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# Learning Connections 2019: Spaces, People, Practice

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University College Cork, Cork, Ireland

5th & 6th December 2019

***Editors***
***Dr. Briony Supple &***
***Dr. Tom Delahunty,***
***University College Cork***

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NATIONAL FORUM
FOR THE ENHANCEMENT OF TEACHING
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# *Welcome*

Dear Delegate,

On behalf of the organising committee and University College Cork, it is my great pleasure to welcome you to the inaugural Learning Connections Conference for 2019. We are thrilled to be hosting this event which promises to be an innovative, informative and enjoyable social gathering.

The 2019 conference theme, *Spaces, People, Practice,* echoes the intent of the conference name itself by providing forum for colleagues to come together and engage in collaborative discussions on the ever increasing complex landscape that is learning in the 21st century. Learning, as conceived within this event, is not confined to a particular milieu but instead aims at connecting people and contexts to innovate and create unique learning opportunities in what is now acknowledged to be a life-long learning journey.

This idea is represented very strongly in the wide variety of workshops that were presented and attended on the first day of the conference with themes ranging including *Universal Design for Learning (UDL), Historical Developments of Learning Spaces, Dancing about architecture, Community Based Participatory Research approaches* among others. The second day of the conference includes informative presentations from authors encompassing a wide background of learning contexts such as academics, teachers, learners, architects, designers and more. A wide variety of third level institutions are also represented from universities, institutes of technology, community, industry, government agencies, policy makers and regulators, under the frame of learning connections.

Two key guiding questions were conceived for the genesis of this event:

1. How can **we connect across disciplinary boundaries**, and break down barriers between academia, administration, community and industry to strive for optimal student learning in Third Level Institutions?

2. How can **learning in different spaces** - physical, active, virtual, off campus, enable all students, as global citizens, to think through and solve big problems?

A special thanks must go to the College of Arts, Celtic Studies and Social Sciences at UCC for conference support funding to help run this event and The National Forum for the Enhancement of Teaching and Learning (https://www.teachingandlearning.ie) for sponsoring this event. The National Forum for the Enhancement of Teaching and Learning in Higher Education is the national body responsible for leading and advising on the enhancement of teaching and learning in Irish higher education. The National Forum work with those who teach, learn and shape policy and practice to ensure a valued and informed teaching and learning culture in Irish higher education. They focus on the professional development of all those who teach, teaching and learning in a digital world, teaching and learning within and across disciplines, and student success.

We would sincerely like to thank the reviewers who kindly contributed their time, expertise, diligence and collegiality during the review process. Lastly, we would like to thank the members of the organising committee for their support and contribution that helped make this event possible.

We wish you a thought-provoking and stimulating conference experience!

Le gach dea-ghuí

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Dr. Briony Supple, Proceedings Editor & Conference Chair
Dr. Tom Delahunty, Proceedings Editor & Conference Committee Member
#learningconnections19

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# *Concise Papers*

# Teaching in unusual surroundings – Dún Chíomháin, a house in the countryside.

***Isobel Ní Riain***
*Department of Modern Irish, UCC*

## Introduction

I teach the Irish language in University College Cork (UCC), Ireland. I lead weekend courses in Dún Chíomháin which is a house owned by UCC in West Kerry. The area in which the house is located forms part of the *Gaeltacht*, i.e. an Irish speaking area. The goal of the weekends is for the students to speak Irish to each other in an amenable language environment.

In Dún Chíomháin, a kitchen, a sitting room and a dining room make up the primary teaching spaces. The learning and teaching is conversational (Baker et al. 2002). The students and teacher interact naturally and without ceremony over cornflakes and toast. The meals are cooked by the students as the Irish words for utensils and tea towels and a host of unforeseen language needs all bubble up amongst the chaos of meal preparation. In Dún

Chíomháin, students realise that they don't know the words for several everyday objects. Such words have never been taught to them, and they have never felt the need to know them before.

It is not always easy for students (first years of 18 or 19 years of age usually) to start speaking Irish to their peers when they habitually speak to them in English. I have been observing these problems for some years now and wondered what could be done to help students to make the switch form English to Irish.

## Method and Findings

I decided to do research into the issue and chose to use group work as a means of helping students to work on tasks together through the medium of Irish. I got some funding from an Irish language organization to enable me to do this (COGG: *An Chomhairle um Oideachas Gaeltachta agus Gaelscolaíochta*). I carried out the research between 2017-2019. I wrote a book on my findings which was published earlier this year (Ní Riain 2019).

I used a combination of questionnaires, CATs (classroom assessment techniques) and focus groups to gain insights into the students' attitude to speaking Irish. I asked students to fill out anonymous questionnaires on arriving at the house. The first question I asked them was if they wanted to speak Irish during the weekend. Every student who filled in a questionnaire reported wanting to speak in Irish. They did not always proceed to speak in Irish to each other, however. I carried out group work with the students in the *halla* (hall) which forms part of the Dún Chíomháin campus. Quite recently the *halla*, which is located to the side of Dún Chíomháin, has been renovated and fitted with state-of-the-art computers. It is now a very creative learning space. Students can work together in groups at large computer screens and do project work on the local area, for example. When doing this kind of work in the *halla* it is necessary to maintain a strong conversational element to the learning. To this end I included oral presentations as part of this exercise whereby a member of each group presents the findings of the group orally. Students seem to enjoy the work we do in the *halla* immensely.

The Students reported preferring to speak Irish in small groups (of 4 or 5) to speaking in a large group, which in this case would have comprised 15 people. Given that the house is quite a small environment when compared to UCC campus, students felt very relaxed about speaking in Irish after a short time. The difficulty is not getting the students to speak in Irish to each other when in a controlled situation, for example when doing group work, the difficulty arises during their free time, when they are without the guidance of a teacher, and have to establish Irish as the medium of communication for themselves. I made use of Raimo Toumelo's (2013) work on group dynamics in my research which helps to explain how all the members of a group, say the 15 students taking part in the weekend course, can act against the wishes of individual members of the group. Thus, while all the students reported wanting to speak Irish, the larger group did not in fact do this. I am convinced that it is necessary to break larger groups down into small groups in order to allow students to exert their individual wishes, in this case, to speak Irish.

My goal in using group work was to help form social bonds between the students that were forged through the medium of Irish. I hoped that they would continue to speak in Irish to each other when the group work was over and they were at liberty to choose either Irish or English.

## Conclusion

A weekend is a very short period of time in which to achieve something as momentous as getting a young person to habitually speak in a second language to other people for whom it is also a second language and when all of them are more competent speaking in English. My findings were very positive, however. Students were unanimous in their wish to speak in Irish and even in their intension to speak in Irish during the weekends. It didn't always happen. I was encouraged though because it is clear that their attitude to Irish is very positive. Given more exposure to life in Dún Chíomháin and more trips to the Gaeltacht generally, I think they will take the plunge and start speaking to their peers in Irish.

In general, Dún Chíomháin is a wonderful resource and we in the Modern Irish Dept and in the Spoken Irish Dept are very lucky to have access to it. I have recently written a dictionary of useful everyday words, arranged thematically, for future students who will be spending time in Dún Chíomháin. There is a lot of information in this dictionary on household objects and household problems, on food and food allergies, and on all sorts of problems that crop up in Dún Chíomháin!

It has become clear to me over the years in Dún Chíomháin that conversational learning is the way forward in relation to teaching Irish. I don't mean by that that the teacher speaks to the student and the student speaks to the teacher. That too is important. However, what is more essential is that students speak to other students in small groups and gradually larger groups. The hope being that they will speak more and more Irish to each other not just in class but when mixing together outside of class.

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# Collaborative Learning: Businesses and HE Co-Create

***Dr Angela Wright***
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## Introduction

This novel research pivoted around a collaborative cyclical learning experience between businesses in a City Centre scape and a local Higher Education Institution. This concept provided for a dual aspect to learning; third level MBA students in parallel with business operatives in a City. The students were tasked with addressing a business problem in cooperation with City Hall and to write a 'service charter for this city', while being assessed for progression for their MBA. This Collaborative experiential learning (Kolb, & Kolb, 2017) centred on a group of 22 MBA students while they interacted with 20 businesses in a European City to research, develop and write a service charter. Details of the development of the charter per se are not dealt with in this paper, just the experience of its development by the students and business alike.

Finding novel ways to assess third level students is always a challenge for Higher Education Institutions. Imagine the opportunity of being placed at the fulcrum of learning and business development through a dual aspect collaborative learning challenge and experiential learning. An experimental approach was afforded to MBA level 9 students when they were tasked with writing a 'Service Charter 'for their City – while in parallel, being assessed through 'problem solving' for 5 ECTS credits with the third level partner. The dual aspect of learning and co-creation between businesses and college began when the students sought to solve a problem for City businesses and find a solution to their problem and reflect on it, and the second, when a recommendation came from the research that the businesses needed to undertake further training in order to implement the plan of the final City Service Charter.

## A City Service Charter

A concept that is not widely embraced (hence the scant academic literature), the purpose of a service charter is to outline and detail the standards a customer or client can expect when engaging with service providers in a City. A City service charter is a collective commitment by all of those engaged in the daily service life of the City to focus on the needs and preferences of their customers, motivated by values such as respect, integrity and excellence.

## Method

Examining student assessment practices to evaluate if there is a benefit in collaborative learning experiences through PBL (Barrett, 2005) is the context of this work. Twenty-two MBA students and 20 businesses were involved in this research as well as one member from City Hall. A mixed methods approach was applied, and both sets of data were triangulated (Patton, 2012). To examine the experience of the learning of the students a positivistic research methodology was applied as quantitative facts can be directive and informative (Harvey, 1998). A quantitative research survey instrument using a Likert scale was developed after the learning, and in conjunction with colleagues involved in department programme development. The questionnaire was tested to eliminate any errors and cleansed prior to surveying. All 22 MBA students (9 female, 13 male) were asked to fill out the survey in person in a class setting to ensure 100% participation. The survey was completely confidential so that private contributions and negative experiences where they arose could be provided in strict confidence.

For the second element of the research, the business participants were asked in person about the experience of working with the students and their implementation of the service charter when it was put into practice. A qualitative methodology was applied as it was believed that a post-positivistic approach (Patton, 2012) would gather in-depth answers from participants about their experiences. In all, 20 City centre businesses participated in the interviews with an interview guide of 10 questions.

## Findings & Discussion

This section sets out some of the pertinent findings from this large study; however, the restriction of the paper limits the presentation of all the findings.

### Students Experience

Of the 22 students, 87% stated that is was a positive experience. Stress was mentioned by 5% who maintained that it was a taxing experience overall. When asked about solving problems together as a class unit to come up with a plan, 66% stated that working in a class group was enjoyable overall. In terms of personal development, 39% stated that it improved their professional development skills, with 30% stating that the process will benefit their interpersonal skills in the future due to the specific nature of the task of dealing with City businesses and City Hall.

From a negative perspective, some students did state that they believed that the real-life challenge was stressful as they were tasked with delivering a working document that was to be used in the future by City Hall and participating businesses. 25% of the students worried initially that they may not be "up to the task" – or, "the standard required", as the work was of the level of a "professional consultancy". Overall, 90% stated that they would love more collaborative learning with industry in the future for other modules.

**City Traders Experience**

Findings from the City traders were extremely positive –Some of the positive comments included, "I enjoyed working with younger people to determine how they viewed our City and our service delivery". Another participant stated that it "was a novel experience and I learned so much more about overall service delivery". The next retailer stated that "we have to be competitive as a City and this project focused our minds on how to be more competitive!". Other participants noted how much they enjoyed the training that they had to partake in themselves to learn how to implement the charter that the students devised.

The overall experience for both students and city traders was further enhanced when the collaboration resulted in the City winning '*The Friendliest City*' award in Ireland, in November 2019. A sense of great pride was felt by the students, the third level Institution, and the City, as a result of the affirmation and final success of this collaborative project. "Here in Cork City, we decided to put the customer at the heart of everything we do, and it is amazing to already see such recognition of our combined efforts as Cork is named as Ireland's Friendliest City," (Irishtimes.com).

**Conclusions**

Setting a real problem and encouraging enquiry is a perfect way to assess students in Higher Education settings (Biggs, 1999). The findings of this research are very positive in the context of collaborative learning and PBL with a HE institution and local businesses. Theorists provide much debate around the ideas & philosophies for the use of PBL and advocates of collaborative and PBL provide compelling benefits in the literature for their use. This has been reflected in this current research. Using collaborative and problem solving can provide original and exciting challenges for instructors and their students. The benefits of this type of learning experience and assessment for the students especially at MBA level are all-encompassing as MBA students need and deserve to be challenged and PBL provides this

where the students can become part of a ‘real life’ collaborative team in an organizational setting; in this case a City scape setting.

Overall, solving the problem, developing the charter and the continuation of the learning was a very positive experience for all involved. The MBA students helped decipher the mindset of the City business community, by conducting surveys among regular shoppers, tourists, occasional visitors and residents, and consulting broadly with many interested contributors. The operationalization of this charter continued the cycle of learning, as all 20 service providers who signed up to the charter undertook a short training courses to facilitate its implementation. This training will be ongoing, with all protagonists engaging with those who experience the City routinely.

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# Digital Badge in the Responsible Conduct of Research

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## Introduction

University College Cork is committed to the highest standard of Research Integrity (RI). The recently published National Framework on the Transition to an Open Research Environment aims to move Ireland another step closer to an open research environment (National Open Research Forum, 2019). One of the central elements underpinning the framework is Research Integrity and Responsible Research practice. This is also reflective of the international emphasis on not only a more open research environment but on more transparent and robust research practices generally, with a particular focus on data management and availability ( Wilkinson et al., 2016).

In 2016 a Research Integrity Pilot was run in the UCC Skills Centre in collaboration with the Office of the Vice President for Research and Innovation (OVPRI) and interested academics from the UCC community. Working closely with the Dean of Graduate studies, this pilot resulted in the development of the module PG6015 *An Introduction to Research Integrity, Ethics and Open Science* for postgraduate students. The new module did not address the needs of staff however, who needed an offering that was more condensed,

targeted yet flexible when required. Along this developmental journey, UCC consulted with some leading experts in the field of Research Integrity (RI) by hosting, Prof. Philip DeShong and Prof. Robert Dooling from the University of Maryland via a Fulbright Specialist Award. This award facilitated real insight and a fuller understanding of what RI means together with the need for discipline specific discussion and debate around the topic of Responsible Conduct in Research in its fullest sense. In 2018, access to the Epigeum online course in Research Integrity was enabled through the National Research Integrity Forum. This course provides a good basis for learning in the area of RI but it does not address a need for a blended learning approach around the topics of Responsible Conduct of Research. Through this process began the genesis of an idea which in 2019 resulted in the development of the UCC Digital Badge in the Responsible Conduct of Research.

Micro-credentials are a new and innovative learning platform that rewards learner effort outside of traditional pathways, digital badges are an example of these. The Digital Badge in the Responsible Conduct of Research is a research led, team based initiative developed through a unique interdisciplinary collaboration between central research services at UCC. The collaborative process has resulted in an offering that gives an integrated and comprehensive view of three distinct but related areas, Research Integrity, Research Data Management & the Fair Principles and Reproducible Research. Developed by OVPRI, UCC Library and the Clinical Research Facility-Cork (CRF-C), each of the collaborators were already providing training and resources in there own niche but realised a more holistic approach would be greater than the sum of its parts. The purpose of the Digital Badge is to foster and embed best practice and the key elements of Responsible Research in the UCC research community. It offers researchers an opportunity to address significant gaps in their skills and prepares them for the changes in the research landscape occurring both nationally and internationally.

**Delivery**

The Digital Badge is comprised of 3 workshops delivered in two four hours sessions, an online Research Integrity Course and a reflective exercise submitted after the workshops. A reading list is also provided to the participants. Issuing of the micro-credential requires that all elements of the course are completed.

Drawing on a wealth of skills and experiences the Digital Badge connects the expertise of OVPRI, UCC Library and CRF-C. The diversity of backgrounds of the instructors means that the content of Digital Badge is varied and informative and can be tailored to specific disciplines or groups depending on their needs. The unified approach also means that learners are not getting mixed messages from various sources within the University.

The workshops are structured in such a way as to allow the participants to lead the discussions and debates. As experts in their respective fields they are best placed to determine how the presented material relates and fits within their experiences and disciplinary norms. However, as with any new set of 'rules' there is not always consensus on the way forward or how they should be applied. We encourage teams to engage, debate and discuss constructively the subject matter provided, exposing them to tools and resources that can help them achieve responsible and reproducible research in there discipline. This approach facilitates peer learning and also capitalises on the diversity of experience and perspectives of researchers attending. By sowing the seeds and giving some direction on how and why the research landscape is changing participants leave better equipped to navigate this space.

**Progress so far**

Since its launch in June 2019 over 70 researchers have completed the workshops with more scheduled. The response from participants has been positive and they see it as a welcome addition to the options for skills development in UCC. Giving a recognised micro-credential on completion of the course allows learners to communicate their skills and affirm their commitment to the Responsible Conduct of Research.

The Digital Badge format really lends itself to this type of topic, as it is outside of traditional pathways we can open it up to a wider demographic and catch the attention of not only junior members of a group but also senior ones too. The diversity and backgrounds of the individual participants enhances and enriches the content of the workshops as they can add evidence from their own experiences in research. We can maximise the value of the workshops by adjusting the content to meet the needs of a team or group while maintaining a clear and consistent message.

The workshops can also challenge long established practices and beliefs in relation to Research Integrity, Data Management, the Fair Principles and Reproducibility. Especially as

many of the data management and sharing requirements are relatively new, the workshops give research groups a new framework and vocabulary to question their current work practices and see where new ones might fit. By giving people the context and language to discuss issues arising from Research Integrity, Data Management & the Fair Principles and Reproducibility, teams can develop and use clear rules for making decisions that impact the entire group and the workflows and processes utilised.

Finally, collaboration between central services on this has also given us insights into the needs and requirements of researchers when navigating this space. This will feed into and inform the development of supports and infrastructure for responsible research such as the development of data repositories for UCC research data. Working collaboratively on this project has demonstrated how central services can respond quickly to a need within the University community and pool their collective knowledge into a holistic response. The connections created between OVPRI, UCC Library and CRF-C go beyond the Digital Badge and will in the near future lead to new opportunities and collaborations.

**Conclusions and Next Steps**

Digital Badges provide a unique learning opportunity for participants, its flexible design allows it to be tailored to individual groups while keeping the core message consistent. Participants gain a holistic view of Research Integrity and the Responsible Conduct of Research from the instructors but also from their colleagues and peers. Alignment with new funder requirements and emerging national and international policies means that the content is relevant and is addressing a significant gap in the skills of the researcher community. Interaction between multiple central services and researchers has provided valuable insights into the prospective needs of researchers to fulfil their commitment to responsible research. Its has also highlighted the real benefit of an integrated response from central services to emerging needs within the University community.

The next stage in the development of the Digital Badge in the Responsible Conduct of Research will be to continue to promote it as a valuable addition to any researchers skills portfolio. To use it as a vehicle to highlight the need for greater awareness of Responsible Conduct of Research within the University. As developers and facilitators, we hope to continually improve the offering from the learners perspective and seek feedback from those awarded the badge on what further supports we can develop. Building on the success of this

collaborative project we hope that it will lead to more learning connections and integrated responses to emerging needs.

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# Ireland's architecture for identifying, prioritising and responding to skills needs

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## Introduction

Based on a request from the Irish Universities Association (IUA) Council, which is made up of the seven Irish university Presidents, the State architecture for identifying, prioritising and responding to Ireland's skills needs was examined. This was done to help universities take greater cognizance of the government's skills agenda, and better understand what misalignments may exist between the university context and the State's conception of skills 'supply and demand', which may have an impact on universities' response to skills needs.

## State architecture

The *National Skills Strategy 2025* (2016) introduced a new State architecture for identifying, prioritising and responding to Ireland's skills needs.

The National Skills Council was established in order to oversee research identifying skills needs, to advise on prioritisation of identified skills needs, and to promote and report on the delivery of responses. An advisory body under the Department of Education and Skills, membership is largely drawn from government departments and agencies. A Chair from industry was recently appointed, and membership is also drawn from the university, technological higher education, and further education and training sectors.

A network of nine Regional Skills Fora was also established, providing an opportunity to channel regional intelligence to the national level through the National Skills Council. These Fora are primarily emphasised as platforms for engagement on skills needs between local employers and education and training providers. A key role has emerged as helping employers better understand and access existing education and training provision, and facilitating employer involvement with education provision.

Efforts have been made to design the State architecture in such a way that it is coordinated and integrated. Universities are key actors in this architecture, with representatives on local Regional Fora and with a member on the National Skills Council.

However, the intelligence that is gathered and disseminated across the system has proven to be of limited use in informing mainstream university provision for a wide range of reasons, some of which are outlined below.

**Identifying and prioritising skills needs**

The Skills and Labour Market Research Unit (SLMRU), placed in SOLAS, manages the National Skills Database. An annual National Skills Bulletin is published using this labour market information on behalf of the National Skills Council, a core component of the research identifying skills needs.

To take the latest published version as an example, *National Skills Bulletin 2018* lists 78 skills or labour shortages, covering all sectors of the economy. Shortages are identified at the level of job title, with very general detail on the specific shortage given. Shortages are not quantified, nor prioritised in terms of relative importance or urgency; the causes of the shortages are not identified, nor are appropriate responses identified. At such a granular level, and without indications of magnitude or scale, it is questionable how this information can be helpfully used to inform universities' response to identified skills needs.

Crucially, the skills/ labour shortages identified in the National Skills Bulletin are generally immediate. Forecasts are not provided, unless potential shortages are implicit in the data already used, nor is analysis of shortages over time, on which future predictions could be based. This also presents challenges to the university context, considering the period of time it takes for graduates of new/ modified programmes to emerge.

The horizon scanning role in the State's architecture is held by the Expert Group on Future Skills

Needs (EGFSN). An advisory body like the National Skills Council, it is placed in the Department of Business, Enterprise and Innovation. Also like the National Skills Council, membership is largely are drawn from government departments and agencies. It publishes an average of three lengthy reports each year on behalf of the National Skills Council, another core component of the research identifying skills needs. Recent reports examine digitalisation and the potential trade implications of Brexit.

Estimating the projected magnitude and scale of skills needs, which could be helpful in informing future university provision, is done in only a small number of EGFSN reports. *Forecasting the Future Demand for High Level ICT Skills in Ireland, 2017-2022* identifies 73,000 potential new job openings connected to computer and electrical/ electronic engineering skills. Other reports identify numbers of job openings in the biopharma industry and freight transport, distribution and logistics sector to 2020. EGFSN research is constrained by Department of Finance 5-year growth forecasts which presents challenges, considering the period of time it takes for graduates of new/ modified university programmes to emerge.

**Responding to skills needs**

The SLMRU publishes an annual follow-up report to the National Skills Bulletin, also on behalf of the National Skills Council. With reference to shortages listed in the National Skills Bulletin ("demand"), Monitoring Ireland's Skills Supply calculates "supply" as the number of awards by broad/ detailed ISCED codes and by NFQ level where a qualification is likely to be required or sought by employers.

The alignment of award and shortage is determined by SLMRU. However, CSO Higher Education Outcomes research shows that for most broad fields of study, large numbers of graduates, who have developed a wide range of skills, move across disciplinary boundaries in employment, dispersing among a wide range of NACE sectors. It is therefore questionable how this information accurately reflects and can be helpfully used to inform universities' response to identified skills needs.

This conception of skills 'supply and demand' also fails to recognise what we know to be the broad value of university education and the significance of transversal graduate skills, where universities have dedicated much effort to developing graduate attributes which go beyond disciplinary/ technical expertise. It is also misaligned with the university context whereby particular skills, for example data analysis, are developed in learning outcomes across a breadth of fields of learning.

The EGFSN is currently modelling growth of design skills by 2025 for an upcoming report. Related education and training provision is also being examined, on the basis of a 'key word search' of a list of programmes. Again misaligned with the university context, modularisation is therefore missed, where design skills could be part of the learning outcomes of another, wider, or simply differently titled programme.

**Further consideration**

Universities have always responded to Ireland's skills needs and are eager to effectively continue to do so. How can we ensure that the State architecture for identifying, prioritising and responding to skills needs takes the university context into account in such a way that facilitates this? How can we ensure that the intelligence that is gathered and disseminated across this architecture helpfully informs mainstream university provision, without then becoming overly prescriptive?

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# Teaching in the 21st century – engaging students in active learning using student response systems

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## Introduction

The prevalence of student response systems (hereafter SRS) in higher education has grown significantly in the last few years. Student classroom participation and student's assessment of performance particularly in larger classes, has often been regarded as problematic in pedagogical research (Black and Wiliam, 1998; Fies and Marshall, 2006). Growth in technology, coupled with popularity of handheld devices has led to the development in SRS with the intention of increasing classroom participation and engaging students in the lecture setting (Denker, 2013). Studies identify benefits to students participating in the classroom using SRS including increased student involvement, attendance, learning and engagement (Heaslip et al., 2014; Van Daele et al., 2017). This research seeks to examine the effects of a SRS on student participation and engagement in large undergraduate economics modules at both an Irish and UK university during the academic year of 2018/19. We compare a control period (no SRS in place) with a trial period (SRS in place). The results show that the use of the SRS significantly increased student's interaction with the lecturer and their ability to perform self-assessment in absolute terms and relative to their peers.

## Method

Students were exposed to the usual mechanisms for student engagement by the lecturers for the first half of the semester and were then surveyed on their level of engagement. Following Heaslip et al. (2014) we employed a number of criteria to measure student

engagement, which consisted of a degree of agreement with statements on a 5-point scale. An SRS app was introduced in the second half of the semester and it was employed for approximately 10-15 minutes in each of the lectures. At the end of the semester, students were polled again on their level of engagement using the same survey instrument. Data on the respondent's module (to control for clustering at the module level) and the number of lectures attended (proxy measure for student interest in and application to the subject, both of which may affect overall engagement) was also collected. The results for response rates are presented in Table 1.

Table 1 Response rates to base-line and follow-up surveys

| | Module 1[1] | Module 2[2] | Module 3[2] | Module 4[3] | Module 5[4] | Pooled |
|---|---|---|---|---|---|---|
| N | 391 | 238 | 148 | 109 | 108 | 994 |
| Baseline | 75 | 100 | 58 | 43 | 52 | 328 |
| Follow-up | 36 | 52 | 60 | 28 | 16 | 192 |
| Both | 27 | 38 | 36 | 12 | 9 | 122 |

Note 1: University of Strathclyde, Scotland
Note 2: University College Cork, Ireland

Using the standard assumption of a continuous latent response variable, a t-test is used to test the difference in means of all criteria at the module level. This method does not allow for clustering at the module level, nor for respondent heterogeneity. Thus we specify an econometric model at the level of the student. Since each student is surveyed twice, the data form a natural 2-period panel structure. The model can be specified as follows:

$$y = \beta x + v + \varepsilon \qquad (1)$$

where y is the 5-category criterion being modelled, x is the matrix of covariates and β is a vector of parameter estimates; i is the respondent and t is the period; $v_i$ is time-invariant respondent heterogeneity which is assumed to vary randomly and $\varepsilon_{it}$ is the idiosyncratic error term.

**Findings**

Table 2 describes the average responses for each criterion pre- and post-introduction of the SRS at module level.

Table 2 Comparison of Means by Criteria at Module Level

| Criterion | Abbrev. | Pre | Post | Sig |
|---|---|---|---|---|
| I interact with the lecturer in class | Interactivity | 2.45 | 2.95 | *** |
| I am involved in learning during class | Involvement | 3.58 | 3.77 | * |
| I am engaged in class | Engaged | 3.71 | 3.77 | |
| I am attentive in class | Attentiveness | 3.73 | 3.82 | |
| I participate in classroom discussion | Participate | 2.49 | 2.59 | |
| I provide my opinion to questions from the lecturer during class | My opinion | 2.12 | 2.43 | *** |
| I receive feedback on my understanding of lecture content in class | Feedback | 2.74 | 2.98 | ** |
| I can gauge whether I am following the lecture content during class | Self-Assessment | 3.66 | 3.89 | *** |
| I can assess my understanding of lecture content relative to other students during class | Peer-Assessment | 3.28 | 3.60 | *** |

Note: ***= 1% level; ** = 5% and *=10% level of significance for the difference between the two means using a t-test.

Taking the variables that were significant at the 5% level, the difference between the pre- and postintroduction of the SRS was greatest for, in rank order, Interactivity at 0.5, Peer-Assessment at 0.32, followed by My opinion, Self-Assessment, Feedback. Involvement was significant at the 10% level while the difference between pre- and post-surveys were not significantly different from zero for Engaged, Attentiveness and Participate.

As described in the methods, the above t-tests do not allow for clustering of responses at the module level, so an individual level model was specified. The results of this random effects ordered logit model for all criteria are presented in Table 3. Rather than report the results of the full models (including control variables and model diagnostics) for each criterion, Table 3 focuses on the results of the effect of the SRS for each criterion. The full model results for all criteria are available on request. The odds ratios are interpreted as the

chances that a student's response will be one category higher than the reference group for any given variable. The effect of using SRS was statistically significant in the case of 5 criteria, and statistically insignificant in the case of the other 4. A respondent was 2.7 times more likely to report a higher level of Interactivity with SRS than without. Odds ratios for Involvement, My opinion, Self-Assessment, Peer-Assessment were 1.67, 1.91, 2.55 and 2.36 respectively. All five were statistically significant at the 5% level. The remaining 4 criteria had lower odds ratio and were statistically insignificant.

Table 3 Odds Ratios of Effect of SRS

| Criterion | Odds Ratio | P>z |
|---|---|---|
| Interactivity | 2.70 | 0.033 |
| Involvement | 1.67 | 0.005 |
| Engaged | 1.20 | 0.256 |
| Attentiveness | 1.38 | 0.393 |
| Participate | 1.33 | 0.171 |
| My opinion | 1.91 | 0.000 |
| Feedback | 1.54 | 0.204 |
| Self-Assessment | 2.55 | 0.000 |
| Peer-Assessment | 2.36 | 0.002 |

**Conclusions**

Non-response issues aside (as discussed below), the results indicate that students reacted positively to the SRS. All odds ratios for each criterion exceeded one, quite considerably so for some criteria. There were high effects of the app on Interactivity, Self-Assessment, Peer-Assessment, My Opinion and Involvement compared to Participate, Feedback, Engaged and Attentiveness. Additionally, the first group of criteria are statistically significant, the second group are not. Given the high effects of student interactivity, involvement, and ability to express their own opinion, one would have thought that this would relate to higher effects on engagement and attentiveness. This was not the case however. Perhaps the underlying concepts measured by these criteria were very similar, such that the engagement and attentiveness effects were captured by the interaction and involvement criteria. In large classes, it can be difficult for students to assess their performance. Consequently, the result that student could assess themselves against their peers and in absolute terms was a positive finding. It suggests that the app facilitated the quick development of formative assessment which is crucial to effective learning (Black and Wiliam, 1998).

When responding to the survey, students were given ample class time. Absentees from class completed it by email. Students were also informed in class and by email that the results of the study would inform university policy on the use of SRS. The low response rate suggests that non-respondents believed that the opportunity cost of their time spent answering the two surveys wasn't worth the perceived benefit. This indicates that either students chose to free-ride on the responses of classmates, didn't believe that their response was likely to make a difference to the outcome, or that the outcome of the study would not alter university policy. Whilst students found the SRS beneficial, it can be quite costly for a Department, School or University to roll-out. Whether the benefit exceeds the cost is a decision for university decision-makers. As our study finds evidence of positive perceived effects and acceptability by both the lecturers and the students, future research could examine its role in formal module assessment.

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# Enriching the Undergraduate Curriculum with Digital Research Skills: A Blended Approach

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## Overview

This paper describes an 18-month digital learning project, designed to support the development of students' digital research skills in UCD's BA and BSocSc programmes. The project involved the creation of six original interactive e-tutorials focusing on key digital research topics, which were embedded in the institutional VLE (Blackboard) in a blended learning structure, and rolled out in four modules in the School of Information & Communication Studies in 2017/2018. During the post-evaluation phase, student feedback was gathered via an online survey and in two qualitative focus groups. This paper outlines the rationale, implementation and results of the project, and offers insights into incorporating digital learning into undergraduate programmes, and student experiences of blended learning.

## Literature and Theoretical Foundations

The conceptual framework for this project was twofold, focusing a) on the rationale for embedding digital research skills and research-based learning into undergraduate curricula, and b) on the means of effectively harnessing educational technologies to ensure a pedagogically sound learning experience, based on best practice principles in instructional design. The project was also initiated within the broad landscape of digital enhancement in Higher Education (HE), in which a core objective is "to educate students to be successful in a complex and interconnected world that faces rapid technological, cultural, economic, informational, and demographic change" (Kampylis, Punie, & Devine, 2015, p.7). The inculcation of an undergraduate research culture in HE is increasingly seen as a critical element of undergraduate education, and is viewed as beneficial to the strategic goals of the institution, to students' personal and professional development, and to society at large

(Petrella & Jung, 2008; Healey & Jenkins, 2009; Carnell & Fung, 2017). The benefits of research education for undergraduate students include, amongst others, enhanced capacity for critical thinking, problem-solving and independent thought, deeper understanding of how disciplinary knowledge is co-constructed, challenged and communicated, an awareness of their own role in scholarly communities, and "the confidence to form one's own conclusion based on available evidence" (Petronella & Jung, 2008, p. 92). The growth of Internet-based research methods in particular (Salkind, 2010) has also had a profound impact on scholarship, raising unprecedented concerns about research ethics, the management and storage of large datasets, evolving research metrics, open access publishing, and the increasing complexity and quality of digital research and information tools (Bartling & Friesike, 2014).

While several models exist for embedding research skills in undergraduate curricula (Edwards et al, 2017), the optimal framework is perceived as a sequential, scaffolded and flexible approach across the entire degree programme, providing multiple opportunities for students to learn about research and research processes, to engage in experiential learning by working or collaborating on authentic research projects, and to participate in critical dialogue about the purpose and meaning of research in society (Healey & Jenkins, 2009). In terms of how this is operationalised in practice, this project explored the paradigm of blended or hybrid learning, which has been described as "everything between the poles of fully face-to-face and fully online learning" (Pomerantz, Brown & Brooks, 2018, p. 4). Although the precise effect of hybrid modes on student learning is difficult to measure objectively (Lederman, 2017), recent research suggests that students prefer to learn in blended environments; for example, the ECAR Study of Undergraduate Students and Information Technology (Educause, 2017), found that most students stated a preference for courses that "assimilate both face-to-face instructional components with technological features of the online environment," rather than fully F2F or fully online (p. 20).

For this project, Oliver & Herrington's instructional design framework (2001) was adopted to support the creation of a blended learning environment; the framework comprises three critical interconnecting elements of online learning settings (i.e., learning tasks, learning resources, learning supports), to provide a holistic structure to guide the design process. E-tutorials were designed according to best practice principles drawn from multiple accounts of research and practice, including Blummer & Kritskaya, 2009; Oud, 2009; Clark & Mayer, 2011; Hess, 2013; Mayer, 2014; Scales, Nicol, & Johnson, 2014; and Weeks & Davis, 2017.

**Method**

Working closely with the project investigators, a suite of six interactive e-tutorials was created by a research assistant using Articulate 360 software, and embedded in Blackboard for selected modules across the three stages of the undergraduate BA and BSocSci programmes in September 2017. All e-tutorials contained a compulsory 10-item quiz, and digital badges were associated with each e-tutorial to be awarded upon completion. All etutorials were graded for module credit, and each addressed a key aspect of digital research, increasing in difficulty with each stage:

| | |
|---|---|
| **Stage 1** | E-tutorial 1: Managing Your Research with Web-based Tools<br>E-tutorial 2: Understanding Digital Research Ethics |
| **Stage 2** | E-tutorial 3: The Academic Web: Using Google Scholar and Open Access Resources for Research<br>E-tutorial 4: Foundational Social Media Analytics for Research |
| **Stage 3** | E-tutorial 5: Digital Tools for Managing Research Data<br>E-tutorial 6: Data Visualisation for Novice Researchers. |

Students who took the modules in question were invited to voluntarily evaluate the e-tutorials they completed, in terms of functionality, content and relevance, and to comment on their overall experience of blended learning. To this end, they were first asked to complete an anonymous online survey via SurveyMonkey to share their experiences, i.e., how they perceived that the e-tutorials supported their learning, and how the design and accessibility of the e-tutorials influenced their absorption of information. Secondly, two focus groups were conducted with selected students who volunteered to participate. A total of fifty-three (60% female; 40% male) participated in the survey, while six students took part in the focus groups, (focus group 1: 4; focus group 2: 2), which delved further into questions emerging from the survey to present a more detailed student experience of learning. All data was gathered anonymously or de-identified. The project, reviewed by UCD's Research Ethics Committee, has been declared for full ethics exemption.

## Findings

### Student engagement with e-tutorials

Engagement was shown to be positive and enthusiastic, with most students agreeing that the e-tutorials reinforced their understanding of digital research, were relevant to module content, supported practical skill development, and were enjoyable to complete. They generally perceived the content as clear, accessible, easy-tonavigate, and pitched at an "about right" level of difficulty, and they applauded the ability to repeat e-tutorials multiple times, a feature which reinforced learning and instilled confidence. Digital badges were viewed as useful motivators.

**Technology in learning**

Students reported a range of technological expectations; for instance, one focus group participant cited the need for a pause button to enable note taking, a task that would help to reinforce learning and slow any information load. Students perceived technological glitches, such as difficulties with launching, inconsistent sound quality and browser incompatibility as frustrating and disruptive to their learning. Technology continues to present a challenge; because of the complex integration of Articulate software, the VLE, browsers, and operating systems, maintaining a consistent experience for learners can be difficult.

**Perspectives on Blended Learning**

When asked to compare online with F2F learning, the students expressed a clear preference for a mixed-mode environment; according to one student, "They need to be complementary. Not really stand alone at university level." Online learning was viewed as useful for convenience, self-pacing, self-discipline, and reinforcing module content, while the key benefits of F2F learning were highlighted as providing opportunities to interact with lecturers and ask questions, and encouraging better engagement by carving out a set time each week during which students are required to be present.

**Discussion & Conclusion**

Three key learning points emerged from the project. First, findings showed that while the students clearly embraced online learning, their preference was for a blended environment rather than fully online, emphasizing the continuing importance of F2F classes and human interaction. This aligns with the ECAR study mentioned above. Second, while students engaged well with the e-tutorials, two factors were critical; a) the importance of extrinsic motivation, including compulsory quizzes, digital badges, and module credit; and b) the

disruptive effects of technological glitches on learning. Finally, it is essential to be strategic about the points at which digital learning objects are embedded within modules - not as add-on extras, but as core learning activities, linked to the rest of the learning activities in a logical and meaningful sequence. If they do not lead to attainment of modular learning outcomes, they should not be included. Oliver & Herrington's instructional design framework (2001) offered a solid and intuitive approach for considering a blended learning structure for this project..

**Recommendations**

Embedded e-tutorials offer an effective means of helping students learn essential digital research skills. Importantly, this is not about simply adding technology to existing learning modes; rather, in-depth consideration of learning outcomes and appropriate design for achieving intended outcomes is required. Future work on this project will develop the blended learning approach with further integration with programmatic level learning outcomes.

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# Sports Law in Motion:
# The Sports Law Clinic @UCC – A unique learning and teaching space for student engagement, dynamism and creativity

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## Introduction

UCC Sports Law Clinic is the only undergraduate clinic of its kind in the world (https://sportslawclinic.wordpress.com/). It was initially founded and developed by Dr Aisling Parkes and Dr Seán Ó Conaill (UCC School of Law) in 2015, established on foot of an Irish Research Council New Foundations Award. The Clinic not only provides undergraduate law students with an exceptional research experience, as well as an extraordinary learning experience in terms of skills development and application of law to facts, but it also provides a free legal information service to the wider community both within and outside of UCC. It is a student-led initiative and encourages students to be creative, innovative and to think outside the box. Through student research, overseen by Dr Ó Conaill and Dr Parkes as clinic directors, a much-needed pro bono information service in the field of sport is made accessible to the local community.

## Teaching Philosophy

Our teaching philosophy has always centred on the need to ensure that students engage in deep learning as a result of teaching, while also enjoying the experience as much as possible. We believe that the key to being successful in achieving these aims is having the ability to empathise with students – adopting a studentcentred and, where possible, a student-led approach. Instilling confidence in students is central to our teaching philosophy.

The clinic is student-led (each week, one of the eight clinic students has the opportunity to chair the board meeting; another will act as secretary) and encourages students to be creative and innovative. The creativity of the students is evident from their creation of the clinic's social media pages, the logo, the website, the headed paper, as well as the development of interviews and a video which highlights the work of the clinic. Moreover, on a weekly basis, students are responsible for: the intake of cases, the recording of meetings and the delegation of work amongst the group, the organisation of clinic events, the arrangement and conduct of meetings with clients (together with a Clinic Director (/s)) and for the provision of information in a timely and professional manner.

## Student Participation

From a practical point of view, active student participation in the clinic is critical. Given the nature of the cases received on a regular basis, students must engage with the material and cannot be passive recipients of knowledge. This facilitates a much more rounded understanding of the subject matter - where the students not only learn from their experience in the clinic but also from their interactions with each other. In promoting this kind of active learning, the aim is to facilitate the sharpening of students' problem solving, analytical and communication skills, proficiencies particularly important for the study of law as well as for the professional environment.

The clinic environment encourages students to be creative and to use their own practical knowledge and understanding of today's online world to highlight the work of the clinic. The digital literacy of today's student cohort means that students of the clinic are encouraged and supported to expand on their current skillset in a safe and controlled space. Key examples of how the clinic environment provides the space for creativity are evident from the Sports Law Clinic social media pages where interviews conducted by the students with high profile athletes have been posted over the past year.

Students learn to collaborate with peers as members of a team. While official clinic meetings occur weekly, the cases that students are working on require them to meet as a group outside of designated class time. The latter requires commitment and dedication and encourages students to work together as a team. Finally, the clinic works on the basis of peer evaluation, so that peers oversee each other's work which is ultimately overseen by the Clinic Directors.

Dr Ó Conaill and Dr Parkes co-facilitate the clinic each year and actively seek ways to improve the delivery of the module for the students. The module is student-led in more ways than one with student feedback being integral to the ongoing enhancement of the module. Indeed, student feedback has directly informed amendments to the Book of Modules (https://www.ucc.ie/admin/registrar/modules/?mod=lw3373). The Clinic is assessed by way of a reflective Learning Journal (50%) and a research project (50%). The only requirement for entry to the clinic is that the students have undertaken or are undertaking (as co-requisite) Sports Law [LW3373]. As part of the evaluation of the clinic module for the academic year 2018/19, when asked if there was anything they would change about the module, many students referred to the method of assessment and the number of students on the clinic committee at any one time: 'the assessment and the number of people in the clinic and maybe interviews to get into the clinic'; 'Give a higher % mark for weekly work done

through the clinic; 'possibly the way it is corrected but nothing other than that'; 'the assessment, the number of members – small would have worked better', 'look to changing the assessment'.

## Conclusion

The clinic experience enables students to develop the graduate attributes and connected values envisioned in the *UCC Academic Strategy 2018-2022.* Through partaking in this module, law students learn to engage directly with real life clients. Students are exposed to the importance of research in the context of sports law and learn the importance of teamwork. Students also learn about making mistakes in a professional context and, as a result, how to cope with the consequences. They learn the importance of punctuality, dedication and commitment when working with others towards a common goal.

The Sports Law Clinic also provides a service to the local community by hosting sports events for the wider community. Annually, students take responsibility for hosting such a public information event for the local community (https://sportslawclinic.wordpress.com/increased-regulation-in-sport/).

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# Designing and Delivering Experiential Learning Opportunities: Environmental Law in Action

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## Introduction

This paper reports on the experience gained with an undergraduate Law module – LW3372 *Environmental Law: Contemporary Issues in Governance, Regulation and Enforcement* – in the academic year 2018/19. This module incorporates specific features designed to enable students to engage with environmental law 'in action' through experiential learning opportunities set in the context of a research-based approach to teaching and learning.

In 2018/19, the module was restructured to map it on to the Connected Curriculum framework adopted by University College Cork (University College Cork, 2018). This involved, in particular, a stronger focus on the research component which forms part of the assessment for the module and more explicit linkages to law 'in action', specifically: how to engage Law to solve contemporary societal challenges. The module also sought to draw out and engage with implementation of the Sustainable Development Goals (SDGs) with a particular focus on Goal 13 Climate Action and Goal 16 Peace, Justice and Strong Institutions (UN General Assembly, 2015).




**Figure 1: UN Sustainable Development Goals (SDGs)**

The research objective underpinning this project was to explore and report on the experience of implementing selected elements of University College Cork's Connected Curriculum framework in an undergraduate module. The project on which this paper is based drew on the detailed framework for curriculum design and renewal developed by Dilly Fung at University College London (UCL) (Fung, 2017). The core principle underpinning UCL's Connected Curriculum initiative is that students learn through research and active enquiry. One particularly important dimension of the model developed by Fung involves connecting students with research and researchers. Early exposure to frontier research, together with the opportunity to connect directly with researchers and practitioners who are working to solve societal challenges, equips students with invaluable insights into their field of study. It also serves to demonstrate to students the fundamental role of research in society. Connecting effectively with research facilitates a further dimension of the Connected Curriculum framework – 'outwardfacing student assessments'. In other words, the assessment element of a module or programme, as the case may be, is conceptualised and designed to be the 'output' of a student's own research and enquiry. Depending on the particular model of assessment deployed, this 'output' may have an impact on local and wider audiences (e.g. policy briefs, research reports, blogs, podcasts, student-run events etc.). This outward-facing focus, and the emphasis on student-generated outputs, is a key element of delivering impactful experiential learning opportunities in the field of environmental law.

**Method**

The approach adopted involved: (1) selecting elements of UCC's Connected Curriculum framework as a particular focus for the design and delivery of the LW3372 module in 2018/19; (2) experimenting with implementation of these elements in the teaching and assessment methods selected for the module; and (3) analysing feedback on the module to gather insights into the student experience.




**Figure 2: Connected Curriculum Framework at University College Cork**

The following elements of the Connected Curriculum framework selected for implementation in 2018/19 are the focus of this paper: research-based teaching; sustainability (SDGs); and employability.

With a view to delivering research-based teaching and learning, a research project was assigned to students at the beginning of the semester. This project (comprising a 2,500 word report) was worth 40% of the overall assessment for the module. All students received detailed written feedback on their research report. The research project topic in 2018/19 focused on the enforcement strategy adopted by the Environmental Protection Agency (EPA), using the National Priority Sites for Enforcement initiative as a case study. Students were provided with a selection of primary materials (including legislation, case law, EPA policies and reports).

A guest seminar, delivered by a senior official from the EPA, was designed to support a high level of critical engagement with the material relevant to the research topic. It gave students the opportunity to gain direct, expert insights into the challenges involved in implementing a high level of environmental compliance in practice.

The balance of the assessment (60%) comprised a traditional 1.5 hour examination to test students' ability to apply relevant legal principles to specific scenarios. The approach adopted to teaching the topics selected for summative assessment by way of written

examination involved a combination of a case study and problem-based learning approach. For example, the topic 'Access to Environmental Information' drew heavily on a live case involving an appeal that I had brought (in a personal capacity) before the Office of the Commissioner for Environmental Information (the body established by law to determine disputes concerning requests for access to environmental information held by public authorities) (An Taoiseach, 2019). The availability of effective remedies to enforce environmental rights raises important issues around access to justice (SDG 16). It also concerns community engagement in terms of making the public and non-governmental organisations aware of how to use their environmental information rights. These live proceedings, and the associated documentation, provided exceptional material to support research-based teaching in this module. This led to a particularly rich experiential learning opportunity for the class. The 'Climate Action' topic (SDG 13), which also featured in the written examination, focussed on contemporary developments in law and policy in this field nationally and globally, including the University's contribution to climate action and the sustainability agenda (University College Cork, 2019).

The assessment methods selected were designed to develop, assess and document a range of skills valued by employers including: legal research and writing skills; clarity of expression; application of legal principles in practice; critical analysis and the ability to seek out creative solutions to policy challenges.

All seminars were recorded and made available via Panopto after class. This approach meant that students were less fixated on notetaking and more open to engaging in class discussion.

In the 2018/19 academic year, students performed exceptionally well in the module assessments. Of the 52 candidates who took the summer examination 2019, ten achieved a first class honours grade. Twenty-nine candidates achieved second class honours, grade one; eight achieved second class honours, grade two; and three candidates scored between 40-46%. Two candidates failed the module at their first attempt, but both were ultimately successful in the autumn supplemental examination 2019.

**Findings**

From observation in class, and feedback received via anonymous questionnaires distributed at the final seminar, it was clear that students were very impressed with, and appreciative of, the strong law

'in action' focus.

Specific points of feedback from students included: class was 'very lively' and 'all topics interesting and easy to follow'. Students appreciated: 'connections to reality of practice and factors influencing policy'; cases unfolding 'in real time'; and opportunities 'to develop practical understanding'. The guest seminar with the EPA was very well received. Students recognised this seminar as a significant learning opportunity.

## Conclusions

The Connected Curriculum framework adopted by University College Cork provides a clear roadmap to inform curriculum design and renewal. Experiential learning opportunities, set in the overarching context of research-based teaching, improved the learning experience in this module. The next step is to introduce a variety of assessment methods across a number of environmental law modules at UCC with a particular focus on 'outward-facing student assessments' (Fung, 2017). To this end, the Centre for Law and the Environment will embark on a new project in 2020: *Teaching Environmental Law for Policy Innovation and Impact*. This project is funded under the Higher

Education Authority / National Forum for the Enhancement of Teaching and Learning in Higher Education *Strategic Alignment of Teaching and Learning Enhancement Funding in Higher Education 2019.* The overarching aim is to design, develop and test a series of innovative models of experiential learning in the field of environmental law and policy. Supporting the production of high-quality student-generated outputs, which contribute to policy development and facilitate more effective community engagement with environmental matters, is a key element of the project.

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# Technology Enhanced Food Industry Engagement and Work Placement Curriculum Quality Assurance

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## Introduction

A recent report has identified several challenges and barriers from the employer perspective that can limit their ability to engage with work-placement (Jackson, Rowbottom, Ferns, & McLarend, 2017). These include a lack of shared understanding between the University and Industry of what is involved in work-placement; misalignment between employer and university expectations on the purpose and nature of the placement experience, especially what constitutes a quality placement and how this can be achieved; and ability to locate a suitable student. Additionally, not being approached by Universities and/or access to relevant University staff who arrange work-placements can be problematic. For unstructured work-placements, identifying suitable projects for students to undertake was found to be a considerable challenge. Recommendations to the University to reduce such barriers centre around developing collaborative relationships.

In Ireland, specific guidelines to facilitate quality work-placement have been compiled in the '*Roadmap for Academic-Employment Partnerships (REAP) Work-placement in Third Level-Programmes'* report (Sheridan & Linehan, 2011), and focus mainly on communications, learning agreements, mentoring practices, student selection processes, reflection on practice, and assessment and feedback mechanisms.

This paper will set out how the recommendations of the REAP report for work-placement were realised in TU Dublin Food related programmes, and the important role that technology played in this process.

## Method

*Part 1: Before Placement - Curriculum Design and Management*

The first step to a successful placement is to clearly establish the range of learning activities that constitute a quality work-placement. For diverse industries, a mechanism to define what a particular company can, and cannot, offer to the student, is also required.

*Step 1 - Securing and advertising a wide range of suitable placement opportunities*

To secure a range of well-defined and suitable placement opportunities, an electronic booklet was developed that explained the Programme and Module Learning Outcomes and the type of suitable roles and tasks within a company. A *GoogleForm* mirrored the information in the booklet and the link was available to workplacement coordinators to circulate via email, LinkedIn, and to Food industry representative groups such as associations and state bodies.

Mandatory questions in the *GoogleForm* included contact details, location, work times, student application processes, etc. to gather logistical information. However, more importantly from a curriculum quality perspective, it listed areas of focus for suitable activities in a mandatory tick-box question. Completing the form generated a line in a *GoogleSheet,* and a Word document that contained all the relevant information about the work-placement offered. Once approved by the placement tutor, these documents were released as *'Placement advertisements'.* In this manner, a wide range of clearly defined opportunities were generated more easily than in previous years, rapidly expanding our network of industries offering placements, as well as the diversity of opportunities from which students could choose.

*Step 2: Student selection*

The application process was managed by the Placement tutor, who shared to the students the *GoogleSheet* that listed all the placement opportunities. Students indicated when they had opted to apply for a position, and when they were successful in securing a placement. In most cases, the companies selected the students, either from applicant CVs, or through a more formal interview process. In other cases, the School was requested by the company to select a suitable student.

*Step 3: Creating a Unique Learning Agreement*

Once a student was successfully appointed to a placement, the student used the information from the specific *'Placement advertisement*' document to create a unique *'Learning Agreement*' document, which mirrored the *Placement Advertisement,* and contained a student Code of Conduct and a section for review and feedback. The purpose of the Learning Agreement was to provide quality assurance that (1) the company would provide the relevant experiences as specified by them when completing the Google-form, (2) the student would clearly understand the areas of focus and the relevant skills they would be expected to develop, (3) a mechanism for structured mentoring, feedback and assessment was

set out, and (4) provided guidance to all parties on how to deal with issues such as under-performance and unprofessional behaviour.

*Part 2. Placement assessment and feedback*

*Learning Agreement - Assessment and feedback on practical skills and knowledge*

Once on placement, the Learning Agreement was used to structure a mid-placement performance review. It included a space for documenting the mid-placement review, with each of the areas of focus/skills listed, and a section on 'progress to date'. It also provided for a final pass/fail assessment and feedback by the industry supervisor on the student's development of each of the specified knowledge and skills.

*Reflective Practice and developing a Community of Learning though an online Blog Assessment.*

A blog assessment was implemented to actively encourage reflection and also foster peer-peer learning through providing an opportunity to share experiences of the diverse range of activities during work-placement. The aim of the blog assessment was (1) to utilise a Virtual Learning Environment (VLE) to provide an effective online learning space to foster a community of learning for work-placement students; (2) to engage students in collaborative learning, encouraging deeper analysis and critical thinking; (3) to enhance career development through sharing work-placement activities; (4) to provide student friendly peer and tutor support while isolated from college on placement, thus supporting student retention; (5) to provide timely tutor feedback and peer review on assessment; (6) to enhance professional development through reflection on practice and written communication; (7) to broaden the curriculum through gaining, sharing and discussing external perspectives on core knowledge gained in theoretical modules. A full description of the implementation and evaluation on this assessment has been described previously (J. Dunne & Ryan, 2016).

## Findings

*Evaluation of Technology to support high quality work-placement:*

The use of Google Suite apps to manage and assure quality of work placement is shown in Figure 1.

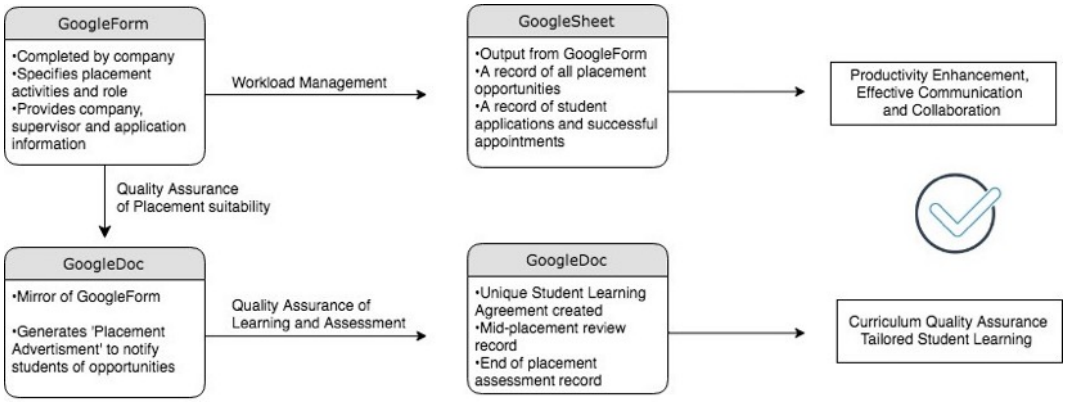



**Figure 1. Overview of *Google Apps* in Food Industry Work-Placement curriculum**

- The technology was successfully adopted by all work-placement stakeholders - tutors, students and companies.
- Companies could identify the type of learning activities that would be relevant to the student on workplacement, giving confidence to the company that they would be a suitable organisation to support a student on placement;
- Companies could select from a range of suitable activities to build a bespoke work-placement that would be suited to both the company and the student;
- Our range of companies and types of opportunities was rapidly expanded;
- The students were clear from the outset what the placement would involve, empowering them to select an appropriate opportunity to match career aspirations;
- The management of the placement allocation process was streamlined;
- The student has a personalised and bespoke learning agreement as a document that could empower them to have conversations with the industry supervisor if the appropriate learning activities were not being provided to them;
- The learning agreement formed the basis for structuring a mid-placement review between the industry placement supervisor and the student, enhancing feedback on performance in a structured manner;
- The learning agreement structured the conversation with academic tutors who visited the student on the work-placement, assuring that the student was achieving suitable learning while on placement;
- The learning agreement formed the basis for feedback and remedial action if the student was not engaging fully in the placement experience;
- The learning agreement formed the basis for the industry supervisor to assess the student learning at the end of placement;
- The completed and signed learning agreement formed the basis for the University to decide if a student had met the learning outcomes of the industry placement.

Meanwhile using the online blog assessment, outlined in Figure 2, has helped

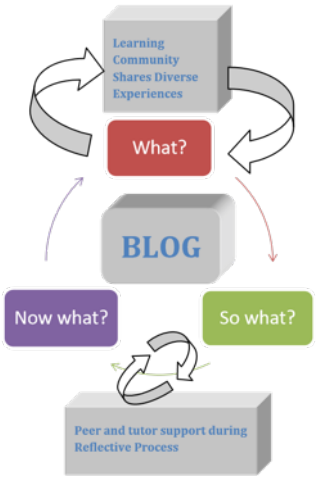



**Figure 2. Overview of Blog Assessment**

- University staff remain abreast of developments in Industry through engaging in the blog assessment and reading the diverse experiences of the students;
- Students to share experiences and learn from each other;
- Students to be supported while separated from the peers for the first time in their Programme of study;
- Students to actively reflect on their overall development (J. L. Dunne, 2019), linking placement experiences to theory and finding evidence for the development of graduate attributes and allowing them to articulate these and enhance future employability (J. L. Dunne, 2017)

## Conclusions

In conclusion, technology has improved the management of the work-placement process, from generating ample high-quality and relevant placement opportunities, increasing productivity through better collaboration and communication. Technology has also guaranteed the quality of the placement, from defining suitable learning activities, through to the creation of individualised Learning Agreements. The online reflective blog assessments have been shown to support students' reflection on learning, as well as fostering a community of learning amongst peer groups.

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# Cross Cultural Experiences of Chinese Students Studying Food Science in Ireland

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## Introduction

Food science is the comprehensive study of food and beverages or more specifically the application of the scientific disciplines of the physical, biological, and chemical as well as engineering, microbiology and nutrition to the study of food and beverages to improve the sensory properties, safety, nutrition, functionality, sustainability and availability. UCC attracts diverse cross-cultural groups of students to degree programmes in Ireland annually including 3000 international students from over 100 countries (UCC, 2018). However, anecdotally, students were underperforming (grades lower than Irish students) for some of their formative assessments due to a lack of familiarity with the Irish teaching system. For this reason, it was decided to investigate, from first principals, the experiences of these Chinese students both from their Chinese and Irish experiential perspectives in order to determine areas that could be optimised to improve their integration and promote their holistic learning experiences. The action research findings of this present study will thus be used to optimise a new bespoke degree programme, specifically catered for Chinese students, that commenced in UCC in September 2017.

## Methods

### Interviews Using a Structured or Semi-Structured Approach

The semi-structured interview technique where the interviewer's task is to obtain information while listening and encouraging the interviewee to speak (Di Cicco-Bloom &

Crabtree, 2006) . The semi-structured interview gives full freedom to the interviewees to express themselves and to deepen the conversation about some different or all the covered topics. This is important for a good relationship between interviewer and interviewee .

**Interview Questions**

1. Tell me about your University in China?
2. How do lecturers interact (teach) with students?
3. How do you feel about this? What is your opinion?
4. What do you like and dislike?
5. What would your ideal experience be of learning in English (learning in China and Ireland).
6. How does your classroom experience (so far) in Ireland differ from that of your homeland?
7. How does your laboratory practical experience (so far) in Ireland differ from that of your homeland?
8. What do you think of UCC approach to teaching? Tell me about your experience of UCC teaching approaches 9) What do you like and dislike. Or what do you find positive and negative about these approaches.
9. How could teaching approaches be improved.
10. What does holistic mean to you? Can you connect the different modules to see the bigger picture.
11. How do you interact with the Irish students. What would you like this interaction to be.
12. Tell me about your exam experience in China and Ireland.

**Thematic Analysis**

The interviews for this study were transcribed by the first author in order to create immersion in the data. Hard copies of the interview transcripts were coded by highlighting thematic phrases with a highlighter pen. The interviews were coded and analysed, and the following themes identified as per the results presented below.

## Findings

Students reported that they sometimes have to translate unfamiliar words in class and do this using Google Translate or electronic dictionaries, while simultaneously trying to listen to the lecture. WIFI connectivity is thus very important to enable learning for these students however, the interviewees reported that not all classrooms have good WIFI. Also, teaching in UCC definitely promoted more holistic understanding and unlike some situations in China was never rote learning. Students suggested that lecturers who only give out hand-outs during class leaves them at a disadvantage as they have not had time to preview and translate the documents.

## Holistic Learning

In Irish exams they find the essay type question a very difficult concept to understand especially on first seeing them. Students suggested this has become easier over time, but they prefer the former format of MCQ's and short Questions. They also suggested they would benefit from tutorials where example essay questions are answered by the lecturer as case studies or sample questions format. Interviewees also understood the concept of holistic learning, when also described as "joining the dots" of the module content to the syllabus. The interviwees clearly understood the concept of applying what she learnt from one module to another and examined using the essay question. The interviewees presented examples of "cross-pollination" of the way different food science areas are connected, for example, one students explained that she understands how microbial spoilage and chemical deterioration of food effect shelf life, and how this manifests as sensory issues and possibly also as food safety issues. She was also able to identify how preservatives help to retard these processes. She was enthusiastic about telling me about these holistic connections in the food science discipline. Additional comments made by the students included; "Some lecturers say this in class, that we must try and understand holistically. We must connect things, as you say join the dots."

## Conclusions

Overall the Chinese students interviewed showed consensus with regard to certain issues with respect to their classes taught in Ireland. They require good WIFI and it is essential for them that they receive lecture notes with an adequate lead-time prior to the lecture which facilitates translation. In China exams are usually presented with short

questions. It is recommended that students are introduced to the essay question format, possibly also through tutorials, to speed and ease their transition in the Irish system. The above findings were used to optimise the current interaction with our Chinese students Food Science and Technology International Degree.

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# Creating a SANCTuary of Learning Spaces in Universities Teaching for Diversity in Use of Spaces, both Physical and Virtual to Ensure a Best Learning and Inclusive Experience for Students

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## Introduction

The SANCT Model as per Vollmer (2016) suggests that certain elements are necessary for the support of learning in spaces, being – Self-esteem, Autonomy, Normality, Control and moTivation. The SANCT model can be applied to university spaces to ensure a SANCTuary of optimum spaces for users to enjoy. These spaces create a community for students and staff within safe boundaries and the desire is that these boundaries will be permeable to the general community through extended campus initiatives. The SANCT elements must be planned for and sustained in the design of university spaces, both physical and virtual to encourage the enjoyment of space by local users in the form of students, staff and outsider users in the form of community and professional visitors. The people are the most important part of every university and the spaces must meet the unique learning needs of the users who occupy them. The spaces must wrap around the people to keep them physically and emotionally safe with a sense of identity and belonging being encouraged by the distinct entity of university spaces.

## Method

Qualitative research undertaken at Cork Institute of Technology, University College Cork and University College London assesses the user experience of learning spaces in new builds and refurbishments of buildings in three Universities situated in Ireland and the United Kingdom. There is an ecology to these buildings (Becker et al., 1973) and these spaces are an embodiment of the metamorphosis of our society. The culture of a university impacts society and vice versa universities are shaped by where society is at a given point in time with our spaces moving from traditional to newer, more modern space incorporating

technological advancements (Cook V. A., Hemming P. J., 2011). How do students and staff feel about and connect with these spaces on a day-to-day basis and how can university leaders nurture these connections in a healthy and meaningful way? This paper addresses these questions and applies an architectural psychology perspective to the data to examine the impact of space on the psyches of users.

**Findings**

The spaces themselves must perform a role in universities as they are not a passive element where students and teachers simply sit and learn but rather they are an active, living and essential element to the shared learning experience of staff and students. To embrace this expectation of our classrooms we must listen to the users on what aspects of a learning space they say are supporting this collaborative learning experience and also what elements of spaces are weakening the effectiveness of learning and teaching. A Design Theory analysis is adopted here to narrowly focus the perspective on the user experience of the moment, this brings two advantages, firstly a voice is being given to the users of today on their views of spaces and secondly it grounds effective planning for spaces for users of the future. Carnell has recognised that the impact of space is not limited to the students within its walls but also the general community and future students. (Carnell, 2017).

Several key themes emerge from the individual data sets of the three universities, these themes seem to be unique from each other, based mainly on the function and ages of the spaces in question. For newer spaces users gave views shining a light on – facilities and services within the building, aesthetics of the building, student experience of the building thus far, whereas for older spaces users emphasised – flexibility of spaces, challenges and barriers for use of spaces, training needs arising for users of spaces. The data shows that the learning space is an aspect so pervasive that it changes the experience of both the teacher and the student and this is supported by academic commentary. (Jamieson, 2003). The space is capable of making the experience an empowering, inspirational, collaborative event or on the contrary; a stagnant, tedious endurance, depending greatly on the dimensions and attributes of the space. (Jamieson et al., 2000).

**Conclusions**

The users of university spaces want to be inspired by them in their learning, through innovative teaching in spaces, movability of furniture and opportunities for collaborative discussion and work. The SANCT model prompts us towards ensuring the users have a voice

in the design and use of space but the value lies not only in gathering the views but also in putting concrete action plans in place to ensure inclusive authentic learning for all.

### Three key learning points

1. The people are the most important part of every university and the spaces must meet the unique and individual needs of the users who occupy them, to ensure inclusive and accessible learning and teaching.

2. University learning spaces must wrap around people to keep them physically, psychologically and emotionally safe, instilling within all the users of the space a sense of identity and belonging.

3. The SANCT elements (Self-esteem, Autonomy, Normality, Control and moTivation) as per Vollmer (2016) must be planned for and sustained in the design of university spaces, both physical and virtual.

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# Integrating Industry into Business School Education

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## Introduction

There is pressure on Business Schools to offer value to multiple stakeholders, including students, employers and society. To this end, Business Schools need to undertake and combine three key activities: 1) research, 2) teaching theory, and 3) experiential learning (Hubbard, 2019). Creating links between academia and industry is one method to facilitate this process (Hardaway, Harryvan, Wang, & Goodson, 2016). Though the benefits of academic/industry collaboration are well accepted, operationalising such partnerships can be problematic. This research seeks to establish guidelines and best practice to enhance the likelihood of success. As part of the MSc in Design and Development of Digital Business, a mix of industry and community representatives were invited to engage with students. This presentation will discuss how external stakeholders were integrated into the master's program. Our main discussion will be focused on the insights we gained from using outside stakeholders to help provide information systems students with experiential learning.

## Overview of External Engagement

The MSc in Design and Development of Digital Business (MSc DDDB) is a one-year master full-time master's program. Students are taught a mix of technical, design and analysis skills in order to enable them to solve real-world business problems. External stakeholders (ES) are integrated into the program to provide students access to new skills and different points of view. Skills workshops undertaken last year include teambuilding, presentation skills, and pitching, Figure 1. ES also interact with students and present key information from modules in a different way.




**Figure 1: Industry speaker giving a pitching workshop**

As part of the course, students work on a design and development project. Incorporating user-centred research and software development, students work in design sprints to create a prototype solution to a real-world problem. These problems are suggested by ES partners including companies, state bodies and community groups. Students work with ES mentors during the project to get feedback during sprints, Figure 2. This course uses multiple stakeholder engagement mechanisms to facilitate different intelligence types though multiple entry points of learning (cf. Gardner, 2000).



**Figure 2: Students with their External Mentors**

## Methods

This study used focus groups to evaluate the approaches taken by the course directors to integrate ES into the DDDB program. Focus groups are characterised by rich group interaction that produce insights and data that would be less accessible through other means

(Morgan, 1996). They can be used as a primary means of collecting data, 'self-contained', or alternatively as a 'supplementary' source of data for quantitative studies (ibid). Focus groups leverage the communication between research participants to yield data that may not be acquired through traditional interviews (Kitzinger, 1995). This is because it enables researchers to study how participants share and compare different views, which is unique to focus groups (Santos, 2019) Rather than ask research participants question individually, it is the interplay between research participants that uncovers "*not only what people think but how they think and why they think that way*" (Kitzinger, 1995 p.299). As such, they offer context and perspective by uncovering the insights and beliefs of participants (Carey and Asbury. 2016). Data for this study was collected using two focus groups, one with students and one with external stakeholders who had interacted with the students on the program.

During their focus group, the students were asked a range of questions related to the course, the modules and teaching methods employed. They were also asked specifically about their final project which involves interaction with external partners. ES were asked to discuss their perception of the course and the students. They were asked to reflect on their interaction with the students, the student's different skill sets and what could be improved. Beyond providing feedback, creating a forum for ES is deemed a key enabler of industry/academic collaboration (Mandviwalla et al., 2015).

**Findings**

Based on the data collected during the focus groups it was apparent that the interaction between students and industry partners was deemed a positive experience for students and external stakeholder alike. There was broad consensus that the students brought a fresh perspective to the problem-solving efforts. As one ES put it "*lots of the student ideas were better than we had internally so it was really successful*". Equally, the students welcomed the exposure to "real-world" problems. Though business case studies are effective teaching aids (Nkohma et al., 2017; McCarthy and McCarthy, 2006), the collaborative project offered cohesion. According to one student "[the project] *allowed us to see how material from the different modules ties together...we took something from every module and applied it in the project*". The collaborative design and development project structure was also identified as a critical success factor for student/industry collaboration. The collaborative industry-focused projects were operationalised using a design SPRINT approach that reflects industry best practice. The research and development project was broken into four three week sprints, each with its own requirements and deliverables. The industry partners were highly

impressed with this aspect of the project. All of the external stakeholders agreed that the project structure provided them with clear expectations of the timeline and nature of project deliverables. One of ES focus group members even lamented the lack of a similar structure in his own postgraduate education. Less successful was the timing of the project. Three of the external stakeholders stated that they would have liked to engage with the students earlier. This view was also reflected during the student focus groups. Students also expressed a preference for groups to be allocated earlier in Semester 1 and Semester 2 rather than allocating the groups on completion of the summer written examination. The course directors had implemented soft skills workshops including confidence-building and teamwork. However, the team dynamic varied from group to group. However, there was a consensus that the group project work throughout the year helped students "*work better in groups and understand different people, different work styles and cultures*". The majority of industry partners advocated for additional soft skills modules including presentation and communication skills. The importance of soft skills was also reiterated during the student focus group. Students discussed the importance of professional communication skills such as sending e-mails to business partners and managing their social media profiles whilst some of the ES focus group participants criticised the student's sometimes "informal communications". Although the students acknowledged that they received feedback, they stated a strong preference for proactive rather than reactive communications strategies. Though there were many findings uncovered during the focus groups. Three main learning points emerged:

1. Interacting with industry professionals provides important context for classroom material.
2. Working on real-world problems allows students to apply knowledge gained in the classroom.
3. Soft skills are vital for students when communicating with external partners

**Conclusions**

Creating a project structure that reflects real-world project work can provide an effective mechanism for collaboration between students and industry partners. Clearly articulated deliverables and timelines added clarity and purpose whilst also managing the expectations of cohorts with diverging needs. Iterative development allowed both the academic supervisors and industry partners to reflect on progress. This finding would appear to support research by Nielsen and Cappelen (2016) who advocate the use of continuous

knowledge sharing versus a “final report” style approach for collaborative research projects. Each deliverable built on the work of the previous deliverable and ensured progression towards the final deliverables. Moreover, it allowed the academic supervisors to intervene early if deliverables were not met or didn’t meet the required quality. Frequent intervention, although time-consuming, proved effective in ensuring student met deliverables. A delivery schedule also offered partner companies an opportunity to share their experiences with the academic supervisors early and often. The time and availability of staff in the industry partners varied from company to company. However, by clearly articulating the students’ requirements and expected outcomes, the project directors successfully managed the academic and industry partner needs.

Course directors face many non-academic challenges in facilitating collaboration with ES. Allocation of student groups and matching them with industry partners is one example. Fieldtrip risk assessments were both time consuming and frustrating for the students and project supervisors alike. The requirement for ethical approval removed the element of spontaneity that is often the hallmark of design research. Partner companies found consent forms and project information sheets onerous having already agreed to participate in the research. Launching the collaborative project earlier in the academic year may mitigate this threat. However, this is not clear from the data collected.

Though the benefits of industry/student collaborations are frequently cited, the mechanisms for successful collaborations are less understood (Ankrah and Omar, 2015). In order to develop effective collaboration, strengths and threats need to be identified, and a common goal which addresses mutual benefits to all stakeholders needs to be developed (Tran, 2016). This research demonstrates mechanisms to strengthen student/industry collaboration and identifies some threats that could be addressed in future research. Evaluating student/industry linkages through the lens of boundary objects (cf. Star and Griesemar, 1989) may also prove to be a fertile ground for future research.

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# Decolonising the Curriculum. Contemplating Academic Culture(s), Practice and Strategies for Change

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## Introduction

In 2015, students at the University of Cape Town called for the statue of Cecil Rhodes, the 19th century British coloniser, to be removed from their campus. Their clarion call, in this increasingly widespread #RhodesMustFall movement, was that for diversity, inclusion and social justice to become a lived reality in higher education (HE), the curriculum has to be 'decolonised'. (Chantiluke, et al, 2018; Le Grange, 2016) This was to be done by challenging the longstanding, hegemonic Eurocentric production of knowledge and dominant values by accommodating alternative perspectives, epistemologies and content. Moreover, they also called for broader institutional changes: fees must fall, and the recruitment and retention of both students and staff should take better account of cultural diversity rather than working to socially reproduce 'white privilege' (Bhambra, et al, 2015) Concerns had long been voiced by both academics and students about curricula dominated by white, capitalist, heterosexual, western worldviews at the expense of the experiences and discourses of those not perceiving themselves as fitting into those mainstream categories (for an Afrocentric perspective, see *inter alia*, Asante, 1995; Hicks & Holden, 2007) The massification of HE across race and class lines in the past four decades has fuelled these debates; consequentially, the 'fitness' of curricula across disciplines are increasingly being questioned. Student representative bodies have also voiced the deeper concern that many pedagogic practices and assessment techniques in university systems serve to reproduce society's broader inequalities. Certainly, in the UK, recent in-depth research has indicated that the outcomes of inequity are both multifaceted and tangible, with, for example, graduating students from Black, Asian and Minority Ethnic (BAME) backgrounds only receiving half as many 'good' (first class and upper second) degree classifications as their white counterparts (RHS, 2018).

As a consequence of such findings and reports, the momentum for discussing the issues around diversifying and decolonising the university has gathered pace. Importantly, however, as the case and arguments have been expressed not only through peer reviewed articles and reports published by learned societies, but also in the popular press, the core

issues have become more accessible than most academic debates and more readily discussed by both teachers and learners (Arday and Mirza, 2018; RHS, 2018). Hence, more recently, findings about the attainment/awarding gap have been taken seriously and given prominence by both Universities UK and the National Union of Students, though their shared conclusion is that radical (though yet to be determined) steps are needed if any movements or campaigns, such as #closingthegap are to find any success. (Universities UK, 2019; NUS, 2016; Shay, 2016)

**Method**

This small-scale case study focuses on the perceptions, concerns and aspirations of students and academic staff in history and history-related disciplines. To do this we are utilising a variety of interview techniques (Roulston & Choi, 2017; Kvale, 2006) to examine around a dozen students, and the knowledge, practice and strategic engagement of over twenty academic staff, ranging from experienced educators to those new to teaching. What does decolonising the curriculum mean for them; what is its relevance for equity and social justice in the Scholarship of Teaching and Learning (SoTL)? What are the barriers to progress; and what might a strategy for change look like? The first two lines of enquiry, we suggest, permit us to investigate in our subjects what

Habermas termed the 'emancipatory interest' (Cohen et al, 2017, 53; Flood & Romm, 1996). In the quest to be ideologically neutral in our interpretation of what might be heavily value-laden data, two project members work independently using qualitative content analysis (Schreier, 2013) to first reduce that data down by and then compare their analyses. In doing this, we have addressed our enquiry questions by contemplating (a) how marginalised perspectives can be brought to the centre; (b) how partnership and interaction between students and staff can effect change; and finally (c) what strategic processes lend themselves to the actual expansion of disciplinary borders.

**Findings**

The weight and welter of information gleaned from publications, polemic and the data from interviews presented, at least for us, a number of conundrums. First of all, there is no absolute agreement about definitions. The conceptual hybridity of 'decolonising the curriculum', the melange of two dominant conversations - curriculum (how taught, examined); and discrimination (how 'race', gender, class and sexuality can affect learning experiences) - seemed to carry different emphases to different people. While these

conversations have long been acknowledged as related (Freire, 2000), they might, in educational practice, be dealt with separately. As a consequence, interpretations about how theory might manifest itself in practice seem to be based on an array of principles, for example some practitioners seem to be less concerned about seeking 'authentic' culture, but more about opening up of spaces to facilitate knowledge informed by indigenous thoughts and actions. At the other end of the spectrum, the challenge of decolonising the *content* of the curriculum has created a siege mentality for some academics whose epistemologies (and maybe livelihood) is nurtured by the rigid, rather than malleable and permeable disciplinary boundaries (Bender, 2005). Interestingly, this argument has also been evident in its reception by some scholars in the humanities. One position against ubiquitous change marshals the view that local, regional, national histories and literatures should be a research and teaching strength of UK universities. *Ipso facto*, the appointment of staff and significantly the staff demographic in those areas should not fall on the sword of the decolonisation movement. One certainty emerging from the literature was that curriculum and structural developments, to carry decolonisation into practice, are highly dependent on doing 'difficult' things: having uncomfortable conversations; and developing institutional spaces, opportunities, strategies and effective policies for promoting cultural change. That is not to say that a need for cultural change has gone unacknowledged - it is now *de rigueur* in many UK universities for staff to undertake unconscious bias training and the like.

**Conclusions**

This research project is still only in its early stages, however our data points to some early conclusions about principles, strategies and mindsets. We have immediately seen, as Devine's analysis suggests, that the matter of changing mindsets is complex (Devine, 2012). Recognising and countering stereotypes is not, in itself, sufficient; individuation, rather than generalisations, should, as she says, be accompanied by perspective-taking/empathy and increased opportunities for engaging with marginalised groups in a positive manner. However, to take the example of the teaching of history, which has been put under the microscope because of its curricular introspection, the content and perspectives of undergraduate degrees in the UK and north America are dominated by Eurocentrism (Clossey and Guyatt, 2013), and militate against inclusivity in terms of both the student and staff body (RHS, 2018). Other, early conclusions emerge from the near universal consensus from respondents about the problematisation of terminology, definitions and direction – natural

enough in what some see as a new, rather than just a rebranded movement. Ironically, most of these early respondents were also seemingly pragmatic about strategies for change: thus, while there was general agreement that there is no off-the-shelf solution, mechanisms for transformative action were most often framed within existing, traditional practices and institutions.

At three points in the presentation delegates will actively interrogate the following challenges (and they should be seen as challenges rather than mere questions). First, how can the SoTL decolonise the curriculum taking it 'from academic knowledge to democratic knowledge' (Robinson and Katalushi, 2005, 51)? Second, what do we, as practitioners need to do 'to re-examine disciplines and their epistemological structure' and 'ways of thinking and practice' (Kreber, 2010, pp. 33-104, *passim*; wa Thiong'o, 1986)? Third, finally, how can systemic change happen, to make teaching and learning more meaningful for both staff and students? For the presentation's 'take away', delegates will be invited to consider to what extent decolonising the curriculum, with its links to equity and social justice, is more than a set of pedagogic ideas, but a movement which educators (and perhaps most especially the institutional descendants of former colonisers) are morally obliged to embrace.

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# Transitional space: learning in the spaces in-between

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## Introduction

There is increasing evidence, particularly in STEMM education, that traditional didactic transmission lecturing is less effective than more active, student-centred learning (Freeman *et al*., 2014). This mounting evidence has resulted in institution-wide curriculum review, pedagogic transformation and ongoing space refurbishments at Imperial College London, a research-intensive institution that provides the context for this work.

Although active learning is proven to improve cognitive outcomes by supporting 'students to do meaningful learning activities and think about what they are doing' (Prince, 2004, p.223), its examination remains largely linked to instructional contexts, with neglect for the self-directed, non-timetabled learning spaces that support a rich learning experience. This instructional emphasis is evident from the capital that Imperial College London, among other institutions, continue to invest into ongoing classroom refurbishments to support curriculum review and innovation. However, it could be argued that these changes to physical infrastructure do not accurately reflect and address the growing self-directed workload that students now contend with. Furthermore, as capital spending on maintaining and modernising university buildings in the UK approaches £3 billion annually (Temple, 2018), these refurbishments are increasingly time- and money-intensive, placing a financial strain on institutions.

The assumption that students successfully transition between passive and active learning, between directed and self-directed learning and between formal, timetabled and informal, non-timetabled spaces has meant transitional space being overlooked. By seeking to better understand student engagement with these transitional spaces as physical, curricular and cognitive spatial phenomena, this study is generating evidence for the educational importance of transitional space and using this to better understand active learning. By redesigning underutilised ancillary spaces adjacent to formal lecture spaces at lower cost than lecture theatre refurbishments, students can better self-direct active learning at moments of transition into and out of formal, timetabled spaces.

## Method

This study is using a mixed-methods phenomenological approach to understand student engagement and perception of transitional space. Naturalistic non-participant ethnographic observation protocols (Somekh & Lewin, 2005) have been used to record learning behavior within a breakout space in the Chemical Engineering department (see figure 1). This breakout space is located adjacent to a raked lecture theatre that holds up to 150 students that is used predominantly for undergraduate didactic teaching. Observation of learning behavior within this lecture theatre, breakout space and transitions between the two have been followed up with brief 5-10-minute structured field interviews to collect contextual information and non-observable details from participants, such as how often they use the breakout space and what for. Individuals or small groups of undergraduate students are approached for interview when observed self-directing learning through interaction with one another or with digital technology.

In addition to these detailed ethnographic snapshots, novel use of automated occupancy monitoring data has provided temporally-stable occupancy records for the lecture theatre and breakout space. These methods, in combination with timetable context, have been instrumental in understanding cohort-level behavioral patterns.

## Findings

### ACEX Building, Chemical Engineering

Ethnographic observations indicate that students independently or collaboratively learn during between timetabled session transitions using furniture, power sockets and Wi-Fi available in the breakout space to mediate this learning process. Asking friends questions about the previous lecture material or discussing problems relating to pre-assigned group work are examples of such active learning behaviors. This activity is self-directed, incidental and often unplanned and is therefore distinct from the passive learning observed in the lecture theatre.

It is posited that this transitional behavior is catalyzed by a shift in power from the teacher back to the student as the cohort exits the lecture theatre into a more democratic space with a less constraining set of rules. Students observed conversing more freely with the lecturer and with one another in the breakout space demonstrates this permissiveness, as control is no longer located with the transmitter/teacher, but with the acquirer/student (Bernstein, 1990). The learner is therefore empowered to take greater agency in engaging in

peer-to-peer learning and have greater freedom to deviate from the confines of the formal curriculum.

Field interviews with students during these transitional periods have helped to bolster this sentiment. One 1st year undergraduate student reported using the space before and after lectures to "…quickly go over stuff, often with friends". This is a self-directed, collaborative form of learning and is a behavior that challenges the binary framing of 'formal' and 'informal' learning space, given this interaction approximates a formal encounter within an informal space. Several students also referred to the "convenience" of the breakout space as its primary merit and praised the "micro-community from being around other departmental members". The space therefore serves an important role in nurturing disciplinary community in addition to enabling learning and interaction. Nonetheless, students from other departments have been interviewed in this space, meaning it possesses a freedom and potential that could be leveraged to disintegrate disciplinary boundaries and territories.

Occupancy monitoring data has helped to confirm that on average, 35-40% of students attending lectures will engage in meaningful use of the breakout space before, during or after timetabled sessions. This ability to engage in transition is heavily influenced by the design of the timetable and was confirmed by a comment made by a 2nd year undergraduate student who stated that they use "…this space before a lecture and if I have time will use it after lectures". Both the physical nature of the ancillary space and the configuration of the timetable therefore contribute to the nature and effectiveness of transition.

**Blackett Building, Physics**

Imperial College's ongoing programme of space development and refurbishment provides interesting opportunities to use the existing methods to observe student behavior in similar spaces with different disciplinary contexts. This same methodology is being used to collect data in an ancillary space and newly refurbished lecture theatre in the Physics department which shares a comparable architectural configuration to the Chemical Engineering setting (see figure 1). The researcher is also engaging in a 'Student Shapers' project working with staff and students to use findings and ideas from the Chemical Engineering setting to inform the redesign of the Physics ancillary space (see figure 1).

Having already collected data in the lecture theatre and ancillary space pre-renovation, this phase provides a unique and timely opportunity to examine the impact of remodeling the physical nature of this fringe space on student learning behavior and

transition. Findings from initial observations and field interviews with students and lecturers using the refurbished lecture space are indicative of transitions taking place not only across timetabled and non-timetabled periods, but also within interactive classroom sessions where power and control shift between the lecturer and students. The learning potential of this transition and the role of space are of growing interest.



**Figure 1: ACEX breakout space in Chemical Engineering (left) and Blackett ancillary space in Physics (right). Note the stark difference in usage. Source: Imperial College Education Office**

## Conclusions

Ethnographic observation, field interviews and occupancy monitoring methods have provided evidence for the existence of a physical, curricular and cognitive transitional space between formal, timetabled and informal, non-timetabled spaces. Transitional space has received scant attention in the literature with the primary focus on 'in-between' spaces as original encounters in moments between the taught and the learned (Sagan, 2011). The findings of this study so far indicate that when properly supported with architectural intervention and timetable design, transitional space can be a physical extension of the classroom that is a site and opportunity for selfdirected active learning as students are empowered to take greater agency than in formal settings. By renovating bare corridors, lobbies and other methods of ingress and egress at relatively low cost, transitional space represents a temporary option for preparing spaces and students for the desired increase in active learning in instructional settings.

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# Student-Produced Video of Role-Plays on Topics in Cell Biology and Biochemistry: a Novel Undergraduate Group Work Exercise

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## Introduction

Group work or cooperative learning is a form of active learning that has potential benefits that extend beyond just being an alternative or improved way of learning course material. For example, Shimazoe and Aldrich (2010) identified six proposed benefits of active learning to students, namely (1) promoting deep learning, (2) helping students earn higher grades, (3) teaching social skills & civic values, (4) teaching higher order thinking skills, (5) promoting personal growth and (6) developing positive attitudes toward autonomous learning. There is evidence for the effectiveness of role-plays both in achieving learning outcomes (Azman, Musa, & Mydin, 2018; Craciun, 2010; Latif, Mumtaz, Mumtaz, & Hussain, 2018; McSharry & Jones, 2000; Yang, Kim, & Noh, 2010), but also in developing desirable graduate attributes such as teamwork, communication and problem solving skills [4]. The importance of such skills is widely touted by employers of science graduates, sometimes more so than discipline-specific knowledge, arguing in favour of the incorporation of role-plays and other forms of cooperative learning into undergraduate science curricula.

Role-playing is probably not as widely used in the physical and life sciences as it is in other academic disciplines. In science the most obvious role-play scenarios in which students play the roles of people might be in examining historical figures at the centre of famous scientific discoveries or debates (Odegaard, 2003). In addition, role-plays fit well at the interface between science and other discipline when exploring ethical, legal or commercial implications of scientific discoveries(Chuck, 2011). However, to apply role-play to core topics in science or mathematics the roles that must be played are not those of people but rather of things like particles, forces, elements, atoms, numbers, laws, equations, molecules, cells, organs and so on. The learning scenarios for science-based roleplays in which the

characters represented are not people are less obvious, probably explaining why the use of role-plays in science education is less common. Nevertheless, focusing on the life sciences, role-plays in which the characters are organelles in a cell or enzymes involved in fundamental cellular processes like DNA replication, RNA transcription and protein translation have been described for example (Cherif, Siuda, Dianne M. Jedlicka, & Movahedzadeh, 2016; Takemura & Kurabayashi, 2014).

The communication of discipline-specific templates and successful models for the application of role-playing in science education is likely to encourage their wider adoption. Here I describe a videoed group role-play assignment that has been developed over a ten-year period of reflective teaching practice. I suggest that this model of videoed group role-plays is a useful cooperative learning format that will allow learners to apply their varied creativity and talents to exploring and explaining diverse scientific topics while simultaneously developing their teamwork skills.

**Method**

The context of this case study is a 3rd year undergraduate course entitled *Introduction to Cell Biology and Biomembranes (BC3003)*. In the 2018/2019 academic year thirty nine Irish BSc Biochemistry students and seven visiting international students were registered for the course. The group role-play assignment described here is a continuous assessment element, accounting for 7% of the overall module marks.

The role-plays focus on topics related to the cytoskeleton, protein targeting and vesicular trafficking. Groups of 7-8 students are assigned a specific cellular process and each group member is cast by the instructor as a protein or protein complex involved in that process. Each group member researches their own protein/protein complex and posts a short description of its function to a group discussion board. The groups then meet outside of regular class hours to develop and rehearse a roleplay based on their assigned cellular process. Groups then produce a video of their role-play rather than having them perform it live in front of the class. The role-plays are uploaded to the YouTube video hosting service as unlisted videos, providing a simple way to share videos with the entire class. Written consent was obtained from students to use the videos in this manner.

The grading of group-work assignments is fraught with difficulty (King & Behnke, 2005). It is generally desirable to assign individual marks to members of a group in a manner that rewards those who contribute most to the project. A simple but fair peer assessment

system was developed that involves students distributing twelve votes among the seven or eight members of their group simply according to their impression of the contribution that they made to the project. The rules of the voting system aim to ensure that students do discriminate to some extent between group members in terms of their contribution, while at the same time mitigating against reciprocal voting pacts.

**Findings**

Student groups were given a large degree of freedom to develop the concept for their role-play as they saw fit. The only stipulations were that all of the "characters" must be involved and that the roleplay would accurately illustrate the assigned cellular process. It is not surprising then that the six groups developed very different styles of role-plays with unique concepts to represent their cellular processes. McSharry and Jones (McSharry & Jones, 2000) identified seven overlapping categories of role-plays in the context of science teaching and learning. According to this classification the roleplays developed here fall into the categories of presentations and analogy role-plays. Two groups used animation or drawing rather than physically acting out the role-play (Figure 1), with each group member then describing the role played by their protein in the cellular process using voice-over. Two groups described their assigned cellular processes using narrated demonstrations in which students acted out their roles in the process with the aid of simple props like balloons, foam noodles, coats, back packs, rope. Finally, two groups performed dramatized role-plays, making quite extensive analogies between the proteins/protein complexes/subcellular locations involved in their assigned process and the characters/locations in their role-play (Table 1).

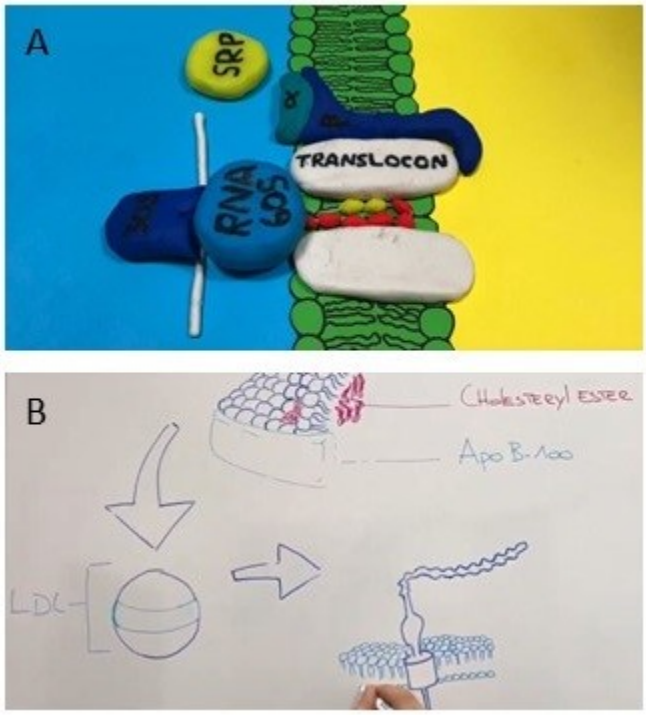



**Figure 1. Examples of role-plays that used narrated animation and drawing to explain the assigned cellular process.** One group used stop–go animation with shapes made from modelling clay to illustrate protein targeting to the endoplasmic reticulum (A), while another employed drawing on a white board to describe receptor-mediated endocytosis of low-density lipoprotein (LDL) particles (B). Both role-plays used voice-over narration to explain the processes.

**Table 1. Examples of the topics and casting for two role-plays.** The cellular process that was the topic of the role-play is indicated as well as the student's overall concept for the performance. Most role-plays were centered on the targeting of a cargo protein to a specific sub-cellular location. Analogies made between the proteins / protein complexes / subcellular locations and the characters / locations in the role-play are indicated.

| **Topic: Protein transport from the ER to the lysosome**<br>**Concept for role-play: "The morning routine of a celebrity"**<br>**Link to video:** https://youtu.be/oxOBMQhVtT0 | |
|---|---|
| **Protein / Organelle** | **Analogy** |
| α-Galactosidase A [cargo for transport] | A celebrity |
| Oligosaccharyl transferase | Hairdresser |
| N-acetylglucosamine phosphotransferase | Chef |
| Phosphodiesterase | Cleaner |
| Mannose-6-phosphate (M6P) receptor | Stylist |
| Adapter protein 1 (AP1) | Personal Assistant |

| | |
|---|---|
| Clathrin | Bodyguard |
| Endoplasmic Reticulum | Bedroom |
| Cis-golgi | Kitchen |
| Trans-golgi | Living Room |
| Endosome | Lift |
| Lysosome | Car |

| **Topic: Protein targeting to the mitochondrial matrix**<br>**Concept for role-play: "Girl trying to get into a nightclub" Link to video:**<br>https://youtu.be/_OuFRZgTOIY | |
|---|---|
| **Protein / Organelle** | **Analogy** |
| Isocitrate dehydrogenase subunit [cargo] | Girl on a night out |
| Cytosolic Hsc70 | Her Friend |
| Mitochondrial Hsc70 | Nightclub Staff |
| Tom 20/22 import receptor | Bouncer |
| Tom 40 import pore | Nightclub Staff |
| Tim44 | Nightclub Staff |
| Tim23/17 | Nightclub Staff |
| Matrix processing protease | Nightclub Staff |
| Cytosol | Outside the club |
| Mitochondrial Matrix | In the club |

Student feedback was obtained through an online survey using Google Forms. Eighteen responses to the survey were obtained. All respondents strongly agreed or agreed with the statement that "The assignment was useful, and I learned a lot form it". More specifically, they reported learning a lot about their own group's topic (4.8 on a 5-point scale) and learning somewhat less from watching the videos of other groups (3.2 on a 5-point scale). When asked about students within a group providing input into the marking for individuals in their group, 17/18 respondents felt that "it is a fair system that gives credit to those who do the most work" while only 1/18 indicated that they "would prefer if everyone in the group got the same mark". When asked "Would you prefer to do the role-play in class rather than shooting

a video of it?" 100% of respondents expressed a preference for shooting a video. A selection of representative student's comments (edited for brevity) are shown below:

- "I found it extremely beneficial in making friends with people in our suddenly small course group……. It also helped me reach out to exchange students. Furthermore, it is the first project we have been assigned that entails teamwork and initiative skills and as a result, I was able to identify my weaknesses and strengths within a team."
- "It made learning extremely fun and unforgettable. I would love if other modules had a similar aspect to the coursework. The best thing about the group assignment was that it was pushing us to be creative and have fun with our ideas....."
- "I really enjoyed the assignment. I thought it was an excellent tool in learning.…... Exercises like this should be the norm in our course."
- "As an international student, it helped me to meet other people in the class, which made me feel more welcome."

**Conclusions**

A result of giving students a large degree of freedom was the development of very novel analogies to explain their assigned cell biological process in some cases (Table 1). Analogies can help science students to conceptualize abstract ideas and things that are either microscopic or too massive to observe directly and are an invaluable tool frequently employed in teaching (Aubusson, Harrison, & Ritchie, 2006). Analogies link newly acquired concepts to previously known ones (Kiliç & Topsakal, 2011). To be most effective then, analogies must be made to concepts that students already know and can relate to. It is likely that the student, rather than the teacher, is best placed to identify such already-known concepts. Videoed role-plays of the type described here can thus be a source of novel and student-relevant analogies.

In summary the major benefits of this role-play exercise lie in facilitating students to:

1) Engage with members of their class including international students (generating a sense of camaraderie within the class)
2) Discuss a scientific topic in depth with each other (something that many will not do spontaneously) and thereby gain confidence for future literature and research projects
3) Engage in a team exercise, recognizing and developing their teamwork skills
4) Bring their non-scientific talents and skills to bear on a scientific assignment

5) Produce an output (the video) that can form part of a learning portfolio

These benefits contribute to interpersonal skills and other desirable graduate attributes that are unrelated to discipline-specific knowledge.

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# Skellig Centre for Research & Innovation Learning Connections 2019 Conference

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## Introduction

**Skellig Centre for Research & Innovation (Skellig CRI)** is a unique partnership between Kerry County Council, University College Cork and South Kerry Development Partnership focused on the regeneration of Cahersiveen on the Skellig Coast in County Kerry, Ireland. This town faces extensive and long-term challenges demographically, economically and socially. These challenges are impacting on the identity and sense of viability of the area (Kerry County Council, 2015)

The objective of Skellig CRI is to jointly establish a higher education satellite campus being an incubation hub for research, innovation and entrepreneurialism based in Cahersiveen, County Kerry. It is a space that fosters collaboration, community building, and a higher education research spirit. This Centre promotes local level collaboration with national and international research communities, emulating in a local context the impact of a third level institution on a rural community.

## Method

**STAGE 1: The Question:** The main question asked by the community of the Cahersiveen area is how can the potential of the extraordinarily beautiful landscape of the area and The Wild Atlantic Way cultivate ecological and educational research, learning and tourism whilst generating future quality and sustainable employment, innovation and entrepreneurship. This question echoes the sentiments of the Commission for the Economic Development of Rural Areas (CEDRA) and their 2014 report entitled *Energising Ireland's Rural Economy*. The community's views are in line with the vision of CEDRA in wanting to

develop their rural area to create a “dynamic, adaptable and outward looking multi-sectoral economy”

It was established that in order to facilitate community wide interaction and the sharing of ideas, community-based workshops would be held which would signal the beginning of a process of actions such as design thinking, service learning or community-based participatory research (Driskell, 2007).

The Institute without Boundaries in the George Browne University in Toronto was identified as an ideal partner in facilitating this research and began with an initial workshop which led to a collective acknowledgement that the main focus of the local community was to create sustainable economic development that would enhance job creation.

Therefore, it was without question that a responsibility existed for both the local community and local government to work together in responding effectively, cohesively and strategically to the findings of the resulting report.

**Stage 2: Consultation with University College Cork:**

Kerry County Council engaged with relevant staff in the University, including the Deputy President

& Registrar Professor John O’Halloran and identified staff therein who could meaningfully contribute to the region in County Kerry. This involved a number of presentations from key staff in the University, meetings of Kerry County Council senior staff and UCC senior staff, and finally a commitment from both institutions to establish a higher-level education outreach centre.

**Stage 3: Scoping Exercise:**

A member of staff was seconded from University College Cork to Kerry County Council to undertake a scoping exercise with the relevant community stakeholders, local authority and local higher education institutions. The objective was to assess the viability of establishing a university campus in Cahersiveen and identify the unique characteristics and opportunities in this place for the purposes of research and higher education programme delivery. This scoping exercise identified a range of opportunities spanning module delivery to programme delivery and to research in the area in the context of higher education, nationally and internationally.

**Stage 4: Establishment & Implementation:**

This final stage focused on the funding needs and involved the establishment of Skellig Centre for Research & Innovation (Fig.1) and implementation of its objectives. The Centre would have a planned schedule of programme offerings in place, with also the objective to expand these offerings nationally and internationally and therefore resource same, attracting people to the region and generating business for the local community, in a sustainable way.




**Figure 1: Skellig CRI logo**

**Findings**

Skellig CRI is a democratic body, dedicated to the sustainable and economic development of the region, collaborating with higher education institutions and other research bodies, promoting inclusion and equality in the community through its engagement and practice and an important respect and trust between the partners (Sandy and Holland, 2006)

Central to the implementation of the project was its alignment to the Local Economic and Community Plan (LECP, 2015) and the fact that local government is a key strategic partner in this community initiative lends itself perfectly to enriching the relationship of the Local Authority with the wider community.

Skellig CRI, operates primarily ‘off season’ through the Autumn, Winter and Spring, responding positively and appropriately to diversifying the economic activity to deal with issues of seasonality, low incomes and the challenges faced in peripheral areas. Economic development is critical to this project, as is enhancing the quality of life for the community, and this project is ultimately about community building, social justice and equality (Ibanez-Carrasco & Riano-Alcala, 2009). We are responding to a community who has been experiencing extensive and long term social and economic problems directly connected to

rural depopulation (Kerry County Council, 2018). The Centre is responding with relevant education and training in targeting skills deficits unique to the region, for example, working with the Gaeltacht area in promoting the Irish language in delivering a programme through the Irish language in the area and is now a member of the implementation committee tasked in delivering the Úibh Ráthach Taskforce plan.

The Skellig CRI centre is furthermore strengthening this idea of 'Communities of Place and Education' (Hardwick, 2013) through projects with the local secondary school; Coláiste na Sceilge and through research initiatives such as the role of the Men's Shed initiative as a space of social inclusion. New programmes have been designed in conjunction with the local community such as the Certificate in Practice Social Farming. Decision making in the types of relevant local educational programmes address employment in the context of rural regeneration, as well as the social infrastructure and community development and to date the Centre has engaged with over 500 participants across its many offerings.

## Conclusion

The goal is to enhance the socio-economic fabric of the community which would not only attract new people but would build morale and improve quality of life for the local community. What is unique is in how this particular project promotes its broad reach, which we are continuously developing and strategically investigating how to bring new people to the area which will have a positive knock-on effect on local business and trade.

This project acts as a powerful example of being a driver of change, through the opportunities that effective partnership between University, Community Development Company and Local Government can provide for a rural community by engaging with and in community building

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# Learning Spaces in Community-based Dental Education

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## Introduction

In response to various institutional and national policy drivers (University College Cork, 2018; Department of Health, 2019), a community-based dental education (CBDE) initiative in a non-dental setting has been proposed as a new curriculum offering in Paediatric Dentistry in University College Cork. The student-led clinic for children aged 0-5 years will be located in a new primary healthcare centre, which serves as a community hub for health and wellbeing services.

The innovative use of learning spaces to imbue a culture of community-engaged scholarship in higher education is widely encouraged (Campus Engage, 2014; Galvin, O'Mahony, Powell & Neville, 2017). This work seeks to explore the features of the proposed learning environment, which may impact upon teaching and learning practice.

## Method

Inspired by the artful science of visual research (Harper, 2012), the merits of a healthcare centre as a novel, offcampus teaching and learning space are explored and contrasted with the conventional Dental Teaching Hospital. A form of "naturalistic visual enquiry" is undertaken through analysis of photographs of key locations at both sites (Margolis & Zunjarwad, 2018, p.600). Architectural parameters such as light, internal-external connections and the physical dimensions of the spaces are evaluated. Internal design features including colour schemes and layout are considered, along with the type and positioning of furniture and equipment.

## Findings

Principles of contemporary design are evident in a new community centre. The entrance and circulation areas are bright, spacious and inviting, with visible internal-externals links (Figures 1 & 2). In contrast, private rooms for various types of clinical interactions are more intimate, but with continued emphasis on light and connection to the outside world (Figure 3). Internal walls make appropriate use of a bright colour palette. Colour also features strongly in the open plan Paediatric Dental Clinic of the Teaching Hospital (Figure 4). This clinic includes multiple dental chairs in close proximity to one another and with limited circulation space around each of the dental chairs.



**Figure 1: Entrance and main foyer of primary healthcare centre**



**Figure 2: Circulation area in primary healthcare centre**



**Figure 3: Clinical interaction room in primary healthcare centre**



**Figure 4: Paediatric Dental Clinic in Cork University Dental School and Hospital**

## Discussion

The findings of this preliminary, visual interrogation indicate a deviation from the traditional Paediatric Dental teaching environment. The interactions between students, teachers, young children and their families may be more optimally facilitated in a private room without a dental chair (Figure 3). Furthermore, by intentionally choosing a primary healthcare setting, dental students, and indeed other healthcare professionals, may begin to perceive the importance of oral health for young children within the context of general health and wellbeing. In essence, these photographs represent a shift away from a Paediatric Dental 'silo' and speak to a more integrated learning experience.

In general, student-reported outcomes following CBDE initiatives tend to be positive and authors have alluded to the impact of learning spaces on this trend (Coe, Brickhouse, Bhatti & Best, 2018; Lynch, Ash, Chadwick & Hannigan, 2010). It is important to evaluate a proposed learning environment in the early stages of curricular reform. In this case, the findings will be used to plan student preparation sessions, learning activities, service delivery, and to influence assessment strategy.

## Conclusions

The output of this visual analysis will underpin a disciplinary pedagogical development, which is simultaneously informed by, and a consequence of, the characteristics of the learning space. This work also highlights a key learning connection in the education of oral healthcare professionals; that of community-engaged scholarship, with a particular

emphasis on the impact of the learning space as a moderator in the relationship between scholarly activities and community engagement.

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# UCC Enters Cork Prison:
# Transformative Pedagogy Through Arts Education

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## Introduction

This paper makes explicit processes of collaboration in a learning community partnership between Cork Prison and University College Cork (UCC). Cork Prison is a closed, medium security prison for adult males. It is a committal prison for counties Cork, Kerry and Waterford. The learning partnership has two objectives: firstly, to foster critical thinking strategies influenced by UCC's application of the Project Zero Classroom, Harvard Graduate School of Education; secondly, to support student voices by promoting conversations on creativity resulting in the production of artworks exhibited during summertime on Spike Island, Cork Harbour, communicating prison *as* community in society.

## Method

A reason for prison education is to nurture rationality and creativity to overcome irrational impulses that lead to prison while promoting attitudes and skills needed for life outside prison. The community partnership began in January 2017. Initially, 30 students participated in four elective courses co-designed by the community partners. These courses were as follows: "Masterpieces of Irish Art" (January-March, 2017); "Ten Great Works of Prison Literature" (September-January, 2017); "A Little History of Cork" (January-April, 2018); and "Stories of Colour" (October-December 2019). Each course supported the art studio practices for students developing art portfolios for progression pathways on their release. Working collaboratively with the expertise and experience of the strategic partners we support each other to empower our learners and to give them the critical approaches and practical skills to voice their stories that reveal their unique perspectives on society and selfhood.

Designing learning for conviviality within an incarcerated community is a transformative pedagogy that has the potential to undo some psychological and emotional damage inmates experience. Here, "conviviality" aims to foster and scaffold autonomous and creative communication between persons in contrast with the conditioned response of individuals to the demands made upon them by others, and by a man-made environment (Illich, 1973). Transformative pedagogy is an activist pedagogy combining the elements of constructivist and critical pedagogy that empowers students to examine critically their beliefs, values, and knowledge with the goal of developing a reflective knowledge base, an appreciation for multiple perspectives, and a sense of critical consciousness and agency (Ukpokodu, 2009, p. 43). Promoting conviviality for creativity as a transformative pedagogy in prison arts education connects critical pedagogy with studio practices.

It draws upon strengths of both communities: pedagogies fostered through collaboration at UCC and art practices enacted in the Education Unit since the prison riot on Spike Island, Cork Harbour in 1985.

The learning points focus on three strategies to promote learning partnerships. The first strategy considers what the prison requires from the partnership. The second consideration is what the university can offer the partnership. To scaffold conviviality for creativity I applied a rubric-based approach based on Project Zero (Tishman, 2017). My "slow looking" rubric, designed as a performance of understanding (Table 1), features three dimensions for understanding: 1) *Inquiry*: posing open-ended questions without either right or wrong answers; 2) *Access*: appealing to a wide range of learners; and 3) *Reflection*: learning about the messy process of learning. The third strategy, considers the minutiae of a lived experience. Here, I will consider one inmate student response to the idea of "home" as a "micrology of lived experience" (Seal & O'Neill, 2019, p.17). This case study demonstrates conviviality for creativity where artworks become sites articulating memories.

**Findings**

Learning partnerships give visibility to prison *as* social communities and remind us that prison and society are interconnected (Foucault, 1991/1975). UCC and the Education Unit, Cork Prison, as learning partners, collaborate through an engaged curriculum that promotes visible thinking strategies central to the Project Zero Classroom http://www.pz.harvard.edu. At UCC, Áine Hyland and Marian McCarthy applied Project

Zero as tools for conviviality promoting higher education as a learning community. Arts in education scaffold students to learn-about-learning that promotes conviviality for creativity.

For a partnership to succeed there needs to be space and time to listen and to learn from one another. The learning partnership aims to scaffold conversations to guide students in how structuring their thoughts and verbal/visual responses can enhance creativity. As an "outsider" I needed to learn from the experience of "insider" teachers in the Education Unit and I needed to build circles of trust with the students themselves, which took time. I collaborated with teachers and artists-in-residence in the Education Unit working towards the annual summertime arts exhibition on Spike Island.

**Table 1: A "slow looking" visual thinking protocol (Cronin, 2017)**

| | | |
|---|---|---|
| ***Captioning*** | *What information does the title communicate?* | Who is the artist? What is the size/medium? Where is work located? |
| ***Close looking*** | *What do you see?* | What does the subject-matter tell you about its meaning? |
| ***Closer looking*** | *What connections can you make?* | Is there anything that stands out for you? |
| ***Connecting*** | *What associations can you make?* | How does context inform meaning? |

**Making thinking visible**: student response to Harry Clarke *The Eve of St. Agnes* (1924) using windows as metaphors to express tensions between imagination (stained glass) and imprisonment (prison window and razor wire). This student reflects on building personal resilience by fostering effective communication strategies. The lesson is that communication diffuses tensions in prison. The student's text reads: "Tensions are High; Communications are Low".




Figure 1: Student responses to "Masterpieces of Irish Art"
**(Permission of Education Unit, Cork Prison)**

**Making thinking visible**: student response to a sense of place evoking a secure childhood memories of a "house" that became "home".

The sculpture resembles the modernist architecture of the National Building Agency Housing projects in Cork in the 1970s. For this student, social housing evoked memories of community and solidarity.





Figure 2: Student responses to “A Little History of Cork” short course (Permission of Education Unit, Cork Prison)

Students communicated conviviality for creativity, so teachers could evaluate their artworks as processes rather than products of learning. The students reflected in their exhibition statement that our conviviality had unlocked the privileged language of disciplinary knowledge that had given them the confidence to produce a body of work where conviviality supported the messiness of learning:

> We the students in the Education Unit, Cork Prison . . . have all enjoyed each lecture series and have looked at art works from Caravaggio to Sean Scully. We have studied works of literature from Boethius to Nelson Mandela, and familiarised ourselves with medieval maps of Cork city through to the Art Deco architecture of Turners Cross Church. In response to the wealth of information gathered, we found that visual research through Art practice has helped and enabled us to contextualise academic thinking. By marrying both, we have been able to produce a considerable body of work. Some of the work on display around this room. We hope to continue with a new programme of lectures in the next academic year (“Inside-Out” exhibition, 2018)

Students acknowledged the Project Zero Classroom as a conceptual framework to support their exploration of ways to deepen their engagement, encourage them to think critically and creatively, and make learning and thinking visible. In the Project Zero Classroom, teachers also become learners who model intellectual curiosity with care, scaffold collaborative inquiry, and foster sensitivity to the ethical and aesthetic dimensions of learning as acknowledged in the exhibition statement quoted. Edel Cunningham, Supervising Teacher, Education Unit, Cork Prison, stresses the importance of the learning partnership for both individual and community reasons. Firstly, the partnership encourages students to reflect

and critically assess: a skill new to many. Secondly, the partnership breaks down mental barriers that many inmate students might have about being able to access further and higher education. Research tells us that 60% of males with a father in prison will end up in prison themselves. Imprisonment is intertwined with social disadvantage, family dysfunction and negative educational experiences. If any of the participants tell their child that they attended a course delivered by UCC it has the potential to create in his child the aspiration that s/he may one day attend university.

## Conclusions

The goal of this learning partnership is the promotion of conviviality for creativity that can enhance positive interactions within the lived experience of incarceration. Partners seek to use the visual arts to express prison *as* communities within society and to promote inmate student agency by making visible their stories through the medium of the visual arts. The following lessons are being learned from this learning partnership. Firstly, experiential learning that involves deep reflection and practical skills has the potential to build capacity for resilience. Secondly, everyone has the right to be actively involved in determining the conditions that shape their lives. Thirdly, the curriculum is co-designed by the partners in collaboration with the students themselves.

The partnership highlighted critical and constructivist dimensions of transformative pedagogy by acknowledging that learning is socially situated and mediated through the lived experience of prison as a learning community. Promoting conviviality for creativity highlights education as cultural currency “inside” as well as “outside.” Talent can be found in unconventional places if educators give people responsibility for their own development.

## Acknowledgement

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# Learning by doing: an international, interdisciplinary experiment using peer-based learning in an outdoor laboratory

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## Introduction

Interdisciplinarity and international collaborations are widely regarded as beneficial constructs for students in higher education (Holley, 2009). However, challenges can arise when merging disciplines, methods, and cultures. We focus in on the disciplinary and cultural disconnects that can be experienced in the natural sciences, where field-based learning, a resource intensive but potentially rich pedagogical approach, is often not optimised. We aimed to foster peer-orientated collaboration between undergraduate and postgraduate students from different backgrounds within the natural sciences. Research suggests that this approach would encourage independent and integrative learning (Higgs *et al*., 2010). Here, we address the challenges faced in field-based learning programmes through an Erasmus+ project that is designing curricular for both student and staff development.

## Method

Key learning outcomes (Table 1) and modes of assessment (Table 2) were designed to intentionally encourage connection-making and improve students' capacity for integrative thinking and learning (Higgs et al, 2010; Blackshields et al, 2015). The learning outcomes

had to be broad enough to allow for unpredictable as well as the intended interdisciplinary connections and learning.

**Table 1 Learning outcomes for the Student field course**

| On completion of the course students should be able to: |
| --- |
| • Work in an international interdisciplinary team to carry out scientific field-based research in a novel field area<br>• Summarise the relevant interconnected scientific features of a field area by making an illustrated sketch/graphic of the important elements of the natural and/or human landscape<br>• Construct a chronology of events related to the field area<br>• Consider scientific, social and economic aspects of the natural environment in the field area by interacting with stakeholders including industry and governmental organisations<br>• Disseminate multiple perspectives of the research topic to diverse audiences |

Multiple assessment methods (Table 2) were available to let students demonstrate successful learning outcomes. Assessment design was informed by Nicol's (2009) principles of good assessment and feedback practice. Formative peer-assessment and feedback was encouraged. Self-selected assessment was considered to be beneficial as students display different talents and are comfortable with different methods of performance of the learning outcomes (Nicol, 2009). Equality of opportunity requires a choice when demonstrating achievement. In addition, the assessment methods had to allow for unpredictability, as students were working on real global challenges which inevitably brings uncertainty and complexity.

**Table 2 Assessment encouraging connection-making and aligned with the course learning outcomes**

| Assessment aligned with the learning outcomes: |
| --- |
| • Participate in data-collection and report on potential of various techniques; engage in and explain the added value of interdisciplinary peer-learning; contribute original field data to an archive for longitudinal analysis; recognise diversity of international approaches to field-based research;<br>• Make a field sketch with detailed explanatory labelling e.g. geological cross-section; 3dimensional representation of the landscape, map or mindmap<br>• Interpret a life cycle, seasonal cycle or sedimentary cycle; construct a geological chronology of the area<br>• Report on the value of interacting with stakeholders; conduct a survey in the community<br>• Present research progress from multiple disciplinary perspectives; publish work in a blog; |

To allow students to achieve the learning outcomes, the design of learning activities emphasised formative peer-learning, facilitated through small-group field-based research projects. Each team included participants from different disciplines (Biology, Geology, Environmental Science, Geography), nationalities (Irish, Portuguese, German) and included different educational levels.

Students, in groups of 4, were allowed to examine and survey different field sites. This was to give students the opportunity, and enable them, to devise a research question based on the eco-geological and socio-economic characteristics of the habitat. They would then design a research methodology, carry out the investigation and disseminate the findings. The research question was to be investigated from multiple disciplinary perspectives, so that all group members could have an input. Although challenging, this was crucial to the investigation's success. Two weeks were available for these activities.

**Data collection**

To assess the impact and levels of connection-making achieved in these immersive, interdisciplinary international field courses a number of indicators were used. Student perceptions of achievement were gathered through focus groups and pre- and post- course surveys. Student work was examined for evidence of connection-making and broadening perspectives. This was done using rubrics (for example, the ACC&U Integrative Learning

VALUE Rubric, 2009) that articulated answers to questions such as ‘what would different levels of success look like?’. The findings should illustrate the level of interconnectedness achieved by the groups.

## Results

Here we highlight elements of the project which evidence suggested were effective and those which require improvement. The results have implications for disciplines which seek to collaborate across academic, social, and national boundaries.

***What worked best***:

Students reported a strong appreciation of:

- The international and intercultural, multidisciplinary experience;
- Working in interdisciplinary teams responsible for their own investigation in the field;
- Peer-learning within and between groups;
- The support of experienced tutors to guide the peer-learning, and provide a conducive, safe and comfortable field-base;
- The empowerment felt by students after undertaking the responsibilities of designing and conducting research projects which had potential real-world consequences.



**Figure 1: Students worked independently designing experiments and setting target goals**

## What could be improved

- For some groups cross-disciplinary connections were the highest level of achievement. Here, a longer time is needed to devise a research question with a clear purpose, and a research methodology to help keep students on track. Additional tutor support and on-going feedback may be needed for these groups.

- Both students and tutors agreed that the mentoring of undergraduate students by postgraduate students within the groups was significant to success and confidence building of both mentor and mentee.



**Figure 2. Students and staff reported a strong sense of team building which fostered connections and learning**

## Conclusions

Clear learning outcomes for the course, and the opportunity to discuss these with peers, greatly aided the participants understanding of the *purpose* of the activities undertaken. Those groups that had a clear purpose succeeded in achieving the learning outcomes to a higher level and in multiple ways.

Formative assessment by tutors, peers and self, was the most significant mode of assessment. The variety and choice of assessment methods allowed for unpredictability that reflected the challenges of working with real world uncertainty and complexity. Mixed levels of experience within the groups contributed to confidence building by both mentors and mentees.

It was only after this analysis that we could begin to see the difference between cross-disciplinary, multidisciplinary and transdisciplinary cooperation and learning. The differences can be significant and indicate the levels of integrative learning achieved by the student groups. Any necessary modifications to encourage meaningful connection-making within and between disciplines will be considered going forward. This will better prepare participants for work beyond their study, when real-world issues and problems will require multidisciplinary teams to find solutions. The findings of the student courses are informing the design of future

courses and of the staff development course for fieldtrip leaders. This is an iterative process which is currently at the end of year one of a 3-year study.

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# Promoting healthier communities through adult education: Learning Connections in Action

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## Introduction

This presentation will highlight an Adult Education initiative delivered in Cork City through collaboration between members of the Cork Learning Neighbourhoods Project. It will outline the outreach provision of the Certificate in the Mental Health in the Community and how this is delivered in non-traditional settings to **achieve successful collaboration**, support accessible participation in lifelong learning and build capacity in communities.

The process of creating a learning space to achieve transformative learning will be outlined as well as how this programme serves to enable students to address mental health issues on a personal level, community level and beyond.

## Background

In September 2015, the UNESCO Institute for Lifelong Learning presented Cork with a Learning City Award at the 2nd International Conference on Learning Cities in Mexico City.

The Bejing Declaration on Building Learning Cities (2013) makes a commitment to social inclusion and expanding access to participation in lifelong learning opportunities. However, the Cork City Profile outlines that there was still a spatial component to educational disadvantage. The concept of Learning Neighbourhoods was presented in Cork by Peter Kearns (former Director of PASCAL Observatory Learning City Network) at a UNESCO seminar and then adopted by the Growing Lifelong Learning Committee in Cork. It was decided that it would be piloted in two Neighbourhoods in 2015 – 2016. This was supported by the Centre for Adult and Continuing Education (ACE) UCC, Cork Education and Training Board, Cork Institute of Technology and Cork City Council. Learning Neighbourhoods brings the Learning City concept to a local level and works with education

and community organisations and residents to promote and develop active local lifelong learning. From the initial pilot project, it has now expanded to six Neighbourhoods throughout Cork City, Knocknaheeny, Ballyphehane, Mayfield, Togher, The Glen and South Parish.

This presentation will highlight deliveries in two of the Learning Neighbourhoods namely Knocknaheeny and The Glen (Cork Prison). All Learning Neighbourhoods have Steering Committees comprising of a range of local stakeholders. In partnership with the Steering Committee these two communities sought to support existing community education initiatives in their area in 2018/19. Through local feedback, discussions began around exploring the option of delivering the ACE Certificate in Mental Health in the Community on an outreach basis.

In its delivery of adult education ACE aims to 'deliver top quality university education in a responsive and flexible way to meet need' and offers a 'learner centred approach underpinned by principles of social justice, participation, social inclusion and active citizenship'. ACE provides programmes that are… 'for the community, by the community and in the community'. These values and approach to delivery very much responded to the need in these communities around community education at that particular time.

There was significant interest amongst local stakeholders at the prospect of providing this programme within the respective communities. Numerous meetings took place between community partners and representatives from ACE and the Learning Neighbourhood Steering Committee to discuss the feasibility of delivery of the programme and the needs of these particular cohorts of outreach students. The ethos of adult education adopts a collaborative approach to providing flexible and accessible learning opportunities to adult learners which was a key feature of this process. Once a needs assessment was undertaken, a careful planning process was undertaken for programme delivery.

The Certificate in Mental Health in the Community is a Programme designed for the community participant, to enhance the participant's knowledge, skills and values in respect of mental wellbeing and recovery. It explores concepts of mental health and considers community based educational and support options for mental health recovery.

The curriculum for the Certificate in Mental Health in the Community was designed in 2013 following a partnership agreement between Mental Health Ireland and Adult Continuing Education. Informed by Mezirow's theory of adult education, the curriculum transports the student through a personal and a social process with the ultimate goal of social action. Enhancing community capacity through education lies in its ability to "empower

community members as citizens to self-manage their lives and environment through acquisition of leadership skills and engagement in the building and enactment of a shared community vision. It supports the belief that when empowered to do so, all people possess valuable skills, strengths, assets, and knowledge that can contribute towards mobilising community vision into action." (Mc Evoy, et al 2019: 229)

**Findings**

The deliveries in both Knocknaheeney and Cork Prison began with a delivery of the Wellness Recovery Action Plan (WRAP) workshop. Through the WRAP workshop participants are taken on a journey of self-awareness. Experiential processes encourage participants to draw on their own strengths through reflecting on and valuing their lived experiences. "The promotion of personalised learning and flexibility within the learning group encourages the development of critical self-reflection and fosters the capacity for transformative learning"

(Healy & Houlihan, 2017) Students are asked to explore the concept of 'community' from a diversity of perspectives. Learning outcomes are strategically developed to achieve this through an adult education approach. Assessments bring students out of the classroom environment and into the community through collaborative project work and site visits. Project based learning allows learners to gain a deeper understanding on classroom topics, working together to examine real life issues that affect them in their own communities. The programme culminates with a skills demonstration. Students design a mental health presentation for an identified target group of their choice, demonstrating their connection between theory and practice.

> *"The course was the best thing I have ever done in my life as an uneducated person I believe now that education is the key, I met lifelong friends in it and enjoyed every tutor and what I learned from each will carry with me through life. I am now on the working and steering group of the Recovery College in DCU and could have never done this without the knowledge and confidence I got from course".* Dublin graduate.

This initiative **supports accessible participation in lifelong learning** by acknowledging and placing value on prior life experience and the contribution that learners bring to the learning process. This along with the programme content allows students to explore beyond the set curriculum and enhances learning, knowledge sharing, participation,

confidence, satisfaction and development. Delivering this programme on an outreach basis in these communities enabled the utilization of local supports and resources, while also facilitating a process of inclusion within the UCC student community e.g. where appropriate students were brought into UCC in a supported way through visits/classes to/in UCC. In line with ACE's commitment to grassroots and community delivery, the programme, delivered on an outreach basis, connects with a diverse range of adult learners and brings the University to the community.

By providing an accessible opportunity for learning and undertaking local needs assessments, the needs of the students are prioritised. This allows students to learn and develop in a safe environment where full participation is facilitated, and learning is scaffolded. The experience that the students bring to the learning environment is key to the process. The adult learners are engaged in transformative and active learning processes through collaborative project work and site visits. Students are involved in the development of a mental health promotion action plan for a chosen population group or for a particular setting, culminating in a presentation of their findings in an academic poster format. Reflective journaling throughout this process is critical to encourage transformative learning.

This initiative has served to **build capacity in communities by** developing active engaged citizens through learner centred education. By facilitating a process of conscientization among the student group they can become aware of their needs and subsequently develop the capacity to work as a group, in responding to these needs and ultimately the needs of their community. They are therefore supported to assess their position in society and critically analyse their situation through dialogue (Freire, 1972).

Collaboration is a strong feature of the success of the programme to date. This accredited programme was developed in partnership with Mental Health Ireland. The recent delivery of the programme at Cork Prison and Knocknaheeny is as a result of the collaborative efforts of a range of stakeholders including Cork Learning Neighbourhoods project, Cork Education Unit (ETB), the Irish Prison Service and Cork City Partnership.

## Conclusions

With the on-going deliveries in both Learning Neighbourhoods of Knocknaheeny and the Glen, there has already been huge learning to date. This presentation will share some specific examples of such learning and will examine how this has facilitated a process of

reflection on the value of and challenges facing the programme. The Programme is also delivered annually in UCC and on an outreach basis in various locations across the country.

The Learning Neighbourhoods initiative is engaging in research projects to establish the current outcomes and measure impact but also to inform best practice in future development. It is anticipated that it will be run in two new Neighbourhoods in 2020.

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# How UDL Can Make Learning Work for All Your Students

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*AHEAD*

## Introduction

Universal Design for Learning (UDL) is a set of principles and guidelines for curriculum development that give all individuals equal opportunities to learn.

UDL aims to improve the educational experience of all students by introducing more flexible methods of teaching and assessment to cater for the huge diversity of learners now participating in higher education. This approach is underpinned by research in the field of neuroscience and the learning sciences and is designed to improve the learning experience and outcomes for all students. The basic idea is simple but backed by decades of research – that all of us learn differently, have different life experiences and demands, and differing physical and cognitive strengths, and so a variety of teaching and learning approaches with choice and flexibility built in are required to reach and motivate everyone.

This presentation will explore the origins of UDL, provide an introduction to its 3 key principles, encourage participants to examine the diversity within their own classrooms and offer practical take-aways for those seeking to explore further and get started on their own UDL journey.

## Origins of UDL

To understand the origins of UDL, it is first important to understand that it's values are influenced by Universal Design (UD) thinking itself. The concept of Universal Design (UD) was originally developed as an inclusive approach to architecture, design, and the built environment, and its underlying principles propose that any inclusive environment needs to be considered from the very outset to ensure its success. The UN Convention on the Rights of People with Disabilities ratified by Ireland in 2018 defines Universal Design as "the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". To examine a very common example of a Universal Design solution encountered in our everyday life, many buildings with a raised entrance will provide both a set of steps and a graduated ramp entry.

Users of the building have a choice on which mode of entry is most suitable for them at that moment in time.

For many users, the steps provide the quickest and most convenient point of entry, but for a certain cohort of people, access would not be possible without the ramp e.g. people with mobility disabilities, elderly people with mobility restrictions etc. Additionally, the benefit of the design which builds in the choice and flexibility of entry is felt by a multitude of users e.g. delivery staff using trolleys, users temporarily on crutches due to accident, parents operating buggies or walking with small children.

Universal Design solutions like this that build in flexibility and choice, and cater to the variability in our societies are common place in our everyday lives for example automatic doors, adjustable car seating, seat-belt design etc.

**Development of Universal Design for Learning Principles and Guidelines**

Over time, the values underpinning UD have been applied to the development of a number of educational frameworks, including Universal Design for Learning (UDL). The Universal Design for Learning framework was developed in the early 1990s by Harvard based organisation CAST and based on research in neuroscience, cognitive psychology and the learning sciences. Neuroscience research indicates that there are three key networks of the brain which require stimulation for us to learn effectively and that these networks are stimulated in different ways in different people. CAST took this research and mapped it to supporting research in the learning sciences to develop three key principles calling on educators to provide:

- Multiple Means of Engagement – The 'Why' of Learning relating to the Affective Networks of the brain
- Multiple Means of Representation – The 'What' of Learning relating to the Recognition Networks of the brain
- Multiple Means of Action and Expression – The 'How' of Learning relating to the Strategic Networks of the brain

Over the proceeding decades a set of accompanying guidelines was developed and updated, further mapping effective instructional practice identified through research in the learning sciences to the principles, forming what is now known collectively as the UDL Framework. One of the core themes of the learning sciences research underpinning the

guidelines is one of the most widely replicated findings in educational research: that learners are highly variable in their response to instruction.

Other core research themes which informed the development of the guidelines are the literature on the zone of proximal development, scaffolding, mentors, and modelling.

UDL's empirical base in neuroscience provides a solid foundation for understanding how the learning brain intersects with effective instruction and this alignment is further extended and clarified by the guidelines and checkpoints.

**UDL Practice**

What makes UDL different from other universal design based educational frameworks is its focus not just on access to learning, but it's ultimate aim for students to develop a mastery of learning itself and become 'Expert Learners'. The three key principles all have individual goals relating to this overarching aim – to create expert learners who are:

- Purposeful and Motivated
- Resourceful and Knowledgeable
- Strategic and Goal Directed

What the implementation of UDL principles looks like in practice can vary from one instructor to another and is influenced by many factors such as the instructor's skillset, the discipline being taught, the instructor's level of UDL understanding and their work with other educational theories and practice. UDL implementation can be an exciting journey for educators to take because implementation is not a box ticking exercise where UDL is achieved by doing X, Y or Z – rather it prompts educators to use the weight of their own expertise and experience to design more inclusive experiences for their learners using UDL as a lens.

This presentation will provide some real world examples of UDL in practice and signpost practical resources for participants to further explore. It will call on participants to reflect on their own practice using the UDL framework and to consider using the UDL framework to guide to design and redesign of their programmes going forward.

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# CISCOS: Collaborative and Transdisplinary Human Rights Education

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**Abstract**

CISCOS (Connecting Inclusive Social Planning, Community Development and Service Provisions for Persons with Disabilities), is an Erasmus+ Project, run by the University of Siegen in Germany. The goal of CISCOS is to create a course that can be used throughout the EU, to address the challenges in the local implementation of the UN Convention on the Rights of Persons with Disabilities (UN CRPD). The ultimate goal of this education work is to embed human rights principles at the local level. The products of the project will include the development of a Massive Online Open Course (MOOC) in English, and course documents that can be used in several languages. The goal of this work is to improve the implementation of the UN CRPD at the local level.

The project targets local authority staff, service providers, students, and disability activists. Individually each of these groups can play an important role in the local implementation of the UN CRPD. In addition, by bringing these groups together in a course, knowledge exchange between universities, government, and service providers is enhanced. Sharing, creating, and building knowledge among these groups could have many benefits for society. Shared knowledge and collaboration between universities, service providers, and local authorities will provide those implementing the UN CRPD with access to expert academic knowledge that can improve the implementation process. At the same time, universities can learn from the on-the-ground experience of the local authorities and service providers, which can in turn inform research priorities and foster collaboration.

CISCOS began in 2018 and will run for three years. The project has partners in Germany, Ireland, Belgium, Sweden, Poland, Spain, Hungary, Greece and Slovenia. Partners include universities, service providers and advocacy organisations. A diverse number of partners helps to ensure that the content of the course is relevant throughout the EU. This is a real challenge, as the focus is on local implementation and local services. Local government structures, powers, and service delivery vary widely throughout the EU, which must be considered in any course that discusses the local level. Service delivery models also vary across the EU, and this must also be considered in this work.

In addition to working across diverse cultures and legal traditions across the EU, the project also works with a wide diversity of participants in the training. The training targets students, local authority staff, service providers and disability activists. It is important to have these groups together, as it allows for knowledge exchange, which can lead to innovation. Many of these different people individually may not have much contact outside of the course, or they may meet in very different circumstances. In the context of the course, these groups can share knowledge in a relaxed environment, without the political context that they might often meet in.

So far, two years of pilot courses have been run. In the first year, the importance of using the UN CRPD at the local level was discussed, as well as how sustainable change is created at the local level. In the second year, rights-based community development was discussed. The third year will focus on inclusive service delivery. The goal of these pilot courses is to test the course material across the different countries, and with all the target groups. Feedback from the pilots will shape the final course.

Several important learnings have been identified in the first year of the project and these will be used to inform the project as it develops. First, the amount of material that is used per course was found to be too ambitious. Second, in order not alienate learners it is important that language of the course not be too academic. While students might be comfortable with large amounts of academic material, many of the other target groups found it difficult to take in. On the other hand, participants mostly found the material useful, and particularly enjoyed the group discussions.

For the second year, the amount of material was cut, and the language was changed so that fewer academic terms were used. The goal was to make the material more accessible to all target groups, and easier to teach in the space of the pilot seminar. Early results suggest that this was successful.

CISCO aims to develop a blueprint to support local implementation of the UN CRPD across the EU. It will have developed and tested a course that will have the capacity to imbed human rights principles into local practices. It will have the capacity to upskill several key sectors in terms of supporting the empowerment and participation of people with disabilities, ensuring that the UNCRPD becomes a lived reality for people with disabilities and communities across Europe.

# ‘Becoming Reflective Practitioners through Community Based Planning Projects’

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## Introduction

Inspired by the influential ‘reflective practitioner’ ideas of Donald Schön (1983), there is an established pedagogical tradition in the University College Cork, Centre for Planning Education & Research, in active learning, and using real projects with real clients as a teaching methodology. In semester two 2019, the first year Masters in Planning students engaged with the Glounthaune community to identify the community’s values and aspirations. Concurrently, the second year students prepared a masterplan for a new town centre, drawing on field work, research and findings from the aforementioned community engagement process. Personal reflection was formally embedded in both processes: students considered their professional and personal skills including working together, dealing with communities; active listening and thinking creatively.

These reflections deepened the students’ learning through revisiting the experiences guided by a framework of prompted questions. In her discussion of the challenges in developing excellence in planners, Reeves (2009) insists that ‘*Planners need to demonstrate their ability to transform understanding into practical and achievable outcomes… Employers want to see more than credentials; they want to see people demonstrating competence. One’s ability to do a job depends on knowledge, skills and qualities*.’ Working on real projects with local communities while using reflection-on-action (Schön, 1983) to revisit the experience further develops their competencies.

## Method

On-line reflective journals formed an integral part of the pedagogical design of these projects. This teaching and learning recording tool illustrated how the students’ learning progressed during the project. It was especially useful for recording the observations and learnings of ‘quieter’ students.

To ensure adequate preparation, a variety of unmarked activities were undertaken with those students who would directly engage with the community. This included a site visit with local representatives, lectures on the theory and practice of community engagement, and a role play 'practice run' in studio where pairs of students facilitated a discussion on their theme- with the class and instructor posing as the community and asking realistic, challenging, questions. The marked elements of this project included group reports containing the findings of the event, and an individual reflective journal entry where both the event and group work were considered.

For the second years, their masterplanning project involved unmarked group work undertaken over a six week period, where students gathered baseline data and undertook analysis forming the basis of their individual projects undertaken over four weeks. At the end of each of the three stages (research, analysis, plan), the students recorded a journal entry on that topic, led by a series of prompted questions, such as, '*what did I learn about myself, what skills have I acquired, If I were to redo this stage of the project, would I take the same approach*?'

**Findings**

On reviewing the student reflections, it became apparent how they acquired skills of creativity, resilience, leadership and critical analysis, while also developing their interpersonal skills. Through collaborating with the local community, the first year students learned the value of joint working in analysing the context of a place and shaping the public realm. It also helped to reinforce the importance of the local voice in planning. One student recorded that:

> *'The night was also good because it helped me to empathise with people more and understand that some people can feel strongly about what could be considered small issues. It was interesting how to see people engaged with planning issues and how passionate they were about the issues.' (Student B, MPlan 1)*

The students also gained confidence in their abilities to work with their classmates and the public and demonstrate enthusiasm, energy and willingness to help and learn from the community of Glounthaune. Those second year students who were almost finished their Masters and were clearly beginning to identify themselves as planning practitioners.

Critically, by requiring the submission of written reflections at each stage of this real-world project, the idea of reflective practice is firmly embedded as a core competency, and not merely an abstract pedagogical concept. The evolution of their skills is evident in their personal reflections, for example:

> *'I was very apprehensive about this module at the beginning because it meant pushing me outside of my comfort zone. I have learned so much and really enjoyed the practical side of the module, it was challenging but helped develop a deep understanding of how places are different and require lots of research and planning. There are some aspects of the masterplan I could have improved but as my first solo masterplan I think the guidance as well as self-learning created a strong proposal and vision for Glounthaune. This has really helped with my confidence and realised the skills that I have acquired throughout the two years will aid me in becoming an effective planner.' (Student O, MPlan 2)*

The combined use of formative as well as summative assessment was successful. Because the group work stages of the masterplan were not marked, the students were more creative in their analysis. They did not focus on what they thought the teacher wanted, and this led to a more collaborative and ultimately creative experience; there was also less competition between students who were also open to learning from one another. This was evident in their reflective journals, one student noted that:

> *'…the fact that these stages are "unmarked" is quite freeing. There is no pressure in terms of saying the "right thing" or making sure it looks polished and perfect. It allows us to explore and be creative with optioneering for when we get stuck into the individual parts which is really enjoyable as well as being an effective learning experience.' (MPlan 2 student D)*

The students also learned to have more confidence in their own voice. For example, the group projects at analysis stage were structured so that each person had to put forward an idea for discussion. Within their reflection-on-action, and specifically considering this stage, one student noted that;

*'…I need to work on is voicing my opinion more strongly. Even though I have been told by different lecturers to speak up more I did not fully appreciate what that meant until now. The most important thing I have learned from this part of the project was that I need to be able to defend my point of view better and to articulate it in a way that is persuasive and convincing. I did not fully agree with our shortlist of options for the site and while I voiced this opinion and suggested a site I felt was more suitable I did not push for it as strongly as I should have and probably backed down too quickly when it was questioned. This is definitely something I need to work on and practice and will be especially important for when I start working.' (MPlan 2 student J)*

This student demonstrated an ability to identify to apply reapply prior feedback to a current scenario, recognise its reoccurrence and consider how they would adapt their behaviour before entering the workforce. This reveals their transition towards becoming a reflective planning practitioner.

**Conclusions**

This project allowed students to understand how planning challenges at European/global levels can be addressed within a local context. In this way, Glounthaune became a *local* laboratory for a *global* challenge. Aligning with the UN Sustainable Development Goals and best practice planning, the students have community-based practice as an embedded competency, with an awareness that planners have an important role in operationalising sustainable development in real places. In practising these skills at a local scale in Glounthaune, students develop confidence in their abilities to apply walkable, ecological, inclusive, age-friendly, and sustainable principles to places of any scale, in any country.

McCarthy et all (2010) discuss the importance of using real world problems in class, they outline: *'The richer the course is in such illustrations, the more likely students are able to identify with the discipline and see themselves as practitioners who will be able to transfer their knowledge and understanding from the university to the world of employment and the community as a whole'*. (The teaching- Research Nexus, 2008) (McCarthy et al, 2010, p.7)

Through real life projects based in the community the students take their learning beyond the classroom both in the subject they are exploring but also into their professional practice through their enhanced capabilities, effectiveness and ability to reflect. Incorporating reflection into their assignments heightens the self-awareness of the soon-to-be graduates while concurrently increasing their confidence in their own abilities; essential skills for their professional careers.

This project was Highly Commended at the Association of European Schools of Planning (AESOP) Excellence in Teaching Awards 2019.

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# Transforming Spaces: Fostering Student-Centered Learning Through the Intentional Design of Formal and Informal Learning Spaces

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## Introduction

Transforming the academic experience and success of students by building Active Learning Classrooms (ALCs) is increasing, but ALCs are still fewer than traditional classroom spaces. These new learning spaces create an inherent tension between increasing student enrollments and active learning environments. Accommodating increased class sizes does not have to exclude fostering an active learning space. We have an opportunity every time a classroom is renovated or a new building is built to intentionally acknowledge and engage this tension to positively influence student learning and success.

As we renovate and construct new learning spaces on our campuses, it is not only important to understand how the "built pedagogy" (Monahan 2000, 2002) and "architecture as pedagogy" (Orr 1993, 1997) of our spaces can help or hinder more active learning pedagogies, but also how to support effective teaching in these spaces (Levesque-Bristol, 2019). While many institutions are prioritizing active learning as old classrooms get renovated, few are doing so at the broad campus-wide scope necessary to affect larger-scale culture change (Park & Choi, 2014).

Two such institutions that are developing and supporting large-scale active learning spaces are the Technological University Dublin (TU Dublin) and Purdue University (Indiana, USA). TU Dublin and Purdue are conducting collaborative research focusing on how each institution's new, large-scale construction of formal and informal learning spaces is impacting teaching and learning.

## Method

In fall 2017, Purdue University opened the Wilmeth Active Learning Center (WALC) (Figure 1) in the heart of campus with 27 active learning classrooms across 8 different room configurations (https://www.purdue.edu/activelearning/). The WALC has set Purdue University as a leader among peer institutions in design, development, and use of both formal and informal learning spaces for student success. Purdue has conducted varying institutional research on their ALCs impact on student learning (Beaudoin et al., 2016), instructor perceptions of teaching in ALCs (Beaudoin et al., 2016), instructor selfefficacy (McDavid et al., 2018), and support of teaching in ALCs (Zywicki, 2016).

Along with ALC research, Purdue is committed to student success with the dedication of resources to enhance learning experiences and transform education at Purdue University through the IMPACT program. The IMPACT program, "Instruction Matters: Purdue Academic Course Transformation" (impact.purdue.edu), is a semester long, faculty learning community focused on course redesign, that has shown to positively influence instructors' use of active learning pedagogies and spaces (FitzSimmons et al. 2019, Levesque-Bristol et al. 2019, McMurtrie 2018).

In fall 2020, TU Dublin will complete construction and transition to a more centralized main campus at Grangegorman (http://www.dit.ie/grangegorman/). TU Dublin is Ireland's first Technological University, with the Grangegorman campus representing a dynamic hub of formal, informal, and virtual learning spaces fostering a life-long learning process with students. A new project, Enabling Pedagogic Opportunities in the Design of Learning Spaces (EPOL) (Figure 2), is to support the effective design and use of new learning spaces in Grangegorman.

EPOL builds upon current institutional practice and international studies, exploring the relationship between the design and configuration of learning spaces, active learning strategies, teaching practices and the quality of the overall learning experience. Selected room exemplars will support the process of identifying effective designs and configuration for new spaces. The project also aims to provide tailored professional development to support student centred-approaches in new formal and informal learning spaces.

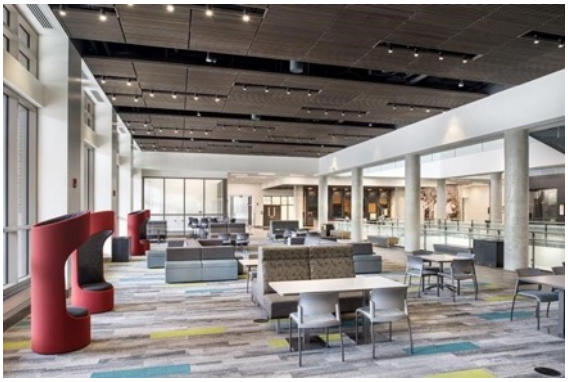



**Figure 1: Learning Spaces at Purdue University**

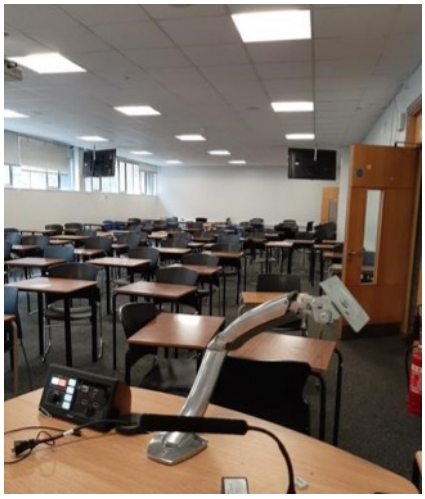
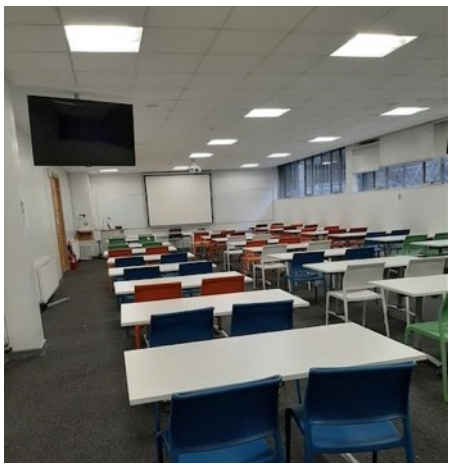



**Figure 2: Learning Spaces before and after reconfiguration at TU Dublin (EPOL Project)**

## Findings

Active learning classrooms (ALCs) have followed the implementation of more active learning pedagogies, which has become a strategic goal in many higher education institutions (Park & Choi, 2014). These active learning pedagogies and active learning classrooms along with the integration of more mobile technologies has created what Monahan refers to as "permeable learning" (Monahan 2000, 2002). More robust, mobile, and feature rich Virtual Learning Environments (VLEs) or Learning Management Systems (LMS) are contributing to the changing learning spaces. This has been the focus of recent research by faculty involved in a professional development programme at TU Dublin (Carolan, Curran & McCormack, 2019) who have explored the combined opportunities offered by new spaces in the Grangegorman campus and the introduction of a new LMS (Brightspace by D2L) to the TU Dublin City Campus. An example of how practice might be influenced is their production of

an infographic to support colleagues with planning teaching and learning activities to exploit the potential of both physical and virtual environments.

Research has documented a relationship between the kinds of opportunities open to educators depending on the learning spaces in which they are teaching and their students are learning. Evidence points to a contributory rather than a causal relationship between innovations in learning space design and enhancements of students' learning (Alterator & Deed, 2013). As university educators develop and enhance their teaching practice overall, we can identify new opportunities for the design and redesign of physical spaces towards active learning and connection with students. However, researchers have identified that faculty need opportunities to develop confidence in using active learning strategies before they can fully exploit these spaces designed for active learning (Levesque-Bristol et al., 2019). The roles of academic developers and educational technologists in supporting colleagues towards more effective use of new kinds of learning spaces is therefore critical and needs to be explored (Clegg, 2009; Fisher & Newton, 2014; Jamieson, 2013).

Learning spaces are being redesigned to try and implement active learning pedagogies that help students strengthen the skills required to be competitive in job markets both nationally and internationally.

Research on teaching and learning spaces often assumes that active learning spaces enhance instructor's ability to implement active learning pedagogies (Brooks, 2010). However, active learning research generally relies on student perspectives, self-reported data, and academic achievement—not on instructor's perspective. In their research, McDavid et al. (2018) focused on instructor's self-efficacy in teaching student-centered pedagogies in both active and traditional learning spaces. Their findings challenge the assumption that experienced instructors will feel successful in any learning space.

There is also an underlying assumption that building active learning spaces will improve student learning, success, and retention at the same time enhancing instructor teaching. Institutional research conducted at Purdue University, however, challenges this assumption (Beaudoin et al., 2016). Figure 3 visualizes the interplay between the physical learning space, instructor teaching practices, and the use of institutional resources. The horizontal axis represents a continuum of instructor pedagogical practices ranging from traditional lectures to entirely active learning. The vertical axis represents a continuum of learning spaces designed from front facing, fixed desks to reconfigurable furniture.

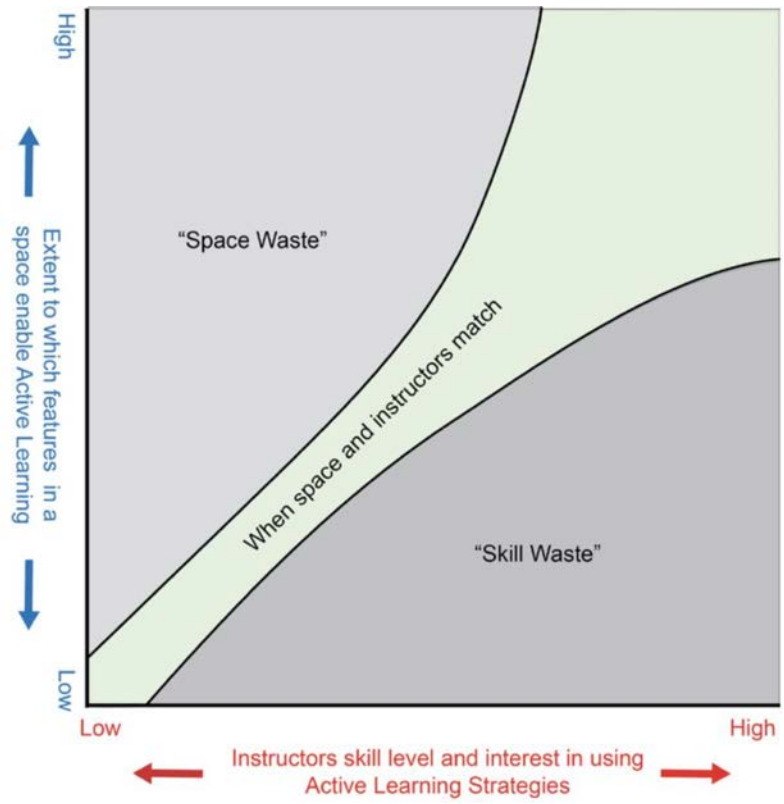



**Figure 3: Visualization of Learning Space and Pedagogical Practice Alignment**

The center area represents the ideal alignment of an instructor's preferred teaching practices with the learning space they teach in. The top left of the figure represents when an instructor is timetabled in an active learning space, but would rather lecture or does not know how to take advantage of the space. As

McDavid et al. (2018) reported, an instructor's self-efficacy might help them overcome the constraints of a learning space. However, active learning spaces are more likely to enable instructors to implement active learning practices. Beaudoin et al. (2016) go on to suggest that instructor development should be considered when timetabling with learning spaces.

Open education (Cronin & MacLaren, 2018; Weller, 2014, 2018) has provided a useful lens through which to view the potential changes we might make to the use of learning spaces by adopting student-centred and active learning approaches combined with effective uses of mobile and other technologies (McAvinia, FitzSimmons, Harvey & O'Rourke, 2019). Open educational pedagogies (OEPs) emphasise giving agency to learners as contributors to knowledge and the community, seeking opportunities for experiential and active learning,

and flexible forms of assessment (Cronin & MacLaren, 2018; Weller, 2014, 2018). OEPs draw on open educational resources and open access publishing. The constraints of the physical campus are diminished by open resources and open access as knowledge is moved out of locked systems and beyond institutional walls to the community, with research using online resources embedded into learning spaces (Weller, 2014). We suggest that the configuration of spaces can contribute to fostering effective OEPs.

## Conclusions

In this short paper, we have discussed how Active Learning Classrooms (ALCs) are transforming the academic experience for both students and instructors. The justifications for change are manifold, drawing on learning theories, taking account of new digital technologies, and the blurring of lines between campus and other sites of learning. The construction of both traditional lecture-style learning spaces and active learning spaces continues; each bringing challenges and solutions to the inherent tension between increasing student enrollments and active learning pedagogies.

Through the collaborative work described here Purdue University (Indiana, USA) and TU Dublin are collaborating to address the challenges of active learning pedagogies as well as support instructors teaching in active learning spaces. We invite participants of this session to bring their experiences in this journey and discuss 1) the impacts of changing design on campus spaces, 2) active learning research findings, and 3) how we as a community can focus on learning spaces influencing teaching and learning on our campuses.

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# UCC Open Arboretum Project: Trees as a Teaching and Outreach Tool for Environmental and Plant Education

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## Introduction

The University College Cork (UCC) Open Arboretum Project aims to re-imagine the original purpose of the University's tree collection – as a teaching tool. The arboretum represents a unique on-campus learning space which has been under-utilised for teaching in recent times. The arboretum has the capacity to engage students, staff and visitors in a tangible way with important global issues (e.g. the climate emergency and biodiversity loss). It is also an opportunity to combat 'plant blindness', i.e. the ambivalence shown to plants in our environment compared to often charismatic animal species.

Wandersee and Schussler (1999) coined the term "plant blindness" to describe the preference for animals rather than plants that they saw in their own biology students. Knapp (2019) has argued that, in fact, humans are less 'plant blind' and more 'everything-but-vertebrates-blind' with school curricula and television programming over-emphasising the role of vertebrates at the expense of other groups of organisms.

Botanic gardens and arboreta have long been used for educational purposes. Sellman and Bogner (2012) have shown that learning about climate change in a botanic garden led to a significant shortterm and long-term knowledge gain for high-school students compared to students who learned in a classroom setting. There is also evidence that learning outside as part of a science curriculum results in higher levels of overall motivation in the students and a greater feeling of competency (Dettweiler *et al.*, 2017).

The trees in the UCC collection, like other urban trees also provide a range of benefits outside of the educational sphere. Large, mature trees, with well-developed crowns and large leaf surface area have the capacity to store more carbon than smaller trees. They provide shade as well as food and habitats for animal species as well providing 'symbolic, religious and historic' value in public common spaces. Such benefits have recently been summarised by Cavender and Donnolly (2019) and aligned with Sustainable Development Goal 11, Sustainable Cities and Communities by Turner-Skoff and Cavender (2019).

A stakeholder survey has been conducted to evaluate how the tree collection is currently used and a tour of the most significant trees in the collection has been developed. The tour encourages participants to explore the benefits of plants through many lenses including recreation, medicine and commemoration. The open arboretum project brings learning beyond the classroom and acts as an entry point for learning in a variety of disciplines, not least plant science and environmental education generally.

## Method

### History of the Arboretum Site

The UCC tree collection has its origins in the Queen's College Cork (QCC) botanic garden which was established by Prof. William Hincks, the first professor of Natural History at Cork, in 1849 (Figure 1). A major extension to the botanic garden was laid out in around 1880-1881 by Prof. Andrew Adams and it was at this point that many of the most important tree specimens were first planted. At that time, the President was Dr W.K. Sullivan who used his friendship with William H. Crawford (of the well known Cork brewing family) to fund this extension, and the construction of glasshouses on the site.

Crawford, himself a keen amateur plantsman, donated numerous specimens to the collection. Cullinane (1988) has extensively reviewed the history of the botanic gardens at UCC.

As early as 1856, the then President of QCC, Robert Kane noted that the gardens, then numbering 1,640 plants, were *'accessible to the students at all College hours and free access was given to the public generally at hours not devoted to class instruction'* (QCC President's Report, 1855-56). Therefore, from its earliest inception the plant collection was in use as a teaching and a public engagement tool.



Figure 1: Quadrangle Building and some of the QCC Botanic Garden (c. 1880). Image: French (c.1880); Colourised by the authors using Colourise.sg

**Current Collection**

Over time, the systematic botanic garden has been removed due to changing teaching methods in the field of botany and plant science and to facilitate the development of new buildings on the historic campus. Many of the tree specimens have survived in various locations around the old botanic garden site and these are supplemented by specimen trees which were planted in the President's Garden,

Lower Grounds and other parts of the campus. The arboretum has been supplemented by regular new planting over the intervening years under the careful stewardship of the Grounds Staff and Buildings & Estates Office at UCC. The total collection is now distributed over 42 acres with 2,500 trees representing more than 120 different species.

**Literature and archival search**

A full search of the literature, UCC Archives and UCC curatorial collection is ongoing along with a search of external databases and collections.

**Tour Development and Delivery**

As part of the Open Arboretum Project, c. 36 species of tree (Table 1) were selected from the collection to form the basis of a UCC Tree Tour. These species were selected based

on their scientific, historical and/or cultural importance as well as their geographic location on the 'main' campus. The inaugural tour took place on 8th October 2019, during UCC '*Community Week'* and attracted a capacity audience of 33 participants. These participants signed-up online and were therefore selfselecting. The tour lasted just 60 minutes and was led by two of the three authors.

**Table 1** Tree species selected to form the UCC Tree Tour

| **COMMON NAME** | **SCIENTIFIC NAME** |
|---|---|
| Wollemia Pine | *Wollemia nobilis* |
| Copper Beech | *Fagus sylvatica purpurea* |
| Weeping Willow | *Salix babylonica* |
| Monteray Pine | *Pinus radiata* |
| Giant Redwood | *Sequoia sempervirens giganteum* |
| Horse Chestnut | *Aesculus hippocastanum* |
| Lucombe Oak | *Quercus lucombeana* |
| London Plane | *Platanus x acerifolia* |
| Wing Nut | *Pterocarya fraxinifolia* |
| English Oak | *Quercus robur* |
| Ceder of Lebanon | *Cedrus libani* |
| Strawberry Tree | *Arbutus unedo* |
| Sweet Chestnut | Castanea sativa |
| Bhutan Pine | *Pinus wallichiana* |
| Scots Pine | *Pinus sylvestrus* |
| Irish Yew | *Taxus baccata 'fastigiata'* |
| Black Pine | *Pinus nigra* |
| Flowering Cherry | *Prunus avium* |
| Katsura Tree of Japan | *Cercidiphyllum japonicum* |
| Norway Maple | *Acer platanoides* |
| Swamp Cypress | *Taxodium distichum* |
| Western Red Cedar | *Thuga plicata* |
| Lime | *Tilia cordata* |
| Maidenhair tree | *Ginkgo biloba* |
| Portugal Laurel | *Prunus lusitanica* |
| Sycamore | *Acer pseudoplatanus* |
| Tulip Tree | *Liriodendron tulipifera* |
| Paper Bark Maple | *Acer griseum* |

| | |
|---|---|
| Blue Cedar | *Cedrus Atlantica glauca* |
| Atlas Cedar | *Cedrus atlantica* |
| Monteray Cypress | *Cupressus macrocarpa* |
| Common Yew | *Taxus Baccata fastigiata* |
| Firethorn | *Pyracantha coccinea* |
| Common Beech | *Fagus sylvatica* |
| Silver Birch | *Betula pendula* |
| Gum Tree | *Eucalyptus gunii* |

**Participant and Stakeholder Surveys**

Participants on the UCC tree tour were asked to complete a short questionnaire before and after the tour. In addition, a stakeholder survey was distributed electronically to UCC staff, students and interested parties to establish the current use of green space both on and off campus as well as stakeholder's general perception of plants and green space.

**Preliminary Findings**

The archival and literature search is ongoing and helping to add important context to the historic use of the arboretum as a teaching, outreach and research tool. A search of the library at the Royal Botanic Gardens, Kew located 15 images of the UCC botanic garden and arboretum dating from c. 1914.

These images were deposited in the library by Prof. Henry Cummins, Chair of Botany, UCC from 1908 to 1932 (Cummins, 1914). The images represent a window into the tree collection's development at a time period when the collection was not previously thought to have been illustrated by purposely-produced photographs.

Responses from the participants in the UCC Tree Tour indicated that many already had a keen interest in plants and the collection itself. This is to be expected, given the self-selecting nature of the participants but does indicate a challenge of attracting a wider audience to such events. Participants indicated that more such tours should take place in the future and could be even longer in duration to highlight more of the tree species.

The stakeholder survey has just recently been completed but early indications are that respondents are very positive about the tree collection and the value of green spaces, in general, on the UCC campus. Respondents also felt that being 'in nature' had a positive effect on their mental health and overall happiness.

## Conclusions

It has been argued that many academics *"know very little of the environments in which they and their students, spend so much time"* (Speake et al., 2013). Thankfully, there is a growing respect and awareness with regard to the value of green spaces as learning environments in themselves rather than just the aesthetically-pleasing backdrop in front of which learning takes place.

As part of the UCC Open Arboretum Project, the use of the tree collection and associated spaces as a living classroom is being assessed and encouraged. Already, there has been a positive response to initiatives run as part of the project (e.g. tree tour, urban tree workshop). There are opportunities to engage primary-level students and other groups with the tree collection and to raise awareness about major challenges such as biodiversity loss, climate change, etc. and to combat plant blindness (Speake et al., 2013). These opportunities will be explored during the lifetime of the project.

The capacity of trees to increase a student's ability to succeed in education (at all levels) has been summarised by Turner-Skoff and Cavender (2019) and include:

- Improved student performance
- Reduced levels of stress
- Increased concentration
- Reduced symptoms of ADD/ADHD
- Increased attention
- Increased self-discipline

This current project will build upon these known benefits of learning in the presence of trees to demonstrated the importance of tree planting not just in UCC but in other educational institutions at primary, secondary and third-level, as well as in other urban settings.

## Acknowledgement

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# Collaborative Learning, Role Play and Case Study: Pedagogical Pathways to Professionalism and Ethics in School Placement

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## Introduction

Teachers are moral agents. Acting professionally in *loco parentis* teachers have a legal and moral duty of care to students (DES, 2017). Moreover, they can be regarded as moral 'role models' (Bergen, 2006; Lumpkin, 2013). Professional codes of practice assist teachers in their moral agency (Alberta Teachers' Association, 2004; CDET, 2017; DfE, 2011; Education Council, 2017; Teaching Council, 2012; 2016; World Class Teachers, 2017). In conjunction with official codes of conduct, TE ethics programmes contribute to the development of "a moral language" and raise awareness of moral agency in teaching (Shapira-Lishchinsky, 2010).

In 2014 the National University of Ireland, Galway (NUIG) and the Galway-Mayo Institute of Technology (GMIT) jointly developed a cross-institutional training programme entitled 'The Ethical Teacher Programme', designed to facilitate student teachers to reflect upon professionalism and ethics during School Placement. The programme incorporated both a study of the Teaching Council *Code of Professional Conduct for Teachers* (*Code*) (2012) and explorations of selected ethical 'case studies' in teaching, using collaborative learning (CL) and role play strategies. The 'ethical dilemma' approach employed mirrored literature studies (Colenerud, 1997; Husu & Tiri, 2003; Klassen, 2002). Unique to the approach, however, was the method of application of selected classical and contemporary ethical philosophies to moral dilemmas in teaching.

The programme was designed to include a one-hour introductory lecture on professionalism and ethics (from the perspectives of moral literacy and ethical theory) followed by a two-hour applied workshop. The workshop employed student-centred, active teaching and learning methods, specifically, collaborative learning, role play and case study

analysis. Six ethical philosophical principles (or 'lenses') were integrated into programme delivery - *teleology, deontology, virtue ethics, justice ethics, care ethics* and *relationality ethics.* These lenses were applied to real-world teaching case studies. One cohort to which this training programme is offered annually is the student teachers on the Professional Master of Education (PME) programme in NUIG. The PME cohort (2015-2016) is the focus of the present study. The study sought a critical reflection on, and evaluation of, this training programme, from a student perspective. This study is phase one of a larger on-going study.

**Method**

The methodological paradigm of this study was a 'case study', the bounded case being the NUIG PME cohort 2015-2016 (n=130). The framework was qualitative and interpretivist, focusing on student perspectives. The workshop employed the 'Ethical Teacher Toolkit' (see Image 1) and it integrated data gathering: data was collected at the end of the workshop by means of a student questionnaire.




*Image 1: The Ethical Teacher Toolkit*

The Ethical Teacher Toolkit contains a copy of the *Code*, ethical lenses cards based on the philosophical ethical lenses, case studies and active learning aids. Groups of six are established, and member given roles (leader, recorder, observer, timekeeper, etc.). First the *Code* is applied to SP and secondly Collaborative Learning and Role Play teaching strategies are used to adopt the stance of one philosophical lens and argue from that lens only

(suspending one's own moral perspective in the process). The workshop typically concludes with group feedback and discussion, but, in the case of this study, an additional research stage was added: a student-perspective questionnaire that had prior ethical approval through the School of Education, NUIG was administered at the end of the workshop. The research questionnaire was structured on the basis of a 'Strengths, Weaknesses and Suggestions' (SWS) evaluative model. Data analysis was conducted on three key questions: (1) 'Can you identify 3 things that worked well in the Ethical Teacher workshop?' (2) 'Can you identify 3 suggestions for improvement for the Ethical Teacher?' (3) 'Can you indicate 3 things you learned about ethical practice in this workshop for your future role as a teacher?' The survey response rate was 85%. A record of the dominant themes emerging from each of these three questions was captured on an Excel spreadsheet, and the frequencies were recorded. The gathered data was coded manually, using a content frequency analysis approach based on the occurrence of dominant themes and sub-themes.

**Findings**

Beginning with Question One - "Identify three things that worked well in 'The Ethical Teacher' workshop?"- three recurring dominant themes were in evidence: 'group work', 'case studies', and 'role play' (n=46). The enjoyment of the 'group work' occurred the most frequently (n=53). One student stated, "I was never a fan of group work but, today's tasks, changed my view"". Other positive findings from the workshop were: 1) the use of lenses for different perspectives was helpful (n=11), 2) the tasks were interesting (n=14), and 3) the case study scenarios were thought provoking (n=17). One student stated that, "Very interesting activities and a good variety… there wasn't a boring moment". Another student remarked: "Looking at other students' perspectives really opened my eyes to all of the possible ways of looking at issues that may arise". Fifteen students positively commented on how relevant the tasks were for their future teaching career.

Question two, on suggestions for improvement, had significantly less feedback compared to question one. Only 55 of the students gave a suggestion for the workshop comparing to the 110 students that identified things that work well. These students stated that there were few areas to be improved on. A suggestion for improvement was to include more case study examples (n=17) "to get a better understanding of different issues that could arise within schools". Poor timekeeping relating to the CL group work was an issue identified as a weakness (n=15). One respondent commented that "too much time was given to the first

couple of tasks and not enough for the last few". Some students stated that they would have preferred to have received more in-depth information on the *Code* (n=7). Six students commented that they had the issue of losing concentration throughout the workshop, as it was run over two consecutive hours.

Question three was: 'Identify three things the student learned about ethical practice in this workshop for your future role as a teacher?' This saw a significantly higher amount of feedback responses compared to question 2 (n=80). One of the most frequently recurring comments was that moral evaluation is not always about the teacher's opinion or personal view on an ethical issue (n=17). One student reflected: "you have to look at issues from more than one perspective". Awareness of the complexity of moral decision-making was also in evidence (n=14): "(n)ot all issues in the classroom are fixed easily" and "sometimes the rules need to be bent or broken in order to achieve something for the school, students or the teacher".

A final question was asked: "Do you have any additional comments?". 34 of 110 students answered this question. Eight students commented on the workshop being very useful for their future teaching career. One commented that it was "… a very insightful and relevant workshop… ( I am ) hoping to use many of these features when I become a qualified teacher". 'Enjoyment' was specified by twelve respondents. One wrote: "I enjoyed this way of learning about ethical practice, it encouraged me to think about possible real-life situations and I got to hear opinions of others". Finally, six students found the workshop "thought provoking".

**Conclusions**

This study concludes that the NUIG/GMIT TE professionalism and ethics programme is both effective and valued by the student cohort. The research participants felt that they had increased knowledge of professional codes of conduct, values and ethical principles. The case study analyses of ethical dilemmas in teaching, using different philosophical ethical lenses, was particularly effective in raising awareness of many potential ethical and professional perspectives in teaching. The learning experience was overall an enjoyable one from the perspective of its small group collaborative learning (CL) and active methods methodology. While this specific study- as a Case Study- does not seek to generalize, the *model* outlined above is easily replicable in other contexts of applied ethics, across a wide array of disciplines. (Indeed, it has been successfully applied to Business

Studies and Media Ethics students in GMIT, to date). Three recommendations arise out of this study: 1) that the programme be further developed to include a deeper examination of the *Code* and teaching case studies, 2) a followon final year workshop would focus on professional and ethical decision-making frameworks and ethical considerations during final year School Placement (SP), and 3) the workshop delivery and research study would be expanded to include undergraduate NUIG/GMIT student teachers.

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# *Lightning Talk Extended Abstracts*

# Encountering Difficult Knowledge: Service-Learning with Sociology and Political Science Undergraduates

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**Abstract**

Community based learning or service learning is a dynamic pedagogical opportunity for students to engage with their discipline in light of social concerns. This presentation will share the key challenges sociology students and lecturer encounter when working with charities and nonprofits with social justice missions. Students are asked to face what Pitt and Britzman (2003) call "difficult knowledge" in classroom readings and discussions on complicity to poverty and racism. The community engagement experience with local charities allows for a dialogue with the scholarly literature grounded in practical experience. Sociology students are challenged to see the institutional and wider structural inequalities upstream while working in community with a direct service role downstream. Taylor (2013) describes student engagement within this type of teaching tool that is critical of the status quo. Hall et al. (2004) argue that the classroom is best placed to navigate this new terrain whereas student volunteering independently might not facilitate reflection and academic literature. Students with a wide variety of needs engage with communities in different ways and lecturers may need to adjust and demonstrate flexibility to facilitate all learning environments.

**Introduction**

Community based learning or service-learning is a dynamic pedagogical opportunity for students to engage with their discipline in light of social concerns (Goggins, 2012). NUI Galway undergraduate sociology and political science students in a third year optional seminar titled 'Volunteering: Theory, Policy and Practice' encounter what Pitt and Britzman (2003) call "difficult knowledge" in classroom discussions and readings on complicity to poverty and racism. This encounter is further explored through community based partnerships whereby students spend time in nonprofit organisations as participants in volunteer programmes in order to gain an insider-researcher position. The community engagement experience with local charities allows students an opportunity to engage in dialogue with the scholarly literature grounded in practical experience. Service-learning students are challenged to see the institutional and wider structural inequalities as the roots of social causes while

working in community with a direct service roles. The research question is - How do students and their lecturer academically critique their community partner's charitable work and engage safely with concepts of privilege? For example students will encounter "difficult knowledge" through a classroom reading of racism in international volunteering. For students that have a vision ofvolunteering as benevolent and helpful this encounter is staggering. This presentation will share the key challenges students and lecturer encounter when working with charities and nonprofits with social justice missions.

**Method**

Student feedback questionnaires and reflections have been documented over the five years of the service-learning module. Coupled with reflective practice as educator and researcher the following presents a snapshot of a wider EDD self-study. A self-study is "a study of self-in-relation to other" (Bullough and Pinnegar, 2001, p.14). Self-study is undertaken often to understand the way we are as educators and to facilitate changes in the ways of being an educator (Feldman, 2003). Both Bullough and Pinnegar (2001) and Feldman (2003) describe self-study as moral work that is done not only to study work itself but also to improve it, so as to affect educational institutions. Leitch and Day (2000) agree, self-study is concerned with "self, society and moral purposes" rather than efficiency towards targets (p.181). Other types of qualitative research such as autoethnography which is concerned with culture and power, influences self-study (Goulding, 2005). There are fourteen criteria outlined by Bullough and Pinnegar, (2001) of a successful self-study, including: it must ring true, enable connection, promote insight, tackle a problem, engage an authentic voice, improve situations for others as well as self, present a genuine dramatic risk, ensure careful attention to the persons and context, and offer fresh perspectives. Bullough and Pinnegar (2001) argue there is legitimate knowledge and knowledge production within self-study research, as they outline the influences of action research, phenomenology, and validity in qualitative research on self-study as a growing movement. The self-study approach is the most appropriate to address the focus of the research as reflection on classroom engagements are vital. Each new cohort of student population undertaking the seminar will react and engage with "difficult knowledge" in new and different ways. Self-study is an appropriate opportunity to generate data on the nuances of the classroom environment. Trust and relationships are formed over the course of the semester allowing for a safe space for student engagement with concepts of privilege and racism.

**Findings**

As students encounter academic literature that highlights discrimination, racism and the complicity of settled white western modernity in poverty and injustice, time in community highlights civil society and government action. Hall et al. (2004) argue that the classroom is best placed to navigate this new terrain whereas student volunteering alone might not be grounded in reflection. Taylor (2013) invites her students to describe the resistance to difficult knowledge. As Taylor (2013) articulates "…evidence of inequality and discrimination is most commonly resisted in social education through the citation of anecdotal evidence, a practice that defines discrimination in solely individual terms and presumes these individual cases' generalizability or fails to contextualize them within larger statistical trends and structural relations of power." Guided by this work undergraduate students acknowledge that it is challenging to come to terms with one's own implications in the status quo and that the structures we engage with maintain discrimination and inequality (Taylor,

2013). For sociology and political science students a safe environment to explore these confrontational concepts and examine privilege is key. Connecting with off campus community projects allows students to explore these concepts that are often linked to their own identity and framing of their environment. However students with a wide variety of needs, define and engage with communities in different ways and lecturers may need to adjust and demonstrate flexibility to facilitate all learning environments inside and outside the classroom. For example students with high anxiety and disabilities can take on their community projects with campus-based initiatives. This offers an out of classroom experience for their reflections and engagement but within the comfort zone of the familiar campus.

Student feedback questionnaires and reflections indicate the transformative nature of the course curricular. The self-study reflection diary indicates the ways students resist "difficult knowledge" and notes encounters and conversations in the classroom. As part of an EDD thesis process the data will be highlighted in its raw format and some brief insights shared from classroom encounters.

Encounter one:

Students are volunteering with a fundraiser for an international volunteering programme. The academic reading highlights paternalism and ethnocentrism in global north

to south volunteering. A student that highlights racism in international volunteering shares their despair and another student interrupts them to dominate the discussion. A third student discredits the difficult knowledge and defects to the value of historical discoveries.

Encounter two:

Students are volunteering with local youth clubs. The academic literature and classroom discussion engages in the marginalisation of certain youths to highlight class struggles. A student reflection writes with deficient language for those who English is a second language.

As these two encounters brief describe the complexities of being in a community setting and volunteering with an organisation yet challenging the nature of the voluntary work. Students struggle to hold both a desire to see volunteering as helpful with the one-hand and yet volunteering as maintaining a status quo of inequality with the other-hand.

## Conclusions

Community based modules are particularly powerful for sociological and political science students as encounters with inequality and social justice are explored inside and outside of the classroom. Nonprofit organisations offer supportive learning environments for students to reflect on scholarly literature. Course content and curriculum that confronts sociological issues means that significant flexibility is needed to respond to student needs and reactions of resistance. There is a rich opportunity to engage in further qualitative research on the impact of service-learning as a teaching methodology in Irish higher education.

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# Learning Beyond the Classroom - Importance of Residential Fieldcourses in Teaching Plant Biology

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## Introduction

The establishment of physic gardens (gardens particularly focused on plants with medicinal properties) dates back to the middle of the 16th century and generally had strong links with university medical schools (Bennett, 2014). Wyse Jackson in 1999 described botanic gardens as 'institutions holding documented collections of living plants for the purposes of scientific research, conservation, display and education'. In 2014, Bennet described the role of botanic gardens in university education as akin to learning in Paradise. By 2050 it is predicted that almost two thirds of the world's population will live in an urban enviroment. This may have a huge impact on our ability to both experience and understand the natural world. Plants have a massive impact on the earth's environment. This paper focuses on learning beyond the classroom in botanic & physic gardens and in industry settings using the annual Applied Plant Biology fieldcourse in UCC as a case study. The Applied Plant Biology residential fieldcourse has been running for the past five years (started in 2014) and takes place around Easter each year. I am the coordinator. It is a 5 day residential course for 3rd year Plant Science students. The learning outcomes of the fieldtrip state that; students should be able to discuss recent developments in industrial plant science research (facilitated in part by visits to a multinational (Syngenta) and samller family owed companies (Tozers)); be able to explain worldwide plant conservation approaches and plant biodiversity in the context of different plant ecosystems and anthropogenic environmental impacts through engagement with such centers of excellence as Kew Botanic Gardens in London, Kew's Millenium Seedbank Wakehurst in Sussex and the Chelsea Physic Garden in central London.

## Method

A few weeks prior to the Easter fieldcourse, the students attend 6 hours of preparatory lectures in UCC. In addition to relevant scientific information, the students are given key logistical and safety information. The group (staff and students) reside in University

accommodation (Royal Holloway in Egham London) for the duration of the trip as this offers a convenient loation to access all sites. From here the group can use public transport or private coach as needed. The working day begins no later than 9 am and finishes on average around 5pm. The students are given the option of a rest period and time for dinner, then the group (staff and students) work for another 1-1.5 hours discussing the scientific highlights of the day and how the work can be written up for submission (see fig 1). The students have to keep a daily diary of events and they also have to prepare two 1500 word essays on topics directly related to the fieldtrip. The work is submitted on-line at the end of each day (part of the essay topics are prepared in advance of the fieldtrip). As the fieldcourse is close the summer exam period, we insist that all of the work is submitted during the week of the fieldtrip in order to give the students sufficient study time once back in Cork . At each site, students get access to behind the scenes and actively engage with external staff . The preparatory sessions in UCC prior to the trip give the students an excellent insight into each facility/location and allows for the students to fully participate and engage with the staff they meet on site. The feedback from the staff in Kew, Millenium Seedbank, Syngenta, Tozers and Chelsea Physic Garden has been very positive and external staff have been impressed with the level of engagment they experience with many of our students.



**Figure 1. Evening discussion of highlights (scientific and other) of the day**



**Figure 2: Learning beyond the classroom at (a) Kew Botanic Gardens (b) the herbarium**




**Figure 3. A tour of the Syngenta facilities and a chance to engage with Syngenta staff**



**Figure 4. Dr Frances Gawlthrop showing the students some of the new varieties produced on site in Toz**

**Findings**

We have made several key findings in relation to running residential fieldcourses – learning beyond the classroom, many of which incorporate Bloom's taxonomy of learning domains to include knowledge and comprehension from the classroom setting to application, analysis, synthesis and evaluation of the knowledge in a fieldbased learning environment . Amongst the findings I highlight four main ones below:

The residential fieldcourse offers a great opportunity for staff and students to interact beyond the formal setting of the classroom and allows for a deeper engagment between all parties on the subject matter. Students and staff have an opportunity to develop a good working relationship and share ideas on wide-ranging topics. Many of the students will take the opportunity to discuss potential final year projects whilst on the trip.

By accessing such centers of excellence as Kew Gardens and the Millenium Seedbank, the students gain a deeper understanding of the importance of botanic gardens and seedbanks in conservation, biodiversity and in understanding the environmental impacts of anthropogenic activity. In these settings the students get to think critically about plant biology and its place on a global stage. The site visits give the necessary context to classroom-based learning (Fig 5).

By engaging with companies (multinatinational like Syngenta and family owned international companies like Tozers) the students get to experience the commerical side of plant biology and gain an awareness of constraints associated with applied research (Fig 3 and 4). During the course of the company visits, the students gain an understanding of large production facilities and what is involved in quality control and meeting industry standards (fig 3). They also get an insight into the economics of such markets both in and oustide of the EU. Over the past number of years a few of our students have been able to secure summer and longer-term internships with these companies.

Over the past number of years of running this fieldcourse, the feedback to us directly and via our external exmainer (who meets the students in 4$^{th}$ year) has been excellent (fig 5). This is something that should be encouraged particularly from the student perspective of being able to develop a supportive peer network from both a personal and professional viewpoint.

*'The content of the course is excellent and gives students a good training in their subject. An important feature of this course is the combination of laboratory and field science, which I believe is an essential feature of applied plant science. Maintaining training in both of these areas should be continued. The field course to London is a particular feature that I hope you will maintain' (Extract from External Examiner's report for Applied Plant Biology, 2018)*

Student feedback via blogs and surveys – extracts from http://blogs.ucc.ie/wordpress/bees/

*' From just one day, it can be easily seen that a great amount of effort goes into the running of both the MSB and the Gardens. The achievements in both species conservation and horticultural excellence are the result of years of hard work and diligence from members of staff and volunteers that ensure Wakehurst not only grows, but flourishes'(student 1)*

*'Chelsea Physic Garden typically gives good insight to plants that are or have been of interest to human civilisation in an approachable manner by subdividing the garden. This garden may have some similarities to Kew Gardens in terms of horticulture, however Kew would be of greater interest to an individual who cares for ecology and conservation. Chelsea Physic Garden would be best suited to an individual with an interest in taxonomy and medicine. By utilising the plant breeding skills adopted and used by humans throughout history, Tozer Seeds strives to develop innovative products with excellent flavour and good field performance. The seeds produced are sold directly to packet seed companies or grocery growers' (student 2)*

*'To start the visit to Kew, Melanie-Jayne Howes spoke about the connection between plant chemicals and Alzheimer's disease. There is currently no cure for Alzheimer's, only medication to ease symptoms, and two of the current drugs on the market are plant derived – galantamine and rivastigmine. Galantamine is an alkaloid isolated from plants of the Amaryllidaceae family, primarily snowdrops and rivastigmine is derived from neostigmine, originally isolated from the Menispermaceae plant family, which proved to have unreasonable side effects' (student 3)*

*'Overall, Kew Gardens makes for an enjoyable visit with information that is very applicable to the Applied Plant Biology course. A behind the scenes look at the work of the scientists at Kew and the ongoing projects was a great insight into botanical gardens and the work they do' (student 4)*

*…'a welcoming and interesting experience, showing insight into Syngenta's work' (student 5)*

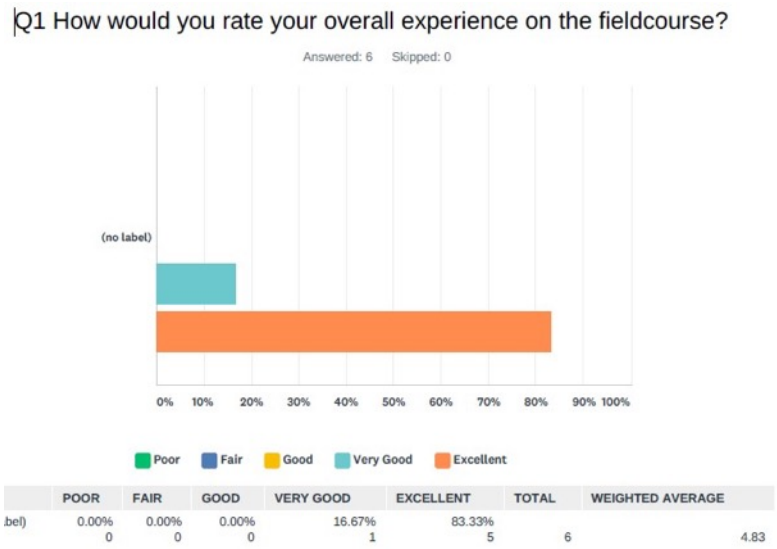



**Fig 5. Student feedback. Over 89 % rated the course as 'excellent'.**

## Conclusions

How essential is learning beyond the classroom? Learning beyond the classroom is critical . It allows the students to apply the learning from the classroom in a real-world setting. It gives the student learning a context and allows the students to critically evaluate the topic in an applied setting. It gives the students access to other professionals working in their discipline and opens up many possibilitites for them in how they could potentially apply their qualification in Applied Plant Biology. The final critical component of a residential fieldcourse is that it gives the students the time to 'cement' friendships and to develop a network of peers who may offer personal and professional support in future endeavours.




**Figure 6. The 2018 3rd year Applied Plant Biology class from UCC**

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# Re-shaping Irish Universities: The Application of Self-determination Theory to an Entrepreneurial Education Policy.

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## Introduction

> "*Entrepreneurs are heroes in our society. They fail for the rest of us….. Courage (risk taking) is the highest virtue. We need entrepreneurs."*
>
> *Nassim Taleb (2018: p36 & p189) – Skin in the Game: Hidden Asymmetries in Daily Life.*

Drucker (1985) states that entrepreneurship is neither a science nor an art, but a practice. Therefore, this paper works with the assumption that entrepreneurship can be nurtured. The skills and competencies that a deeper learning around entrepreneurship can bring has the potential to make all students more creative individuals. Unfortunately, according to Eurostat (2019), Ireland is one of the worst countries in Europe for start-ups, lagging behind the E.U. average. Additionally, *Entrepreneurship Education at School in Europe* (2015) found that Ireland was the country with the lowest percentage of young people that have started their own business. Is our education system failing to equip our youth with skills and competences needed for entrepreneurship? If this is the case, Ireland needs to implement a policy that can change this, before Ireland becomes even more dependent on multinational/foreign companies for economic growth and employment.

Other countries have shown that learning "for" and "about" entrepreneurship can bring many more benefits than just business formation ideas (Bager, 2011; EU Expert Group, 2008). Even if one does not value entrepreneurship, or has no interest in being an entrepreneur, the skills and competences learned will help every individual, regardless of their career choice. This paper argues that introducing an entrepreneurial education policy in Ireland could reap massive benefits moving forward.

This paper aims to carry out three tasks:

1. To outline an entrepreneurial and enterprise education policy that increases students' autonomy of their own learning experiences.

2. To present a convincing argument of why Ireland should implement this policy moving forward.
3. Recommend plausible and practical actions in order to implement such a policy in Ireland.

This paper is structured as follows: the theory section outlines the Self-Determination Theory that serves as the theoretical backbone for this argument. Evidence of Good Practise presents evidence to back up the need for such a policy and possible solutions towards the improvement of entrepreneurship education. This will build on the theory presented in the Method Section. Conclusions summarises the argument presented and highlights future lines of research.

**Theory**

Self-Determination Theory (SDT) is a theory of human motivation that examines a wide range of phenomena across gender, culture, age, and socioeconomic status (Ryan and Deci, 2000). It addresses what motivates people's behaviour and what moves them into action. It differentiates between types of motivation based on the reasons or goals that give rise to an action. The biggest distinction is between intrinsic (autonomous) and extrinsic (controlled) motivation. Intrinsic involves doing something because it is inherently/naturally interesting or enjoyable. Extrinsic involves doing something due to it leading to a separable outcome.

According to Self-Determination Theory (Ryan and Deci, 2000), humans have three psychological needs that must be in operation, if one wants to engage in creative activity in a fully motivated way. (i) Autonomy – the need to control the course of their lives. This is the most important need, especially for entrepreneurship. (ii) Competence – having belief and confidence in one's ability to engage in the task. (iii) Relatedness – seeing how the task aligns with one's values and goals. Research of entrepreneurial motivation shows that it is autonomy, not financial gain, that is most often mentioned or rated as the most important motive for starting a new venture (Shane et al., 2003). Moreover, autonomy is also the dominant source of entrepreneurial satisfaction (Van Gelderen, 2010). Autonomy can be stifled during secondary school years with a controlled curriculum (Veugelers, 2004). It is vital that educators allow for autonomy in schooling curricula for students to truly become engaged in their work (Reeve et al., 1999).

One of the important traits of an entrepreneur is self-confidence; thus, the entrepreneur needs to feel competent in many domains, and this should be developed from an

early age. Competence requires positive feedback loops from educators and managers (Stone et al, 2009). However, facilitators should praise effort and strategy, not intelligence (Dweck, 2013). Students need to have belief in themselves and making incremental steps towards increasing confidence from a young age is paramount. Therefore, the role of educators here is to install that competence in the student (Sanchez, 2011).

**Evidence of Good Practise**

How do we show students what actual autonomy is, and how can we construct an environment to unleash this potential autonomous drive in students? By relaxing the controlled and regulated environment through focusing less on tests and exams and more on assignments, case study work and continuous assessments. Currently, students are set up to remember enough material for exams, an exercise in short-term memory retention (Thompson, 2011). Students fall into bad habits such as shortterm thinking, diminished tolerance for ambiguity, and narrower focused efforts (Frey and Jegen, 2001).

This doesn't allow for the practise of the critical skills found in entrepreneurship. Students are not being challenged to engage in project and time management. Moreover, case study work and continuous assessments are grounded in a "trial and error" approach. Students get to experiment with ideas – and, more importantly, construct those ideas themselves (Lober, 2006). No higher power should decide what is best for the student.

Allowing for more continuous assessment will change how the game is played. It wouldn't be just about learning for an extrinsic reward, i.e. grades. It would also be learning for a tangible result. In some ways this involves provoking competencies within the students. As Lober (2006) noted, in entrepreneurial education the learner must be active to gain valuable experience from their activities. Reflection on their activities, and their outcomes, is crucial for their continued success (Lober, 2006). The role the teacher plays is very important in the reflection process. If we look at the teachers who operate under such a system in Norway, they reported high levels of self-efficacy and job satisfaction (OECD, 2013). Self-efficacy is vital for unleashing creativity (Sternberg, 2006).

The area of 'camp learning' has proven to be successful (EU Expert Group, 2008). This type of teaching involves taking students outside of the usual learning environment, the classroom, and getting them to work on problems and solutions as part of multidisciplinary teams (Bager, 2011).

Entrepreneurship education doesn't solely involve transferring knowledge, it involves facilitating the knowledge creation processes (Shane and Venkataraman, 2000). The practical, hands-on, experience is key for students, allowing them to sharpen their analytical and problem-solving skills (Karimi et al. 2012). Thus, this paper advocates for a camp model-based approach where students of different disciplines work together to find solutions to problems, bringing their own unique perspectives and knowledge to the group. This could help them see issues in different ways. Instead of stemming their creativity and restricting their way of thinking (Sternberg, 2006), they could realise the importance of assessing topics from multiple disciplines. Essentially, this would involve studying current issues rather than one specific subject/discipline (Bager, 2011).

By moving students from the spectator seats in the classroom into the real world, they can simulate the experience of being in those positions, being in the action (Bager, 2011). This hands-on experience can help them learn more about themselves and their strengths. This practical knowledge additionally helps with the understanding of the theoretical issues within the field. Parker (2006) examined entrepreneurs and how they change their ways of thinking. He found that entrepreneurs only learned 20% based on new information, at a maximum. They learned up to 80% based on former experience.

This outlines the importance of camp learning moving forward.

**Conclusions**

Ideas are what Ireland needs, and the application of Self Determination Theory would enhance the creativity in students, if given the chance. The next step is innovation to bring these ideas to market. Unfortunately, this is outside this paper's scope. Further research, and policy recommendations, on how we can finance the young entrepreneur in Ireland would be welcomed here.

Entrepreneurship is not created in a lab; and innovation is not exclusive to science. The success of the entrepreneur is grounded in a trial and error approach. Failure must be embraced. Humans learn more when they fail and become more resilient. This paper backs an educational policy that equips students with this know-how. While there are some short-term costs, such as the initial costs training teachers, they are outweighed by the long-term benefits. Even if entrepreneurship does not increase, labour productivity will, and students gain the know-how to be more prepared for the work force. The Irish government needs to organise a step-by-step process to increase entrepreneurship in Ireland. As stated, Ireland has

the lowest start-ups among young people in Europe, and one of the lowest start-up rates across all ages in Europe. Moreover, Ireland is too dependent on multi-national/foreign firms.

Ireland has made great strides in education policy since 1969, when secondary schooling became available for all. Future progress is dependent on embracing change and allowing the youth of Ireland to take ownership of this change.

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# Digital (Urban) Geography: Student-Led Research Methodology Training using Smartphone Apps

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In the last decade, opportunities have emerged to deploy new digital technologies to research agendas and research-led teaching at third level. For instance, research methods such as surveys and questionnaires are shifting into the digital environment, while at the same time there is increasing evidence to support the view that people who have grown up with technology have acquired distinctive new ways of learning, and that traditional methodologies fail to maximise student engagement (Lafuente 2018). Thompson (2013) suggests that these 'new learners' are constantly using technology, multi-tasking in interactive environments, and collaborating online, yet research shows that many students are unaware of the potential of their smartphone to support learning (Woodcock et al, 2012). Despite a widespread interest in mobile devices facilitating teaching and learning in third-level education geography departments (Welsh et al. 2013), many research techniques are still taught using traditional 'pen-and-paper' methodologies.

The ESRI Collector for ArcGIS is a mobile application (app) that can be used with iOS, Android, and Windows smartphones. Collector for ArcGIS is beginning to emerge as a technology to support spatial thinking in geography at second-level education and third-level education (Pánek and Glass 2018). Here we report on our strategy of integrating mobile technology in GG1015 Applied Geography, a large (250+) class introducing first year BA Arts Geography programme students to a number of techniques that we use in Geography. This module sits between GG1013 Environmental Geography and GG1014 Society and Space in the first-year programme. Both of these modules are a block of 24 1-hour lectures, with multiple choice quizzes (MCQs) and essay-based exams. Subsequently, GG1015 was developed to compliment these modules and introduce different teaching styles that facilitate learning across a range of diversities. Throughout this module, students engage directly in fieldwork, photographic activities, essay writing, presentations, and small group work. As such, this module offers an excellent case study to explore new techniques to engage students in learning, particularly in geographic research.

In 2017, we identified a need to revise and re-design the research training delivered in the second semester (that accounts for 35% of the module). This project consisted of an urban

land use survey throughout Cork City, Ireland, using smartphones as the research medium and WebGIS to perform spatial analysis on the data. The strategy we devised was based upon five pillars:

1. We wanted our students to observe urban conditions and develop a deeper appreciation of the impact that wider economic, planning, and policy processes have on the urban geography of the city.
2. We decided to base our new pedagogy on research-based training and establish a new project in the department focused on an urban land use survey of Cork to be researched primarily by students.
3. We moved our research training to the digital realm by deploying the ESRI Collector app, a mapping and data collection software that can be used on smartphones in the field.
4. We encouraged a stronger research ethos within the cohort by directing students to take ownership of their project and underscore its relevance to their personal development as researchers.
5. We redirected the learning intervention by encouraging students to be self-directed and engage in peer-to-peer learning in a structured but largely independent fieldwork context.

Three orientation sessions were offered to students in a large group context, that outline key teaching for understanding (TfU) goals. Figure 1 is a graphic organizer of this research project.

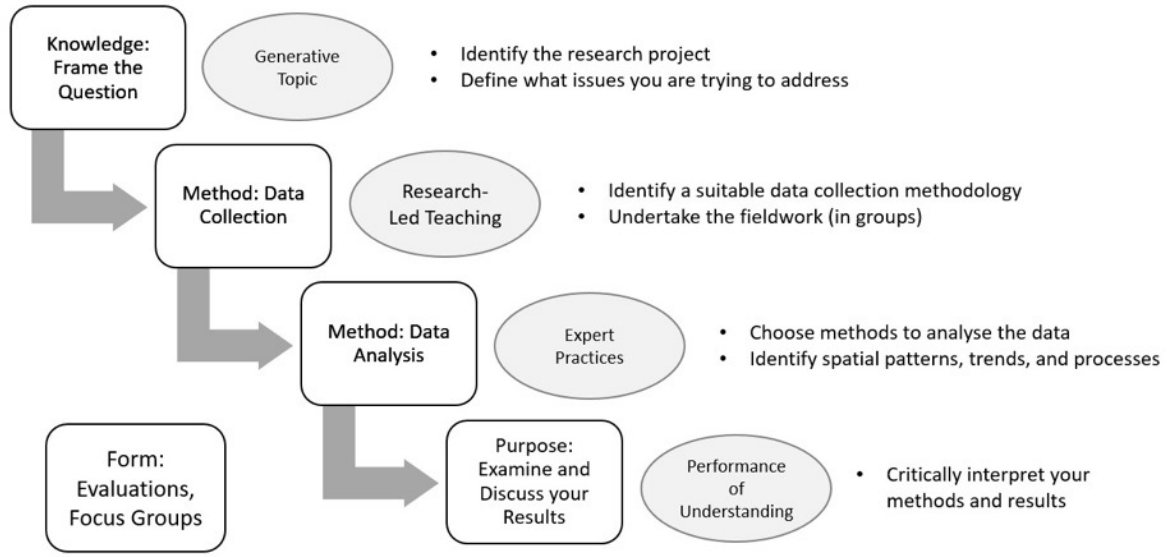



**Figure 1. A graphic organiser of the research project, outlining the key teaching for understanding (TfU) goals, as well as the specific objectives for the research project from a student perspective.**

While the assignments and field work submitted confirmed the academic value of this approach, in order to test for performance of understanding, we implemented an online student survey and organised 4 focus groups at the end of the semester. The online student survey received a response rate of 34% (97 surveys), which is in alignment with current expectations for response rates to social surveys (see McGuirk and O'Neill, 2016). We then held focus groups that provided much more detailed discussion on topics with 5% of the students enrolled in the course that spanned 25% of the groups. Thematic analysis of the survey results (Table 1) and the focus groups identified three common themes; active learning through research led teaching, a dichotomy in response to technology, and peer-to-peer learning through group work.

**Table 1. Results from student end of project survey. Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD).**

| | SA | A | N | D | SD |
|---|---|---|---|---|---|
| The project objectives were clear | 27.17% | 56.52% | 15.22% | 1.09% | 0.00% |
| The urban geography briefing introduced the topic well | 26.09% | 52.17% | 18.48% | 4.25% | 1.09% |
| The Collector App briefing provided sufficient explanation on data collection | 44.57% | 39.13% | 10.87% | 5.43% | 0.00% |
| The WebGIS briefing provided sufficient explanation on data analysis | 43.48% | 38.04% | 15.22% | 3.26% | 0.00% |
| The Collector App videos were useful | 53.26% | 31.52% | 11.96% | 3.26% | 2.17% |
| The WebGIS videos were useful | 47.83% | 35.87% | 13.04% | 3.26% | 1.09% |
| I enjoyed undertaking research as part of this assignment | 43.48% | 44.57% | 7.61% | 5.43% | 0.00% |
| I learnt a lot about geographic research from this project | 30.43% | 48.91% | 16.30% | 5.43% | 0.00% |
| I preferred undertaking fieldwork compared to a lecturepractical series | 47.83% | 36.96% | 6.52% | 8.70% | 0.00% |
| I would like to undertake more research-led modules | 43.48% | 44.57% | 7.61% | 3.26% | 2.17% |
| I would like to use this technology again in some of my modules | 32.61% | 48.91% | 13.04% | 2.17% | 3.26% |

As evidenced by Table 1, 88% of the students surveyed enjoyed the research element within the module, 79% agreed they learnt a lot about geographic research from the practical components, and 88% want more research within geography modules. Positive student comments identified the benefit to geographic fieldwork, which is sometimes neglected in large classes, and the advantage to student learning over traditional 'essay-based assessments':

- *"I think what makes this project stand out as opposed to any other essay, where we just kind of go online and look for information and write about it, we actually go out and do it, this feels like new, it feels like something we actually did ourselves"*

- *"I think by doing it ourselves we are able to learn a lot more, we can actually go out and physically experience it instead of just researching it online, … but doing this kind of assignment, we are able to go out and collect our own information and then look back over it and analyse it and just think, oh yes, that's where that came from and then be able to relate it back to ourselves"*

Group work was identified by every student in the focus groups as a *challenge* to this project. Contacting group members and no-shows were frequent complaints:

- *"I emailed them and some people responded straight away and another person responded nearly a week later, so there was that… We had to wait for the fourth person to make contact."*

Due to new European Union General Data Protection Regulations (GDPR), we could not provide both student names and emails when placing the students in groups, which led to a large logistical challenge by course coordinators and administrative staff. Focus groups led us to consider introducing the students to their group members during the previous semester, which would resolve this issue. Group work was therefore generally perceived as a hindrance by students; however, when asked as to whether they would prefer to undertake this exercise on their own, students voiced their preferences at being in groups, and indicated that peer-to-peer learning was in effect:

- *"There was a bit of discourse in my group, sometimes we weren't all agreeing on what the status of a building was... Since this was the first one [research project] I like it in a group. If I was on my own I would be doubting if I was doing this correctly. Even with the 3 lectures beforehand. Was I doing this right? If all within the group do it the same way, it kind of reassures that it's the right way to do it."*

Finally the students responded in a divergent manner when discussing their digital literacy. Students felt they were technically able to undertake the fieldwork with little to no support. The consensus from the focus groups was that instructional videos on using the app were watched only once or not at all, and that students opted to just go into the field and improvise with their smartphones. As evidenced, the students felt more technical expertise was required for analysing the data through ArcGIS Online; however, they still identified that such a technology was beneficial for helping them to see the overall picture of land use in Cork, indicating that the complimentary use of the webGIS further facilitated their understanding of urban geography patterns and processes.

- "*It was interesting to see all the different heatmaps and to edit [the data] whatever way you were interested in editing it."*

- *In my area we had a lot of residential housing and stuff, and then when everyone did their maps and then it all uploaded, we were able to see it wider and it was a lot more interesting."* - *"[The webGIS] showed you where the most amount of business is happening in the city as well. And you got that first-hand based on location and where everything is, where most of the residential houses were as well and the further out as well, kind of a bit more derelict houses and derelict buildings. It was handy that way."*

The dichotomous views on technology held by the students indicate that these 'new learners' do not consider smartphone apps to be a barrier to learning (or perhaps even a technology). Moreover, students reported that access to smartphones was not an issue, with 98% of survey responses indicated that they had easy access to a smartphone (Table 1).

This undergraduate research project highlights the beneficial outcomes to be achieved by migrating to the digital space that students are both comfortable exploring and which has a key role in their professional development. As student feedback illustrates, this project positively influenced learning for first year students who took ownership of the entire process. Feedback also incorporated suggestions that provide this team the opportunity to reflectively refine the Geography curriculum to this project and other modules. By being innovative and using technologies and digital platforms that are freely available, this team developed an assignment that has captured the imagination of the students and engendered an enthusiasm for undertaking research within Geography. For the Team, this new intervention has opened up the potential to reinvent other aspects of the teaching programme, embed more research practices in student's work, and generate more pedagogical innovation using other digital platforms in the future.

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# Linking Academia and the 'Real World' in International Relations

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This talk will reflect on the challenges of linking academic programmes and teaching, on the one hand, with the policy-makers and practitioners, on the other, with particular reference to the discipline of international relations (which focuses on relations between states, international organisations and global political and socio-economic dynamics). The talk will draw on experience from University College Cork's Department of Government and Politics, which has an extensive, market-leading work placement programme, and from UCC's MSc International Public Policy and Diplomacy, which is a new model of international relations masters seeking to bridge academia and the world of policy. Our experience shows that it is possible to link academia and the world of policy and practitioners, but that it is not easy, even in an apparently very policy-oriented discipline, and that it involves significant challenges. The talk will highlight a number of challenges involved in linking the academic study of international relations with the 'real world' of international politics: bridging academia and policy/practitioners is not easy in the disciplines of political science and international relations – the two have different needs and, often, different languages; the development and maintenance of work placements and other elements of engagement with policymakers and practitioners involves very significant workload and needs to be properly supported in terms of staffing and infrastructure; and in politics and international relations, the skill sets which policy-makers and practitioners need often differ from those that universities normally provide. Finding the 'right' balance between academic disciplinary requirements/standards and the needs of employers is a difficult task.

# Inclusion of research labs in Engineering as learning playgrounds

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**Abstract**

Traditional teaching practices in Ireland for "hard"-science subjects, such as Physics or Engineering, are still prevalently based on whiteboard content delivery, PowerPoint-based methods, and sometimes, within under-funded purposed-built teaching labs, leaving very little manoeuvre or willingness to incorporate student interaction, in addition to a strong focus on end of semester exam based assessment of learning. Very often any deviation from traditional methods of teaching and assessment are perceived as "dumbing down" the course.

The proposal of this Lightning Talk is to show how enabling flexibility in the teaching environment, by incorporating either topical research discussions or bringing a high-tech research lab to a teaching module, can stimulate student engagement, curiosity, discovery and learning. Moreover, the talk will also contain a discussion on using different assessment techniques, such as consultation surveys and reports, where a richer picture of true understanding can be drafted, and compare outcomes between report-based and exam-based types of assessment, showing no signs of "dumbing down".

**Methods**

Although varied methodologies were used in teaching Photonics at the Department of Electronic Engineering in UCC, this paper will focus on incorporating a state-of-the-art research lab space away from main campus, as alternative teaching and learning environment, with a self-directed exercise and a reflective piece: formal assessment of learning through submission of report weighting 10% of total marks.

As the labs were based in Tyndall, 1.2 km away from the department (or 15-20 min walk), the reception and health and safety induction had to take place in a welcoming and friendly atmosphere. The labs were very prescriptive to allow students to familiarise themselves with a complete new environment, including new equipment and interactive approach with lecturer. A 10-page detailed instruction is given a priori to students, and this step-by-step guide is important, so they can "feel" reassured that they are in control of the experiment.

There are about 20 pieces of equipment to be looked after, worth around €0.5M, but they are trusted to do the experiments under minimum supervision. As they gather data, the guide asks students to reflect upon their classroom notes and prior knowledge from previous modules to explain their observations. The lecturer was available at all times for consultation, but students were left in control of experiments. The numbers collected were not actually that important, as what counts for the report marks are the explanations of their observations.

## Findings

Findings for the last two years are that students gather the expected data, they do familiarise themselves with the equipment, but not all engage with a deeper learning through connections with prior knowledge or notes from classroom, or even further searches in the Internet or library. Figure 1(a) shows the average marks for years 2018 and 2019 for the same 4$^{th}$ year module. 2019 had fewer students. Student number in the picture is random, and in no particular order. On average, the marks are around 70% to 74% in each year. The standard deviation is important (deviation of the observation from the average), as there are some students which find it harder to engage with the post-lab report. But when comparing the lab report results to the actual traditional exam (for 2018), an interesting path emerges as per Figure 1(b). On average there is virtually no difference in the marks, and in each case two students brought the average down. The standard deviation is a little higher for the exam, and understandably so as the time pressure can be difficult for many students. There's no correlation of the student number in the x-axis, they are random, so one cannot correlate a student who got a lower mark in the exam with a lower mark in the report.

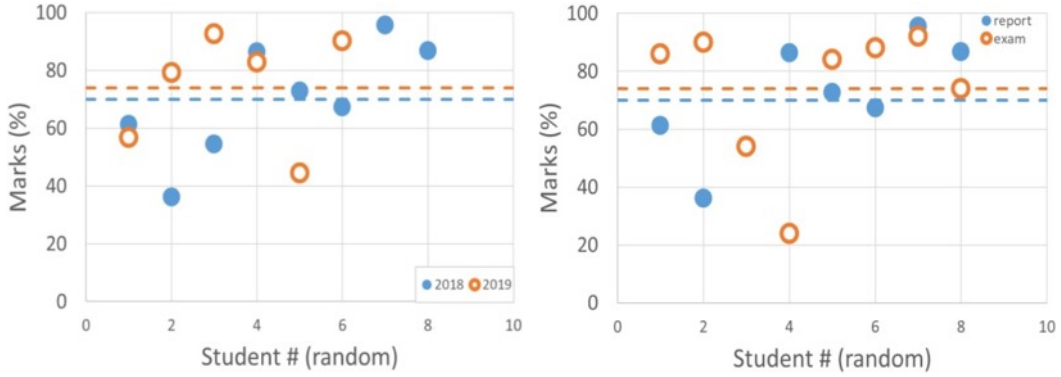



**Figure 1: Marks per random student for (a) lab reports in 2018 and 2019; and (b) 2018 comparison between lab report and formal exam.**

## Conclusions

Figure 1 shows evidence, on average, that adding the research lab element allowing students to reflect on their own learnings did not influence marks or “dumbed down” the module. Allowing students to have a playground where they experiment with different techniques, apply prior-learning and consolidate fundamentals are of extreme value. Informal feedback is very positive, with surveys constantly requesting more labs, which will be discussed at the lightning talk. The reflective report takes away the pressure of a time-restricted exam and highlights the actual learning deficiencies to be addressed.

# Innovative Approaches for Research Led Education: UCC's Green Campus Living Laboratory Programme

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## Introduction

Ireland's National Strategy on Education for Sustainable Development (2014-2020), highlights the need to equip students with "the relevant knowledge (the 'what'), the key dispositions and skills (the 'how') and the values (the 'why')" to contribute to a more sustainable future (Department of Education and Skills, 2014). Delivering on this challenge requires embedding sustainability within both the formal and informal learning that occurs on campus (Hopkinson et al. 2008), while also integrating sustainability both within and across disciplines (Byrne et al., 2018).

UCC is a global leader in sustainability in higher education, being the first University in the world to be awarded a Green Flag from the Foundation for Environmental Education (Reidy et al, 2015). Sustainability at UCC is "student-led, research-informed, and practice-focused" that is, the programme takes an integrated approach and aims to utilise the collective student *agency* and research *capability* to deliver real and lasting change on the ground (Pelenc et al. 2015).

UCC's Academic Strategy, with sustainability and interdisciplinarity as key components of the new "Connected Curriculum", aims to "facilitate students to develop values, skills and aptitudes that promote civic participation, social inclusion, sustainability, digital fluency and

impactful, global citizenship" (UCC, 2018). A key aim of delivering its Sustainability Strategy is that UCC would become a "Living Laboratory", where students, academics and practitioners work together, using the campus itself as a testbed for solutions to today's major societal challenges (UCC, 2016). A Living Laboratory project should aim to:

- Solve a real-life problem
- Be based on a partnership among key stakeholders, often crossing disciplinary and/or sectoral boundaries • Trial and test ideas in real life settings
- Share data and findings generated openly (EAUC, 2017).

**Methods**

In December 2018, UCC Green Campus launched a "Living Laboratory" Programme call to fund research and Masters demonstrations "action-research" projects that addressed sustainability on campus. A fund of €88,000 was made available; the call was open to all staff of the university (research, academic and professional services) and collaboration with community groups was encouraged. Students were encouraged to submit applications, provided they had identified a suitable supervisor. In April 2019, 6 projects were awarded funding; the projects began in September 2019. The topics cover area as diverse as wellbeing, human-nature interactions and single-use plastic reduction.

**Findings**

The idea of a Living Laboratory is not new, however a centrally managed programme, that includes an academic qualification on completion, is not common. The approach taken in UCC was that the initiation and development of the programme should serve as a Living Laboratory project in itself; the learning from this process would be reflected upon, assessed, and shared. It is widely cited both within the literature and policy documents, that inter- and trans- disciplinarity are key components of Education for Sustainable Development. However, within the silo-ed nature of university systems, working across disciplinary boundaries presents significant challenges. To date, advances in this area are often ad hoc and occur in spite of the system as opposed to because of it. The "Living Laboratory" programme has provided a framework within which these types of projects can be supported and awarded. However, it was not without its challenges. These included:

- The assessment of transdisciplinary project proposals requires broad knowledge of all fields involved as well as a grasp of what will work in practice.

- Including professional services staff within the remit of the call was key to ensuring transdisciplinary, however it raised issues of how to allocate staff time to activities that would traditionally be seen as "voluntary".
- Differing durations of Masters projects within different schools e.g. within the Engineering Department a research Masters is 1-year in duration while within the Sociology Department they last 2-years. Determining the optimal duration of a projects that span both of these departments proved challenging.

**Conclusions**

UCC's Green Campus Programme has traditionally provided an informal learning opportunity for students to experience real-world solutions to sustainability. The "Living Laboratory" programme formalises this type of learning within the structures of the university. As such it provides a framework for inter- and transdisciplinary research to take place; it also gives the broader UCC community the *agency* to undertake Green Campus projects specific to their own *capability* (Pelenc et al. 2015). Conversely, it could be argued that the programme provides funding to selected groups to carry out projects that, until the initiation of this programme, were undertaken voluntarily and driven by "bottom-up" activism. The interplay between bottom-up and top-down processes in campus sustainability transitions is often seen as a "struggle" that needs to be carefully managed; however, it also provides a novel testing ground for similar struggles in broader society (Lombardi and Sonetti, 2017).

The impact of the programme on actual campus sustainability is yet to be determined. Recommendations for future iterations include:

- Establish an Academic Advisory Committee composed of members of each college in the University who are knowledgeable of subject areas and individual school procedures.
- Ensure the Advisory Committee also has membership from the student body. The student body should also be represented on the assessment panel.
- Engage with the University Civic Engagement Committee (or equivalent) to work towards official allocation of some staff time to "voluntary" projects.

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# Combining Mathematics and Coaching to encourage Student Success in Repeat Exams

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## Introduction

As part of the 'Maths Positive' initiative in Cork Institute of Technology (CIT), Maths modules have been identified which are impacting negatively on student success and progression. It was discovered that a particular first year business Mathematics module in CIT was causing difficulties to some of the students involved. When several years of exam results were analysed for this module, it was discovered that some of the students repeatedly fail and get caught in a 'Maths Loop'. In order to break this cycle, an intervention workshop was developed and piloted which sought to challenge the students to examine their own behaviour and mindset around Mathematics study. The workshop combined Academic Success Coaching with practical study techniques specific to the module. The feedback from participants was positive and we plan to expand this interdisciplinary approach in addressing other similar modules.

## Context

Students faced with failure in Mathematics tend to respond in one of two ways: increased determination or helplessness and anxiety (Johnston-Wilder, Lee, Brindley, & Garton, 2015). Contrary to expectations, results in the repeated exams are often worse than the original results (Johnston-Wilder, Lee, Brindley, & Garton, 2015). Students can get caught in a cycle of failure. Noncognitive factors (affective factors) can have a significant impact on students' performance in Mathematics. *Mathematics anxiety* was described by Spicer (2004) as "an emotion that blocks a person's reasoning ability when confronted with a mathematical situation" (p. 1). Being cognisant of the prevalent levels of Maths anxiety among mature students (Marshall, Staddon, Wilson, & Mann, 2017) and the fact that the

level of Mathematics anxiety among fifteen year-old students in Ireland is significantly above the OECD average (Perkins & Shiel, 2016) it seems reasonable to assume that students at CIT who have failed exams may be experiencing levels of Maths anxiety. Lyon and Beilock (2012) recommend that interventions to improve the Mathematics performance of individuals with Mathematics Anxiety should focus on the way that the individual responds to their anxiety rather than attempting to teach them more Maths (Lyons & Beilock, 2012). Bearing this in mind it was decided to focus the intervention more on students' attitudes and behaviours rather than on Maths content.

CIT has an Academic Success Coaching service, which is generally focused on three main areas. Firstly, the student is facilitated in self-assessing current strengths, areas for development, study habits and levels of academic engagement. Secondly, they reflect upon this self-assessment and discuss these reflections with their Coach. Thirdly, the student is facilitated by the Coach to set goals and agree actions to achieve these goals. This process has been shown to be an effective method for increasing student success (Robinson & Gahagan, 2010).

**Method**

All students who were registered to repeat the exam in August were invited to attend. Out of 82 students, 12 signed up and 3 attended the workshop. In planning an intervention that combined elements of Coaching and Mathematics, it was decided to use team teaching as a method to facilitate the workshop. The workshop, firstly, incorporated the three stages of coaching, described above. Secondly, a study technique which was elicited from the students in the first part of the session was applied to specific module material. It was expected that students would feel empowered by tapping into their own expertise and by transferring their skills to this problematic area. It was also expected that they would set clear goals and have a process to achieve these goals after the workshop.

Feedback was gathered in several ways. Following the session, the students were requested to complete an online feedback survey. In the survey students were asked to describe what they had learned in the workshop and what changes they would make as a result of the workshop. They were also asked to rate the workshop on a 5-point Likert scale. Follow-up semi-structured interviews were conducted by phone with two of the three participants after they had completed the exam but before they received their results.

**Findings**

On average the students rated the session at 4.75/5. All participants said they would recommend the session to others. When asked to describe what they had learned and what changes they would make as a result of the workshop their feedback focused on the following themes.

**Table 1: Themes emerging from Feedback Survey**

| Theme | Illustrative student quotes |
|---|---|
| Organisation | *"Very helpful to organise my study and to individualise my questions"* |
| Study Skills | *"How to allocate time to study"*<br><br>*"Do little but often"* |
| Content specific planning | *"How to differentiate the different questions"*<br><br>*"How to practice the questions properly"* |
| Attitude/ thought process | *"Gets you thinking"*<br><br>*"Positivity"*<br><br>*"Can do attitude"* |

The exam results were mixed. Two of the students had significant improvements in their marks (S1: Attempt 1, 10% -Intervention- Attempt 2, 44%) (S2: Attempt1, 17% - Attempt 2, 26% intervention- Attempt 3, 57%). The third got a very similar mark to previous attempts. This student felt strongly that the intervention would have been of more benefit at an earlier point. She described her attitude and knowledge before the workshop as

*"I hadn't a clue the first two times, I really tried but I didn't do what I was supposed to do. I just panicked and looked at stuff without taking it in".*

This contrasts with how she describes her approach after the workshop:

*"I was able to relax more and focus on what needed to be focused on..all I was thinking about was the amount I had to do not what I actually had to do…After sitting down with ye for the hour that day I actually knuckled down and said right I need to do this, this and this so that was that problem solved and then I actually went away and done it".*

Even though this student did not pass the exam there seems to have been progress towards more positive ways of working.

*"I still did struggle with the exam itself but I went into it a lot calmer than I did the last two"*

**Conclusions**

Although the attendance at the workshop was disappointing there is evidence to suggest that it had a positive impact on the students who attended. Even when the student did not pass the repeat exam their grade did improve, which is often not the case with repeat sittings. Although it is difficult to generalise from a small study it does seem like it is worth further exploration. Areas of future work would be to attempt to extend the provision of such an intervention where effects of non-cognitive factors are taken seriously when attempting to address underperforming students rather than just focusing on 'more Maths'.

**Three Learning Points**

1. When academic staff and professional staff collaborate, greater understanding of an issue can be achieved.
2. While practical skills development in Maths is important for students, a fixed mindset can block their learning. Preliminary work in this area can allow for greater learning.
3. As well as mining the quantitative data in relation to 'problem modules', it is important to also research qualitatively so that the intervention can be appropriately targeted.

**Question**

Q. If modules had a built-in element where students reflect on their mindset and learning style in relation to the subject, would it increase student success and progression?

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# Tuning into the Unfamiliar

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This research project sits at the intersection of Community Music, Ethnomusicology and Arts Practice Research. The overall aim to explore a more ecological way of being in the world in which sound rather than vision is the primary source of knowledge. This acoustic epistemology (coined 'acoustemology' by ethnomusicologist Steven Feld) differs from standard ocular-centric epistemology in several respects. Where vision distinguishes objects as fixed and separate from the perceiving subject, sound is intensely relational. For sociologist Jean-Paul Thibaud, attending to sound produces "a resonant body that gets in tune and in sync with his environment." (Thibaud, 2018) Sound does not belong to any object, but is a production of the interaction of objects, or "the event of the thing, not the thing itself." (Connor, 2004, p.157)

This form of knowing is familiar to musicians who interact in ensemble situations, but I wish to broaden the application of the idea, following ethnomusicologist Jeff Todd Titon, who imagines a "sound community" which, in concord with the qualities of sound, is "just, participatory and egalitarian." (Titon, 2015, p.25) Sound is always mediated by environmental factors, travels with no respect for borders and permeates every single body (human or otherwise) that it encounters, drawing our attention to the inherently ecological nature of each soundscape. (Schafer, 1977) Recent developments in the philosophy 'things' allows me to identify musical sounds as agentive forces, decentring the human subject and "positioning it as just one kind of body amongst many through which sound propagates." (Gallagher, 2016, p. 43) In *Vibrant Matter; A Political Ecology of Things*, philosopher Jane Bennett urges us all to cultivate a capacity to sense the vibrancy and agency of objects such as hurricanes, viruses or food, in the hope that we move "away from an ontologically ranked Great Chain of Being and toward a greater appreciation of the complex entanglements of humans and non-humans." (Bennett, 2010, p. 112). The aforementioned qualities of sound are my means of taking up her challenge, but what are the particular affordances of the *gamelan* that make it up to the task?

The standard Javanese *gamelan* orchestra comprises between 20-50 tuned bronze percussion instruments (all suspended in some way from/above their wooden supports) This included gongs, metallaphones, a two-stringed fiddle and a bamboo flute, accommodating between 12-20 musicians. Different families of instruments play different musical roles, with some delineating the structure, some cradling the melody and some adding layers of rhythmic elaboration. A *gamelan* orchestra is relatively easy for beginners to join, reducing to barrier to participation and the enjoyment of copresence and 'tuning in' (Schutz, 1964) particular to ensemble music performance.

It is also an example of an egalitarian ensemble, in that the players learn multiple instruments and must surrender to a certain degree individual expression for the cohesion of the group. The intense relationality allows the possibility of embodying alternative values of participation and reciprocity informed by *gamelan* aesthetics.[*] Embodiment is crucial too, as playing *gamelan* for many is something felt as much as heard. The players are surrounded by tonnes of swinging vibrating bronze - and their own bodies become resonating elements of the ensemble - player, instrument and listener joined in the same circuit of sounding and resounding.

A research approach is needed that is appropriate to the fluid, mutable, emergent nature of knowing through sound. The Arts Practice Research approach is unorthodox, in that composition and performance are methodologies employed, but appropriate because performance as research is "embodied, sensual, fluid, interactional and affectively engaged." (Fleishman, 2012, p.13) The music produced will be specific to the individuals who play it, the space in which it is created, and the instruments which facilitate its creation. In this way, I am responding to new materialist approaches to art, which as makers to be sensitive to the "embodied entanglement of matter and teaching as pedagogy - the moments when materials and spaces impact on bodies and bodies impact on ideas." (Hickey-Moody & Page, 2015, p.12)

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# Pharmacists as Educators – Engaging with the community through outreach workshops in schools in Cork city

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## Introduction

Inspired by the UCC Campus engage initiative and in a quest to help final year pharmacy students develop higher-order thinking skills, students were tasked with designing and delivering outreach workshops on the "Role of the Pharmacist in Educating patients on microbes, antimicrobial usage, and infection prevention". The assignment formed part of continuous assessment requirements for PF4015 Novel Drug Delivery module delivered to final year Pharmacy students on the B.Pharm course. These 1-hour interactive workshops were delivered to students across diverse age (primary and secondary) and socioeconomic backgrounds in schools during Science week in Nov 2016 & Nov 2017.

## Method

Students were provided with a brief detailing the target age group (e.g. primary 5/6$^{th}$ class or secondary school – 2$^{nd}$ year students). Student were provided with a list of considerations to guide their initial discussions and planning, in addition to some learning resources related to activity planning including www.primaryscience.ie, Science Foundation Ireland, www.sfi/engagement and www.e-bug.eu/ and the DPSM/ESERO framework for inquiry. Students researched the topic and then met with the lecturer in 2 timetabled workshops. Additionally they engaged with the class teacher during a preliminary school visit to discuss their workshop plans and assess its feasibility in the given school environment. Pharmacy students undertook Child Protection training with the UCC Schools Programme UCC Plus+.

Pharmacy students were required to document their experience (i) an oral group-presentation to their peers in the 4$^{th}$ year pharmacy class and (ii) personal reflections were documented against the CPD template, Irish Institute of Pharmacy's (IIOP), Figure 1.

**Findings**

Pharmacy students reflected on the how they learned best and used this inspiration to prepare educational, interactive and fun workshops. The workshops were structured using powerpoint presentations, interspersed with activities to engage and maintain the interest of school students. Feedback from school participants was gathered on learning (quizzes) and how the workshops were received (by survey – method varied depending on age). The workshops were really successful.

School pupils and teachers were really enthused by the workshops and we received requests to run additional workshops.

In the preparation and planning stage, the preliminary school visit provided the opportunity to discuss the class dynamics, the organization and delivery of the workshop including suitable activities. The class teachers provided an invaluable insight and prompted pharmacy students to think about logistical factors e.g. access to running water for hand-washing exercises, and managing groups of children.

Pharmacy students were required to document their learning as part of their CPD portfolio. At the outset students felt unprepared as they did not have formal teacher-training education. Evidence of critical thinking skills included synthesis of existing and new knowledge, enhanced transferable skills, particularly communication and planning.




**Figure 1: Continuing professional development plan for pharmacists (https://iiop.ie)**

## Conclusions

Teaching approaches involving community engagement help prepare pharmacist students for professional practice.

Delivering workshops to different student cohorts (age, socioeconomic) require careful planning, particular to each group. Meeting with the teacher in advance as part of this planning was vital.

Novel assessment methods can be more time consuming for both students and staff.


## Acknowledgements

Mrs Caitriona Devine and the pupils of Beaumont Girls National School and Mr. Ian Hannon and 5th and 6th class in Blarney St National School. Ms. Maeve Minihane and Sheila MacGovern from the UCC Schools Programme UCC Plus+.


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# Supporting the development of students in the pharmacy profession through stakeholder engagement and technology innovation.

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## Introduction

Pharmacists are experts in safe drug usage, and are uniquely placed to provide professional advice on a range of health related issues. It is crucial that pharmacy education embodies an emphasis on creating independent and responsible learners and prioritises life-long learning in the face of rapid change. Consequently, appropriate teaching and learning modalities are essential to prepare students. Changes in the way patient's access information and education of pharmacists call for new ways of teaching to prepare pharmacists for a changing profession. The aim of this body of work was to support pharmacy students' education as teachers and learners through their utilisation of technology to create short educational videos on a range of topics intended for different stakeholder groups including patients and allied healthcare professionals.

## Method

In order to synthesise and integrate scientific and clinical principles from their pharmacy course, BPharm 4 students were tasked with developing a 3-minute educational videos on diverse topics e.g. smoking cessation and medicines usage using technology platforms. At the project initiation stage, students were introduced to a range of options to record the video (VideoScribe, Powtoon, whiteboard recording) and given pros and cons associated with each method.

Students were required to engage with a stakeholder to help develop skills in communication, learning with/from others and to highlight their wide impact on healthcare and the community. Stakeholders identified included qualified pharmacists, allied healthcare professionals and patients (adults, children). Pharmacy students were required to document their learning experience. Each group was required to present an oral presentation to their peers in the 4$^{th}$ year pharmacy class. Personal reflections were documented against the Irish Institute

of Pharmacy's (https://iiop.ie) CPD template, which oversees the development and implementation of CPD for pharmacists in Ireland.

## Findings

This project challenges teachers (academic staff) and future pharmacists as educators to look at collaboration and technology for greater impact. Through a structured, iterative approach, students were supported to investigate, synthesise and further refine the creation of their educational videos based on feedback. They had to think about content, presentation, environment (Figure 1) and clear communication of the message for their target audience.

Through the process students show-cased their creativity and higher-order thinking skills. Students developed communication, team-work and technology skills using platforms like VideoScribe. In one example, students engaged with Smoking cessation, HSE, Cork. The smoking cessation working group were so impressed with the student's work and were invited to consider submitting their work to be displayed on the HSE, Quit website.

Engagement and feedback from stakeholders was pivotal. It helped teach students professionalism, good communication and how to seek and handle feedback.




**Figure 1: Model Pharmacy, School of Pharmacy, UCC which was used to record videos.**

## Conclusions

Novel assessment methods, although resisted by some students, can give students an opportunity to demonstrate creativity and develop higher-order thinking skills.

We learn through engagement and collaboration - Stakeholder engagement in professional programmes helps students to frame their learning and develop new perspectives.

Novel assessment methods can be more time consuming for both students and staff.

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# From Space to Place; Non-hierarchical Collaborative Strategies of Teaching and Learning in the Crawford College of Art and Design.

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**Introduction**

What does Learning look like? What are the embodied roots of the thinking process? We have posed these questions in the process of developing our research, workshops and curricula. How do we understand, engage with and investigate the everyday teaching and learning environment? Art practice is a complex process, and successful induction into the forms of teaching and learning practiced in the studio is critical to a student's progress through art college. For contemporary artist/researchers working at the interface of art and pedagogy, education continues to be a central concern in their research.

Contemporary artists such as Annette Krauss and her long-term project *Hidden Curriculum* (2008), art theorists such as Claire Bishop, *Artificial Hells* (2012), Richard Hickman (ed.), *Research in Art & Design Education: Issues and Exemplars* (2008), Graeme Sullivan, in his book *Art Practice as Research* (2005), all use and discuss arts-based approaches in educational research, and are important references to the contextual framework of this project. In a series of action research projects, conducted over the last five years with student volunteers in the Crawford College of Art and Design, we have explored phenomenological, collaborative approaches to teaching and learning, space and place, that encourage students to be active agents in their education and co-creators of their own learning environment. Our overall project aims to create an artistic, collaborative, non- hierarchical framework that encourages students and teachers to actively question and investigate the teaching and learning situation and relationships.

**Performative Methodologies for Research-led Education**

The similarities between art research and action research methods made these approaches suitable for this complex inquiry. Neither relies exclusively on achieving defined outcomes, but identifies a question about the practice, devises actions to address it, implements them, evaluates the outcome and repeats the process from inquiry to evaluation with the aim of building on or consolidating the gains achieved.

Using methods derived from current art practice, delivery on shared modules in the Year 1 Fine Art and Contemporary Applied Art courses has been aligned closely with the practices of contemporary art. We will discuss two experiments in methodology that we examined during this research, 'A Contextual Chair' and 'Place and Performativity', that focused students and teachers on participation in the community of practice that is the art studio. A central objective of these experiments was to explore the phenomenology of identity and place in the student's experience of the transition to art college.

'A Contextual Chair' was introduced as an experimental activity as part of Art and Context module in Year 1. The aim was to question our accepted and internalised social norms and structures, so that we can creatively reinvent our ways of behaving and thinking. It was devised as a way for students as a team, to question the relationship of object to context, how objects exist in space and what the context of the space does to the object. Each group of six students received one common institutional chair and were asked to interact with the chair around the building and immediate environs in a way that exploited and subverted its meaning, qualities, function, placement, and associations.



**Figure 1: 'A Contextual Chair' workshop CCAD (2017).**

The chair became a shelter, a hiding place, a barrier, looking device, a political statement, a collective hub, a hat, a shield, body extension, meeting place, sculpture, desk, platform, stage etc. Student placement of the chair included the pavement, a hotel lobby, on top of doorways, nailed to the wall. Teams were asked to reflect on what they found through

discussion and documentation and present the outcomes to their peers. Reflecting on the findings of the chair exercise we were conscious of the role of embodied knowledge in the process. The question of how to foster this in delivery led us to explore the use of methods derived from performance art.

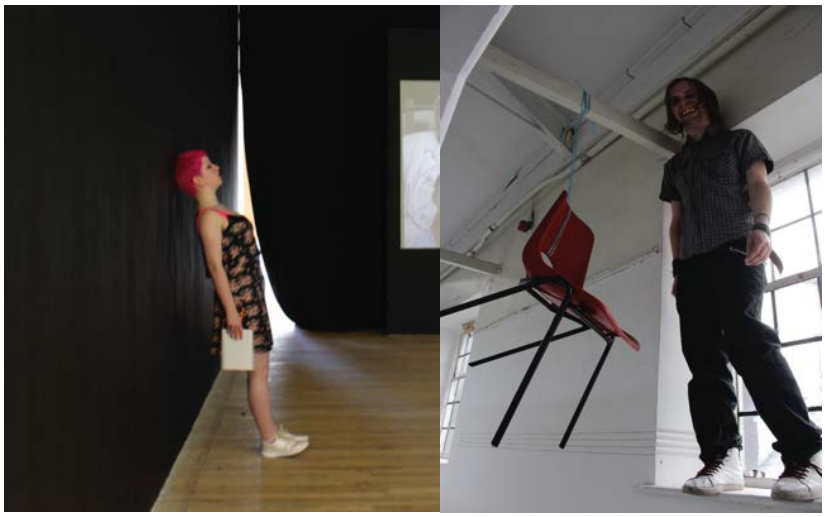


**Figure 2: 'Place and Performativity' Lewis Glucksman Gallery and 'A Contextual Chair' CCAD workshops (2017).**

The chair exercise was a bridge to the next phase of our research, which was an experimental workshop exploring the relationship of the body in space using a phenomenological approach. We held a preparatory workshop in the college with a volunteer group of Y1 –Y4 students, and invited artist Lynn-Marie Dennehy to join the research group as a facilitator. Students were asked to exit a studio space by turning left or right, but return in the opposite direction, noting thresholds and stairwells and changing an action of the body at those points. We were asked not to speak or engage with anyone on our way and to concentrate on the surfaces and architecture that we experienced and encountered on our journey.



**Figure 3: 'Place and Performativity' workshop at the Lewis Glucksman Gallery, UCC 'blind walking' with a guide (2017).**

The final performative phase of the experiment took place in the Lewis Glucksman gallery in UCC, one of a number of locations suggested by the group that had been investigated. Considering that we planned to develop an element of course delivery using the findings, we decided to reduce the list to sites that had cultural and educational roles, and were also public spaces and workplaces. This would make it easier to align what we learned from the experiment to teaching and learning in the Crawford. In order to keep the responses fresh, we did not discuss too much about the aims of the workshop. As this was a testing of the situation and methodology, we were relying on our multifaceted positive and negative responses to provide critical information for the research. There were no set instructions, only that we did not have to respond to the artworks on display; the bodily expression of response to the architecture, space and ambience was the focus. The only limits to participants' response were those set by the general gallery guidelines for conduct in the space. The group dispersed around the gallery. Initially individuals were seeking quiet empty places to reflect and concentrate in. As time went on, they began to react to the space more with their bodies pushing the boundaries of behaviour and rules of conduct, walking fast, lying down, crawling, leaning, speaking loudly, 'blind walking' with a guide (figure 3) etc. Afterwards, at the discussion participants spoke at first of feeling restrained by the silence of the space,

acknowledging a heightened awareness of how they were expected to behave there.
However, once the initial nervousness had evaporated moments of relaxed enjoyment, even exhilaration, unfolded, and they were exploiting - even subverting - the meaning, qualities, function and associations of the place.
The experience of this novel form of enquiry was illuminating for the participants.
The familiar had been
refreshed and we found ourselves looking at our response to environment and context as a new way of generating knowledge.

**Conclusion: *Learning Beyond the Classroom***

Netherlands-based artist, Annette Krauss, utilizes arts-based approaches in educational research. Well known for her ongoing project, *Hidden Curriculum*, Krauss examines the expectations, values, and behaviours that are learned in educational contexts, without being necessarily recognized, intended or desired. In her book, *Artificial Hells*, Claire Bishop contends that the question of how to communicate art-as-pedagogy to an external audience is a pressing and ongoing dilemma. (Bishop, 2012, p.194). In his book *Art Practice as Research* (2005), Sullivan presents a lucid argument for studio art practice to be seen as a form of research.

> There is a burgeoning of courses which recognize the value of research through art practice. However, I am advocating here the use of the arts not only as a tool to research within the arts, but to research within the arts, humanities and social sciences in general. (Sullivan in Hickman, 2008, p.20).

The value of this knowledge is not confined to teaching and learning within the field of art, but is transferable to any educational domain and any discipline which seeks to enable critical and creative thinking in its practitioners. Hickman (2008) argues that "artists do not seek, but find", thus capturing the real meaning of art's doing and how in doing art, we learn.

> The arts are essentially areas of human experience that can provide new ways of perceiving the world; it makes sense to harness the power of the arts as a vehicle for recording the human condition and as an endeavor that reveals new truths, to help explore educational experience, not only in the arts, but in all areas of teaching and learning. (Hickman, 2008, p.23).

Art research engages multiple senses increasing cognition and recall. Exploring and co-creating the physical learning space raises questions about unchallenged routines, hierarchies of knowledge and the role of the body in teaching and learning processes, from the perspectives of both student and teacher. For future enquiry we are motivated by a question which is posed by Felix Guattari near the end of his last book Chaosmosis (1993, p.133) where he asks: "How do you make a class operate like a work of art"?



**Figure 4: Example of how 'Place and Performativity' outcomes were included in the studio curriculum and delivered as part of the Art and Context module (2018). Students navigating the space while walking backwards, looking in a mirror**.

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# National Sculpture Factory

***Valerie Byrne***
*Director*
*National Sculpture Factory, Cork*

**The National Sculpture Factory**

The purpose of the National Sculpture Factory, which speaks to our artistic policy and remit, is to support and nurture the production of art and the role of culture in society. We work to be the leading institution for identifying, nurturing and activating talent; for ambitious and fearless commissioning; promoting discourse on contemporary visual culture through public engagement activities; and engaging diverse audiences, driving more inclusion and accessibility. Primarily we are a factory of innovation in new technologies and artistic production in the expanded practice of sculpture.

Established 30 years ago, our mission is to be a national organisation with an international perspective, situated in Cork, focusing on cultural enterprise, art production, public engagement and discourse. We provide space, time, training and practical support for artists to explore and develop new ways of working; expertise and processes to organisations wishing to commission art; and a platform and programme out in our community to seed debate. We are a factory for the art of the future. Our mission is to manage a world class studio facility enabling artists to make work of scale and ambition; to provide ongoing professional development opportunities and training for artists to enable them to further their careers; to generate public engagement through programming lectures, symposia and discussions; to present new work to the public, developing new audiences and developing the art-form.

We are keen to explore collaborative possibilities with Educational providers and we have an established relationship with the M.A. Programme at the Cork Centre for Architectural Education, over the past number of years the NSF has facilitated a Module Exploring Materiality which has been enormously successful with tangible outcomes.

The NSF has an ongoing relationship with the Institute of Making & Materials Library, University College London. And we invite practitioners from other disciplines on residency to the NSF which opens many avenues of collaborative practice for us.

We are ambitious to deliver on the promise of our name:

National – drive public perceptions of sculptural practice

Sculpture – influence policy

Factory – we're about making




**Figure 1: NSF exterior - photo credit Jed Niezgoda**



**Figure 2: Prototype I Doireann O'Malley CFF2019 - photo credit Jed Niezgoda**

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http://nationalsculpturefactory.com/
http://nationalsculpturefactory.art/

Instagram: @nationalsculpturefactory
Facebook: @nsf.ireland
Twitter: @NsfIreland

# Podcasts as a tool to engage broader audiences

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## Introduction

This paper examines how audio podcasts can be deployed by universities and other educational institutions to engage with a broader range of audiences and encourage critical discussion of contemporary issues. Using the case study of a podcast I produced, I consider how the medium is an accessible and user-friendly format that enables the generation of content aimed at a general listenership. Insight into how this approach can bring teaching and research materials to new groups of people is created by reflecting on the process of making and distributing a series (Hacker 2017). Since their emergence in the early 2000s, podcasts - as a form of internet on-demand radio – have been used by universities as an additional dissemination system. Departments and universities were early adaptors to help spread knowledge, research findings, and commentary on topics of public interest (Open Culture 2006). One of the main deployments has been to augment student learning through the recording of podcasts as an alternative or supplement to lectures or as a revision or feedback tool (Fernandez et al. 2015; Kidd 2011; Lonn and Teasley 2009). More recently, within the discipline of geography, podcasts are being recognised as a distinct tools for more inclusive research that can reach groups who do not usually follow academic discourses (Kinkaid, Brain, and Senanayake 2019). Building on these strands, this paper focuses on how a podcast can be used as an educational mechanism both for general audiences and undergraduates, which recognises diverse forms of learning and the importance of accessible materials (Ambrose et al. 2010; Towler, Ridgway, and McCarthy 2015).




**Figure 1: The podcast series branding**

## Method

In 2019, I produced a podcast series which was designed to be both of interest and easily listened to by a broad range of people. *Littoral Space* was a fourteen part series that examined a range of social, cultural, and environmental themes by interviewing people who had experiences or expertise in different areas (Scriven 2019). This approach aligned with the increasing popularity of the medium as an information and entertainment source and a format that most people can listen to via their phones/personal devices/pcs. Social media, existing networks, and course webpages were used to promote the series and highlight the issues being addressed.

The content was crafted as a conversational approach to larger, complex themes which were made more understandable through a non-formal style using questions and answers. This intentionally drew on pedagogical theories that valued different learning capacities and the potential of diverse teaching tools, such as the use of sound and the flexibility of an educational artefact students or others could listen (and re-listen) to in their own time (see Towler, Ridgway, and McCarthy 2015). The approach aligned with Universal Design for Learning (UDL) which encourages 'flexibility in the ways information is provided, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged' (Universal Design for Learning 2016, p.8). In addition, podcasts can foster learning and dissemination by enhancing the existing interests and knowledge of the audiences and motivating them to engage with topics; these features are increasingly being recognised within higher education as important to learners becoming active agents in their own education (Ambrose et al. 2010; Wiske 2005). A growing significance of public engagement in institutional and funding strategies combined with pedagogies that demand

greater creativity and accessibility underline the opportunities presented in harnessing podcasting's capacities. The paper outlines how these different priorities were manifested in the podcast series and its reception.

**Findings**

My findings centre on observations from making the podcast series, feedback from participants, and responses received from listeners, which are gathered to highlight the potential of podcasts as teaching and learning, and research dissemination processes. For general audiences the format was easily accessed and provided a clear and versatile means of outlining contemporary themes in an informed and concise manner – one of the key goals of public engagement. Students appreciated the podcast as a more dynamic tool amongst the range of items on the course 'reading' list, such as academic journal articles and policy papers; it offered a practical and focused examination of different topics.

At time of submission the series has a cumulative total of 1,849 listens from student and public audiences indicating a clear interest for this type of intervention. It allowed for complex issues, such as the asylum process in Ireland or sustainable farming, to be explained using everyday language in a focused and concise product. The medium, however, has inherent challenges from technical requirements to the time commitments involved. The paper shows how the format can be adopted in universities and used alongside other teaching and publishing streams by outlining the process and the type of content it fosters. Moreover, insights gain in the production of the podcast help locate this approach in larger disciplinary and pedagogical contexts as an approach that can convey information about contemporary topics – such as climate change, sustainable development, and migration – in a practical and inclusive way.

**Conclusions**

The paper highlights the potential of podcasts as a tool for universities to reach broader audiences in an accessible form that builds on existing interest and technological advances. It illustrates how the format can be used by individual scholars/educators or institutions to make key messages or research findings available to both students and the public. Using the popularity of the medium, and the interest and need for informed discussion of contemporary issues, podcasting can form an impactful strand of universities community engagement programmes. Further research needs to consider the impact of podcasts as a

complimentary dissemination tool and produce baseline data on listenerships and marketing approaches.

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# Modularity and Interdisciplinarity: Confucian Insight for STEM-Related Disciplines

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**Abstract**

The modularity of the education system is generally geared toward a career-specific path for individual students. While varied subject choices and extracurricular activities can provide students with a rich range of experience, increased specialisation can create a sense of separateness between disciplines which may result in the neglect of engagement between fields which are otherwise mutually informative and insightful. A greater openness to interdisciplinarity would have the benefit of exposing specialists to fresh ways of viewing familiar subjects with a further potential to inform and inspire new and mutually beneficial pathways of education and learning.

I illustrate the potential of an interdisciplinary approach in the context of the climate crisis. STEM-related disciplines can draw practical insight from compatible and well-founded philosophical principles e.g. Confucian leadership principles which warn against overconsumption, encouraging the kind of environmental awareness which could avert or mitigate the environmental and societal impact of climate change.

## Modularity and Interdisciplinarity: Confucian Insight for STEM-Related Disciplines

This paper contains two main sections. In the first I present definitions of categorisation and interdependence, and illustrate their application to my argument. In the second section I outline the modularity of the education system, offer an explanation of the drawbacks of such modularity insofar as it encourages the marginalisation of subjects which otherwise demonstrate the interdependent nature of all learning, and finally attempt to exemplify this by applying Confucian principles to the current environmental crisis.

### Categorisation and Interdependence

It is of practical necessity as well as pedagogical practice that modern education systems are modularised into their various disciplines and subjects. Specialisation tends to increase as a student moves through primary, secondary, and third level education, with an

increasing emphasis placed on employability throughout. Specialisation is therefore a crucial part of development for both teachers and students as they progress through the education system. Expertise is of course important for the development and transmission of knowledge, but does it sometimes coincide with the dismissal of subtly - but importantly – related disciplines?

For the following argument I rely on two concepts: categorical thinking, and interdependence. I use the term 'category' as defined by philosophers Douglas Hofstadter and Emmanuel Sander: "A category is a mental structure that is created over time and that evolves, sometimes slowly and sometimes quickly, and that contains information in an organised form, allowing access to it under suitable conditions." (Hofstadter and Sander 2013, 14). For my purposes 'categorical thinking' is any formal or informal thinking which relies on the implicit or explicit assertion of categories (e.g. the informal thought that one's mother is a part of the category 'my family', as opposed to another family, or the formal thought that the understanding of the digestive process is part of the category of 'biological science')[†].

I use the term 'interdependence' in its broadest Buddhist interpretation as the notion that all phenomena are originally dependent and therefore no two phenomena can be considered as entirely separate; all phenomena (including in this case intellectual disciplines) are in some way interdependent.

The relevance of these two terms to my following argument is thus: if students are taught via a modular education system, then information is necessarily presented as bound by more or less strict categories. The reinforcing of this categorical thinking then leads the student to treat certain subjects as inherently separate from – rather than interdependent with - others, thereby blinding them to potentially important insights and perspectives.

**Modularity, Education, and Interdisciplinary Insight**

The National Council for Curriculum and Assessment outlines the curricula for Early Childhood, Primary, and Secondary education in Ireland. The modularity and employment driven nature of the current curriculum (albeit one which is under regular review) is

[†] It should be noted that on this view categorical thinking also applies to examination grading and the attendant effects on the self-worth of a student. For practical purposes at third level a mark of sixty-nine may count as second class honours while a mark of seventy-one may count as a first class honours. Even with such a marginal difference and the potential arbitrary contexts in which such a difference in mark could occur, it is possible that a student asserts their 'first class' or 'second class' status in affirming these categories, rather than viewing them as general indicators of intelligence/aptitude/application.

referenced on the NCCA's dedicated website: "The Leaving Certificate (Established) is a twoyear programme that aims to provide learners with a broad, balanced education while also offering them a chance to specialise towards particular higher education and career options."

Categories of specialist subjects are nested within categories of subject groups:

language; science; business studies; applied science; social studies. A concern here is that the categorisation of subjects in this way, while entirely pragmatic, may discourage the healthy view that certain specialist subjects are interdependent with those of other subject groups.

Religious education falls within the subject group of social studies. Biology falls within the subject group of science. The former then, is categorised separately from the latter in both the official curriculum and likely in the view of the students who are studying them. There are, however, historical and philosophical instances of mutual insight between traditions which are now categorised as 'religion' and subjects which may be considered most appropriately categorised as 'science'.

Of relevance in this regard is the application of Confucian ethical principles to the current environmental crisis. There is a demonstrable history of scientific and technological advancement ignoring the lessons of certain Confucian principles to the detriment of the local and global ecosystem. One need not ascribe to Confucianism in order to apply the principles therein to practical approaches to environmental impact.

Confucianism proposes that non-action and non-intervention is often a wise strategy

(which may be anathema to a post-industrial, capitalist society). This is exemplified in the 'Mandate of Heaven' a concept relevant to political leadership; a good leader orders human action in accordance with natural processes. How might this apply to attitudes toward environmental concerns?

The Mandate of Heaven was held by rulers who understood that natural resources are to be preserved in order to ensure the continued flourishing of both the things of nature, and the human part of the ecosystem which relies on those resources.

> "[Documentation from] when Confucius was a young man, records a high government minister expressing concern about possible ill effects on agricultural land of deforestation and draining of marshes. Such passages demonstrate an awareness stretching back three thousand years of the nature of ecological interactions and the need to restrain human interventions in them. However, as new developments in technology gradually granted people greater power over the natural world, under pressure from a growing population they continued to intensify their impact on the land." (Parkes 2018, 71)

The overcultivation of agricultural land leads to low crop yields, drought, and other detrimental impacts. A good ruler ensures the safety and integrity of the ecosystem and its resources as a matter of policy. The mass deforestation of China's Loess Plateau is a stark example of the non-implementation of Confucian insights in the face of unchecked technological advancement. For the contemporary environmental scientist then, Confucianism presents the historically-grounded perspective that human interventions in nature – whether they be to exploit resources or to undo the damage caused by such exploitation – should be tempered mindfully, on the understanding that non-action is, in appropriate contexts, preferable to continued intervention.

However, the categorisations we form on the basis of language terms may have an influence on whether or not one adopts such perspectives. In the Confucian context 'Heaven' is not to be understood as a metaphysical, transcendental realm, but rather something like the totality of natural forces (wind, water, etc). Yet the use of such a term in the current education system may encourage one to categorise Confucianism as a religious subject, and therefore non-interdependent with any scientific discipline. 'Religion' as a term is now treated as fundamentally separate in character from the sciences. Therefore if someone entrenched in a scientific worldview sees the word 'religion' in an environmental context, they may avoid that particular source of information. But, as demonstrated above, there are philosophical traditions the principles of which often get presented in a religious context which are essentially grounded in scientifically compatible paradigms and which, furthermore, offer well-grounded insight wisdom to areas of contemporary concern.

Therefore to categorise Confucianism as 'religious' and in turn to categorise religious terminology as 'non-scientific' would lead to the to the dismissal of the interdependent nature of both subjects. It may be more palatable, and indeed perhaps more appropriate, to construe Confucianism (or complimentary traditions such as Daoism and Zen Buddhism) as philosophies or ethical codes, but this would merely be a semantic move and not one which changes the basic important insights which can be gained from such traditions.

In relation to the education system then, it may be of benefit to more readily present marginalised philosophical perspectives as ways of seeing (in much the same way as a new language offers the learner not just a new set of linguistic skills but a new perspective on history, culture, and tradition), rather than as fringe topics or extracurricular activities which are of no great import to the core curriculum. University College Cork have demonstrated moves in this direction with the development of the 'Connected Curriculum' academic

strategy[‡]. It is beyond the scope of this paper to discuss policy implementation but a brief suggestion would be: at secondary level, a reworking of non-core topics such as religion and Civil Social and Political Education to more fluidly and directly relate - and contribute - to core subjects and, at third level, the facilitation of interdisciplinary modules for credit as part of degree programmes (where, for example, a tradition such as Confucianism is taught with relevance to students of environmental science[§]).

If one were to construe the value of philosophical traditions such as Confucianism in terms of sheer employability, one would likely be left to pursue only a historical, philosophical or traditional religious course of work. But an interdisciplinary approach which encourages a more inclusive attitude to such traditions allows a new perspectival grounding which may offer valuable insight to students who will go on to use their expertise in, for example, the development of policy around sustainable environmental practices. In this way the encouragement of an understanding of interdependence in the curriculum could broaden the scope for learning at all levels of the education system.

[‡] "… students and staff will be facilitated to make meaningful connections within and between disciplines, by integrating on-campus and off-campus learning experiences and by engaging in research-based learning at all levels."

[§] This author experienced a one-off instance of this during UCC's University Wide Sustainability module in 2019 when Prof. Edmond Byrne, Professor and Chair of Process & Chemical Engineering, outlined the historical philosophical thinking which saw humankind as separate from their environment which in turn led to a lack of responsibility with regard to environmental impact. Having such a theme woven into a science degree may well breed a sense of history and responsibility which may be lost in a wholly technical-focused degree.

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