, to introduce ourselves as Faculty Partners (Figure 3) to briefly talk about the Digital Badge in UDL. In preparation, we implemented a booking system, collected RSVPs, ordered catering and produced a 1-page flyer to share with colleagues at the event (Figure 4).

Figure 2: 'Welcome Back to Campus after the pandemic' event

Figure 3: College of Engineering and Architecture Faculty Partners at 'Welcome Back' event in UCD in September 2021 (Right: Dr Jennifer Keenahan, middle: Dr Vikram Pakrashi, left: Dr John Healy).

Figure 4: One-page flyer on Faculty Partners, Inclusive Teaching and Digital Badge in UDL distributed to colleagues at 'welcome back' event.

To further raise the profile of inclusive teaching practices, I leveraged my role as Head of Teaching and Learning for the School of Civil Engineering to:

- Add 'inclusive teaching' as a standing item to the College of Engineering and Architecture Teaching and Learning Committee meetings, of which I am a member. I used this as an opportunity to highlight the progress made in the School of Civil Engineering on inclusive teaching practices, to promote the College Inclusive Teaching Pilot Project, the showcase and the publication, and other inclusive teaching activities from across the university.
- To promote the rollout of the Digital Badge in UDL, and to promote uptake in the use of Ally at School Meetings under the agenda item 'Teaching and Learning'. Throughout the year, I shared an update on the school average Ally score with colleagues to raise the profile of Ally and encourage staff to further improve their scores.

I also raised the profile of inclusive teaching at a school level by:

- Inviting colleagues from UCD Access and Lifelong Learning (Julie Tonge and Lisa Padden) to host a disability awareness and accessibility workshop for colleagues in

the school. This covered the distinction between the term ‘disability’ and those with special educational needs, recent statistic in terms of students with additional needs, as well as a comprehensive demonstration of the Ally tool, from a staff perspective and a student perspective.

- Enrolling and participating in the ‘Ally Early Adopter’ Group in June 2021. This gave me the opportunity to learn how Ally works, improve the scores in my own modules as much as possible, gave me access to resources that I could share with colleagues, and put me in the best position possible to lead colleagues through a similar change process with their modules.
- Organising a “Teaching and Learning” showcase in the School of Civil Engineering. I invited seven colleagues to share five-minute presentations each on aspects of their teaching that were inclusive in January 2022 to highlight the good work already being done, and to further encourage and inspire others to get involved. Recording available to view – see list of resources.
- Sitting on the "Widening Participation" in Engineering: Marketing, Recruitment and Programme-level Supports Working Group.

Design and Implementation

At the outset, it was important to identify the key stakeholders involved/ affected by my initiative:

- The students: who stand to benefit from having more accessible learning content (through the use of Ally), as well as learning from teaching faculty who have had formal training in UDL.
- The teaching faculty: their commitment to using Ally, and undertaking the Digital Badge in UDL is central to the success of this initiative.
- School and College Leadership (Head of School and College Principal): their promotion of the Digital Badge in UDL and use of Ally to staff would greatly support my initiative, and as leaders, they stand to benefit from teaching faculty better informed on UDL.
- The University’s Widening Participation Committee and University for All initiative: this project implements their goals.

Effective communication was also identified as key to the success of this initiative. Given the fatigue and low engagement that sometimes surrounds ‘mass emails’, I decided to focus on other modes of communication:

- I engaged in individual one-to-one conversations with colleagues to tell them about the Digital Badge in UDL, and encourage them to enrol, as well as to tell them about Ally and encourage them to improve their scores. These individual conversations enabled me to highlight unique benefits specific to the individual, based on their values and what I knew might motivate them. For example, in a case where a faculty member had colour blindness – highlighting the feature of Ally that raised issues of colour contrast in learning materials was a key selling point for them.
- I engaged in small-group conversations in informal settings (such as in the staff common room). This was particularly effective where someone who had previously taken the Digital Badge in UDL was present as sharing their positive experience had a powerful impact on encouraging uptake from other colleagues.
- I regularly referred to the UDL motto of “change one-small-thing”.

To specifically target and influence colleagues to enrol on the Digital Badge in UDL, I:

- Engaged with the school administrator to prepare a list of all faculty, post-docs, post-grads, occasional lecturers and hourly-paid tutors affiliated with the school.
- Identified colleagues who might be 'easy targets' where they had participated on College Inclusive Teaching pilot or were currently enrolled on a Teaching and Learning module and thus would have an interest in pedagogy.
- Highlighted that there was a National Rollout of the Digital Badge in the Autumn of 2021, through the National Forum, but that I would also be facilitating a local rollout of the Badge in the Spring of 2022 – giving choice to colleagues.

In facilitating the local rollout of the Digital Badge in UDL (Figure 5), I teamed up with a colleague in the School of Architecture, Planning and Environmental Policy (Alice Clancy) to co-facilitate to our respective schools. We deliberately opened the rollout just to our schools as there are synergies and cross-collaborations present that we wanted to focus on and support. There was also a geographical consideration in that the two schools are next to each other on the Clonskeagh-side of campus, whereas the rest of the College of Engineering and Architecture are located on the far side of campus. Our rollout of the Digital Badge was widely marketed, as described earlier, as well as being publicized on the UCD webpage here: https://www.ucd.ie/universityforall/resourcehub/universaldesign/. We invited participant to vote for their preferred method of peer-engagement (peer-triads or workshop), and as a result the workshop method was chosen. We used a Google-space for all communications, rather than email, and this worked really well.

Figure 5: Facilitating the workshop as part of the Digital Badge in UDL

Results and Impact

The evidence of individual and organisational change is apparent in the number of people who have now completed the Digital Badge in UDL and the improvements in Ally Scores (Figure 6). Before the start of this project (Sept 2021), a total of two (out of 16) full-time teaching faculty in the School of Civil Engineering and total of 12 (out of 197) in the College of Engineering and Architecture had completed the Digital Badge in UDL. At the end of this initiative (May 2022), a further 10 full-time teaching faculty in the School of Civil Engineering had been awarded the

badge, representing 75% of full-time teaching faculty in the school. This is in the context of a college increase from 8% to 15%.

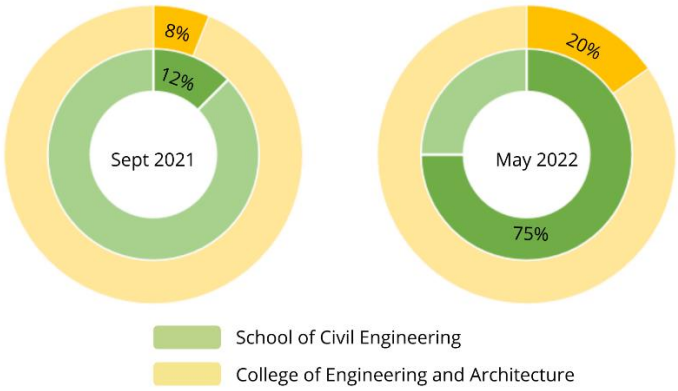

Figure 6: Number of Full-time teaching colleagues in the School of Civil Engineering and College of Engineering and Architecture who had completed the digital badge before the start of this initiative (left) and number who had completed by the end of the initiative (right), in context of the total number of full-time teaching faculty in the school/college.

Table 1: Number of full-time teaching faculty who have complete the Digital Badge in UDL

School	Competed prior 2020	Completed Autumn 2021	Completed Spring 2022	Total	# Faculty	%
Architecture, Planning and Environmental Policy	4	1	5	10	93	11%
Chemical and Bioprocess Engineering	0	1	0	1	17	6%
Biosystems and Food Engineering	1	0	0	1	15	7%
Civil Engineering	2	4	6	12	16	75%
Electrical and Electronic Engineering	1	1	0	2	25	8%
Mechanical and Materials Engineering	4	0	0	4	31	13%
College Total	12	7	11	30	197	15%

Between the 1st September 2021 and the 1st May 2022, there was significant engagement by staff in the School of Civil Engineering with feedback from Ally (Figure 7). On 324 occasions, a staff member launched the course accessibility report. On 649 occasions, a staff member

launched the instructor feedback, and this led to over 304 ‘fixes’ in content items. It is important to note here, that Ally only counts the ‘fixes’ uploaded through the Ally interface in Brightspace (UCD’s VLE), it does not count where someone has made there fixes offline and uploads directly to Brightspace, and so the following statistics likely represent an undercount.

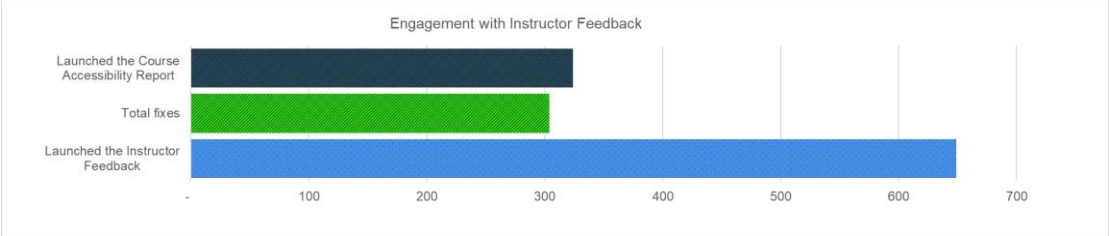

Figure 7: Staff engagement with Ally Feedback

Before the start of this project (snapshot from 24th August 2021), the school average ‘Ally Score’ for content in modules relating to the calendar year Sept 2020 – Aug 2021 was 55.7%, which took into account 5,504 items of content across 79 modules (Figure 8). On the 1st May 2022, the school average ‘Ally score’ for content in modules relating to the calendar year Sept 2021 – Aug 2022 was 65.2% (an increase of 9.5 percentage points), which took into account 6142 items of content across 71 modules.

Figure 8: School average ‘Ally’ accessibility score on (a) 24th Aug 2021 and (b) 1st May 2022 for the school of civil engineering

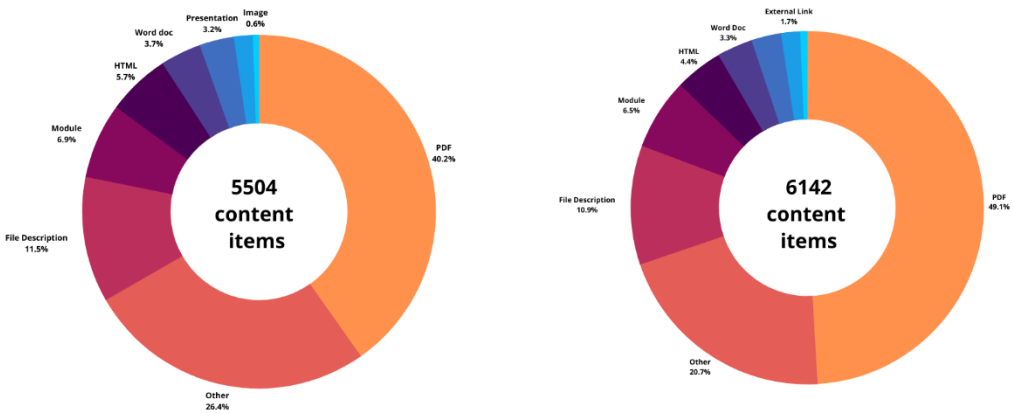

Figure 9: Number and breakdown of content items and types in school of civil engineering on (a) 24th Aug 2021 and (b) 1st May 2022

For context, on the 1st May 2022, the University average 'Ally score' for content in modules relating to the calendar year Sept 2021 – Aug 2022 was 55.8%, which took into account 278,634 items of content across 5,105 modules (Figure 10). Comparing Figures 9 and 10 demonstrates that the school of civil engineering currently compares well with the university average for 'Ally Scores'.

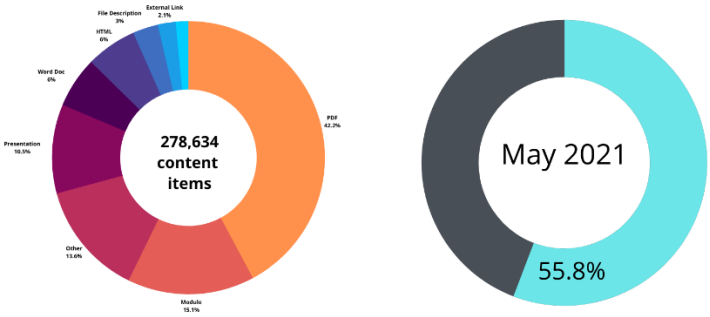

Figure 10: University data from the 1st May 2022 showing (a) number of content items and (b) average 'Ally' accessibility score.

Data was collected locally in the school of civil engineering to capture progress in ally scores on a module-by-module basis. The improvements in these scores are anonymously represented in Figure 11. Each individual row represents a module in the school. The x-axis ranges from 0 to 100, with each dot representing one percentage point. In each row, the leftmost dot represents the starting ally score for a module, and the rightmost dot represents the new ally scores after 'fixes' had been made. Where there is only one dot in a row, no changes have been made to date. The red, amber and green colour scheme was chosen to map to the 'ally scores' colour scheme: low (0-36% = red), medium (34-66% = amber), high (67-99% = green) and perfect (100%).

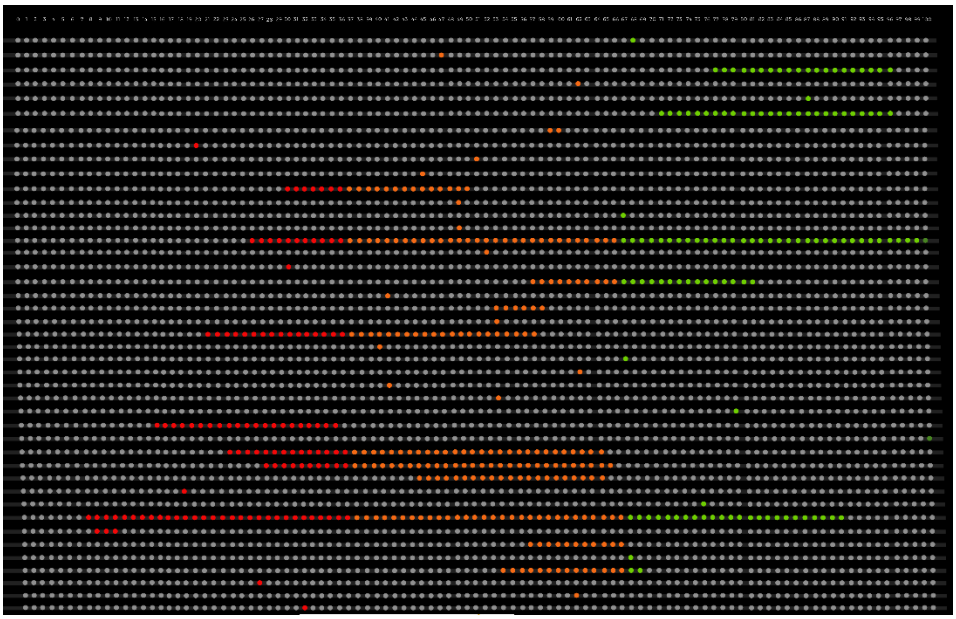

Figure 11: Illustration of progress at an individual module level of Ally Scores for the school of civil engineering

It is particularly interesting to note the student usage of Ally and alternative formats during this time, as evidence of the impact of the intervention. Between the 1st September 2021 and the 1st May 2022, on 783 occasions, a student launched the alternative formats window, which resulted in 371 downloads of content in accessible formats, as per Table 2.

Table 2: Number of downloads by format type

Alternative Format Type	Number of downloads
BeeLine	3
Braille	1
ePub	18
HTML	245
OCRed PDF	7
Tagged PDF	89
Translated Version	0
Audio	8
Total	371

Recommendations and Advice for Implementation

During this initiative, there were a number of challenges encountered, unintended benefits discovered, and lessons learned that may benefit others seeking to replicate this project:

- Given workloads, and the time available to faculty is limited and precious, recruitment to the Digital Badge, and buy-in to the adoption of Ally was a challenge.
- Furthermore, there were some challenges in overcoming resistance to change and convincing faculty of the benefits of change.
- The Covid-19 pandemic probably limited the number of in-person encounters that were possible in terms of information sessions and recruitment drives, and individual one-to-one 'door-stops'.
- I believe a key-enabler for my initiative was that the fact that the Digital Badge in UDL has been specifically designed as a self-paced course that can be delivered fully online. It facilitated greater uptake than might have been possible with an alternative design and was key to the success of this project.
- Another key-enabler were the resources that had been created and shared with me for the Ally Tool as part of the Ally Early Adopter group. This supported me upskilling myself and then being able to act as a mentor to other colleagues looking to improve their scores.
- At the end of the project, it became apparent to me that the greatest success was in the individual one-to-one conversations with colleagues. If I were doing this again, I would have started those earlier and aimed to have them more frequently.
- Another key-enabler of my initiative was the fact that there was a whole team of Faculty Partners across the University implementing similar change processes, and that I wasn't alone in my efforts. The regular support in the google-space community was particularly good.

References and Resources

[1] UCD Ally Software:

https://www.ucd.ie/itservices/ourservices/educationaltechnologies/virtuallearning-brightspace/brightspaceinstructors/content/ally/

[2] Recording of “Teaching and Learning” showcase in the School of Civil Engineering: https://www.youtube.com/watch?v=BWYutxCugss&t=244s&ab_channel=JenniferKeenahan

[3] Recognising stereotypes and the shared habitus of Engineers and Architects: Developing interdisciplinary teamwork and communication skills for first year students in an inclusive environment (2021), Inclusive Teaching & Learning Case Studies in Engineering, Architecture & Affiliated Disciplines: https://www.ucd.ie/universityforall/resourcehub/inclusiveteachingcasestudies/

[4] 'Outside their Comfort Zone': Diverse and Engaging Approaches for Students Learning through a Different Discipline, (2019), Inclusive Assessment and Feedback: Universal Design Case Studies from IADT and UCD: https://researchrepository.ucd.ie/handle/10197/10818