



## BOOK OF ABSTRACTS

EdTech 2019: The Digital Transformation of  
Irish Higher and Further Education – Real or  
Imagined?

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# The threat of the mega-providers

## Authors

Mr. Brian Mulligan - Institute of Technology Sligo

## Abstract

In 2011 Clayton Christensen predicted that within 10 to 15 years as many as half of US universities would close because of the disruptive effect of online education. He predicted that large scale online education would have the economies of scale to both drive down costs and improve quality in higher education. However, it has been observed that we tend to overestimate the pace of change and underestimate the extent of change. Could that be the case in higher education? While closures of universities in the US are not at the level he predicted, they are happening at a significant pace and large scale providers of online higher education are growing. In addition, providers of unaccredited education such as Coursera and LinkedIn Learning are capable of operating at scales that massively reduce the cost of access to training and offer reliable alternative credentials. Higher education is expensive and is increasingly being funded by debt taken on by individuals or by governments. In the near future, demographic change in the developed world will result in significant increases in government spending on healthcare. Pressure to reduce spending on other priorities such as higher education will grow, resulting in higher fees to the individual as we have seen recently in the UK. As the cost of higher education to the individual grows will they turn to lower-cost online alternatives? Will the mega-providers of higher education in the US see Europe as a potential market that will further improve their economies of scale? Or can relatively small and medium sized institutions respond and provide high quality higher education at a reasonable cost in their own regions?

## Submission ID

4

# Interpreting and Explaining Decisions from a Machine Learning Algorithm that Predicts Mathematics Achievement

## Authors

Prof. David Passmore - Penn State University

Dr. Chungil Chae - Penn State University

Ms. Rania Elanwer - Penn State University

## Abstract

Machine learning is the core of artificial intelligence systems. Machine learning optimizes mathematically the relationship between a targeted performance measure and features predicting the performance.

From an information theory perspective, every real-world dataset contains predictors that possess both signal (i.e., true values) and noise (i.e., error). Because algorithms developed from one set of data rarely generalize perfectly to new datasets that have their own unique signal and noise components, machine learning developers cross-validate their algorithms.

The main approach in cross-validation is to split the data (one or several times) for estimating the risk of the algorithm. Part of the data (the training sample) is used for training each algorithm, and the remaining part (the validation sample) is used to estimate the risk associated with using the algorithm developed in the training sample.

Even with cross-validation, practical applications of algorithms can lack generalizability when the optimization technique focuses on peculiar or unintended noise embedded in the features of a targeted performance measure. Not only is a failure of an algorithm in practice a technical problem, but this failure also has ethical and legal consequences when the algorithm is installed to make or recommend consequential decisions.

Article 8(1) of the *Charter of Fundamental Rights of the European Union* and Article 16(1) of the *Treaty on the Functioning of the European Union* provide that people have the right to the protection of their personal data. At the policy level, Recital 71 of the *European Union General Data Protection Regulation* (GDPR) indicates that

The data subject should have the right not to be subject to a decision...based solely on automated processing...to analyse or predict... performance at work, economic situation, health, personal preferences or interests, reliability or behaviour, location or movements.

Beyond these mandates, individuals must trust decisions aided by artificial intelligence. Keys to promoting this trust are making the evidence from artificial intelligence interpretable and explainable.

We demonstrate in this presentation methods for interpreting and explaining predictions of achievement in mathematics resulting from a complex machine learning algorithm. We created an algorithm that classified passing or failing qualifications in secondary school in mathematics achievement as a function of attributes including student grades as well as various demographic, social and school related features. The algorithm was trained using data available from the UCI Machine Learning Repository that were collected and organized from school reports and questionnaire responses from 649 students enrolled during 2005-2006 in two public schools from the Alentejo region of Portugal.

Applied in our demonstration are procedures for local interpretable model-agnostic explanations (*aka* LIME). LIME is a novel technique that explains machine learning algorithms in a flexible and easily interpretable manner. To accomplish this explanation, LIME interprets an algorithmic prediction in the local geometric space around an individual prediction by framing the prediction as a more general submodular optimization problem, which is solved by another algorithm, implemented in our case through a package in R programming software. LIME is designed to be agnostic about the functional form of the algorithm it is explaining.

## **Submission ID**

5

# Applying Opinion Mining Techniques to Evaluating Instruction

## Authors

Ms. Ahreum Lim - Seoul National University

Prof. David Passmore - Penn State University

Dr. Chungil Chae - Penn State University

## Abstract

Opinion mining, which often is referred to as sentiment analysis, review mining, or attitude analysis, is a computational analysis of opinions, sentiments, attitudes that are assembled in what computational linguists describe as a “bag of words. Opinion mining is one of the sub-disciplines of natural language processing, the ultimate purpose of which is to elicit via computation manipulation the message embedded in language used in daily life.

Because opinion mining aims for exploring the information structure of discourse and its focus is on opinion-driven content, mining of opinions relies on computational tools for unstructured information extraction. The understanding of natural language is context-dependent, which makes the computational interpretation of meaning underlying of the syntax of natural language ambiguous. This ambiguity poses many challenges in applications of opinion mining.

Opinion mining aims to predict the underlying sentiments of written language, which makes this form of unstructured information extraction potentially useful for analyzing learners’ reaction to instruction. Post-instruction reaction measures often are dismissed as mere “smile sheets. However, mining of opinions expressed in learner reactions to instruction might produce sophisticated and diverse information useful for formative evaluation of instruction. Opinion mining has been applied in diverse analyses such as enabling measurement of customer satisfaction, observing the nature of interaction of instructional staff and students on Facebook, and predict movie sales. For this Converse and Connect presentation, we propose to discuss application of opinion mining techniques to dissecting learners’ immediate post-instruction reactions that are expressed through free text or in audio recordings.

## Submission ID

6

# A Poor Mans' Digital Transformation

## Authors

Mr. Eoin Campbell - Technological University Dublin - Tallaght campus

## Abstract

Many properties of a digital campus were identified in "Our Vision for a Digital Campus", a working document developed in 2016/7 by the then partners for TU4Dublin, and now that TU Dublin is a reality, it is time to realise them.

Enrolment of students on to courses on the VLE is critical for any digital transformation. Benefits include better student/lecturer interaction; the ability to both mark and communicate assessments confidentially online (a GDPR requirement); a shared calendar, etc.

This talk describes how the *TU Dublin - Tallaght campus* has improved the practical process of enrolling students on courses, moving from relying on student self-enrolment to a lecturer-controlled and more automated process).

In addition, it discusses some facilities that become practical once all students are properly enrolled, either administrative (electronic attendance recording, group self-selection, learning analytics) or learning activities (online discussions, quizzes, etc.).

There are two basic building blocks for improving the VLE course enrolment process: a) automatically assign students into groups according to their programme of study, year, and study mode; and b) link each student group with each of the relevant courses on which they should be enrolled. So for example, the group "First-year full-time Mechanical Engineering students" should be associated with all courses in Semesters 1 and 2 of the programme.

Associating student groups and courses was a considerable once-off configuration activity, but once these linkages have been made, lecturers can enrol students in those groups they have been allocated simply by 'switching on' the association at the start of the Semester.

Exceptions still abound, including split and merged classes, repeat and Erasmus students, and only some of these can be handled, so self-enrolment is still available as a fall-back.

## Submission ID

7

# Using technology enhanced learning to meet the challenge of engaging large cohorts of students.

## Authors

Ms. Colette Lyng - Beaumont Hospital

Ms. Evelyn Kelleher - Dublin City University

## Abstract

Large class sizes are a feature of modern university life. Setting and correcting assessments for such large cohorts is a challenging prospect for educators in relation to the identification of suitable assessment methods to establish the achievement of learning outcomes, meeting tight deadlines for marking, moderating and submitting results, and ensuring high quality feedback. One programme in our university that consistently attracts large class sizes is our undergraduate nursing degree which currently has an annual intake of 232 students. In first year, these students undertake a module that provides the foundation on which their nursing practice is built. Traditionally, part of this module was assessed using a paper-based quiz. There were many problems and challenges with this assessment which prompted us to examine potential solutions using educational technology. As a result we developed a novel online assessment strategy which was first implemented during the 2013-2014 academic year with a cohort of 217 students. This involved replacing the paper-based quiz with new online formative quizzes and a more flexible summative assessment that were appropriate to the module content and closely aligned to the module learning outcomes. This combination of formative assessments coupled with prompt feedback ensure a student centred approach that stimulates learning, fosters student engagement, reinforces essential fundamental knowledge, encourages autonomous learning, and helps students engage with the module and acquire the knowledge to succeed. In this presentation we will outline the rationale for introducing these quizzes, describe the development and implementation of the new formative and summative assessments, discuss the advantages of this innovation, and outline our plans for the future including analysis of the rich bank of data gathered over the last six academic years.

## Submission ID

8

# How support videos are used as part of cramming for exams

## Authors

Dr. Eugene O'Loughlin - National College of Ireland

## Abstract

Cramming for exams is a widespread phenomenon where students study almost non-stop just before an exam that's coming up, but that they haven't prepared fully for. This traditionally involves going through notes which are either provided by a teacher/instructor, or taken by the students themselves. Cramming is the opposite of the "Spacing Effect" which states that studied material spaced out over time will be remembered better when compared to when material is crammed together. While educators agree that cramming is a poor strategy for learning, it is still a strategy employed by many students. With the arrival of video websites, such as YouTube in 2005, there are many opportunities for modern day students to learn from short videos created by content developers for this purpose.

In this study, data for views, audience retention, and durations of on-line videos provided as support for Statistics modules are examined. The data show stark evidence of intense last-minute study where key videos are viewed in the 48-hour period before a scheduled exam takes place. Almost no views are recorded for the support videos throughout the semester or in the aftermath of an exam. Individual videos are linked to specific exam questions to show the cramming effect. Audience retention and average duration in the 48-hour period before an exam are compared with retention and duration outside this period. Overall, the results clearly indicate that on-line support videos are now part of the cramming phenomenon. No evidence of the spacing effect was found.

## Submission ID

9

# **Digitally transforming the continued education and training of novice nurses in an Irish perioperative setting- Evaluating the initiative.**

## **Authors**

Ms. Colette Lyng - Beaumont Hospital

Mr. Mr Paul Mahon - Beaumont Hospital

## **Abstract**

The fundamental aim of any undergraduate nurse education programme is to prepare the student for professional practice as a Registered Nurse. Once registered, new graduate nurses (NGNs) are expected to be clinically competent, safe and effective life-long learners that contribute to the interdisciplinary care of individuals and families across a multitude of settings. However, a large body of international evidence points to the under-preparedness of NGNs for practice in the dynamic setting that is modern healthcare, and this is none more so that in specialist areas such as the operating department. Until recently, NGNs in the perioperative department of our hospital were orientated using a traditional apprenticeship-style approach which often resulted in the inconsistent attainment of knowledge and skills.

We designed and implemented a bespoke, blended learning Foundation Programme in Perioperative Nursing to standardise the support offered to NGNs. This programme aimed to digitally transform the continued education and training of NGNs through a structured and sequenced blend of online activities, clinical placements, face-to-face study days, and integrated online formative and summative assessments. This approach was congruent with the writers' ePistemology (Mahon et al 2018).

The first two iterations of the programme were longitudinally evaluated from the perspective of the students, operating department staff, and theatre management.

Analysis of the confirms that the programme was positively evaluated by participants and theatre personnel. Students reported that their understanding of perioperative nursing increased, that they felt more confident, and that the programme was worthwhile and that they would recommend to colleagues. Participants reviewed the structure of the programme favourably, particularly the online quizzes and gamified activities during study days. The gamified activities confirmed that not only did students learn on study days, they could also retrieve correct information more quickly after the study days.

Analysis of the collected data suggests that the programme will assist novice nurses to attain the foundation knowledge and skills that underpin practice in the perioperative setting.

**Submission ID**

10

# Designing a digital learning space for clinical skills education

## Authors

Mr. Mr Paul Mahon - Beaumont Hospital

Ms. Colette Lyng - Beaumont Hospital

Ms. siobhan nolan - Beaumont Hospital

## Abstract

A key challenge for all healthcare facilities is providing continuing education to ensure the ongoing confidence and competence of their staff. This can be achieved through face-to-face education sessions however staff may be unable to attend such sessions for a wide variety of reasons. One potential solution to this limitation of traditional face-to-face training is digital transformation using online reusable learning objects (RLOs) such as educational video (EV). In order to maximise opportunities for staff across our organisation to avail of clinical skills teaching, we decided to learn how to develop EV. Our first project was an EV on the topic of invasive haemodynamic monitoring. The EV was produced using the Educational Entrepreneurial Approach (Crotty, 2014) to action research and was hosted on the hospitals virtual learning environment. Despite having done extensive research beforehand it still proved to be a steep learning curve but the final product was very successful (as was the bloopers reel!). Interestingly, the international supplier of the equipment demonstrated in the EV has changed their advice on setting up the equipment based on our questions to them; this demonstrates a ripple effect of education that is beneficial for staff and patients and was far wider than we initially anticipated. While EV has many potential benefits, focus must remain on how the EV will benefit the learner (and in our case, our patients). Knowing how to use technologies is one thing, knowing when and why to use them is another and thus EV must be used as a teaching support rather than a teaching strategy in itself. The learning gained from this experience has provided us with knowledge and skills which we can build on to produce more multimedia resources to aid the further education and training of our staff.

## Submission ID

12

# On the Implementation of a Community-based Project-oriented PBL module in an Electronic Engineering programme

## Authors

Dr. Seamus McLoone - Maynooth University

Mr. Andrew Meehan - Maynooth University

## Abstract

The concept of project-oriented problem-based learning (POPBL) is well documented in the literature and offers a significantly different, and arguably better, alternative to the more conventional style of lecturing, whereby a lecturer simply parts their knowledge to a class through the medium of slides and handouts. POPBL is of particular interest to the engineering community, where student project work is more commonplace in their learning experience.

In the past few years, the Department of Electronic Engineering, Maynooth University, has successfully integrated a significant element of POPBL into the first two years of its BE in Electronic Engineering degree programme (McLoone et al., 2016). Key aspects of the POPBL focused on important critical and professional skills including group management, conflict resolution, time management, both verbal and written technical communication and individual interviews in defence of one's work. However, these existing POPBL modules are based on traditional engineering-style projects, meaning that students are tasked with carrying out a project that is both specified and assessed by academics who teach and research in the field of electronic engineering.

This year, the Department has, for the first time, modified the third year of the BE degree programme to include a large-scale community-based POPBL module. The community aspect of the project introduces several new and important features, including (1) students must specify their own project, (2) the project specification must support the community and, as such, must be community-informed, (3) on completion of their project, students must obtain feedback from the community and (4) students must present their work to a non-technical audience.

This paper outlines our experience in implementing this pilot version of the community-based POPBL in the BE in Electronic Engineering degree programme. Procedural, assessment

details and lessons learned are all provided within. In addition, we obtained feedback from the participating students and a summary of this feedback is also presented.

**References:**

McLoone, S.C., Lawlor B., and Meehan, A., 2016. "The Implementation and Evaluation of a Project-oriented Problem-based Learning Module in a First Year Engineering Programme," *Journal of Problem Based Learning in Higher Education*, 4(1), DOI: <https://doi.org/10.5278/ojs.jpblhe.v0i0.1243>

**Submission ID**

14

# Creation of a Hybrid Programming Language

## Authors

Dr. Aidan Mooney - Maynooth University

Mr. Mark Noone - Maynooth University

Ms. Emily O'Regan - Maynooth University

## Abstract

This presentation will look at the creation of a hybrid computer programming language combining the power of the traditional textual Java language with the visual features of the Snap! language. Textual programming languages (such as Java, Python and C++) are the main languages taught in Computer Science courses at third level, while visual programming languages (such as Scratch and Alice) are more prominently used in the education of younger students, mainly those students under sixteen. Some visual languages (such as ScratchJr and Snap!) have a reach to children as young as five. It has been well documented that there exists a gap in the education of students in their mid- to late-teenage years where perhaps visual languages are no longer suitable and textual languages may involve too steep of a learning curve.

There is an increasing need for languages that combine the powerfulness of a text-based language with the simplistic design of a visual language. These so-called hybrid programming languages would allow for the introduction of more complex programming concepts to students by having a more welcoming and more suitable interface. A need for a hybrid language is growing alongside the increasing interest among young people in the field of computer programming.

This project attempts to address this need. For the purpose of this project, the platform Snap! is utilised to create a hybrid language. Snap! is a visual programming language which employs 'blocks' to allow users to build programs. Snap! is also considered a platform and runs in the user's browser and presents an interface on which the user can program. Snap! was originally known as BYOB (Build Your Own Blocks) and was heavily influenced by the blocks-based visual language Scratch. Both Scratch and Snap! give the user access to libraries of pre-existing blocks with pre-set functionalities and allow the user to build programs using these blocks. The main additional feature that Snap! offers is the ability to create one's own blocks and extend the functionality of those blocks to create more complex and powerful programs.

The newly created hybrid language presented combines the textual programming language of Java with the visual 'drag-and-drop' programming language of Snap!. Snap!'s ability to

allow the user build their own blocks supports the integration of Java into the platform. A 'drag-and-drop' interface is presented to the user, with each 'block' representing a corresponding concept in Java. Samples of concepts developed with this new language will be presented along with some of the main considerations and constraints involved. User experience and feedback was gathered from a subject pool of 174 first year Computer Science students in Maynooth University where these participants were given instructions to work with the hybrid programming language and provide a feedback to evaluate their experience using the language. These evaluations were analysed to understand the impact of the project and the main findings from this analysis will be presented. These along with future improvements to the language will also be presented.

## **Submission ID**

15

# Automated Analysis of Student Responses to Venn Diagrams

## Authors

Dr. Seamus McLoone - Maynooth University

Dr. Aidan Mooney - Maynooth University

Ms. Amy Thompson - Maynooth University

## Abstract

UniDoodle (McLoone et al., 2015) is a unique classroom response system that offers the students the ability to respond with equations, diagrams, annotations, etc., all of which is not possible with other response systems, such as clickers, as these have limited input capabilities in the form of multiple-choice selection.

However, this advancement in classroom response systems also brings additional challenges. In the case of clickers, student multiple-choice selections are easily accumulated, and an analytic summary is quick and trivial to produce, although, as argued in previous work (McLoone et al, 2015), such analysis offers limited insight to the students' knowledge of the work. Moreover, what feedback does one give to those students who selects the wrong answer? Nevertheless, the concept of summarizing a set of student responses into a single meaningful graph or table is an appealing and useful feature of clickers.

Hence, the challenge for UniDoodle going forward is how to summarize a set of student sketch-based responses. This is not a trivial task and several issues exist ranging from recognizing differences in hand writing, allowing for varying image sizes and ensuring the capture of meaningful information. Ideally, we want a system to accumulate a set of student sketch-based responses and (1) present a percentage breakdown of correct versus incorrect responses (akin to clickers) and (2) present a percentage breakdown of the most common incorrect responses, along with the actual images. It is the latter that allows the teacher the ability to offer the most pertinent and highly effective feedback to the class.

This paper reports on an initial investigation into the process of automating the analysis of a set of student sketch-based responses. Here, the analysis of a set of student responses to a simple Venn Diagram question is considered. The results of this analysis are presented within.

**References:**

McLoone, S., Villing, R. & O'Keeffe, S. (2015). A novel smart device student response system for supporting high quality active learning in the engineering and science disciplines. *AISHE-J: The all Ireland Journal of Teaching and Learning in Higher Education*, 7(2), pp.2071-2078.

**Submission ID**

16

# Taking the "con" out of content creation

## Authors

Mr. Rory Walsh - DkIT

## Abstract

Although Microsoft PowerPoint has quickly become the de-facto standard for pedagogic content creation, it also restricts creativity in numerous ways. It provides very few options for creating content with anything but a handful of supported media types. What's worse is the fact users are locked into a proprietary system of content creation that makes sharing and collaborating dependant on all parties owning copies of the software.

This presentation will showcase one educator's attempt to break free of this paradigm by creating a customised content creation package using a range of open source technologies. In this system Powerpoint is replaced with a source code editor. Content is written using Markdown, a plain text formatting syntax, and converted to HTML using Remark, an open source markdown to html convertor.

A set of quick demonstrations will show how easy it is to embed a variety of accessible content into one's presentations. For example, JavaScript and HTML5 animations can be embedded directly into slides. Microsoft's equation editor is replaced with Katex, a Latex based math typesetting library for the web. Entire web based applications can also be embedded directly into slides, including online compilers, audio editors, and animation applications. Virtually anything that can be hosted online can form part of any content created.

The presentation will also show how GIT can be used to manage and share content with collaborators; how one can quickly create and manage a set of customised keyboard shortcuts for various formatting tasks; how theming presentations can be achieved using standard CSS stylesheets; and how to creating customised build tasks to control the generation of content. Finally, it will be shown how simple it is to host the newly created content on Moodle, which is capable of serving both static and dynamic web content directly from your module's Moodle homepage.

## Submission ID

17

# **CitizenSchool: A case study in multi-disciplinary, multi-cultural, group-based active learning**

## **Authors**

Mr. Derek O Reilly - Dundalk Institute of Technology

## **Abstract**

This paper looks at a three-year long EU Erasmus+ project that involved three colleges from Ireland, Belgium and Portugal. As part of the project, over 50 students from the three colleges took part in two ten-day international intensive game-coding activities. The paper examines the students' engagement with the project and analyses the students' feedback relating to multi-disciplinary, multi-cultural, group-based active learning.

The project is called CitizenSchool. The aim of the project is to develop a set of mini-games that can help young people to understand and discuss various misconceptions relating to migrants and refugees in the EU. The target audience for the mini-games is 15-18 year old secondary school pupils from across the EU. The project is a collaboration between three colleges (Dundalk Institute of Technology, Ireland; Artesis - Plantijn Hogeschool, Belgium; and ISPGaya - Instituto Superior Politécnico, Portugal) and three non-governmental organisations (Le Partenariat, France; Studio Globo, Belgium; and Stedenband Haarlem-Mutare, Netherlands). The project is fully-funded by the EU under the Erasmus+ programme.

Each of the two ten-day intensive game-coding activities involved 24 international students plus students from the host college. Students were split into teams. Teams were made up of students who studied in various undergraduate disciplines, such as games development, computer science, tourism, business and education. During the ten days, students were expected to develop prototype game ideas and to present their final games to a panel of non-governmental organisation experts.

At the end of each of the two ten-day intensive game-coding activities, participating students were asked a set of questions relating to group work, active learning, motivation and professional development. This paper looks at the student responses to these questions.

## **Submission ID**

18

# Transforming the VLE into a 21st Century Active Learning Environment

## Authors

Ms. Jean Reale - Mary Immaculate College

Ms. Sarah OToole - Limerick Institute of Technology

## Abstract

The VLE (Virtual Learning Environment) is at the heart of all HEI (Higher Education Institutions) teaching and learning environments, and facilitates innovative and engaging blended and online learning. However, findings from the VLE Multi-college staff survey "indicate it is the content repository and communication features that were by far the most popular ways in which VLEs are employed." (Farrelly, Raftery & Harding, 2018). The results indicate that we are using the VLE for "supporting the *management* of learning rather than *student learning* itself." The findings show that while group collaboration, presentations and student-led work are ongoing, more staff use tools outside the VLE than within the VLE for these tasks. This is an indication that the VLE isn't meeting the current needs of staff and students.

According to the Higher Education System Performance Framework 2018-2020 higher education institutions need to "continually develop and enhance their approaches to learning and teaching to incorporate a lifelong learning perspective and a student-centred approach". This includes "collaborative and inquiry-based learning, inclusive learning environments, and digital technologies". How can we effectively integrate new applications and digital tools to complement our VLEs?

This presentation will give an overview of how full integration of Office 365 tools into Moodle will create an active inclusive learning environment for staff and students. The Higher Education System Performance Framework 2018-2020 identified the need to address skills shortages and states that "there is also the need to consider how we will address changes in the world of work due to new technologies and ways of working". By the effective integration of industry standard apps and services into the VLE we can actively promote the skills and knowledge acquisition required to be productive 21<sup>st</sup> century learners and professionals.

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## Submission ID

21

**Tell me and I will forget. Show me and I will remember. Involve me and I will understand. Step back and I will act.**

## **Authors**

Mrs. Briege King - Dundalk Institute of Technology

Ms. Sinéad Costello - Dundalk Institute of Technology

## **Abstract**

Blended learning has evolved within Higher Education since the global expansion of the internet and the upsurge of Information Technology (IT). It utilises online activities via Virtual Learning Environments (VLE's) such as Moodle (Dougiamas, 2004) with traditional face-to-face delivery (Hailey et al., 2017). Online resources have also been developed as a learning resource for teaching clinical skills (Bloomfield et al., 2013).

Clinical skills are traditionally taught in classroom-based practical sessions (Wighus et al., 2018, Ewertsson et al., 2015). Challenges of classroom delivery include limited practice time, and large student: teacher ratio. Using a Situated Cognition theoretical approach (Lave and Wenger, 2018) the authors have utilised online video exemplars that students can access prior to face-to-face class contact time. In-house visual exemplars which the students access in preparation for their practical assessment as part of a blended learning post registration nurse education programme have also been developed. These resources have been found to be very beneficial to the students for both clinical skills acquisition and preparation for practical assessment.

In this interactive presentation delegates will have the opportunity to experience this learning approach first-hand. They will watch a short 2 minute video of a first aid skill. They will then participate in the skills demonstration based on what they have seen. The presenters will act as facilitators to support and guide the learning. This will allow the delegates to be immersed in a Blended Learning environment and experience how technology can be used to acquire new skills.

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## **Submission ID**

22

# Implementation of a Learning Management System in Tallaght University Hospital (TUH)

## Authors

Mr. Tom Martin - Tallaght University Hospital

Ms. Shauna Ennis - Tallaght University Hospital

Ms. Clodagh McLoughlin - Tallaght University Hospital

Ms. Sinead Fagan - Tallaght University Hospital

## Abstract

The Centre for Learning and Development (CLD) in Tallaght University Hospital (TUH) delivers 146 education programmes each year. The organisation and delivery of a single education session/programme in the Centre for Learning and Development previously required up to 10 separate steps to be undertaken over several days. It was apparent the Centre for Learning and Development required a Learning Management System (LMS) that would meet the following criteria:

1. Facility for programme booking and attendance management – i.e. self-enrolment.
2. Easy to use and intuitive interface available online 24/7.
3. Links with the Hospital's HR systems for authentication purposes.
4. Issues automated confirmations, alerts and reminders to participants in advance of planned training.
5. Hosts eLearning content developed by TUH.
6. Generates accurate reports on staff programme attendance, completions & compliance with mandatory training.

A project was commenced in 2014 to develop and implement a Learning Management System (LMS) that would meet the needs of the hospital and its staff. LMS options from a number of vendors were reviewed from 2014-2016. In 2016, HSE LanD – the HSE's national eLearning platform - was selected. Four stakeholder groups, local and national, were established to oversee and implement the project. The TUH Learning Management System, Learning Station (LS), went live on 30<sup>th</sup> July 2018. Learning Station is a centralised software application for the administration, documentation, tracking, reporting and delivery of both classroom & eLearning programmes. It enables the electronic capturing of attendances, issues automated education alerts and reminders to staff who are booked onto a programme and the evaluation of all programmes.

Since launch, over 2,500 staff in TUH have registered with the Learning Station. Employees are now required to self-enrol on programmes, a process undertaken in 4 steps in a matter of seconds. Three bespoke eLearning education programmes have been developed within TUH and are available on the Learning Station since August 2018. A further three eLearning programmes are under development. Reports of attendance at education programmes can be generated quickly. Staff have records of learning and development undertaken maintained on their individual HSElanD profile and automated completion certificates are emailed to them following attendance at a programme. Initial feedback from TUH staff has been positive. Weekly, open access support sessions, are being provided to staff members who are less comfortable with Information and Communications Technology systems. Learning Station also allows the CLD to open up enrolment of our classroom programmes to colleagues from Hospitals within the Dublin Midlands Hospital Group.

The success of the Learning Station to date is due to the multi-faceted, collaborative approach undertaken by the Centre for Learning and Development team. The CLD team will continue to enhance their knowledge and skills in using all components of the system to further improve processes and engage staff. The Learning Station has increased the availability of flexible learning opportunities for staff. TUH is the first implementation site nationally and TUH continues to work with the HSE to implement the LMS as part of the national "HeLM" (Health eLearning Management) Project.

A research project in collaboration with the Trinity Centre for Practice and Healthcare Innovation (TCD) and HSElanD will be undertaken to fully evaluate the first year of implementation.

## **Submission ID**

23

# Micro learning: An alternative model of academic professional development.

## Authors

Dr. Emma O'Brien - Mary Immaculate College

Ms. Anne Ryan - Mary Immaculate College

Dr. Gwen Moore - Mary Immaculate College

Ms. Margaret Phelan - Mary Immaculate College

Ms. Jean Reale - Mary Immaculate College

Dr. Laura Costelloe - Mary Immaculate College

## Abstract

Barriers to the participation of academic staff in professional development (PD) has been well-documented, with time and workload identified as major impeding factors. (Johnson et al. 2012; Windschitl and Sahl, 2002; Lin et al. 2012; Brownell and Tanner, 2012). However, participation in PD activities is recognised to have a positive impact on teaching approaches, encouraging academics to transition to student-centred pedagogies, embracing constructivism and engaging technology. (Gibbs and Coffey, 2004; Stes et al., 2010; Ertmer, 2005; Glassett and Schrum, 2009; Somekh, 2008)

To address barriers associated with time and workload online PD has been widely explored. Rientes, 2013 highlighted the positive impact online PD programme offered to academic staff. Additionally, Teras, 2016 indicated the benefits of offering online, collaborative PD programmes to academics. Furthermore, online PD can build digital capacity of staff.

To further address the issue of time constraints this paper explores the adoption of micro learning to meet the PD needs of academic staff. *'Microlearning refers to a learning strategy designed using a series of short materials and activities that makes a mini course'* (Alqurashi, 2017). Micro learning has a large focus on informal learning and student-centred learning in which students apply what they have learned to their individual contexts. (Buchem and Hamelmann, 2010, pg. 1)

This paper will give an overview of how micro learning was delivered to a pilot of ten academic staff. A one week online course was developed to encourage staff to use the VLE to enhance their student learning. The course required staff to engage with daily 5minute videos and apply the content to 5minute e-tivities over five days. The micro learning was supported using Garrison's Community of inquiry model (Garrison, 2009) and Gilly Salmons

e-tivity model. (Salmon, 2013). The course is underpinned by the values identified in the National Forum's Professional Development Framework

**Submission ID**

24

# Providing a Space for Problem Based Learning using the VLE

## Authors

Dr. Emma O'Brien - Mary Immaculate College

Ms. Margaret Phelan - Mary Immaculate College

Dr. Gwen Moore - Mary Immaculate College

## Abstract

Research has illustrated the effectiveness of problem- and inquiry-based approaches to learning for developing skills in problem solving and critical thinking (Hmelo, 1998; Gallagher, Sepien, & Rosenthal, 1992). An additional benefit of these approaches is their potential to encourage learners to become more self-directed (Hmelo & Lin, 2000).

With the support of technology, problem-based learning (PBL) has the potential to foster skills needed in the future, such as problem solving through technology, digital information literacy and cross-cultural collaboration.

Traditionally there was a perception that technology may dilute the collaborative, student centred nature of PBL (Savin-Baden and Wilkie, 2006). However, the effective use of technology can enhance collaborative work, foster communication, and allow students to exchange materials outside of PBL tutorial groups (McClinden et al, 2006; Donnelly, 2010). Cho and Jonessan (2002) found that online forums facilitated more in-depth collaboration and promoted the transfer of knowledge to enable students to solve the problem. In some studies, it was found that online PBL collaboration resulted in improved student performance (Ozdemir, 2005).

Despite the potential of various technologies to support the development of emergent skills such as problem solving, the diverse range of technologies available makes it difficult for academic staff and students to identify the most relevant technologies and become proficient in their use (Beetham, McGill, & Littlejohn, 2008). This paper explores how the VLE can be used to design collaborative spaces to facilitate problem based learning in Higher Education. By using the VLE academic staff will be using the tools already available and familiar to them, therefore reducing the need to develop additional ICT skills.

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## **Submission ID**

25

# Resisting temptation – the lure of contract cheating and the possible counteractive role of active learning and assessment

## Authors

Dr. Brid Lane - IBAT College

## Abstract

Student usage of contract cheating sites is rising rapidly with an estimated one-in-seven students availing of them (Newton, 2018). These sites have the persuasive features of “informativeness, credibility and involvement” (Rowland et al, 2017), designed to appeal to a modern student persona; a non-native English speaker juggling a demanding schedule of work, life and study. When a struggling student with a weak grasp of citing and referencing notations, insufficient time to properly address this, and facing a looming deadline comes across a link to an essay writing site - the temptation to respond to it is real. For Bretag et al, (2018), (n = 14,086), two key influencing temptations for students to use these sites are dissatisfaction with the teaching and learning environment, and a perception that there are ‘lots of opportunities to cheat’. The influences were more pronounced for non-native English speakers.

Active learning strategies involving students in their own learning can help address these problems. For assessment, Bretag (2019) suggests personalised and unique assignments, in-class activities, vivas, and reflections on practicals. Students being actively involved in their construction and in carrying them out might tackle the problems listed above but might not scale to large student numbers. Kaktins (2018) suggests technological approaches; electronic student writing profiles (e.g. Turnitin’s Authorship Investigation), just-in-time online tutoring (e.g. Studiosity), and academic integrity programmes. However, these might not be viable for smaller institutions with limited budgets. Ultimately, as per Morris (2018), these institutions need to determine an academic integrity strategy; implemented through appropriate policies, informed by an understanding of their particular students’ needs. Such activities have implications and requirements for staff professional development, but should help in creating a teaching and learning environment that reduces perceived opportunities to cheat, and reduces the temptation for students to avail of cheating sites.

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## **Submission ID**

27

# The effective use of SDT-driven gamified system to foster progression and social connection among the postgraduate research students

## Authors

Mr. Sanaul Haque - IT Carlow

Dr. Daire O'Broin - IT Carlow

Dr. Joseph Kehoe - IT Carlow

## Abstract

Self-Determination Theory (SDT) seeks to highlight how, why, and in what contexts an individual's behaviour is self-motivated (Ryan and Deci, 2008). SDT hypothesises that there are three basic psychological needs known as autonomy, competence, and relatedness. Numerous SDT-focused research work has been performed on learning (Spittle et al. 2009) principally in motivating students (Trenshaw et al. 2016). It is however still unknown on adopting SDT needs (autonomy, competence, and relatedness) in the postgraduate research specifically in motivating students (Hegarty, 2011) to progress in research study and connect with their supervisors colleagues.

The level of autonomy competence and relatedness are frequently low within research students. They are often in the state of being bewildered on how they are progressing with their research study which can cause the feeling of not being progressed in achieving their research goal. Furthermore, they are more likely to feel isolated and less connected with supervisors and colleagues. These bring effects being detrimental to health (Kurtz-Costes et al. 2006), disruption and attrition in their research study (Vekkaila et al. 2013).

Al though technology-enhanced solutions are accessible to help motivate students to progress in their research study. These solutions are not grounded in student motivation theories and are not designed, developed for students to support them with their daily tasks and helping with social connection. These systems do not deliberate the effect on the SDT needs of autonomy, and competence and relatedness. Research has shown diminutive empirical evidence on the types of support valued by students.

As a possible solution to the problem of low level of autonomy, competence, and relatedness within research students, this project is aimed to design and develop SDT-driven gamified system applying the User-Centered Design (UCD) process. This gamified system will allow research students to set their research goals, upload their research work materials and enable

their supervisors and colleagues to review their research study. This study seeks to answer the research question:

- What is the effect of using a gamified system on research students' feeling of i) autonomy, ii) competence and iii) relatedness on their postgraduate journey?

It is hypothesised that using the gamified system will increase the students' levels of autonomy, competence, and relatedness in their research study. We developed a gamified system using UCD. A one week pilot study of the system informed us that game element neither increased the effort among the research students to complete their weekly goal nor increased the level of social connection. The result of the pilot study has informed us that more study is needed with a longer period, i.e., four weeks using a between-subjects technique with a quantitative and qualitative method. Users' data output will be generated through Intrinsic Motivation Inventory (IMI) measurement using 7-Likert scale (Ryan, 1982). This will determine the effect of a gamified system on SDT three needs compared with the non-gamified system.

## **Submission ID**

30

# Game-Based Learning into Today's Workplaces: Who's Winning?

## Authors

Ms. Janet Benson - Learnovate @ Trinity College Dublin

## Abstract

"One of the most difficult tasks men can perform, however much others may despise it, is the invention of good

games..."

Carl Jung (Post,

2010)

Game-based learning has often been sold as a means of engaging and inspiring learners, providing interactive and exciting learning experiences, and allowing learners a greater degree of autonomy and control over their own learning. After all, games are different from any other media because "one literally learns by playing" and usually does not sit down to read a manual first (Sandford & Williamson, 2005).

But has the corporate world really embraced this approach to learning?

And if so, how have workplaces been using game-based learning and what are their experiences of its implementation?

As stated by Ganguin, 'as games are associated with enjoyment, they are distinct from work' which can be a barrier to implementation of game-based learning in a corporate environment. If something is seen as enjoyable, then surely it can't be taken seriously?

In this presentation I would like to discuss game-based learning in the workplace, taking real-world examples for discussion, and seek to establish some best practices when taking a game-based learning approach to workplace learning, particularly with regard to initial adoption of the practice, and buy-in from stakeholders.

I also intend to present some insights from my own MSc. dissertation which concerned the topic of game-based learning in a pharmaceutical industry workplace and addressed the following research questions:

- What are employees' impressions of current pharmaceutical industry workplace training?
- What are employees' perceptions on the effectiveness of game-based learning in the workplace?
- What are the perceptions of the feasibility of adopting a game-based learning approach to pharmaceutical industry workplace training including the perceived barriers?

My study was essentially a feasibility study and sought, through use of initial surveys and semi-structured interviews of current pharmaceutical industry employees, to determine if the use of game-based learning techniques within an industry environment could promote effective and motivating learning experiences and greater involvement of employees in the learning process.

The key takeaways for attendees of this presentation will include some state-of-the-market insights on the implementation of game-based learning in today's workplaces, as well as some practical advice for implementation of these approaches based on the current literature and the industry today.

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## **Submission ID**

31

# The increasing reliance of pre-clinical medical students upon social media to study physiology

## Authors

Dr. Mark Rae - University College Cork

Dr. Dervla O'Malley - University College Cork

Dr. Denis Barry - Trinity College Dublin

## Abstract

Physiology remains a central focal point of pre-clinical medical teaching with didactic lectures still the core instructional methodology utilised by most institutions. However, anecdotal evidence suggests that medical students are now utilising social media resources (including internet 2.0 tools) relatively extensively to facilitate and propagate their understanding of Physiology, but little actual research has been conducted to determine to what extent this occurs.

The aim of the current study was therefore to determine how first year medical students from both direct entry (DEM; 72 students) and graduate entry (GEM; 67 students), medical streams utilise social media resources to facilitate their Physiology learning. For the study, students completed an anonymised 24 item survey which collected information on both student demographics and on their use of online learning Physiology learning resources.

We determined that 97.8% of students used internet platforms to source Physiology information, with 89.2% doing so at least once per week. 76.3% used YouTube as their primary source of physiology learning. Significantly, 94.2% of all students said that they first searched for an answer online if they did not understand something in Physiology, with 70.8% and 50.4% of respondents signifying that they would not contact the instructor either by e-mail or in person, respectively, if they were still unsure. Somewhat worryingly however, only 31.4% of students ever "fact-checked" online-sourced Physiology information (e.g. by using textbooks, papers and/or instructors).

To conclude, today's pre-clinical medical students utilise both social media resources extensively to facilitate their study of Physiology. As such, it suggests that the blending of elements such as YouTube videos into Physiology teaching would provide both a means of enhancing student engagement with, and consequently, the understanding of, the subject as well as providing academic and ethical oversight of such online content.

## Submission ID

35

# **The use of an online audit tool to inform a retention policy in a paediatric hospital.**

## **Authors**

Ms. Mary Anne Culhane - CHI @ Temple Street

Ms. Dairin Hines - CHI at Temple Street

## **Abstract**

Introduction:

The Record Retention Periods Health Service Policy (2013) sets out the minimum periods for which records should be retained. In order to discover the type of data that is being held and in deciding to adapt/adopt the policy (some records are kept in perpetuity) the hospital progressed to carry out an audit. With the introduction of GDPR on the 28th May 2018 Article 30 stipulates that a controller must keep a record of all processing activities. To be GDPR compliant the hospital designed and implemented an online audit tool as a data collection instrument to record processing activities and to inform its retention policy.

Objectives of the Project:

The object of the project was to design an audit tool for users to record personal data within the custody of departments/units. The audit tool records what, where, why and how long the data was stored for, who has access to the data and was the data being transferred. The audit tool had 3 deliverables to show GDPR compliance, to create a central data registry repository and to inform a retention policy. CHI at Temple Street is a paediatric hospital and is the custodian of paediatric health data, staff data and other types of data such as CCTV footage. GDPR is a law enforcement directive providing high standards of data protection for data subjects while increasing obligations on data controllers and processors. Under Article 9 GDPR, health data is considered special category data and children are afforded greater safeguards under the directive.

Methodology, Design and Process:

Informed by GDPR principles the IG Lead drove the design while ICT BIU built the artefact. The audit tool is a web form built using agile development. The design is simple and easy to use with drop down menus and some free text boxes. Each user has a designated log on and password. The audit tool has a reporting function.

The IG Co-ordinator rolled out the audit tool to 20 departments in the hospital in Phase 1. As the data collection process evolved so did the artefact. Each user had different requirements "good problems" (Tam, 2000). The audit tool was a scaffold for the users while the IG Co-ordinator was the More Able Other (Vygotsky's ZPD). The artefact has taught the core project team that learning is a social process creating a social context in which collaboration created a sense of community. The good problems and constructivist perspective created a collaborative effort allowing the team to test and refine their own learning (Tam, 2000). Phase 2 of the GDPR audit will be rolled out in mid 2019.

Conclusions:

The artefact allows the user to demonstrate accountability and GDPR compliance. The artefact is something tangible that the user can identify with in putting GDPR into real time. The user can own, act and feel their way towards GDPR compliance. The audit tool has created learning nuggets such as the creation of frequently asked questions as an IG hospital resource. The IG Co-coordinator has changed her teaching practice in terms of training staff to use the audit tool as the design of the artefact has changed during phase 1 due to user's requirements.

The audit tool has benchmarked the hospitals readiness to investigate what other information governance digital platforms are available and the affordances that they give.

## **Submission ID**

40

# **Bringing coroner's records to life: a collaboration between the Glucksman Library and faculty to teach digital humanities to fourth-year history students at the University of Limerick**

## **Authors**

Dr. Kirsten Mulrennan - University of Limerick

Ms. Sinéad Keogh - University of Limerick

## **Abstract**

The Glucksman Library runs a series of programmes to support research, teaching and learning at the University of Limerick (UL). The Special Collections and Archives department within the library utilises its unique and distinctive collections to enhance student experience, encouraging 'hands-on' learning for students of all types. As a pilot project in the Autumn Semester of 2018, archivist Kirsten Mulrennan and librarian Sinéad Keogh were invited to co-teach a portion of a fourth-year medical history module run by the Department of History. This module was designed to do a number of things at once: educate the students about the importance of archival material through active learning; encourage critical thinking about the use of medical records for historical research; demonstrate the potential of digital humanities tools for the exploitation of linked data; and introduce the students to the basic concepts of metadata, text mark-up and the Text-Encoding Initiative (TEI). Working in groups with digitised historic records from the Irish Coroner's Court held in the National Archives of Ireland, the students produced verbatim archival transcriptions of five records, highlighting linked data elements they felt would be most beneficial for future research – elements such as names, places, organisations, dates, and causes of death. The output from the module demonstrated a high level of student engagement with the process, and feedback from both the faculty and students at the end of the module was incredibly favourable. As a result, this module design will be further developed for the coming academic year. Mulrennan and Keogh have used this experience to build their teaching profile within the university, as well as establish lasting links with the history department. Overall, this project illustrates the diverse ways in which academic libraries can work with faculty as partners in digital humanities, to grow graduate information literacies and skills, creatively using technological tools to get both staff and students engaged with historic medical sources, and ultimately, that the increasing integration of rare books and archival material into the curriculum allows for the continued development of unique academic programmes at UL.

## **Submission ID**

41

# An augmented 7Cs of Learning Design Framework

## Authors

Prof. Grainne Conole - Dublin City University

## Abstract

Designing for learning is a key challenge facing education. This practitioner paper will provide an overview of a number of frameworks for design that have emerged in recent years. Learning Design aims to help practitioners make pedagogically informed design decisions that make appropriate use of digital technologies and consists of three aspects: guiding the design process, providing visual representations of the design, and enabling practitioners to share and discuss their Learning Designs. Popular Learning Design frameworks include: the 7Cs of Learning Design, the ABC Learning Design framework, the hybrid learning model, SAMR, ICAP, and SOLE. The paper will describe how these frameworks have been integrated to form an augmented 7Cs of Learning Design. This consists of the following elements or Learning Design activities/resources:

- How to ruin a course
- The ABC course tweet
- Course features
- Student personas
- Resource audit
- Tools for communication and collaboration
- SAMR (Substitution, Augmentation, Modification and Redefinition) framework
- ICAP (Interactive, Constructive, Active, and Passive) framework
- Writing learning outcomes and ensuring constructive alignment
- SOLE toolkits for active verbs and constructive alignment
- Course map
- Activity profile
- The hybrid learning model
- Storyboard
- Evaluation

The presentation will describe the augmented 7Cs of Learning Design framework and how it can be used.

Conole (2013), *Designing for learning in an open world*, Springer: New York

Conole, (2019), Frameworks for Learning Design, in R. Sharpe and H. Beetham (Eds), 3rd Edition, Rethinking pedagogy for a digital world, Routledge: Abingdon.

**Submission ID**

43

# Harnessing virtual platforms to prioritise oral competencies in the language learning process.

## Authors

Dr. Una Carthy - Letterkenny Institute of Technology

## Abstract

Traditionally, the Irish education system has prioritised writing and reading competencies in its language learning curricula, often neglecting oral skills until the Leaving Cert cycle. In some cases, this has led to disengagement from the language learning process on the part of second level pupils. A new paradigm for teaching methodologies at both second and third level is required to prioritise oral competencies and inspire more students to engage in second language learning. Educators at both second and third level have been challenged to increase the numbers of students learning a second language, as part of the new *Languages Connect Strategy*, launched in 2017. New virtual learning platforms need to be carefully designed, drawing upon the most recent technology enhanced tools, blending synchronous and asynchronous learning tasks. Best practice models such as connectivist MOOCs offer tangible examples to guide such emerging learning platforms (Milligan, Littlejohn & Margaryan, 2013). Such environments promote learner autonomy and control, positive rewards for all learning efforts, with feedback embedded into the learning process. Moreover, ETwinning platforms, which already operate successfully for second level schools across Europe, could be harnessed for third level learners (Papadakis, 2016). Etwinning adds a transnational dimension to these 'virtual immersion' environments, overcoming time and space constraints associated with the traditional classroom, and paving the way for more interactive and engaging learning experiences for second language learners. By harnessing such connectivist platforms, educators could empower learners to build confidence in their oral proficiency and become more autonomous language learners.

Milligan, C.; Littlejohn, A; Margaryan, A. (2013) Patterns of Engagement in Connectivist MOOCs In: Merlot Journal of Online Learning and Teaching. Vol. 9, No. 2 pp. 149-159

Papadakis, S. (2016) Creativity and innovation in European education. Ten years eTwinning. Past, present and the future. In: Technology Enhanced Learning. Vol 8, Nos 3 / 4 pp.279-295

## Submission ID

45

## **Come with me and you'll see.. an exhibition without walls**

### **Authors**

Dr. Mike Goldrick - National College of Ireland

### **Abstract**

This short Gasta presentation will introduce technology that allows visitors to free roam in a virtual reality space that replicates the experience of attending an exhibition in the real world.

This virtual exhibition will also showcase sample student projects that were developed as part of a new Certificate in Learning and Technology course in National College of Ireland.

### **Submission ID**

47

# A structured approach to using data strategically

## Authors

Mr. Lee O'Farrell - National Forum for the Enhancement of Teaching and Learning in Higher Education

## Abstract

Learning analytics is traditionally associated with early alert systems, but it is capable of so much more. Given the recommendation, contained within the HEA's current System Performance Framework, that every institution should have a student success strategy in place by 2020, the role of data for enabling evidence-based, informed decision-making has never been more valuable. It can provide institutions with opportunities for supporting students that may not be possible or practical any other way. By using data as a resource for identifying and addressing practices and policies across the campus that could be better-aligned with a successful student experience, HEIs have the opportunity to not only improve retention and progression rates, but also to deepen students' learning, encourage more meaningful engagement and to enhance students' welfare, academic performance, graduate employability and satisfaction.

Data in and of itself cannot achieve this, however. Maximising the value and impact of our data requires a strategic, collaborative, ethical and GDPR-compliant approach.

Since 2016, the National Forum for the Enhancement of Teaching and Learning has been researching international good practice relating to learning analytics and working with institutions to support development of effective, sustainable and strategic uses of data for enhancing student success.

Through this process, we have identified the key tasks required for developing successful, sustainable, data-informed initiatives. These include:

- Developing a shared, consultative understanding of student success
- Determining specific objectives
- Fostering engagement and a data-informed culture
- Defining an ethical, legally-compliant approach
- Identifying data questions
- Identifying suitable data sources
- Detailed planning of the process journey from data extraction to transformation and on to action and review

This presentation will provide a mapped overview of the full planning process as well as identifying international exemplars and new supporting resources created by the National Forum

**Submission ID**

48

# Mind the Gap: Supporting the professional development of part time online teachers

## Authors

Dr. Orna Farrell - Dublin City University

Dr. James Brunton - Dublin City University

Dr. Eamon Costello - Dublin City University

Dr. Enda Donlon - Dublin City University

Prof. Grainne Conole - Dublin City University

Ms. Samantha Trevaskis - Dublin City University

## Abstract

This mixed-methods study reports on a continuing professional development intervention, called #OpenTeach, designed to upskill part-time online teachers. The #OpenTeach project is funded by the National Forum. Continuing Professional Development (CPD) is recognised as crucial to the upskilling of educators to enhance the student learning experience. However, an important gap exists in the provision of CPD for part-time and online teachers who rarely have the opportunity to avail of campus-based resources and have limited access to professional development (Beaton & Gilbert, 2013; Hitch, Mahoney, McFarlane, 2018) Harvey (2013) argues that this ad hoc approach to CPD for part time teachers may impact on the quality of teaching and learning. Teaching online requires different pedagogical approaches to traditional lecturing, therefore institutions need to support teachers transitioning into online teaching to ensure quality (Gurley, 2019; Mohr & Shelton, 2017). Effective online teaching supports student engagement and success, this is key as online students are more vulnerable to attrition (Coker, 2018; Woodley & Simpson 2014).

To address this gap and better harness the potential of more flexible models of online education, this underserved group of geographically dispersed teachers need opportunities to engage with new learning designs, new digital competencies and new ways of embedding digital technology in teaching, learning and assessment (European Commission, 2013). Accordingly, the #OpenTeach intervention addresses this challenge through a highly targeted CPD programme for part-time online teachers.

The study adopts a convergent parallel mixed methods design (Creswell, 2014) and is framed by the following overarching research question: *what are the features of effective/good online teaching?* The study has two phases: In phase one, prior to the #OpenTeach intervention, a needs analysis will be conducted and in phase 2: following the intervention an evaluation

phase data collection will take place. Data will be generated in each phase through online focus groups with part-time online teachers and online students, and through an anonymous online survey, which includes open-ended and five-point likert style scale questions about the features of effective online teaching. The quantitative and qualitative data will be analysed with equal priority. Descriptive and inferential statistics will be used to analyse quantitative data via SPSS statistical analysis software. The qualitative data will be analysed following a data-led approach following the Braun & Clarke (2006) six phases of thematic analysis. Following the analysis of the qualitative and quantitative data sets, they will then be compared using a side-by-side comparison approach (Creswell, 2014).

The #OpenTeach project has the potential to plug a significant gap in the provision of professional learning opportunities for part-time online teachers and to support sectoral development of online teaching best practice in Ireland.

### **Submission ID**

49

# Digital Transformation Data Protection and IT Governance Framework

## Authors

Mr. James Harty - IT Services, Trinity College Dublin

## Abstract

**Framework for assessing Data Protection and IT Governance Compliance in Educational Learning Technologies.**

**Author: James Harty, Teaching and Learning IT System Administrator, IT Services, Trinity College Dublin**

**Track: Practitioner**

**Topic: Outlined below**

**Words Count: 261**

**Key Words: Data Protection, IT Governance, Framework, Benefits, Re-assurance**

With the advent of EU GDPR compliance and the potential for significant fines for institutions who fail to comply with requisite data protection standards and prevention of data breaches, it is imperative to use a standard framework which can minimise the above risks.

The Teaching and Learning team in IT Services in Trinity College Dublin have developed a framework to ensure that educational technologies such as Virtual Learning Environments, VLE third party plugins and other learning technologies such as Audience Response Systems (Polling) are data protection compliant and conform to IT governance standards.

### **What are the benefits of following such a framework?**

- Proper buy-in and engagement from key internal stakeholders – the Sponsor.
- Re-assurance that the in-house or third party service you are using is data protection compliant.
- Re-assurance in regard to IT Security compliance.
- Re-assurance regarding legal contract compliance.
- Re-assurance regarding EU and Irish procurement compliance.
- Re-assurance that you are aware of all the data fields that are being processed and possibly stored outside or inside the EU which belong to your institution.
- Re-assurance about proper institutional data release authorisation to third party cloud providers.

- Re-assurance that proper Service Level Agreement is in place with vendor.
- Good Data Breach Procedures in place internally or with third party providers.

**Submission ID**

51

# Duolingo Schools

## Authors

Ms. Claire Ryan - Dublin City University

## Abstract

Over 200 million people are using Duolingo to help them learn languages.

Duolingo employs gamification mechanics whereby you can play a game and learn a new language simultaneously. Duolingo Schools platform was developed in order to enable partitioners and educators to create their own virtual Duolingo Classroom with their students joining. This technology easily allows educators to integrate an extra online resource for their students use which is user friendly, addictive, effective and a fun way to learn a new language. Duolingo users are using it to enhance their language skills which in turn provides them with better opportunities in life to find a good job, to do research, to travel and so forth. As the world is becoming more and more technologically advanced the availability and quality of internet access is more readily available. People in developing countries can easily download Duolingo and are enabled to self-direct learn. Duolingo is free to download and use.

The speed of technological development is continuing to exceed at an unprecedented rate. This has allowed new technologies such as Duolingo to emerge. However one technology must not settle and has to continue to be innovative and always looking at ways of trying to improve the situation and solve problems that occur in our different environments. The competition within the different markets has helped drive on this innovativeness and awareness for new and better technological products. Duolingo is an excellent example of technology that has excelled in its area and continues with its updates and expanding on its languages it has to offer.

### **Benefits for learners include:**

It is an extra learning tool that students can use on their own devices. Duolingo has the potential to increased learners motivation. Users can practice different skills (reading, writing, listening, speaking). The opportunity to practice and revise what is learnt in class. Duolingo is convenient (can complete the assignments 'on the go')

### **Benefits for educators include:**

Well designed lessons are already prepared, this offers more dynamic to your lessons and extra material. It can be used for assessing and Analysing students learning progress. Teachers can use it as a warmer in class or as a very worthwhile gap fill.

**Submission ID**

52

# Are digital technologies truly satisfying the hunger for meaningful feedback?

## Authors

Dr. Ronan Bree - Dundalk Institute of Technology

## Abstract

In years to come, we will be referred to as educators who navigated the era of assessment. We have primed the migration from didactic teaching and heavily weighted summative exams to interactive classrooms and student-centred formative assessments – a paradigm shift that also heralded the dawn of feedback, one of *“the most powerful influences on learning and achievement”* (Hattie & Timperley, 2007).

Initial feedback literature focused on the need for clarity on its purpose and the importance of establishing a dialogue with learners. More recently, the spotlight is on the implementation of feedback. With the advent of digital assessment, priorities now are on technologies to also provide constructive feedback and monitor its uptake.

In this presentation, the author’s experience of embracing digital technology platforms to provide effective personalised screencast-, audio-, digital text-, and rubric-based feedback to learners will be outlined. In parallel, potential technology-based challenges in the context of the feedback learning experience will be presented. Audience members will be guided to reflect on their assessments, their modes of feedback and to consider these aspects from both the learner, and programme, perspective - and to ask how digital feedback can be embraced to truly ensure a life-long success for learners.

Questions to consider:

- Has the technology-based feedback dream become a reality?
- Are learners overloaded by multiple modes of digital feedback?
- Is feedback, and its implementation, being tracked by learners and educators?
- Are human-centred feedback elements important to maintain?
- How can we improve the impact of technology-based feedback? How can we make it more actionable and ensure success for all?

Hattie, J.A.C., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112.

## Submission ID

53

# **Harnessing the Power of Digital badges to help create future ready Graduates**

## **Authors**

Dr. Anne Marie O'Brien - Athlone IT

## **Abstract**

Higher education has seen an upsurge in recent times in using digital badges for student development. According to Dowling-Hetherington & Glowtaz, (2017) many students in higher education today have grown up with the internet and are consider digital media to be a very useful learning tool. A digital Badge represents an accomplishment in the same way that a traditional badge such as one received from the girl guides would. However, a digital badge is available on line and contains all the metadata and links required to explain its context and meaning. In essence digital badges provide three things Motivation, Status recognition and evidence of achievement (Gibson, et al., 2013). Taking all this into account they have the potential when used correctly to become an alternative system for awarding credentials. The piece of work undertaken for this paper looked at a large scale pilot study to award Digital badges to participant and category winners in Ireland's first science undergraduate research conference (SURE) network (2018) dedicated to students from Institutes of Technology. The conference was run simultaneously over three venues with over 28 oral presenters, 64 poster presentations and almost 600 delegates. A total of 104 digital badges were awarded from the SURE network with an acceptance rate of 75%. A follow up survey of recipients revealed that while 90% had never come across a digital badge they found it easy to accept and 82% said they would use it on LinkedIn and CV. The recipients found the badges a motivating factor, some expressed concerns that employers might not recognise their value yet 58% still stated that they would be useful for their career. Following on from the success of this successful pilot the digital badges will be used in subsequent SURE network conferences and a long-term longitudinal study measuring the impact of the badges is planned.

## **Submission ID**

54

# Self-assessment: using an online rubric to support student learning

## Authors

Dr. Aoife MacCormac - University College Dublin

Dr. Regina Joye - University College Dublin

## Abstract

Self-assessment 'involves the learners in making judgements about their achievements and the outcomes of their learning' (Boud and Falchikov, 1989). Effective self-assessment benefits the students by enhancing learning, deepening their understanding and promoting learner engagement (Leach, 2012). However, for self-assessment to be effective, students need:

- awareness of the value of self-assessment
- access to clear criteria
- a specific task to assess
- direct instruction in and assistance with self-assessment

(adapted from Andrade and Valthcheva, 2009)

Cognisant of this, rubrics are a tool that can both assist lecturers with grading using defined criteria for assignments and facilitate students with formative self-assessment. Before commencing the assignment, it is important to integrate instructional intervention with the assessment criteria so students can self-assess their assignment more objectively. Providing the rubric may be of some benefit (Andrade, 2001), however, actively involving the student in using the rubric to self-assess their work has been associated with improvements in student understanding and learning (Andrade and Valtcheva, 2009). Moreover, facilitating an appropriate intervention has shown a positive effect on student learning and performance and helps achieve the recommendations for effective self-assessment set out above (Panadero and Romero, 2014).

This presentation describes the use of an online self-assessment quiz in Brightspace based on the grading rubric to assist 3rd year nursing and midwifery students (n = 153) in formative self-assessment of an essay assignment. In addition, an audience response system (Mentimeter) was used with the students to facilitate discussion and engagement with the rubric and self-assessment task. Feedback from the students on applying the rubric criteria is also discussed.

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Boud, D., Falchikov, N. (1989). Quantitative studies of student self-assessment and peer assessment. *Higher Education*, 18 (5), 529–49.

Leach, L. (2012) Optional self-assessment: some tensions and dilemmas. *Assessment & Evaluation in Higher Education*, 37 (2), 137-147.

Panadero, E., Romero, M. (2014) To rubric or not to rubric? The effects of self-assessment on self-regulation, performance and self-efficacy, *Assessment in Education: Principles, Policy & Practice*, 21 (2), 133-148.

## **Submission ID**

55

# **GDPR, a DPIA, and don't forget the PDSS: Teaching data ethics & responsibilities to online psychology students**

## **Authors**

Dr. James Brunton - Dublin City University

Dr. Desmond O'Mahony - Dublin City University

Dr. Dean McDonnell - Dublin City University

## **Abstract**

Protecting the data of participants in research studies is a particular focus of psychology programmes, especially those accredited by professional societies with their own ethical codes of practice; for example, the Psychological Society of Ireland (PSI) or the British Psychological Society (BPS). The General Data Protection Regulation (GDPR), launched in May 2018, and the enhanced data protection rights it grants within the EU, adds additional layers of complexity to what psychology students must learn about. Additionally, it places greater implications in terms of action, with regard to both their legal and ethical responsibilities in conducting research that collects peoples' data, especially when that data is classified as sensitive in an ethical and/or legal sense. This presentation relates to a 15 ECTS, final year research project module (PY320: Advanced Research Methods and Project), which acts as a capstone module on the online, DCU Connected BA in Humanities (Psychology Major) programme. This programme is the only open access, online, undergraduate psychology programme delivered by an Irish higher education institution. It is also the first online, undergraduate programme accredited by the Psychological Society of Ireland. The ways in which student learning about data ethics and responsibilities was enhanced in the 2018-2019 academic year within both the final year research project module and the programme's online psychology laboratory. Reflections on the implications GDPR has had on psychology undergraduate and taught postgraduate research, in addition to the reflexive approach to teaching data ethics and responsibilities by programme staff will also be presented.

## **Submission ID**

57

# **Class Notebook as an alternative to Moodle – experiences from a first year engineering module**

## **Authors**

Mr. Thomas Gartlan - Dundalk Institute of Technology

## **Abstract**

In higher education, most module content is shared with students via a Virtual Learning Environment (VLE) such as Moodle. The VLE can be cumbersome for the lecturer in amalgamating and presenting the various material, given that material can change, links can break, and Moodle sites are only semi-permanent. For the student, it may not feel like a very natural or effective way to follow, or to engage with, the material.

In general, modules will have a variety of content such as PowerPoint presentations, online videos, links to relevant sites and pdf documents. Other examples specific to engineering modules, such as the author's first year module 'Embedded Systems', include electronic circuit diagrams, and programming code.

This module, for the most part, had previously been delivered using Microsoft PowerPoint presentations which were then uploaded to the dedicated Moodle site. Other resources and links were also provided on the Moodle site. In addition, students were strongly advised to keep a physical logbook.

Microsoft's application 'Class Notebook' was trialled, as perhaps a better medium for more seamlessly presenting information to students, as the tool is effectively a multimedia notebook. Within the notebook, there can be 'teacher only' sections, 'student only' sections and collaboration sections. This can foster collaboration between students as well as facilitating the keeping of an online notebook which allows information to be captured more easily by students.

This paper explains the operation of Class Notebook, discusses the experience of the author in using Class Notebook for the Embedded Systems module, considers the student experience and outlines the pros and cons relative to Moodle, as perceived by the author.

## **Submission ID**

58

# **Using simple digital technologies to produce a public communication: Students first experience of an open pedagogy assignment in an online undergraduate psychology module**

## **Authors**

Dr. James Brunton - Dublin City University

Dr. Megan Gaffney - Dublin City University

## **Abstract**

This presentation focuses on an open pedagogy assignment that was piloted within an undergraduate, developmental and educational psychology module in the 2018-2019 academic year. This is an intermediate level module on the DCU Connected BA in Humanities (Psychology Major) programme, which is the only open education/access, online, undergraduate psychology programme delivered by an Irish higher education institution, and is also the first online, undergraduate programme accredited by the Psychological Society of Ireland (PSI). Utilising an open pedagogy principle of empowering students to develop and openly share information they create, the module team enhanced the module's assessment design such that its final assignment changed from being an applied assignment whereby students produced a document that was framed as being a report for schools, which was not shared outside of the module, to one where they produce a public communication using relatively simple digital technologies. This public communication is designed to be of use in informing educators in post-primary schools, and to be openly shared after it is submitted. The assignment brief initially asks students to write a review of the literature on wellbeing and mental health in young people, specially in the context of the steps secondary schools can take to protect their students from risk and increase wellbeing. Secondly, students develop a communication, in the form of a digital information pamphlet or an infographic, that can be shared with the public, advising schools and educators on how to improve adolescent mental health and wellbeing. As they submit this assignment students can choose whether or not to grant permission for the open sharing of their digital pamphlet or infographic. A research study to evaluate the pilot, specifically student perceptions of using simple digital technologies to produce information for the community, rather than producing 'disposable assignments', is under way.

## **Submission ID**

59

# Digital media: transforming our methods of communication

## Authors

Ms. Emer Connolly - Athlone IT

## Abstract

Digital media has transformed how we communicate. Face-to-face meetings are often replaced by messaging on Facebook; Twitter is, at times, favoured over long pieces of written text; while lengthy pieces of text are facing competition from blogs and podcasts.

This dramatic shift has had a huge impact on society and in several careers, including media and journalism. That the internet is a valuable communication tool is recognised in this sector; virtually all job opportunities in journalism that are advertised focus on digital skills. Social media affects the process of journalism on every level (Ferrucci, 2018). Vital sources included in mainstream media articles are gathered through social media (Paulussen and Harder, 2014).

Research shows that higher level students utilise social media on a daily basis; up to 90% of students use Facebook (Irshad, 2012). But how exactly are these digital natives using social media? Is citizen journalism something to take seriously, or it is just for fun?

As an educator in media and journalism, I taught a module The Journalist's Web to second year journalism and media students in NUI Galway over a three-year period, 2016 – 2018. Professional social media was implemented into the module: professional Facebook, professional Twitter, setting up a LinkedIn account, recording podcasts and writing professional blogs.

The students were tasked with replacing their existing social media accounts with professional social media accounts. They were also required to write relevant posts, generate story ideas from social media and comment on other posts.

The results were mixed; excellent story ideas were formed; most students adopted a professional approach on Twitter, while several were reluctant to engage on LinkedIn.

I will discuss the results and based on the findings, I will make recommendations aimed at ensuring the benefits from such work have a lasting effect.

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Paulussen, S. and Harder, R. A. (2014) Social Media References in Newspapers, *Journalism Practice*, 8 (5), pp. 542 – 551.

**Submission ID**

60

# **A Collaborative Student-Centered Multimedia Microblogging Initiative during Work Placement Abroad**

## **Authors**

Ms. Danielle Martin - NUI Galway

## **Abstract**

This paper discusses the development of a student-centred micro-blogging initiative. As part of their Distance Learning ePortfolio a group of undergraduate business students learning German write and share multimedia entries in the target language during a year-long operative placement in the five-star luxury hotel industry in Germany.

The experiences and observations documented and shared by students online boost intercultural awareness and cultural immersion, ease homesickness and connect students located apart during their work placement year.

Engagement is high and the multimedia data collected forges new ideas for student-centred language learning activities which further celebrate the students' successes living, working and experiencing Germany. These activities lead to a number of different digital artefacts which students create and share with pre-placement students to help them prepare for job interview, and for the prospect and reality of working full-time in Germany.

## **Submission ID**

61

# **Tensions and paradoxes in technology-enhanced learning policy: the role of digitally fluent educators in transforming professional practice**

## **Authors**

Niall Watts - University College Dublin

## **Abstract**

Around the world, higher education is facing the challenges of a growing and diverse student body and the potential of digital technologies to transform their learning. Technology enhanced learning (TEL) can play a major role in addressing these challenges. Arguably, digital fluency has become a major concept in TEL research, as digitally fluent educators can develop and deploy active learning techniques at the highest cognitive levels.

This paper contributes to our understanding of how digital fluency can be facilitated and fostered by institutional and national policies by focusing on the relationship between digitally fluent educators and TEL policy in higher education in Ireland. This is examined through the theoretical lenses of innovation theories and communities of practice.

Drawing on recent doctoral work, this paper discusses a thematic analysis of semi-structured interviews with digitally fluent educators and of a national policy document, known as the Digital Roadmap (Phase 1) from the National Forum. Major similarities in their development of fluency were found among the research participants, but variations emerged between those whose career focused on TEL (TEL Career) and those who mainly used TEL as part of their instructional practice (TEL Practitioners). The analysis led to the identification of the tensions between professional identity and institutional culture and bottom-up and top-down initiatives as themes which can help us to interpret how digitally fluent academics engage (or otherwise) with institutional and sectoral policies.

The participants saw policy in broad terms ranging extending the Roadmap's emphasis on teaching and learning to include issues such as teaching awards, funding and technology management among others. While attitudes towards policy ranged from the visionary through enthusiasm to scepticism, those in the TEL Career group were more likely to be engaged with policy initiatives; whereas those in the TEL Practitioner group tended to be more sceptical. Such scepticism, however, did not diminish their enthusiasm for TEL. None of the participants wished to be seen as cheerleaders for technology or suggest that their instructional practices were better in any way.

The participants considered that policies which facilitated and fostered accredited courses and informal learning were the most sustainable means of developing digital fluency.

Institutions could help by promoting a culture of professional development which drew on reflection on the participants' own practice and encouraged academics to explore digital technologies beyond institutional systems. Thus, there could be many different roadmaps to reach the same goal. Such an approach could be considered as more transformative as, by helping academics to develop their own fluency in line with their professional identity, it could help institutions to increase their digital capacity.

An understanding of the engagement of digitally fluent educators with policy development is of particular value, as they could be considered as stakeholders in the development of digital capacity and the transformation of professional practice in Irish higher education. Thus, policy development should be directed at a variety of approaches to TEL development drawing on academics own interests and professional identity and allowing for variation between institutional cultures.

### **Submission ID**

63

# Supporting open education in Irish higher education

## Authors

Dr. Catherine Cronin - National Forum for the Enhancement of Teaching and Learning in Higher Education

Dr. Terry Maguire - National Forum for the Enhancement of Teaching and Learning in Higher Education

## Abstract

The National Forum for the Enhancement of Teaching and Learning in Higher Education actively supports open education principles, practices and policies in Irish higher education. We welcome broad involvement by staff and students and hope to foster discussion and feedback in this Connect & Converse session. The National Forum has been engaged since 2013 in seeking to build digital capacity to enhance teaching and learning in Irish higher education (National Forum, 2018). As outlined in the Digital Roadmap, one of the key priorities for success in building digital capacity is “to develop and implement open education principles and practices for Irish [higher] education, aligned with EU policy and emerging international practice” (National Forum, 2015a). Open educational resources (OER) and open educational practices (OEP) offer diverse ways of ‘opening up’ higher education to increase access to education, enhance teaching and learning, and facilitate lifelong learning. Yet numerous studies continue to show a low level of OER use as well as a lack of clarity about copyright, open licensing, and intellectual property rights within higher education, here in Ireland and globally (Allen & Seaman, 2016; Bossu, Bull, & Brown, 2012; Farrow et al, 2015; National Forum, 2015b; Walji & Hodgkinson-Williams, 2015). Realising the potential of open education within higher education requires a concerted and multifaceted approach, including a commitment to open education at programme and institutional levels in order to ensure long-term sustainability. Over the next two years, the National Forum will offer specific resources, training, expert advice, and professional development opportunities to: (i) enable and support individual open practice to enhance teaching and learning, and (ii) support the development of enabling policies for digital and open education. This Connect & Converse session will briefly outline these activities, share resources that have been developed, and invite discussion and feedback.

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## **Submission ID**

64

# Show don't tell! Using advanced technology & analytics to understand how students learn as a driver to enhance educational offerings & design

## Authors

Ms. Niamh Kelly - Hippo Educational Technologies LTD

## Abstract

International students now represent a significant proportion of the learner landscape at higher level yet their language range is significantly less than native English speakers. A reduced range of language impacts on comprehension, processing speeds & writing skills with difficulties made comparable to having dyslexia by recent studies (Trenkic & Warmington, 2019). This risk of failure, dropping out & a lower academic attainment plague this cohort, thus posing problems for the institutes based on the lack of understanding of student's specific difficulties. So what if advanced technologies, machine learning & AI, could be used to help institutes respond to the change in student demographics by gaging the linguistic learning behaviours & patterns through learner analytics? In conjunction with the Irish Research Scheme for Teaching, we conducted the first research study on the academic support available to a minority cohort at university in Ireland in 2018. Focusing on Saudi Arabian females, results demonstrated that the majority had issues with academic language, completing assignments & wanted universities to increase the academic support offered. Females completing PhDs were found to be struggling more than other students. In response to these findings & learner's problems, we developed advanced technology that goes deeper into understanding the problems students have as they interact with learning materials & academic resources. The institute can leverage in order to increase student engagement with their subject-specific vocabulary to enhance comprehension & writing skills. More importantly, collecting data on the linguistic challenges faced by learners allows the university to enhance their educational offering by creating learning materials focused on the known difficulties for certain cohorts to engage students before & during their programme to increase retention & academic attainment.

## References:

*Trenkic, D. & Warmington, M. (2019) 'Language & literacy skills of home & international university students: How different are they, and does it matter?' Bilingualism: Language & Cognition: 22 (2) 349- 365*

**Submission ID**

67

# **Students' digital literacy: skills self-assessment and support requirements**

## **Authors**

Ms. Assumpta Byrne - Athlone Institute of Technology

## **Abstract**

The aim of this MSc. research was to investigate how social science students view their digital literacy skills and explore what the academic library can do to support these students to develop their digital literacy skills.

The key objectives of the study were:

1. discover social science students' perceptions of their digital literacy skills in relation to their college work;
2. understand the expectations of lecturers with regards to the digital literacy skills of social science students;
3. identify current support for social science students from their lecturers and the library in relation to digital literacy skills;
4. ascertain students' support and training needs in relation to digital literacy, from the perspective of students, social science academics, and library staff.

## **Submission ID**

68

# Assessing Accessibility Automatically - The triple A report

## Authors

Dr. Mark Glynn - Dublin City University

Mr. Gavin Henrick - Learning Technology Services

Ms. Karen Holland - Learning Technology Services

Dr. Donal Fitzpatrick - Dublin City University

## Abstract

The United Nations Convention on the Rights of Persons with Disabilities (CRPD) specifies that “States shall take all necessary measures to ensure the full enjoyment by children with disabilities of all human rights and fundamental freedoms on an equal basis with other children”, and “ensure an inclusive education system at all levels and lifelong learning”. (articles 7 and 24).

While we encourage lecturers to expand access and increase flexibility by moving towards a more blended provision of their courses, they are specialists in their respective disciplines and not necessarily web developers or accessibility experts.

This paper describes the report that we have designed to help lecturers to evaluate the accessibility of their course pages within our virtual learning environment and specifically aligns with the theme enabling digital learning and teaching policies. From an administrative point of view, reports can be generated for entire programmes and schools which enables staff development units to target staff development workshops to address any accessibility issues.

Using existing open source libraries we built a reporting tool to define which checks were carried out, how they were carried out, how this data was stored and reported on at module, programme, and faculty level.

Web Content Accessibility Guidelines (WCAG 2.1) is developed in cooperation with individuals and organizations around the world, with a goal of providing a single shared standard for web content accessibility.\* A subset of the WCAG 2.1 level A guidelines was chosen for this study and twelve separate modules within a programme within analysed.

## Submission ID

69

# Does gamification work? - Engaging students with Research

## Methods

### Authors

Dr. Mark Glynn - Dublin City University

Dr. Louise Hopper - Dublin City University

Ms. Laura McGrady - Dublin City University

Dr. Lorraine Boran - Dublin City University

### Abstract

One of the most common goals of gamification in education is to increase student motivation and engagement. If gamification can be used to achieve these goals, and if these target outcomes positively affect academic performance, then simple logic suggests that gamification can result in better academic performance.

Several studies to date suggest that, on balance and with some caveats, gamification does indeed achieve the goals in our definition. Hamari, Koivisto, and Sarsa (2014) reviewed 24 empirical studies including 9 focused on education, and found that "the majority of the reviewed studies did yield positive effects/results". Dichev, C. & Dicheva (2017) however warn that "the educational benefits of gamification have not been scientifically confirmed yet."

Popular gamification mechanics that are available in learning management systems include: points, leaderboards, freedom to fail, challenges, badges, stories and restricted access. Rather than implement all of the gamification possibilities, potentially setting gamification targets too high and running the risk of getting bogged down in complexity at the planning stage. We implemented a phased approach of gamifying selected discrete activities within a module. This paper describes our phased approach within a first year undergraduate module - "Research methods" and the results of our evaluation of the initiative following feedback from students. This paper is directly aligned with both digital transformation and active learning strategies.

### Submission ID

70

# Teaching Holocaust through Film: Benefits and Challenges to Teaching about the Past in the Digital Age

## Authors

Dr. Ingrid Lewis - Dundalk Institute of Technology

## Abstract

According to historian Lawrence Baron (2005: 6), as the Holocaust recedes into the past, films acquire a significantly increasing role in forming the popular perceptions about the event. Nowadays, along with history books, magazines and the education received in school, an important source of information about the Holocaust is represented by television and cinema. Highly acclaimed films such as the American *Schindler's List* (1993) and many European ones such as *Life is Beautiful* (1997), *Train of Life* (1998), *The Pianist* (2002), *Rosenstrasse* (2003), *The Boy in the Striped Pyjamas* (2008) – to name but a few - provide unforgettable images that shape public knowledge about the Holocaust of people who did not experience it. In a similar vein, the scholar Anna Reading (2002: 100) acknowledges that films are a “key medium in our social inheritance of the history and memory of the Holocaust.”

This paper discusses the use and impact of digital media technologies, especially film, in teaching about the Holocaust. The methodology of this paper consists of reflective teaching pedagogy coupled with the findings of an ongoing primary research project based on surveys and in-depth interviews with students undertaking Holocaust education through the use of arts, media and film. The context for this paper is provided by my newly-designed module on *Holocaust Film and Popular Culture* which is delivered to third year students of Film and Television Production. This module examines a wide range of documentary and fictional films, along with music and art performances which have emerged from and in response to the Holocaust. In doing so, it intends to provide students with an important source of knowledge on the Holocaust and its aftermath, while acting as a catalyst for moral, ethical and formative thought.

Also, this paper evaluates the benefits of using film and digital technologies, and their impact on teaching about the Holocaust. As this paper explains, films play a crucial role in exploring and assimilating historical knowledge. Along with film, relevant and stimulating in a classroom context are testimony-based multimedia activities and resources such as the 3-D holograms of Holocaust survivors launched by the USC Shoah Foundation and the e-guide to the International Tracing System. Through the use of these emerging technologies and learning tools, history gains new dimensions and is inserted in the highly visual and digitally-savvy culture that characterises the life of young people today.

Without any doubt, such modern leaning tools provide new and engaging ways of teaching about the past. They stimulate student engagement, encourage active learning and foster thought-provoking discussions in the classroom. However, as this paper claims, along with the numerous benefits of incorporating film and new digital technologies when teaching about the Holocaust, there are also challenges associated with some of these tools. Because of their sensitive content, widespread use of fictionalised content and/or provocative narrative strategies, each one of these mediums need to be examined in their context, keeping in mind at all times the ethical issues that might occur.

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Reading, A. (2002). *The Social Inheritance of the Holocaust: Gender, Culture and Memory*, New York: Palgrave Macmillan.

### **Submission ID**

71

# Reinvigorating a Programme through Digital Transformation

## Authors

Ms. Noeleen O'Keeffe - Dublin City University

## Abstract

This presentation will describe the digital transformation of Philosophy modules on a Humanities programme delivered through online/distance learning. The DCU Connected Bachelor of Arts was originally launched in 1993 as a traditional distance learning correspondence course. Self-directed study materials for this course were designed to be printed and delivered to students in book format. Moving online in 2004, the heavy text-based format of the learning materials remained largely unchanged. Content was available in a PDF document that could be viewed online or downloaded and printed from the learning management system by the learner. Interaction with online resources relating to the study of Philosophy was minimal and separate to the core content.

The aim of this ongoing project is to redevelop and reinvigorate the Philosophy stream of the Humanities programme by harnessing the potential of digital learning. Each module will be designed/re-designed using a team-based approach, drawing on the expertise of a digital learning expert together with a number of academics in the field of Philosophy who will write and teach the material.

To date two from a total of six modules have been developed using an active, participatory and collaborative learning approach. Incorporating the use of multimedia and online resources, writers have created engaging learning materials, integrating formative activities into each section of content. Maintaining standards of excellence in teaching and learning and following instructional design best practices, the team efficiently and effectively developed and delivered these new modules and are currently working on their third.

This session will explore the process of redeveloping the modules, addressing the strengths and challenges of a team-based approach to learning design. It will also detail our strategy for ongoing review and refinement of the redeveloped modules.

## Submission ID

73

# Automated formative compliance checks for student submissions

## Authors

Dr. Peadar Grant - Dundalk Institute of Technology

## Abstract

Assessment tasks normally incorporate numerous constraints that the learner's work must satisfy, such as page limits, word limits and permitted file formats. Programming projects can be considerably more complex, and multi-file digital submissions are the norm.

The validity and benefit of imposing constraints on learners merits careful consideration by lecturing staff. Marking and providing feedback on work is considerably eased when submissions are complete, in the correct formats and comply with assessment guidelines. Expedited provision of feedback has a direct positive impact on its usefulness to the learner (Nicol and Macfarlane-Dick, 2006).

The author developed the FileCheck application to pre-screen student submissions for compliance with assessment requirements before grading. FileCheck could be loaded with a set of rules so that learners could pre-screen their own work before submitting it. This meant that students could repeatedly check that their work complied with requirements and could verify that remedial actions were correct.

Non-compliant submissions dropped to almost zero after deploying FileCheck, yet it remained outside the student's workflow until submission. The packaging and upload step was a barrier to using FileCheck as work on a project progressed, and was exacerbated by data caps on mobile broadband devices used by students. Recent work on incorporating automated testing as a formative assessment tool (Grant, 2017) suggested that an approach that integrated compliance checks into the daily project workflow could be of benefit to learners.

This semester, trials of local scripting as a replacement for FileCheck are underway. Students now download a PowerShell script and keep it in the same directory as their programming work. Recent Windows releases have included the PowerShell scripting environment as standard, and it is installed on MacOS and Linux also. As this new approach uses an industry-standard scripting platform, students also consolidate their knowledge of tools related to their field of study. The creation of the compliance checking scripts present a valuable teamwork opportunity within the classroom, enhancing the dialogue aspect of formative feedback (Gibbs and Simpson, 2004).

## Keywords

Automated feedback, formative assessment.

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## Submission ID

74

# Toxic coaching and professional development: How technology could help?

## Authors

Dr. Morteza Rezaei-Zadeh - University of Shahid Beheshti (Iran) / University of Limerick (Ireland)

## Abstract

Coaching is seen as one of the fundamental approaches for helping professionals to extend their workplace and personal competencies in order to achieve a better performance at the end. While coaching is a positive term usually used to show the intention and efforts of a manager to enhance his/her employees' competencies, it could be negatively implemented as well. Toxic coach is a coach who:

- Does not know how to coach; and/or
- Uses coaching as an instrument for pursuing his/her emotionally unhealthy and potentially harmful agenda; and/or
- Implements coaching to some people who are not ready to be a good coachee.

Based on this explanation, many of us are unconsciously coaching our employees in a toxic way even without being aware or intending of doing so. Therefore, it is important to move this unconscious toxic coaching to a conscious level first; and then, gradually purify it throughout the practice.

Furthermore, technology seems to play a constant increasing role in coaching throughout the last decade. A recent E-Coach Associates survey of 300 U.S. and European users of e-coaching found 97 per cent of respondents felt that e-coaching content was clear and easy to understand (Ahrend, Diamond,& Webber, 2010). Therefore, it is not surprising to expect technology to help for coping with toxic coaching as well. A study conducted by Rock et al.(2011) investigated how technology could help teachers with weak coaching skills to have a better coaching experience with their students. But there is a lack of exploring this phenomenon in an industrial setting. The current study seeks to identify how technology could help industry leaders to:

- Identify where and when they are toxically coaching others;
- Purify their coaching efforts to be refined from those toxicants.

A systematic literature review as well as a number of semi-structured interviews are implemented to explore the issues above. The findings of this study are supposed to

highlight the importance of conscious non-toxic coaching as well as the increasing role of technology in coaching industry. Tom McGee, vice president of Triple Creek Associates, predicts that coaching will move to the desktop by raising a digital native generation in our workplaces (Rossett & Marin, 2005). Therefore, it is unavoidable to actively search for smart implementation of technology in purifying coaching efforts in future industries. Theoretical and practical implications of the findings are also discussed.

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### **Submission ID**

75

# **Songs Across the Atlantic: Gaining International Perspectives Through TEL**

## **Authors**

Dr. Daithí Kearney - Dundalk Institute of Technology

Prof. Mahlon Grass - Lock Haven University

## **Abstract**

In 2017, undergraduate students from Lock Haven University, Pennsylvania, and Dundalk Institute of Technology, Ireland participated in a fully online, four-week course within modules at their home institutions that included an online collaboration facilitated by “D2L” software. After an initial synchronous ‘shared classroom’, during which students were introduced to each other and had the opportunity to ask questions of fellow students and their lecturers, the lecturers facilitated two asynchronous online lectures. Assessment for the course was by means of a moderated forum, an online quiz and collaborative project that sought to encourage students to share their knowledge and understanding of Irish musical cultures as experienced on both sides of the Atlantic. The partnership was recreated in 2018, albeit with slightly different structures.

The objective of this paper will be to demonstrate the ease by which a partnership can be created and implemented utilising TEL. The paper will outline some aspects of best practice that we have integrated into our approach and critically reflect on our experience of the project. It will provide insights into the use of online assessment practices and the technology platforms used. Of particular value in this instance is the potential of TEL to enhance learning and the internationalisation of the curriculum.

## **Submission ID**

76

# **#Edtechie18: Insights about the Irish Edtech Community from Twitter**

## **Authors**

Dr. Orna Farrell - Dublin City University

## **Abstract**

This paper reports on a project which explored the twitter data drawn from the Irish Learning Technology Edtech 2018 conference hashtag #Edtechie18. This research has two aims, firstly to explore tools for the analysis of twitter data and to explore what role the twitter back channel played in the conference.

The twitter data set was analysed using the tools: Tweepmap and Socioviz. The tools were used to map the Irish Edtech community and how the community coheres as a network as shown by the #Edtechie18 conference hashtag (Grandjean & Mauro, 2016). In addition, the hashtag data set was captured using the Ncapture add on for Nvivo 11 Pro. The hashtag data set was then analysed by theme following Braun & Clarke (2008) six step approach.

This paper will present insights from the social network analysis and the thematic analysis of the #Edtechie18 data set and give a practitioner perspective on the use of twitter analytical tools.

## **Submission ID**

78

# Students as co-designers - Using multimedia to capture student voice when designing a learning resource.

## Authors

Ms. Edel Gallagher - Young Social Innovators

## Abstract

This research aims to answer the question:

*How can student voice be incorporated into the development of a video resource that promotes student-led decision-making in an educational programme?*

Findings are based on an action-research based study within the Young Social Innovators (YSI) Senior Action programme. The YSI Senior Action programme promotes youth-led social innovation action to young people aged 15-18 years old. Teams of young people, guided by their educator, choose a social issue that they care about, and take innovative action(s) which could help tackle that issue. Social innovation is the 'the practice of using creativity to develop solutions which improve the wellbeing of people and society' (YSI, 2017).

Young Social Innovators, as an organisation promotes student-led decision making.

From the researcher's experience as Education & Communications Officer within YSI, the most successful social innovation projects are those that are youth-led. In response, the researcher is designing a video resource for educators to promote student-led decision making within the YSI programme. This research outlines the process of involving young people in the video's production.

## Methodology

This study adopts the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014). This approach involves the creation of a video artefact and provides the opportunity for the researcher to enquire, reflect upon and document the process of the artefact's creation. The content of the artefact is supported by a survey completed by 60 young people, and a focus group of 7 young people.

## Data Collection

The data collected includes; the researcher's self-reflections; findings from a survey of young people, focus group of 7 young people, and the video resource itself.

The focus group has been designed based on various models of youth participation including Lundy's Voice Model (Lundy, 2007). During the focus group young people involved have the option to contribute in written; audio or video format. These contributions will support the final video resource, which will be filmed and edited by the researcher using

Apple iMovie.

### **Findings**

The findings of the survey and focus group will be available end of April 2019.

### **Summary**

This research should be of interest to practitioners wanting to incorporate students' views into the design of learning resources. The researcher describes the process of hosting a student focus group that supports the design and creation of an educational video using Apple's iMovie.

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Crotty, Y. (2014). Promoting a creative educational entrepreneurial approach in higher education. *International Journal for Transformative Research*, 1(1), 75-100.

Lundy, L. (2007). 'Voice' Is Not Enough: Conceptualising Article 12 of the United Nations Convention on the Rights of the Child. *British Educational Research Journal*, 33(6), 927-942.

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### **Submission ID**

79

## Can Instagram help teenagers engage in Physical activity?

### Authors

Mr. David Cranny - Dundalk Institute of Technology

Mr. Ronan Marmion - DkIT

Mr. Francis O'Rourke - DkIT

Mr. James Kelly - DkIT

### Abstract

#### Abstract

The greatest challenge for sports policy is not getting children involved but maintaining the involvement of teenagers and young adults. Research consistently cites that young adolescent teenagers (especially females) are at the greatest risk of dropping out of physical activity (Lunn et al. 2013; Woods et al. 2010). Some of the main reasons cited are lack of enjoyment, or not willing to take part in team activities. To this end there is a move towards individual activities (mainly personal exercise).

This small scale pilot project run in partnership 3<sup>rd</sup> year students from the BA in Sports, Exercise & Enterprise in DKIT along with the Louth Local Sports Partnership (LLSP) seeks to engage teenage girls in physical activity by instructing participants in circuit based exercises over a 6 week period. Nutritional advice and healthy eating guidance was also provided to participants. This took place in a local girl's secondary school with 60 participants each week.

DKIT students created instructional videos and an Instagram page (see\_fitness\_dkit) which acted a repository for videos that the girls could access to re-do their sessions at home and for nutritional advice which was taken from safefood.eu.

A focus group indicated that the students' perceptions of exercise participation had changed positively post-project, as they feel their exercise knowledge and competency had improved greatly from the beginning of the program to the end. Students gave feedback saying that the use of Instagram as an exercise resource encouraged them to engage in exercise outside of the school environment, as they could look back on the exercises when in the gym during their own exercise sessions.

One student reported that being able to visually see the exercise on Instagram helped them perform certain exercise correctly in the absence of a 'trainer'. The students reported that having technology can be positive in helping engage them in exercise, and that Instagram was a good choice of social media to use as "more teenagers are on Instagram"

A student reported that the nutritional videos were good for giving ideas and felt that more nutritional videos would have a positive effect.

In relation to using social media to improve engagement in physical activity, one student suggested that "it would be good to expand to other social medias like Facebook" and display the exercise videos there.

Initial feedback from participants and teachers is positive. Students enjoyed the classes and they also engaged with the Instagram page. Many indicated that they watched the videos multiple times and made the meals which were suggested on the Instagram page.

Students liked that they could view and review the videos at a time and place of their choosing. Many indicated that they re-did their circuit sessions at home following the videos. Almost all participants had an Instagram account and quite a few chose to follow the page. The use of Instagram as an instructional video repository is a useful way to communicate with this target population.

The teachers liked the circuit activities which were age and stage appropriate, and the simple instructional videos that the DkIT students created. They plan to use this format in their school in the future.

DkIT along with the Louth LSP plan to roll this project out to other Secondary school in the academic year 2019-2020.

## **Submission ID**

80

# **I Like The Way You Work It: Using Graduate Videos to Support Students On Work Placement**

## **Authors**

Ms. Ciara O'Connor - Dundalk Institute of Technology

Ms. Liz Englishby - Dundalk Institute of Technology

## **Abstract**

Beginning work placement in darkest January can be daunting for our third year Digital Marketing & Public Relations undergraduates. Stepping from the safety of the classroom into unknown territory, they often don't know what to expect. Many juggle weekend jobs with the reality of coping with a long working day in an unfamiliar city. And, despite the immediacy of social media, they can often feel disconnected from their classmates.

To address this, we run a Recall Day early into the work placement to allow the students share their experiences with their peers. It's an opportunity for them to 'take a breath' in the middle of what can at times be an overwhelming five months and to make decisions about how they want to move forward with it. However, for some, the work placement experience does not completely meet their expectations and they may have concerns about returning to it.

This paper reports on an intervention which aimed to address such student concerns by having a number of our graduates create videos, where they tapped into their own experience of work placement. Talking directly to our undergraduates as though they were in the room, they remembered what it felt like to return for Recall Day and offered tips and advice that they felt could be of help.

Students liked the personal tone of the videos. They appreciated that our graduates understood how they were feeling because they had been through this process too. They felt a sense of relief that none of them had had the 'perfect' work placement experience. Finally, they felt inspired by the fact that these graduates were now working in areas that they wanted to be working in across Europe and beyond, and that their work placement experiences had, in ways unique to each graduate, helped get them there.

## **Submission ID**

81

# Converting anatomical case-based learning activities to an online environment; how do medical students respond?

## Authors

Dr. Jane Holland - RCSI

Prof. Teresa Pawlikowska - RCSI

## Abstract

Case-based learning plays a valuable role in enabling undergraduate medical students to apply their core anatomy knowledge to contextual clinical situations and facilitate the development of early diagnostic skills. However, finding time in busy anatomy small-group teaching activities to discuss these cases is a challenge, in addition to reinforcing core knowledge and facilitating dissection. Development of case-based eLearning activities is an alternative, but requires appropriate instructional design and implementation in order to ensure student use and engagement. Case-based eLearning activities, derived from existing cases discussed within our anatomy small group tutorials, were created using the "Moodle Lesson" activity, incorporating instructional design principles such as interactivity, reinforcement and feedback. We then examined students' usage, preferences and perceptions regarding these aligned case-based activities with regard to enjoyment, usefulness and feedback. Students rated both case-based learning formats favorably, specifically commenting on aspects such as interactivity, integrated feedback and the clarity of the content and explanations provided. While students rated the eLearning resource higher than the small group discussions, more students participated in these discussions that completed the online versions. Our data also suggest that those students who do complete cases online tend to do so towards the end of the semester as a revision aide, instead of concurrently, when learning the corresponding content via lectures or anatomy room tutorials. Case-based learning is a useful adjunct to anatomy teaching in either small group discussions, but also transfer well to an adaptive online tutorial. However, introducing these as optional resources or activities does mean that some students will omit them from their study, and so consideration should be made from the outset as to whether the information contained within should be core, or complementary, to the curriculum.

## Submission ID

82

# Exploring how students find and filter their use of online learning resources and videos: insights from embryology.

## Authors

Dr. Jane Holland - RCSI

Prof. Teresa Pawlikowska - RCSI

## Abstract

While embryology has always been considered a conceptually challenging component of medical curricula, the time and opportunities for small group teaching in this area are present in few institutions, often as a result of increasing class sizes. How then do students supplement their lectures in order to ask and answer questions, or delve into concepts in detail? Resources such as animations and videos have been reported to be effective for learning embryology, and may be more useful than standard texts or 2-dimensional images in assisting students to understand what is essentially 3, or arguably even 4-dimensional anatomy, visualizing and conceptualizing how embryonic structures alter, both spatially and over time, but how do students find and filter these?

First-year medical students were surveyed with respect to the cardiac embryology component of their course, and asked their opinions regarding the clinical relevance of this content, and the resources they used to enhance learning. The majority of students held a positive view of the role and relevance of embryology both within medical education and for their future clinical practice, suggesting they are motivated and engaged with this content, both essential elements with regard to self-regulated learning. Nearly half of students agreed that videos were helpful for their learning, mirroring previous studies which have shown that animations and videos are a useful medium for teaching embryological concepts, aiding student comprehension and both short and long-term retention. However, when seeking videos or resources, it emerged that students tended to Google information in preference to accessing online resources (or textbooks) specifically recommended by their instructor. Furthermore, "*accuracy of information*" was lowest on the list of priorities when choosing what content to review, with priority being assigned to the most recently updated information, with students presumably utilizing this parameter as an assumed proxy for accuracy. While all students seemed reluctant to contact a staff member with questions, those with less proficiency in English were less likely to approach faculty for assistance.

The reliance on potentially unreliable or inaccurate internet searches reveals a need to teach students to filter this plethora of information carefully. Whilst acknowledging students as adult learners, they also need to be taught critical appraisal of learning resources, especially

in the complex online environment, and design of their bespoke institutional virtual learning environment should ensure that recommended materials are easy to identify, and access.

**Submission ID**

83

# Using WhatsApp as a communication tool in an academic module.

## Authors

Mr. David Cranny - Dundalk Institute of Technology

## Abstract

Students are naturally engaging with technology and Social media platforms in their everyday lives outside of the 3<sup>rd</sup> level environment. It comes as no surprise that the use of technology is also seen to be '*impacting significantly on education*' (HEA, 2009, p.2). The use of technology throughout people's lives and particularly in college environments means that learners expect to encounter technology; technology is no longer innately innovative or new (Gordon, 2014).

WhatsApp has become the "communication portal" for social networking, which has rapidly transformed the way people communicate (Susilo 2014). Students cited a strong preference to use WhatsApp as a communication tool over traditional email. The challenge of getting students to engage with module communication (email) is becoming more of a problem. This small scale pilot project ran over 11 weeks was developed in consultation with 3rd year students from the BA in Sport, Exercise and Enterprise who were undertaking a collaborative Sports Development project.

Students were provided with Digital Citizenship Training at the start of Semester 2 2018-2019. The objectives of the training were to encourage online interactions that respect the dignity of all others; to raise the consciousness of class members as to what may constitute acceptable and unacceptable online behaviours, and to ensure that their class is aware of the procedures that could be applied in the event of inappropriate online usage and behaviour (Cooney et al. 2018). As a result of this training the students set their own parameters relating to appropriate and inappropriate correspondence essentially taking ownership of their own learning.

Students voluntarily set up a WhatsApp group with all communication in relation to the module going through WhatsApp (correspondence also being communicated through Moodle forum if anyone didn't wish to sign up).

Students then were surveyed anonymously after completion of the module. Students overwhelmingly preferred to use WhatsApp over email. Many cited the immediacy in communicating messages; the ease of access to these messages via their phones, and speed in replying to messages which kept them up to date. They liked that they set the rules for communicating within this group. Some cited message overload though being in many WhatsApp groups as a downfall.

Clear rules need to be established about what is acceptable and non-acceptable communication. These rules are best established if students are given control to set these parameters with guidance.

The use of WhatsApp as a group management tool on a collaborative project has some benefits. It allows lecturers to put up announcements that students can see quickly, therefore facilitating better engagement with the module. From a student perspective it enables them to share ideas and resources, and can facilitate online discussions.

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## **Submission ID**

84

## BetterLecturers.ie | The new home for developing best practice

### Authors

Ms. Karen Buckley - Dublin City University

### Abstract

BetterLecturers.ie is for those who learn, teach and lead in Higher Education to share examples of good practice, connect with colleagues and learn about innovative practice in teaching, learning and assessment. The Teaching Enhancement Unit in Dublin City University are pleased to share our new website, BetterLecturers.ie with EdTech 2019.

The Teaching Enhancement Unit aims to foster excellence in practice through leadership in teaching, the provision of professional development opportunities for staff, and the scholarship of teaching and learning. DCU is currently involved in a number of projects which seek to enhance the quality of teaching and learning; informed by research, supported by policies, and helping to develop mechanisms and tools across higher education institutions.

BetterLecturers.ie aims to celebrate teaching, learning and assessment practices with all higher educators in an effort to disseminate the work we do across our institutions nationally, and internationally.

What type of cases are we looking for?

We are inviting individual faculty or module/programme teams who attend EdTech 2019 to submit case studies highlighting their strategies, practices and achievements in teaching, learning and/or assessment. The types of case studies which have been showcased include, for example:

Active learning strategies and pedagogies including; experiential and inquiry based learning approaches; playful and game-based learning and project and problem based learning  
Assessment design that supports student's creativity, problem-solving and reflection  
Authentic assessments which reflect current and contemporary practices to promote academic integrity

Designing assessments which support student learning through provision of detailed guidance (e.g. assessments brief/rubrics) which promote academic integrity

Design of learning spaces (both physical and digital)

Enabling digital learning and teaching policies

Innovative professional development initiatives to overcome a teaching, learning/assessment problem you have faced

During this Connect & Converse session at EdTech 2019, we would like to showcase BetterLecturers.ie and allow for participants to submit a case study to disseminate great practice in Teaching, Learning and/or Assessment in Higher Education.

**Submission ID**

85

# Exploring digital practice: a case study with Chinese Higher Education academics

## Authors

Mrs. Geraldine McDermott - Athlone IT

Mrs. Catherine O'Donoghue - Athlone Institute of Technology

## Abstract

In 2018, Athlone Institute of Technology hosted a group of visiting academics from China for a short educational visit. As part of this, the Learning and Teaching Unit was asked to develop a specific programme on teaching practices in higher education. This was well received, and in 2019, a second group of academics spent a semester with us.

One focus of our programme was to offer opportunities for the participants to explore the use of technology as a teaching tool. Chinese academics have access to a range of technologies. Several projects such as Rain Classroom and other smart classroom technologies (Li & Song, 2018) are reported to be changing the state of play in university classrooms. Research reports that Chinese classrooms are integrating various technologies into the classroom, including multimedia resources such as audio-video material, as well as interactive whiteboards (Cao, 2015). Micro-teaching, defined as creating short videos resources as teaching and learning activities, including MOOCs are also employed (Hu, 2014, cited by Cao, 2015).

Our participants reported less integration of technology in their practice, restricted by large class sizes and facilities in some university as well as limitations placed on them by their university faculties. After establishing the extent our participants used technology in teaching, we integrated a range of interactive technologies into class sessions. Participants evaluated the different technologies and discussed possible applications into their own practice.

This presentation aims to showcase the experiences and reactions of the participants to this activity. The result of this interaction was very positive, with participants keen to integrate similar technology-based activities into their own practice on return to China. Following on from this, AIT Learning and Teaching Unit will continue to research and explore positive teaching exchanges with our colleagues in China.

## References

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## Submission ID

86

# Scaffolding self and peer assessment in online learning environments

## Authors

Dr. Pauline Rooney - Technological University Dublin

## Abstract

It is now well recognised that one of the core purposes of assessment is to allow students to self-regulate and critically evaluate their own work – also termed “Assessment AS learning”. As research has shown, empowering students to self-regulate and to self-assess, whereby students evaluate and monitor their own work and adjust their actions accordingly, can lead to marked improvements in academic achievement and autonomy. Within educational programmes, self and peer assessment is facilitated through a variety of assessment strategies which promote active participation, collaboration, dialogue and critical evaluation. Within online learning environments, new opportunities for facilitating self and peer assessment have also emerged.

Using the Brightspace virtual learning environment, this presentation describes how self and peer assessment was scaffolded within an online professional development course for academics. Within a framework of thematically focused continuous assessments, tasks were designed to:

- facilitate self and peer review against pre-defined assessment criteria (rubrics)
- promote active dialogue between staff, students and their peers based on weekly feedback
- encourage the collaborative sharing of ideas and knowledge using a combination of individual and group tasks with a strong element of peer feedback and evaluation throughout.

With a focus on assessment design strategies, this presentation will provide practical guidance and tips on how to design assessments and activities which scaffold and empower students to self-regulate and critically evaluate their own work. While the focus is on online course delivery, the strategies that will be presented and discussed could be also replicated within a blended learning environment (i.e. where some element of the course is taught in a face-to-face environment).

## Submission ID

88

# Developing Data Literacy for Data Enabled Student Success

## Authors

Dr. Pauline Rooney - Technological University Dublin

Dr. Gordon Cooke - Technological University Dublin

Dr. Catherine Deegan - Technological University Dublin

Dr. James Doody - Technological University Dublin

Dr. Carina Ginty - Galway Mayo Institute of Technology

Dr. Kevin O'Rourke - Technological University Dublin

Dr. Phelim Murnion - Galway Mayo Institute of Technology

Dr. Geraldine Gray - Technological University Dublin

## Abstract

Tapping in to the potential benefits of learning analytics requires staff and students in higher education to be proficient in data literacy. This poster reports on a project to review and identify professional development needs for learning analytics, with an emphasis on the effective use of learning data to promote student success.

We report on the development of an evidence based strategy and implementation plan that addresses the skills gaps and professional development requirements of students and higher education staff who teach or lead teaching and learning enhancement. The outputs will enable upskilling of staff and also facilitate students to be more aware, and make greater use of, their own data 'footprint'. This facilitates the development of important life skills such as self-regulation and self actualisation. In the broader institutional context, this should have the resulting impact of more widespread adoption of evidence based decisions that support student success initiatives.

## Submission ID

89

# Start small, think big! Building a local eportfolio professional learning network

## Authors

Dr. Julie Uí Choistealbha - Marino Institute of Education

Ms. Lisa Donaldson - Dublin City University

Ms. Karen Buckley - Dublin City University

Dr. Orna Farrell - Dublin City University

## Abstract

The population of Ireland is small. The number of those working in HEIs is smaller and the number of those engaged with eportfolios is smaller still. However, the eportfolio community in Ireland is growing. This session will explore practical ways to harness local interest in eportfolios to develop professional learning networks (PLNS).

This interactive session will present the *eportfolio Ireland* group as a PLN. Global exemplars of eportfolio PLNS will be shared. The learning from the development of the *ePortfolio Ireland* PLN will be utilised to provide simple steps for session participants to follow to set up their own eportfolio PLN in their home institution.

A PLN is simply described as a group of people and resources that support ongoing learning (Trust, Krutka, and Carpenter (2016); Tobin (1998)). They are broad, multi-faceted communities of practice which are “uniquely personalized, complex systems of interactions consisting of people, resources and digital tools that support ongoing learning and professional growth” (Trust et al. 2016, 28). PLNs hold individual and collective capacity building for members of the network (Stoll et al. 2006).

This session will explore the developmental stages and characteristics of the *ePortfolio Ireland* PLN drawing on Du Four's (2004) work on *preinitiation, initiation, developing* and *sustaining* stages and the characteristics of purpose, function and capability (Owen 2014).

The session will conclude with participants engaging in an interactive action planning exercise where they will chart the purpose, function and potential capability of an eportfolio PLN in their institution. Participants will share ideas for branding, individual and shared research events, funding streams, developing an online presence and promoting membership.

This session will benefit participants by providing a mechanism for sharing good practice in eportfolios, developing partnerships and promoting collegial interactions at a local level. The processes and practices of developing an eportfolio PLN are transferable to many other contexts and types of learning networks.

## References

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## Submission ID

90

# **“Reducing the bottleneck effect” - a five year study in increasing student engagement on Massive Open Online Courses**

## **Authors**

Mr. Steve Collender - Law Society of Ireland

Dr. Freda Grealy - Law Society of Ireland

## **Abstract**

The Law Society Diploma Centre offers a range of postgraduate courses to lawyers and other suitably qualified professionals. Since 2014 the Diploma Centre has delivered a free online course in a discrete legal topic annually such as data protection, privacy, aviation and sport law. These Massive Open Online Courses (MOOCs) are open to all and specifically designed for large numbers to participate. To-date, the Diploma Centre’s MOOCs have attracted over 10,000 participants from over 70 countries since they first launched in 2014.

MOOCs are commonly associated with a bottleneck of student activity in the initial phase, followed by a steep drop-off in engagement thereafter. With over 94 percent of the learners in Massive Open Online Courses never finishing their course[1], we sought to deliver a programme which would keep students engaged and follow through to completion. This presentation will chart our experience in delivering a MOOC course over five years, discussing how our programme fits within the overall MOOC ecosystem (cMOOCs, xMOOCs), and how strategies adopted in terms of course design and content delivery have facilitated student engagement.

A statistical analysis was conducted looking at the profile of registrants under the headings of age, location, gender and education level, and trends in student retention and drop-out are studied. Close attention to the user experience also feeds into the instructional design process, in an attempt to increase student engagement levels.

An important discovery in our research is the consistency of student engagement week on week. Although a bottleneck of student activity in the early stages may be unavoidable, the level of engaged learners has remained relatively consistent throughout the later phases of the programme. Student activity is determined through the viewing of lecture videos, engagement with peers on the discussion forums and undertaking quiz assessments, and many students have returned to undertake the MOOC each year or opted to invest in paid certificate and diploma courses afterwards.

[1] Massachusetts Institute of Technology (2017) 'Study of MOOCs offers insights into online learner engagement and behavior', MIT Office of Digital Learning. Available at: <https://blog.edx.org/study-moocs-offers-insights-online-learner-engagement-behavior> (Accessed 29 August 2018)

## **Submission ID**

91

## **The Energy Ambassadors. A gamified, interactive, energy information programme for communities.**

### **Authors**

Mr. Gerard Reaburn - Dundalk Institute of Technology

Dr. Paul MacArtain - Dundalk Institute of Technology

Mr. Raymond Byrne - Dundalk Institute of Technology

Prof. Neil J Hewitt - Ulster University

### **Abstract**

The Energy Ambassadors programme was developed with a community development association in Dunleer, a small town in Co. Louth. The educational content was overseen by the local Dundalk Institute of Technology. Dunleer, part of the sustainable energy community network, wanted to provide a programme of unbiased professional information, suitable for all ages and knowledge level, in any community seeking assistance, on energy and associated themes. This was to be delivered through this community to other communities where they could share their learned experiences. This was a social awareness initiative and also an energy awareness and capacity building process. These were some of the pillars of the communities wider energy project as a Sustainable Energy Community (SEC).

The Energy Ambassadors programme is delivered through a facilitator led, highly interactive, seventy minute session, that engages people in an enjoyable learning experience. The goal of the programme is to allow participants to make informed decisions on their future energy use and technology solutions (e.g. storage) and to set the foundations for attitude and behaviour change (community acceptance). An added dimension is that anonymous data is captured to measure effectiveness of the delivery and for further research with the academic partners.

Delivery is carried out by spoken word, use of props, slides, photos, case studies, videos and an interactive quiz. The attendees are each given a touch screen device and anonymously log in through the centralised router (no Wi-Fi needed). During the delivery questions are asked in two gamified sections, one on the participants own energy habits and the second in quiz form where multiple choice options are given. This gamification of the learning incentivises people to actively listen and participate. It is kept intentionally simple to reduce the risk of people tuning out. At the end of the delivery each participant receives their own personal energy score privately but everyone can see the quiz leader board and the winning ambassador is announced.

Data has been collected from over 200 anonymous subjects and it appears that trends are identifiable in the data with respect to attitudes to energy use, intended behaviour change, concerns regarding energy poverty, trends in energy reliance linked to rural location and other insights.

**Keywords**-Gamification, interactive, learning, behaviour change, community,

### **Submission ID**

92

## **A collaborative journey: Enabling digital learning**

### **Authors**

Ms. Ann Reynolds - Dundalk Institute of Technology

Mr. Joe Treacy - Dundalk Institute of Technology

Dr. Lisa Kerr - Athlone Institute of Technology

Ms. Denise Kennedy - Athlone Institute of Technology

Ms. Ann-Marie Fitzpatrick - Athlone Institute of Technology

Ms. Barbara Grouden - Athlone Institute of Technology

Ms. Tonya Phillips - Athlone Institute of Technology

### **Abstract**

In an era of greater accountability for professional practice, coupled with changes in demographics and disease epidemiology, there is a need for a shift in educational focus towards a competency-based system which supports students in the development and mastery of clinical skills. Evidence shows that clinical skills acquired in laboratory settings can transfer directly to improved patient care practices and better patient outcomes (McGaghie, 2014). Furthermore, demand for skills competency is reiterated by the Nursing and Midwifery Board of Ireland Undergraduate Nurse Registration Programmes Standards and Requirements (NMBI 2018).

Here, we report on the collaborative process between academic and programme support staff in two Institutes of Technology as part of the Technology Enhanced Assessment Methods (TEAM) in Science and Health Practical Settings, a 2-year Irish multi-institution enhancement project funded by the National Forum for the Enhancement of Teaching and Learning in Higher Education. This project aimed (i) develop a framework for applying the principles of good assessment and feedback to practical assessment, (ii) use digital technologies to enhance practical assessment and (iii) facilitate dialogue among stakeholders about what it is we want students to learn in practical classes and how our assessment can facilitate this.

In this presentation, we will discuss the design, creation and initial trialling of video resources. The collaborative journey is outlined with particular focus on the benefits of a cross campus partnership approach and the challenges encountered. A discourse on the processes used to maximise the benefits and offset the challenges working cross campuses to enable digital learning will be expounded.

## References

McGaghie, W., Issenberg, B., Barsuk, J. and Wayne, D. B. (2014). A critical review of simulation-based mastery learning with translational outcomes. *Medical Education*. 48: 375–385. Available from: [https://www.researchgate.net/publication/260643493\\_A\\_critical\\_review\\_of\\_simulation-based\\_mastery\\_learning\\_with\\_translational\\_outcomes](https://www.researchgate.net/publication/260643493_A_critical_review_of_simulation-based_mastery_learning_with_translational_outcomes) [accessed on 1/4/19].

Nursing and Midwifery Board of Ireland (2018) *Undergraduate Nurse Registration Programmes Standards and Requirements*. Dublin: Nursing and Midwifery Board of Ireland.

## Submission ID

94

## Sharing STEAM through TEL

### Authors

Dr. Daithí Kearney - Dundalk Institute of Technology  
Dr. Adèle Commins - Dundalk Institute of Technology  
Dr. Ronan Lynch - Dundalk Institute of Technology  
Mr. Richard Price - Dundalk Institute of Technology  
Ms. Ciara Brannigan - Dundalk Institute of Technology  
Ms. Aoibh Collier - Dundalk Institute of Technology  
Mr. Lee Harding - Dundalk Institute of Technology  
Mr. Kevin McGinley - Dundalk Institute of Technology  
Mr. Calvin McManus - Dundalk Institute of Technology  
Ms. Jane Meehan - Dundalk Institute of Technology  
Mr. Miceál Mullen - Dundalk Institute of Technology  
Mr. Conor Walsh - Dundalk Institute of Technology  
Mr. Michael Waters - Junior Einsteins  
Mr. Odhrán O'Brien - Dundalk Institute of Technology

### Abstract

Dundalk Institute of Technology (DkIT) are a partner in an Erasmus+ funded programme Special Agents for Change in Education (SPACE). This presentation outlines three of the intellectual outputs that engage with Technology Enhanced Learning, developed over the three years of the programme, 2016-2019. The international team, with students from DkIT and their partner universities in Belgium and Norway, as well as partners in Holland, Portugal and Wales, sought to develop creative ways to engage children in STEAM education emphasising how the arts can be used to encourage engagement in STEM subjects.

The first intellectual output to be discussed is the use of a Virtual Learning Environment to facilitate international collaboration and create a digital repository of resources. A second intellectual output was the development of a music app, NepTune, which was based on ideas developed by project teams using sound and science. The final intellectual output is a website that will become a point of reference for teachers and ensure that the project continues beyond the end of the programme through the use of technology. This paper will

outline each of the intellectual outputs developed in this project and describe how the students collaborated in their international and multidisciplinary teams to create resources or future use in the classroom. It will also indicate future developments including accessibility to the resources and technology developed.

### **Submission ID**

96

## **Tales of how universities are improving accessibility and digital inclusion to meet the EU Directive.**

### **Authors**

Ms. Gillian Fielding - Blackboard

### **Abstract**

This session will share some stories from universities and colleges to outline what they are doing (in practice and with policies) to improve accessibility and inclusion, and to meet the requirements of the EU Directive (Public Sector Bodies Accessibility Regulations 2018). The speaker, Gillian Fielding, one of Blackboard's Client Success Advocates will share some of stories she has gathered from the field when working with various many customers including some, hot off the press, from Blackboard's April-May "Ally on Tour" initiative.

### **Submission ID**

98

# Digital Education for Lesser Skilled Adult Learners: New Opportunity for Progression

## Authors

Ms. Mary Keyes - Irish Rural Link

Mr. Michael kenny - Maynooth University

Ms. Tara Farrell - Longford Women's Link

## Abstract

This presentation brings together the experience and expertise of three organisations working together in a European ERASMUS+ project DELSA. The project arose from the experience of Irish Rural Links' ongoing work bringing foundational digital learning to over 6,000 adult learners in rural Ireland over 4 years; the ongoing experience of Longford Womens Link of seeking to empower women in remote rural locations; and the work of the Department of Adult and Community Education in Maynooth University – the only academic adult education department in Ireland.

One third of adults in Ireland have no experience with computers and lack basic digital skills (CSO, 2012). This presentation will tell the story of how gaining digital skills and fundamentals empowered, transformed and launched lower skilled adult learners into new development opportunities. The presentation will highlight, based on the experience of the Getting Citizens Online Programme (<https://www.irishrurallink.ie/getting-citizens-online/>), the challenges of engaging the learner who believes they have no ability to gain digital skills. It will describe the personal and community impact for these learners of gaining digital skills. It will case-study the economic benefit, the community gain, the ongoing digital skill development, and the possibilities by providing digital skills. The presentation will explore the potential of digital skills to enable people to develop their creative possibilities through their digital expression, whatever that is for them.

Each of the presenters are actively involved in digital education for adult learners. Irish rural Link and Longford Womens Link have a diverse rural adult and community membership that reflects the needs and challenges in bringing digital learning to remote rural learners. Through the Getting Citizens Online Programme the presenters will bring a sample of stories from learners. The presenters will reflect on how adult learning through digital engagement can empower remote communities and open a new way of delivering connectivity, services, and opportunities.

**Submission ID**

99

# Developing a Digital Repository of Adult Educator Tools: The CREATE Project

## Authors

Ms. Eva Heesen - Agentur für Erwachsenen- und Weiterbildung

Mr. Michael kenny - Maynooth University

Ms. Roberta Albertazzi - Internet Web Solutions

## Abstract

Adult learning benefits individuals, groups, and society. Adults that continue to learn earn more, are more employable, enjoy better health, and are more actively engaged citizens. Adult learning improves innovation, productivity, profitability and workforce motivation in workplaces thereby increasing economic competitiveness and growth. Adult learning strengthens democracy, citizenship, engagement and participation. While education and training systems in Europe offer citizens great learning opportunities throughout their lives the percentage participation remains inadequate. Too few adults have access to adult learning and the EU is far from attaining its benchmark of 15% adult participation in learning by 2020.

Adult basic skills education requires adult-specific teaching methods and high quality curricula with authentic relevant teaching materials linked to adults' everyday lives. While the EU Commission report "Mind the Gap: Education Inequality across EU Regions" (2012) stressed the challenge of "... big regional disparities in terms of adult education opportunities and achievements across and within EU regions", the open educational resource (OER) revolution' promised to make high quality educational resources available to anyone, anytime, anywhere, and at a relatively low cost. However, the reality is that access to adult education resource materials is still not locatable in one location.

The CREATE (Co-operation for innovation and the exchange of good practices) project is an ERASMUS+ partnership of nine partners from eight Countries (BE, CZ, DE, ES, HR, IE, IT, PL). CREATE conducted a scoping exercise to identify tools commonly or widely used by adult educators to plan, implement, and review their adult education programmes. The CREATE project OER platform seeks to make these tools freely available to adult education policy makers and practioners. This presentation will present the findings of the scoping exercise and demonstrate the CREATE OER platform possibility for making the tools available to the wider adult education community.

**Submission ID**

100

# Using Articulate Rise 360 to create rapid scenario-based e-learning in a nursing context

## Authors

Ms. Edel Gavan - Hibernia College

## Abstract

E-learning practitioners are continually searching for rapid e-learning authoring tools to design and develop content that provides a variety of learning experiences. Scenario-based e-learning (SBEL) challenges learners to apply knowledge to real-world scenarios, providing a unique learning experience. It provides 'a preplanned guided inductive learning environment designed to accelerate expertise in which the learner assumes the role of an actor responding to a work-realistic assignment or challenge, which in turn responds to reflect the learner's choices' (Clark and Mayer, 2003, p.5). Previously, SBEL involved expensive custom development, but new authoring tools such as Articulate Rise 360 have changed this.

This presentation will share a practitioner's experience of using Rise 360 to create SBEL in a nursing programme. In this branched scenario, the learner assumes the role of a nursing student visiting an older person called Ruth Anne. 'Using authentic problems to drive learning can build critical thinking skills, accelerate expertise, and promote better transfer and long-term learning' (Colvin Clark, 2016, p.55). The learner is given background information and listens to audio clips of Ruth Anne speaking. Based on these audio clips, the learner needs to choose options to help reduce Ruth Anne's risk of harm from falling. This provides the learner with opportunities to try, fail or succeed, and experience results of errors in a safe environment.

Clark and Mayer (2012) identified important feedback parameters. These include feedback that is specific, the type of feedback (instructional and intrinsic), and the frequency and focus of this feedback. This branched scenario gives due consideration to each of these parameters.

The session will explore why this specific technology was chosen, its strengths and weaknesses, and pitfalls to watch out for when using Rise 360. In addition, this session will provide opportunities to explore Rise 360 on mobile devices and share best practice.

## References:

Articulate Global (2019) *Rise Articulate 360 FAQs: Rise 360*. Available at: <https://articulate.com/support/article/Articulate-360-FAQs-Rise#what-is-rise> (Accessed: 1 April 2019).

Clark, R.C. (2016) 'Accelerate expertise with scenario-based e-learning', *Talent Development*, 70(4), pp.50–55.

Clark, R. C. and Mayer, R.E. (2012) *Scenario-based e-learning: Evidence-based guidelines for online workforce learning*. Center for Creative Leadership.

**Submission ID**

101

# Exploring the challenges of managing blended learning courses

## Authors

Dr. Tony Murphy - Dublin Business School

## Abstract

There is an argument to suggest that the use of digital technology challenges higher education institutes (HEIs) to think about how and why they function the way they do; “the virtual university is . . . the university made concrete?” (Cornford, 2000). How does that argument play out with the processes that go into managing a blended learning course? Are the typical processes behind managing the development and delivery of a course challenged once that course goes blended? This presentation reports on a study that explored the challenges of managing the development and delivery of blended learning courses in three higher education institutes (HEIs) in Ireland. Taking a multiple case study approach and utilising Cultural Historical Activity Theory (CHAT), more specifically Engeström’s (2015) activity systems model (ASM), the research sought to highlight these challenges by identifying contradictions in the activity systems for developing and delivering blended learning in each of the three HEIs. The presentation outlines how the three cases were examined by analysing interviews and official documentation to construct activity systems for the development and delivery of blended learning for each case. The outcome was three quite different activity systems revealing three quite different management approaches. The presentation also shows how Engeström’s (2015) ASM was used to highlight the different contradictions identified in each of the three different activity systems. These contradictions are used to highlight the challenges associated with each of the three different approaches adopted to managing blended learning course development and delivery. The findings of the study can inform the future management of blended learning courses by showing what types of challenges can emerge depending on which management approach is adopted. The presentation also discusses how exploring these activity systems, and their corresponding contradictions, contributes to the argument that digital technology, in this case blended learning, has had an impact on how HEIs function and manage processes, especially within the context of the managerial-collegiality debate and the emergence of what has been termed neo-collegiality in higher education in Ireland.

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Engeström, Y. (2015). *Learning by Expanding: An Activity-Theoretical Approach to Developmental Research* (2nd ed.). New York: Cambridge University Press. <https://doi-org.ezproxy.lancs.ac.uk/10.1017/CBO9781139814744>

**Submission ID**

102

## Online Programme Team: Roles, Induction and Lessons Learned

### Authors

Mr. Peter Windle - Waterford Institute of Technology

Mr. Colm Dunphy - Waterford Institute of Technology

### Abstract

In traditional face to face courses, the programme team has had a very strong focus on curriculum with just the subject matter experts and programme leader. The central programme team is typically supported by the School or Department's administration staff and the institution's central supports such as Computer Services, Educational/Audio Visual Services and/or the unit tasked with supporting Technology Enhanced Learning as well as the Lifelong Learning services. These central services support the entire student population of the college.

Experience in developing blended and online programmes has led us to question the roles and responsibilities of the traditional central support services. When developing discrete online programmes, a number of overlaps and gaps have emerged which led us to ask; what is the ideal programme team for online courses?

Now in our second intake of our pilot programme "Higher Diploma in Computer Science" our programme team is evolving and growing. In this pilot programme we have put a strong focus on creating a rich and consistent student experience. To maintain these goals and standards while growing student numbers requires careful balance and consideration. We have found that the planning, content creation, relationship building and delivery of a successful online programme differs somewhat from traditional programmes.

Focus, flexibility, engagement, leadership and communication are even more important online as problems can be manifest quicker than in traditional face to face delivery. Programme leaders and lecturers need to work in-step with the technical/administration/support teams. An online programme is ideally free from restrictions of traditional programme timelines, academic calendars or defined class times. We have found the traditional role of the lecturer as subject matter expert, mentor, tutor, pastoral care and student support has evolved and challenges have appeared in replicating these supports online. The duties and roles for running an online programme are continually evolving. New roles are required to maintain the student experience and increase student engagement. Resources are required to fill these new roles. Formal onboarding is essential for new lecturers to an online programme.

In this talk we will present our ideal programme team, current onboarding process for teachers and students, valuable lessons learned and reflect on the student and staff experience from a two year pilot of an innovative online programme.

**Submission ID**

103

# The Interaction Equivalency Theorem And E-Learning Platforms

## Authors

Mr. Eamonn de Leastar - Waterford Institute of Technology

Mr. Colm Dunphy - Waterford Institute of Technology

## Abstract

The interaction equivalency theorem posited a set of relationships between learner, teacher and content, identifying interaction patterns as a key determinant in successful learning experiences. In particular, it identified a reduced set of relationships that, if present, could be sufficient for successful learning to take place. These relationships: *Student-Content*, *Student-Teacher* and *Teacher-Content* provide a useful starting point for assessing the features and capabilities of Virtual Learning Environments (VLE). Enhanced analyses of the theorem propose additional relationships: *Teacher-Teacher*, *Student-Student* and *Content-Content*. These enrich the relationship set and offer interesting opportunities for assessing the factors that inform meaningful learning experiences.

These six relationships are at the heart of interaction patterns that a VLE can support. However, no single VLE has the range and depth to adequately service this full breath of interactions patterns – particularly for exclusively online programmes. The relationships embodied in the extended theorem are analyzed from the perspective of software platforms – and a layered approach is presented. This is common in enterprise software systems, offering a ‘Stack’ that can address different needs at different layers.

This stack models and elaborates the interaction patterns posited by the interaction equivalency theorem, mapping them to the technology domain. A model that scales from simple interaction patterns was developed – that may support basic learning experiences – to more sophisticated platforms that offer the potential for deeper and significantly more meaningful learning.

The approach taken was to evolve a vendor neutral model/stack – identifying different providers at each layer, mitigating ‘lock-in’ traps. Work is ongoing towards establishing a generic set of principles around which a realistic and informed technology assessment can be carried out, mitigating risks associated with technology platform choice, and promoting the evolution of a ‘live’ VLE stack, capable of evolving to track emerging technologies, new interaction patterns and changes in the learning environment.

## Submission ID

104

# Walking the UDL Walk: Piloting a Universal Design for Learning Toolkit for staff developing Moodle Learning Spaces

## Authors

Ms. Suzanne Stone - Dublin City University

Ms. Karen Buckley - Dublin City University

Dr. Shadi Karazi - Dublin City University

## Abstract

It is well documented that the principles of Universal Design for Learning (UDL) have enormous potential to positively impact on the learning experience of all students, not exclusively those with disabilities or diverse learning needs. Specifically, UDL promotes the use of multiple communication methods to ensure that communication methods are accessible to all participants (Burgstahler, 2017). While it is well documented that the numbers of students with disabilities accessing higher education are increasing year-on-year, the principles and practices of UDL allow for effective communication with all learners through the promotion of practices such as:

- Ensuring that communication methods are accessible to all [e.g. effective teaching techniques, text materials appropriate for text-reading software]
- Use of multiple, accessible instructional methods, accessible to all learners [e.g. avoidance of jargon, use of visual aids]
- Ensuring that course materials, notes and other resources are engaging, flexible and accessible for all students [e.g. providing material in multiple formats] (University of Washington, n.d.)

UDL has the potential to create a culture where 'instructional goals, methods, materials, and assessments [...] work for everyone - not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs' (Bray and McClaskey, 2013: 18).

The authors' University is currently developing a UDL policy which will adopt the three key principles of UDL: Flexible ways of learning, flexible study resources, flexible ways of testing learning. The authors, who are working as learning technologists/academic developers, are developing a toolkit to support the process of translating the UDL policy into practice with regards to the Virtual Learning Environment (Moodle). This toolkit will include: An introductory text and video around UDL policy and how it relates to creating and managing Moodle pages, resources and activities; 3x sample templates for Moodle pages grounded in

UDL principles in terms of both design and learning activities; A UDL checklist for Moodle; an accessibility test which allows users to automatically check if a Moodle page complies with digital accessibility standards. The toolkit will connect with and draw upon a range of other learning design frameworks and principles such as the ABC Learning Design framework and Academic Integrity Principles (TEU, 2019).

This study will pilot the UDL toolkit with staff in two faculties/units of the University to inform the development of the toolkit before making it available to all staff. This paper will present findings from the first stage of the study, focus group data from staff from at least two units/faculties at the University.

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#### **Submission ID**

105

## **I've designed the module - what next?**

### **Authors**

Dr. Mark Glynn - Dublin City University

Ms. Clare Gormley - Dublin City University

Ms. Jess Gramp - University College London

Dr. Natasa Perovic - University College London

Dr. Clive Young - University College London

### **Abstract**

There are variety of learning design frameworks available when it comes to programme design, each with their own merits. We have recently started using the ABC framework for module design, based on the conversational framework developed by Diana Laurillard. ABC is an effective and engaging hands-on workshop that has now been trialled with great success over a range of programmes worldwide. In just 90 minutes teams are able to together to create a visual 'storyboard' outlining the type and sequence of learning activities (both online and offline) required to meet the module's learning outcomes. ABC is particularly useful for new programmes or those changing to an online or more blended format. We have ran several "ABC" workshops however as is the challenge with many staff development workshops lots of good ideas generated but that have frequently fail to be implemented.

To address this challenge we have developed the 'ABC to VLE App Wheel' as part of an Erasmus plus project led by University College London. This app wheel supports educators to transform their workshop ideas into reality by identifying appropriate tools within the VLE. The paper will describes the use of the app wheel and also describes how this openly available tool, developed under creative commons, can be readily adapted by other institutions as needed.

### **Submission ID**

106

# Student Interaction with Online Resources - The Paradox of Over-Assessment

## Authors

Dr. Cormac Quigley - GMIT

## Abstract

This research explores students' interactions with Moodle based assignments over an academic year. This was achieved through an observational study of a cohort of first year undergraduate students (n = 303) undertaking a first-year chemistry module. In addition, the students were surveyed in order to evaluate their own self-reported experiences of using the online learning resources and quizzes.

The resulting participation was used to generate analytics from Moodle log data as well as statistical analysis of the survey responses. The sources of Moodle log data and the transformation of the data into analytics is briefly explored. Students' experience with the online learning environment and the deadlines which were set for their assignments was assessed by means of a survey containing Likert scales as well as free response questions. Students were surveyed after completing each term.

In total, 256 students returned valid responses to the survey while over 4800 quiz attempts were recorded across 18 quizzes of varying nature. By taking advantage of the detailed information captured by Moodle about users' interactions, analysis of student performance and engagement was undertaken. Factors such as time on task, time prior to deadline of quiz completion and student achievement were compared in order to gain insight into how students behave in relation to the quizzes.

Key to maximising student performance and the successful role out of technology enhanced learning is understanding when and how students interact with Moodle. In this study, student engagement, measured in terms of time on task and mark achieved was also related to the time of day and week when the engagement took place. Patterns emerge showing that students' engagement and achievement varies in a statistically significant manner depending on when they choose to engage with the quizzes.

A picture of student interaction emerges showing how students approach different types of assessment and several results of interest have arisen. Students can be seen to interact very differently depending on the nature of the quiz and its perceived value in terms of marks. In addition, factors affecting the perception of workload are explored. Student response to multiple assessments per week is observed and the idea of over-assessment is explored in

this context. Student behaviour is used to show that small changes in assessment value or perceived difficulty can result in practically (and statistically) significant changes in student behaviour.

Finally, some of the insights gained from the research which have led to changes in practice are examined. In all, this research demonstrates the value of analytics as a means of evaluating teaching practice from both a student and lecturer perspective.

## **Submission ID**

107

# Between the rocks and hard places: exploring the experiences of educational technology leaders in Irish Higher Education

## Authors

Mr. Gerry Gallagher - Dundalk Institute of Technology

Prof. Mark Brown - Dublin City University

Dr. Enda Donlon - Dublin City University

## Abstract

Skilled leadership at many levels within higher education institutions is required to more fully integrate educational technologies into practice. Such leadership is even more essential in the face of plethora technologies emerging in a context where the promise of the transformative potential of technology does not always match the reality in the classroom.

However, despite its importance, there is a dearth of empirical research in this “educational technology leadership”, situated as it is at the intersection of educational leadership and educational technology (Arnold and Sangrà, 2018; Jameson, 2013). In particular, little is known about the experiences of educational technology leaders, who work in the middle, often in informal positions (Bates and Sangrà, 2011), at the nexus of top-down and bottom-up dimensions of the change imperative to integrate such technology. These leaders play a crucial role in the change process as they seek to exert influence in both directions, on their academic and administrative colleagues and on positional leaders alike.

This paper reports on the preliminary findings of a study which explores the experiences of these educational technology leaders who work in “the middle” of this institutional change. Adopting a narrative inquiry approach, the study consists of two phases. The first of these involves an online survey of a purposive sample of educational technology leaders in Irish higher education institutions. This includes those who have a leadership role in educational technology in their institution and/or have demonstrated leadership through the integration of educational technology in their practice. The second phase explores the stories of a sample of these leaders more deeply by means of semi-structured interviews.

By examining the roles and experiences of those in formal and informal leadership roles in educational technology it is hoped that this study will provide current and future leaders with insights into their own roles and those of their peers as they engage in the complex processes of integrating technology into practice.

(317 words)

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## **Submission ID**

108

# The Collaboration Space of Microsoft OneNote Class Notebook: An Online Environment for Student Interaction and Peer Learning

## Authors

Dr. Anne Mulvihill - Athlone Institute of Technology

## Abstract

Microsoft OneNote Class Notebook is a tool that allows a lecturer create an electronic notebook (eNB) for a class group. It is one of the applications in Office 365 and can be set up easily through VLEs such as Moodle. As it is online it allows students and lecturers access the information in the notebook any time and place.

This eNB contains three spaces. These are:

- the Content Library, where a lecturer can add notes and other resources for the class;
- Each student's own notebook, where students can add their own notes, assignments and received personal feedback;
- and the Collaboration Space.

In the Collaboration Space students can collaborate with each other sharing resources, data, and also completing assignments together. As such it creates an ideal environment for peer learning through collaboration. The lecturer can also add information, give feedback and support to the students in this learning space.

Like all spaces in the eNB the collaboration space can be divided into sections, with each section having multiple pages. These sections are ideal for group work, where each group is given a section in which they can then create multiple pages, e.g. one for project ideas, project planning, phases of the project etc. The sections can also be used for particular assignments. So the assignment section is set up and each student/group is given a page to complete the assignment. As all students have access to the section they can read, assess and learn from each other's work.

The Collaboration Space of Microsoft OneNote Class Notebook is an ideal space for student interaction. It promotes student engagement, allows for peer learning, and allows for easy lecturer support and feedback. This space and the eNB as a whole have huge potential for learning and teaching in online learning environments.

## Submission ID

109

## What should textbooks be made of (and who should make them)?

### Authors

Dr. Eamon Costello - Dublin City University

Dr. Tiziana Soverino - Dublin City University

Prof. Mark Brown - Dublin City University

Prof. Grainne Conole - Dublin City University

### Abstract

Textbooks are increasingly acknowledged as a contributory factor to the inflationary cost of higher education as borne by students. Open Textbooks, as a form of Open Educational Resources, have been posited as a possible solution. Surveys have been made of educators to gather their perceptions of Open Educational Resources (OER) and open textbooks. The most notable of these, by the Babson group (Seaman & Seaman, 2017, 2018), has shown an increasing awareness of OER and open textbooks over recent years. Little is known, however, about staff perceptions of open textbooks in Ireland. This study sought to address this gap by developing and distributing a survey targeted at staff in higher education in Ireland. We drew on surveys conducted in other countries including the high profile Babson Group survey (Seaman & Seaman, 2017, 2018) of US faculty but also several other studies in developing our research instrument (Frydenberg and Matkin, 2017; Bell, 2018; Harley et al., 2010; Hilton III et al., 2013; Rolfe & Pitt, 2018).

Unlike much previous research we sought to target those in educational and educational technology leadership roles, educational technologists, and library staff. Here we present results of this study. Our results confirm those from other countries in many respects but we also made interesting new findings which highlight, for instance, that staff may believe there to be tradeoffs between the rights of students and their own academic freedoms. These perceptions may need to be discussed, debated and disentangled further if open textbooks are to gain more widespread adoption and ultimately help address one of the costs of access to higher education.

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## **Submission ID**

110

# Harnessing Student Engagement Data for Personalised Feedback

## Authors

Dr. Cormac Quigley - GMIT

Dr. Etain Kiely - GMIT

## Abstract

This Gasta explores a multidisciplinary collaboration across two schools and four departments within a higher education institute.

The team harnessed student engagement data from first year students (>500 per year) over three years using a Virtual Learning Environment (VLE:Moodle). Engagement was captured through learners' participation in online quizzes (>35,000 attempts) and pre and post-class video viewings (> 10,000 viewings). In class participation and attendance was recorded using Moodle attendance and Kahoot analytics.

Criterion referenced activity completion tracking enabled and motivated learners to achieve weekly targets and deadlines with progress bars evaluating students' engagement. Learners received both formative and summative feedback instantly through weekly quizzes. Adaptive teaching responded to the analysis of quiz results at a class level. Students engaged in regular peer assessment and results were accessible showing areas of achievement and development.

The cross platform data was collected and automated feedback forms based on learners' unique grades and levels of participation within specific learning activities were generated. Learners received the written feedback form from lecturers during high attrition periods of the academic year.

Key to creating the personalised feedback forms is a set of algorithms which can be readily modified to ensure the feedback given to students is relevant and focused on their own learning pathway, while not requiring the lecturer to manually assess each student.

The process was carried out in three stages. Criteria were selected for student behavior and combinations of behaviors across learning activities. Responses for each of these results or behaviors were created. Finally, the feedback was allocated using algorithms for delivery to students.

Survey responses from students indicated that they enjoyed the high level of active engagement, expressing satisfaction with the feedback cycle implementation. 95% of

participants asked about feedback (n= 229) indicated that it was "Useful" or "Frequent and Useful" with qualitative feedback such as

*"The personal feedback forms were very useful as they keep you up to date with your progress and it also helps you to see what you can do to improve your grade."*

This Gasta intends to inform practice and will provide a framework for to harness student data and provide personalised feedback to large groups.

### **Submission ID**

113

# Experiencing the blend: student and lecturer perspectives on a multidisciplinary blended learning course in 3D computer animation.

## Authors

Mr. Peter Morris - Dundalk Institute of Technology

## Abstract

Learning and teaching technical modules, in a mostly-online blended mode, presents a number of challenges relating to delivery, engagement, interaction and collaboration. Time demands and workload placed on lecturers and students need to be considered when reviewing the experience of both those enrolled and teaching on a blended learning programme. In an online programme, technology is used to support engagement, interaction and collaboration, potentially an extra layer to be considered in comparison to face-to-face (F2F) delivery.

The Higher Diploma in Science in 3D Computer Animation is a highly technical, multidisciplinary, part-time, blended learning programme (DkIT, 2016) funded through Springboard+<sup>1</sup>. Defining the blend by relative time spent online and face-to-face (F2F), this would be considered more heavily online (Nortvig, Petersen, & Balle, 2018). In this programme, the delivery is 80% synchronous online classes over four 12-week semesters – three evenings per week – with 20% F2F on campus - one Saturday a month and one induction day.

This paper presents the qualitative experiences of both students attending and lecturers delivering the programme. One of the aims of the research is to consider whether this particular blend supports "*more satisfying educational experiences*", as outlined by Bernard et al (2014, p.31). The experience is considered from four perspectives: workload, engaging online, collaborative learning and comparing the blended experience with F2F.

The students enrolled in the programme were mature professionals, geographically situated across Ireland, with educational experience up to at least undergraduate degree level (or equivalent prior learning). The first cohort of students completed the taught element of the programme between January 2017 and January 2019. Modules included computer animation, programming, mathematics and a collaborative capstone project.

From the lecturer's perspective, teaching online has been found to increase time demands compared to traditional F2F (Cavanaugh, 2005). For many of the lecturers involved this was their first experience of teaching online. Classes were initially delivered using Adobe

Connect<sup>2</sup> (changed to Zoom<sup>3</sup> in January 2019). Asynchronous communication, class resources and assessments were supported through the institute's VLE, Moodle. Other tools supporting learning online included Khan Academy<sup>4</sup> for mathematics and Scrumwise<sup>5</sup> for team-based project management.

Two focus groups were created, one for lecturers and another for the student cohort. The focus group discussions were audio recorded and transcribed for thematic analysis. This paper presents the lecturers' and students' experiences of engaging online, individually and collaboratively. Both perspectives will be presented with respect to student workload; engagement, presence and learning actively in an online class; managing collaborative team work and peer learning, online and offline; and differences between online and face-to-face modalities.

<sup>1</sup><https://springboardcourses.ie/>

<sup>2</sup><https://www.adobe.com/products/adobeconnect.html>

<sup>3</sup><https://zoom.us/>

<sup>4</sup><https://www.khanacademy.org/>

<sup>5</sup><https://www.scrumwise.com/>

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## Submission ID

114

## Designing flipped learning: an active blend

### Authors

Mrs. Fiona McCloy - Ulster University

Mr. Richard Beggs - Ulster University

Mrs. Áine MacNeill - Ulster University

### Abstract

Flipped learning reverses traditional teaching; with students receiving learning content outside class, allowing for student-centred, deeper learning to take place in class. A review of flipped learning (Hamdan et al., 2013), outlines the potential learning gains of this approach. The benefits of active learning strategies include increased student engagement, learning and achievement. Effectively designed flipped learning is a subset of active blended learning - with active learning taking place in the physical and digital learning spaces.

This learning approach aligns with educational priorities at Ulster University. The Office for Digital Learning designed and delivered a Designing Flipped Learning training initiative for practitioners at Ulster University. 141 practitioners attended seven training sessions across four campuses, from academic year 2015/16 to 2018/19.

The training initiative involves an active learning workshop to design flipped learning, with pre-workshop digital activities to prepare for this - modelling best practice. In the workshop, practitioners sequence learning activities for the physical and digital spaces, to develop a flipped, active blend and student-focussed learning design. The Ulster Jisc-funded Ulster Viewpoints curriculum design framework (2012) is used to map the learning design - encouraging reflection, best practice, generation of ideas, discussion and planning.

Practitioners can work either individually or as a group, with a mix of staff from across the university at each session. They are encouraged to share ideas and practice across disciplines and to collectively overcome perceived challenges. Educational technologies are showcased that can enable this approach - including video content, regular quizzes, online community, data informed teaching and interactive apps.

An action research approach was adopted and evaluated, based on a questionnaire; discussions; and the learning designs created in the workshop. The questionnaire results show the training initiative is effective at supporting practitioners to implement flipped learning. 92.5% (n=114) of practitioners were more likely to flip, or further flip, their practice after attending the training. Comments include, "Great session – left me really wanting to develop my practice", "promotes deeper learning", "It has made me think of more creative

learning methods – particularly more use of IT and digital technologies to respond to contemporary ways of learning."

Similar challenges emerged from the discussions in all session, in both the physical and digital spaces. These include the following themes – encouraging student engagement; large cohorts; active classroom techniques; physical space restrictions; reliable Wi-Fi; constructive alignment; digital capability and student expectations. The training initiative provides strategies to overcome these perceived barriers.

We recently added an initial reflective activity, with practitioners mapping how active their teaching practice currently is, and how active they would like it to be, in the physical and digital spaces. This uses tension pairs adapted from the visitor and resident mapping framework (White, D. & Le Cornu, A., 2017).

The training initiative promotes the educational benefits of flipped learning and active blended approaches. It nurtures ideas, sharing practice and overcoming challenges, to improve educational practice. The presentation outlines the context, training initiative, resources, outputs, rich discussion, research findings and next steps.

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## **Submission ID**

115

# The statistics for machine learning: Data are not normal

## Authors

Dr. Rose Baker - University of North Texas

Dr. Malar Hirudayaraj - Rochester Institute of Technology

Dr. John Turner - University of North Texas

## Abstract

Classical statistics is rooted in normality and is based heavily on the normal distribution of data. Much of data about complex problems does not follow a normal curve. Machine learning can be used to analyze these complex problems. Typical data sources include operational applications to automate the decision-making processes and interactive applications to inform decision-making by humans. Regardless of the source of the data, the data is transformed for data processing and then distributed to the consumer. Personalized learning environments and dashboards use similar statistical models that are informed by supervised or unsupervised learning. A variety of statistical processes are used depending upon the comparison to be made; this is where the similarity to classical statistics ends. Recall that the standard error function from the regression analysis is a Euclidean distance to measure the distance between the predicted and actual outcomes. In machine learning, performing simple, linear, or logistic regression can have different slopes and intercepts depending upon the error function used. The error function can be overfitted or underfitted. Overfitting the regression model potentially results in error measurement approaching zero such that the model does not account for variance of the data. Underfitting has too much bias in the model and prevents the accurate learning of the relationships. Clustering in machine learning optimizes k-means algorithms to have k centroids for k clusters that minimize the distance of the data points to the centroid of each cluster. Applications of principal component analysis (PCA) are used to apply an array technique to reduce and simplify the complex model to achieve dimensionality reduction. This presentation will include an overview of these and other methods, such as Sammon mapping, that use machine learning to visualize and describe data from complex problems.

Citations:

Witten, I. H., Frank, E., Hall, M. A., & Pal, C. J. (2017). *Data mining: Practical machine learning tools and techniques*(4th ed.). Cambridge, MA: Morgan Kaufman, an imprint of Elsevier.

**Submission ID**

116

# On Improving Physics Teaching and Learning using UniDoodle

## Authors

Dr. Violeta McLoone - Institute of Technology Carlow

Dr. Seamus McLoone - Maynooth University

## Abstract

Statics, kinematics and dynamics are key topics in the first year Physics module for Aerospace Engineering and Aircraft Systems students in IT Carlow. Students often struggle with several of the fundamental concepts in these areas, both in terms of mathematical equations and their representation in diagrammatic form. It is vital that these struggles are captured as quickly and accurately as possible in order to give the most pertinent feedback to each student to help them work through the material. To date, this information is only truly captured following an element of formative assessment, at which point it may be too late to give feedback to students (1) as they have moved on to new material or (2) it is the end of term. Either way, the students have achieved reduced grades due the lack of timely feedback.

Classroom response systems offer a solution in this regard. Most existing systems, such as clickers, only offer multiple-choice selections or text-based inputs, hence they have limited capabilities when it comes to the Physics discipline. Free body diagrams, equations, force diagram annotations, etc. are fundamental to understanding many concepts in physics. Classroom response systems that do not allow free form input are not suitable for capturing this information.

A recent development in response systems, known as UniDoodle (McLoone et al., 2019), offers the students the ability to respond with equations, diagrams, annotations, etc., and thus, for the first time, allows teachers to gain instant access to exactly where and how students are struggling with the Physics material.

This presentation is an initial investigation into the use of UniDoodle in a first year Physics module in Carlow IT. Example questions that students struggle with are highlighted and the use of UniDoodle is demonstrated using these questions.

## References:

McLoone, S., Kelly, C. & Jennings, M. (2019). An evaluation of UniDoodle – a highly effective student response system for STEM disciplines. *AISHE-J: The All Ireland Journal of Teaching and Learning in Higher Education*, 11(1), Spring 2019.

**Submission ID**

118

# Feedback and Follow-up Assessment for Improved Learning

## Authors

Dr. Violeta McLoone - Institute of Technology Carlow

Dr. Stephen Scully - Institute of Technology Carlow

Dr. David Allen - Institute of Technology Carlow

## Abstract

First year Aerospace Engineering courses in IT Carlow have a substantial practical laboratory component. Subjects, such as Electrical and Electronic Fundamentals, offer students the opportunity to develop their practical circuit building and analysis skills. Students engage in weekly laboratory exercises, which are supervised and facilitated by their teacher.

A formal, individual, graded assessment is usually completed to assess the students' abilities to perform practical tasks on their own. Since formal assessments are often implemented at the end of the academic term, feedback is rarely provided in sufficient time to address and rectify any problem areas that students may have. Even when feedback is provided, students' engagement with this feedback can be low, particularly in the absence of prompt follow-up action.

The practical skills students achieve in first year are vital for a successful completion of their future courses (especially practical projects). Hence, it is worth investigating the value of providing prompt feedback on practical assessment(s) and following up with further assessment(s) within a short period of time [1].

Providing effective individualised feedback to each student is time consuming and often impractical in situations of large class numbers or where there's a heavy teaching load. Hence, this preliminary study investigates the value of providing generic feedback to the whole class following a practical laboratory assessment. The feedback is delivered online and the practical assessment is then repeated in order to evaluate any improvement to the students' practical skills following the feedback.

The purpose of this exercise is to allow students to learn from their mistakes in a timely manner and encourage them to actively engage with the feedback provided, through repeated assessment. This should increase the likelihood of students acquiring the necessary practical skills to engage with future subjects and projects.

[1] McLoone, S. (2009). Following-Up on Feedback through Repetition in Assessments (in the Science Disciplines). *AISHE-J: The All Ireland Journal of Teaching and Learning in Higher Education*, 1 (1), 2009.

**Submission ID**

119

# Open Scholarship 3.0: To What Extent is Digital Transformation Reflected in the Literature?

## Authors

Prof. Mark Brown - Dublin City University

Prof. Grainne Conole - Dublin City University

Dr. Eamon Costello - Dublin City University

Prof. Mairead Nic Giollamhichil - Dublin City University

## Abstract

This paper acknowledges that a wealth of open access literature is published annually in the general field of Educational Technology. For example, Perkins and Lowenthal (2016) identified over 270 open access journals in their comprehensive analysis of scholarly publications in the area. The reality is that in the digital-era it is almost impossible for any individual educator to keep abreast of the abundance of literature, especially given a multitude of publication channels. Set against this “new reality” the paper critically reflects on the third iteration of an exercise undertaken by a team in the National Institute of Digital Learning (NIDL) at Dublin City University (DCU) of identifying the top 10 open access journal articles published over the course of 2018. It builds on a similar exercise conducted over two previous years (Brown, Costello & Nic Giollamhichil, 2018) and taken collectively reports on some of the notable trends, patterns and differences emerging from the literature over this period. However, before doing so the paper firstly describes the selection criteria, revised methodology and underlying assumptions which guided the exercise. The scope and nature of the selected papers and contributing authors is outlined for each year and more specifically in terms of the findings, we report on (i) the continued blurring of boundaries between closed and open publications, (ii) the growth of review and meta-analysis articles—for better and worse, and (iii) the status and continuing value of more traditional closed publications. While arguably the final list of top 10 articles over all three years provides a valuable resource for those working in the field, the deeper question is to what extent does the open access literature provide evidence of real digital transformations in teaching and learning? Put another way in the context of the conference theme does this purposive sample of so-called top open access literature in the field reflect a truly transformative agenda, as opposed to efforts to merely tame the latest technology for relatively traditional ends? In critically reflecting on these deeper questions we invite participants to provide feedback on the exercise and share their own experiences of impactful professional reading in the era of digital abundance.

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Perkins, R., & Lowenthal, P. (2016). Open access journals in educational technology: Results of a survey of experienced users. *Australasian Journal of Educational Technology*, 32(3), 18-37.

## Submission ID

120

# Striking a Harmonious Balance: Exploring the Experiences of Teachers with Blended Learning

## Authors

Dr. Ronan Lynch - Dundalk Institute of Technology

## Abstract

Blended learning describes the combination of traditional modes of learning and teaching with new technologies. Improving broadband speeds and technologies, coupled with a changing Irish economic landscape have enhanced traditional face-to-face instruction with elements of online learning that eliminate the barriers of time, place, and situation, and increased the opportunities for blended learning.

However, blended learning is not without its complexities (Jeffrey *et al.*, 2014). While Osguthorpe and Graham (2003) refer to the aim of attaining a "harmonious balance between online access to knowledge and face-to-face human interaction" (p. 228), Swenson and Redmond (2009) argue that the move requires adjustment for teachers and students, while the presence of interested and competent teachers is imperative (Mayes and Morrison, 2008).

In a review of over 800 articles, Torrissi-Steele and Drew (2013) found only one article on blended learning academic practices. This dearth of literature on the experiences of teachers, allied with the trend towards greater numbers of blended learning programmes at third-level in Ireland, provides the rationale for this study. There simply is very little known about such experiences.

This study proposes to conduct a focus group later in the calendar year at Dundalk IT (DkIT) with a sample group of approximately six higher education teachers with experiences of blended learning. This group will be comprised of teachers from the School of Health and Science, and from the School of Informatics and Creative Arts. It is envisaged that the ethnographic study will shed comparative lights on the experiences of teaching through blended learning. The findings of this focus group will be presented thereafter. It is expected that the study will expand further in the future to include similar contributors from other third-level Irish academic institutions. Ascertaining the practices of teachers in these environments may go some way to assessing the current and future role of blended learning within Irish education.

In order for blended learning to fulfill its promise of providing high quality learning experiences, we, as stakeholders, need to gain greater insights into the collective experiences

of those within the teaching and learning domain. This work-in-progress paper will add to the small literature base that investigates the experiences of blended learning teachers. The study aims to highlight future steps that academic institutions may take in order to seize the opportunities presented by blended learning and strike a harmonious balance.

### **Keywords**

blended learning, online learning, TEL, technology-enhanced learning

### **References**

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Torrise-Steele, G., & Drew, S. (2013). The Literature Landscape of Blended Learning in Higher Education: The Need for Better Understanding of Academic Blended Practice. *International Journal for Academic Development, 18*(4), pp. 371-383.

### **Submission ID**

121

# Promoting thinking, reasoning, and problem solving in SimSchool

## Authors

Dr. Rose Baker - University of North Texas

Ms. Rachel Scherer - University of North Texas

Dr. Tandra Tyler-Wood - University of North Texas

## Abstract

Within intelligent tutoring systems, the presentation of declarative and simple procedural content is well developed and has been practiced since the 1960s. What is not as well developed has been the presentation of higher order thinking, such as evaluation and synthesis of information, in educational situations that require adaptive procedures and abstract concepts. Traditionally, intelligent tutoring systems practiced the Socratic method to build declarative knowledge through question and answer practice. The fidelity of the tutoring system environments addressed the physical, display, mechanistic, conceptual, and expert levels of the performance desired within the educational goals and objectives. The platform, simSchool, provides a virtual environment with students powered by artificial emotional intelligence to display emotions in individual ways that could occur within a classroom, just as students would respond in a live situation interacting with a face-to-face teacher. The use of these authentic experiences in simSchool promotes the development of the higher order skills by practicing cognition, emotional control, social behavior, understanding of development, coping, and presentation style in the virtual teaching environment. The environment in simSchool can model k12 and higher education settings to have pre- and practicing teachers engage with students who respond based upon the tone and complexity of the questions asked or information presented by the virtual teacher. Student qualities can be modeled to provide diversity physically as well as cognitively, psychologically, and developmentally. The presentation will include how misconceptions are addressed through the interactions with the multiple number of personalities programed into the virtual student population.

Citations:

simEd (2018). About simSchool. Retrieved from <https://www.simschool.org/home/simschool/#about>

**Submission ID**

122

# **A mixed methods exploration of technology use among lecturers at an Institute of Technology**

## **Authors**

Ms. Niamh Spratt-O'Shea - Institute of Technology Carlow

Dr. Yvonne Kavanagh - Institute of Technology Carlow

## **Abstract**

### Introduction

There has been much discourse about the integration of technology to pedagogy by lecturing staff across all disciplines at third level (Georgina and Olson, 2008). Kukulka-Hulme (2012) proposes that faculty members should not only adopt and engage with technology in their teaching, but also in their own professional learning in order to be professional role models to their students.

### Methods

The purpose of this mixed methods study was to explore the use of technology by lecturers in a third level Institute of Technology. The study consisted of an initial semi-structured focus group (n=4) to explore attitudes to, and use of, technology by lecturers in their teaching. Following analysis of the focus group data, a survey instrument was developed based and distributed to all staff within the institute. Seventy-eight lecturers completed the survey.

### Results

The use of technology among focus group participants generated an interesting discussion. There were conflicting views as to its use and benefits. For example,

I think students respond quite well to technology...I think technology can be very beneficial as a teaching and learning strategy. [FG1]

Conversely, another focus group participant expressed negative feelings towards technology:

My opinion on technology in general is that I find it appalling. [FG2]

In the survey, 94% of staff responded that they used technology to some degree within their classrooms, while 6% did not. Reasons for not using technology included technology not being suitable for the module, for example:

The subjects do not lend themselves to having everything pre-planned and available. [I.D. 102]

Two members of staff stated they were not familiar with what technology is available and were uncomfortable with using technology. Similarly, in the focus group, FG1 stated a lack of confidence/ability in using technology:

I think I personally could work on it (technology) a little bit more. Like I said I'm just not wonderful with technology but I would certainly try to use it where I can because I do think students are responsive to it. [FG1]

Other issues such as a fear it will distract students, along with wondering will it work were also factors for lecturers choosing not to use technology. Likewise, a focus group participant expressed concern for technology failure in the classroom:

Sometimes it doesn't work. So you could have a bit plan and then all of a sudden, whether it's the computer not working or things aren't connecting...so sometimes it doesn't work. [FG1]

In the survey, lecturers were asked what technology and applications they used for teaching. There was a wide range listed with some applications specific to certain disciplines and others were more generic applications and technology that could be used by everyone. The most frequently cited applications included classroom response systems (33%), YouTube (20%), Microsoft applications (18%) and the Blackboard virtual learning environment (17%).

## Conclusion

The use of technology is advantageous to both lecturers and students. However, lecturers should receive training and technological support in order to successfully integrate technology into their teaching.

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Georgina, D.A. and Olson, M.R. (2008) Integration of technology in higher education: A review of faculty self-perceptions. *The Internet and Higher Education*, 11(1), pp.1-8.

Kukulka-Hulme, A. (2012) How should the higher education workforce adapt to advancements in technology for teaching and learning

## Submission ID

123

# Teaching with Twine to Author Media Rich Interactive Narratives

## Authors

Mr. Kieran Nolan - Dundalk Institute of Technology

## Abstract

This talk is a first hand account of using Twine as the core interaction authoring application as part of a module on building interactive narratives delivered to year 3 Creative Media students at Dundalk Institute of Technology. Twine is a free to use, browser based open-source tool for building browser based nonlinear stories, notable for its ease of use and flexibility. Twine was originally developed by Chris Klimas, and was initially released in 2009 [1].

The class group were tasked with building an interactive story with multiple endings. The student group were tasked with designing an interactive story lasting on average 5 minutes per play session, with three possible outcomes, so encouraging replay and further exploration by users. In addition, the students developed their own unique visual aesthetic styles chosen to suit their chosen target audiences, in order to enhance the atmosphere of the overall narrative. This process was documented through a written report with supporting audiovisual media, initially drafted in blog form over the course of the semester before been edited into a formalised design and development document.

In introducing this module assessment the students were encouraged to think of the browser as a space for graphics rich interaction that isn't recognisable as a typical website layout, by authoring for fullscreen screen resolution without visible browser toolbars.

The fundamentals of building multi-threaded narratives in Twine require minimal web programming experience, with this accessibility allowing focus on the story and visual content. Twine can be pushed beyond its default text based mode to creating media rich interactive content by using Twine's own scripting language alongside CSS and external Javascript libraries, allowing support for animations, audio and video. This alignment with web standards ensures that students can bring their prior knowledge in web authoring and media creation to the module, and also pick up new techniques that they can bring forward into their future web authoring and creative coding work.

References and Resources:

[ 1 ] Twine, <http://twinery.org>

[ 2 ] Twine Tutorials, <http://twinery.org/wiki/twine2:guide>

[ 3 ] The Interactive Fiction Competition, <http://ifcomp.org>

## **Submission ID**

124

# If You Can Use A Data Projector, You're Ready For Online!

## Authors

Mr. Colm Dunphy - Waterford Institute of Technology

Mr. Peter Windle - Waterford Institute of Technology

Ms. Laura Widger - Waterford Institute of Technology

Mr. Eamonn de Leastar - Waterford Institute of Technology

## Abstract

For many teachers, the inhibition to teaching online is frequently the fear of technology. This is particularly true for those not involved in technical disciplines, as there can be a more pronounced cognitive load. "I'm a technophobe, luddite, can't use two remote controls for one tv, etc." Teachers like to feel comfortable in their learning environment, but technology has a tendency to disrupt this comfort zone.

For many students and teachers, online video has transformed learning. What if we could remove the technological inhibition for all teachers and use their current classroom practice, to enable them to teach online? How can we make it easier to create offline videos and/or stream video live?

Central to achieving this is making it as easy to deliver online as it is to use a data projector in a traditional classroom. A simple interface for teachers, which is both tactile and configurable to easily control free and open source software is presented here. The proposed interface hides the underlying complexities, simplifying use with a near identical workflow for both synchronous and asynchronous delivery.

The interface is part of a low-cost kit evolved through experience, and informed by ongoing student and teacher feedback, augmented with practices emerging from successful game streamers, social media influencers, and workshop technologies rather than traditional educational technologies. It has enabled teachers to create a physical and digital learning space where they feel most comfortable. These kits have been deployed in online teaching spaces and are part of the current practice on several WIT programmes.

This talk describes an affordable, scalable solution for online video teaching, offering a solution to many teachers' technological inhibitions. Initial feedback from both staff and students is overwhelmingly positive and suggests that it produces an enhanced learner experience.

**Submission ID**

125

# Online Video, Webinars, Live Broadcast Online; Delivery Made Easy - What, Why and How?

## Authors

Mr. Colm Dunphy - Waterford Institute of Technology

Mr. Peter Windle - Waterford Institute of Technology

Ms. Laura Widger - Waterford Institute of Technology

Mr. Eamonn de Leastar - Waterford Institute of Technology

## Abstract

Online video has transformed learning for many students and teachers. What if we could remove the technological fear for all teachers and use their current classroom practice, to enable them to teach online? How can we make it easier to create offline videos and/or stream video live?

For many teachers, the inhibition to teaching online is frequently the fear of the technology. This is particularly true for those not involved in technical disciplines, as there can be a more pronounced cognitive load. Sentiments such as "I'm a technophobe, luddite, can't use two remote controls for one tv, etc." are frequently expressed by teachers considering engaging in blended or online learning. It is important that teachers feel confident and comfortable in both the physical and virtual online learning environments.

This practice exchange will share experiences of evolving a simple interface for teachers, which is both tactile and configurable to easily control free and open source technologies. The proposed interface hides the underlying complexities and simplifies the user experience creating a near identical workflow for both synchronous and asynchronous delivery.

The interface is part of a low-cost kit evolved through experience, and informed by ongoing student and teacher feedback, augmented with practices emerging from successful gaming streamers, social media influencers, and worship technologies rather than traditional educational technologies. It has enabled teachers to create a physical and digital learning space where they feel most comfortable. These kits have been deployed in online teaching spaces and are part of the current practice on several WIT programmes.

This presentation explores the technologies used detailing why they were chosen, how they were effectively deployed and the impact on the learning experience.

**Submission ID**

126

# Building linguistic systems through online learning

## Authors

Dr. T.J. Ó Ceallaigh - Mary Immaculate College, University of Limerick

Dr. Karen Ní Chlochasaigh - Mary Immaculate College, University of Limerick

## Abstract

In immersion education, teachers concurrently address content, language and literacy development through their students' second language. This requires significant teacher preparation and professional development. Planning for language teaching and learning within immersion instruction specifically calls for a high degree of teacher language awareness i.e. a deep knowledge about language and a knowledge of specific skills, lexicon, grammar, semantics, pragmatics, orthography, phonology, sociolinguistics and discipline-specific language. However, some scholars havenoted significant gaps in immersion teachers' language awareness. These gaps constitute a significant obstacle to these teachers whose responsibility is to be proficient models of the immersion language, display a broad range of advanced linguistic skills and competences and transform this declarative knowledge of the Irish language into effective pedagogical tasks.

This paper reports on how interconnected aspects of immersion teachers' language awareness manifested as they engaged with an online learning postgraduate programme. The opportunities for interaction and engagement in an online learning environment are varied and include spoken and written interaction including the use of multimedia both synchronously and asynchronously (Sharma & Westbrook, 2015). Computer-assisted language learning (CALL) encourages students to seek linguistic information in input, assess it in relation to their own emerging linguistic knowledge base, share it collaboratively through production-based tasks and, ultimately, transform it into their own rule-based and formulaic L2 knowledge (Dawley, 2007; Tanveer, 2011).

This particular research study enables us to learn more about how second language learners acquire and use language in a computer-mediated environment. The Common European Framework of Reference principles and practices were adopted to explore proficiency needs, to review, reform and develop content of the Irish language curricula, to design, develop and exploit teaching and learning experiences and enhance quality and success in learning, teaching and assessment in Irish. Online language learning opportunities were designed to stimulate and enrich reception, interaction and production across all language competences. A diverse range of interactive online tasks (e.g. reflective blogs, fora, podcasts, e-portfolios) were designed and used in intense and multifaceted ways to foster twenty-two Irish-medium immersion teachers' language awareness. Data were collected from a variety of

sources e.g. an extensive online questionnaire, individual language plans, e-portfolios, individual synchronous language advisory sessions, reflections, assignments and focus groups.

Findings suggest that the collaborative nature of online interaction was central to developing teachers' linguistic resources in the immersion language and cultivated learner autonomy, motivation and success. Digital technologies enabled learners to plan, to monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions. The creation and modification of digital resources fostered teachers' digital competences but also challenged them to become proficient and autonomous users of the immersion language. Digital technologies addressed learners' diverse learning needs, by empowering them to advance at different levels and speeds, and to follow individual learning pathways and objectives. Collaboration, motivation and challenge in turn promoted self-regulated language learning. This paper will conclude with a discussion on implications for instructional design, digital language learning and teaching, online immersion teacher education and research.

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## **Submission ID**

127

## **The SURE Network Curriculum Committee, Objective no. 1 - Building our Team!**

### **Authors**

Dr. Therese Montgomery - The Sure Network

### **Abstract**

The Science Undergraduate Research Experience (SURE) Network is an academic partnership, established in 2017 by representatives from 9 different Irish Institutes of Technology committed to enhancing and promoting undergraduate research practice in STEM. The inaugural SURE Network conference ran simultaneously across three SURE Network sites (AIT, TU Dublin City Campus and WIT) on the 28th September 2018. Trending under #SURE18, the hugely successful SURE conference was attended by over 500 third level undergraduate students and academic staff from across Ireland. The second series of conferences will run on 27th September 2019, in TU Dublin, IT Carlow and IT Sligo. The SURE Network was awarded "Best Academic Partnership" at the 2019 Education Awards and the SURE undergraduate Journal will launch in 2019. Work is ongoing by the SURE Network Curriculum committee to identify and enhance active research practices in higher education through the establishment of common research initiatives across the IoT/TU sector. In order to do this we need to grow our network and share information. If you have an interest in (or already are!) embedding research and critical thinking in undergraduate teaching in higher education, then please come and visit the poster or visit <http://sure-network.ie/>. All welcome.

### **Submission ID**

128

# Unbundling of Learning Support and Development: The Studiosity Experience

## Authors

Prof. Mark Brown - Dublin City University

Prof. Grainne Conole - Dublin City University

## Abstract

The number of online learners continues to grow worldwide but at the same time there is increasing concern over poor retention, progression, and completion rates. For example, Woodley and Simpson (2014) estimate the international graduation rate for online distance learners undertaking degree programmes is often at around 10% or less. In the United Kingdom they report the completion rate of students studying through the Open University is around 22% over an eight-year period (Brunton, et. al, 2016). Set against this background in this paper we describe a pilot implementation of Studiosity for online students studying primarily off-campus through Dublin City University (DCU). In brief, Studiosity is an example of an unbundled student learning support and development service offered by an Australian company, which includes access to a live online subject coach to help answer questions at the point of need along with the opportunity to obtain constructive feedback on written assignments within 24-hours. Put simply, Studiosity is a commercial online solution to help institutions increase the level of student success. After describing the nature of the two main services offered through Studiosity we report on the findings of the pilot implementation phase for DCU Connected online course offerings over two semesters. As part of the formal evaluation the paper shares initial responses from staff, monthly analytics on how students have engaged with the service over the pilot phase, and preliminary results of a student survey. While student feedback has been overwhelmingly positive, with clear evidence of the perceived value and impact of the writing service in particular on their learning and development, the paper notes a number of deeper issues associated with managing the successful implementation of an outsourced educational solution. In particular, the evaluation illustrates the importance of fully embedding such a service in the fabric of the course design and overall culture of the programme offering. In this respect the major lesson is that the success of an innovation like Studiosity depends on both the nature of the service and how it is implemented in the institution and introduced to key stakeholders. Overall the Studiosity experience has demonstrated the potential of new business models for student learning and development and we expect uptake of the service to continue to grow over the next academic year.

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Woodley, A., & Simpson, O. 2014. Student dropout: The elephant in the room. Online distance education: Towards a research agenda, pp. 459-484.

## Submission ID

129

## **TutorStack 2019**

### **Authors**

Mr. Colm Dunphy - Waterford Institute of Technology

Mr. Eamonn de Leastar - Waterford Institute of Technology

Mr. Peter Windle - Waterford Institute of Technology

### **Abstract**

TutorStack is an evolving multi-layer technology stack embracing free and open source technologies. It provides a modular approach to online and blended delivery where technologies can be “hot swapped” at any time as better technologies become available.

Swapping can be implemented during term time without any major disruption to the learner experience. TutorStack aims to avoid vendor or product lock-in.

This poster highlights the latest evolving version of the TutorStack – TutorStack2019 which is in use on many programmes at WIT. It highlight the favoured technologies for each layer of the stack currently. In addition to Slack, Moodle, YouTube, 2019 has cemented the use of Tutors-TS 3, YouTube Live, and OBS with StreamDeck used as an interface.

### **Submission ID**

130

## **Stream Deck, OBS, and YouTube Live – A Modular Online Learning Video Platform With Benefits.**

### **Authors**

Mr. Colm Dunphy - Waterford Institute of Technology

Mr. Peter Windle - Waterford Institute of Technology

Mr. Eamonn de Leastar - Waterford Institute of Technology

Ms. Laura Widger - Waterford Institute of Technology

### **Abstract**

This poster highlights how practices emerging from successful gaming streamers, social media influencers and worship technologies can be utilised to provide an easy to use, inexpensive, scalable video platform for teaching. Benefits (that you may not have even considered yet) include a simple easy to use interface, closed captioned videos, playlists, subscriptions, notifications, embedded live videos, embedded live video streams, automatic countdowns, a video library, DVR/SKY+ functionality, varispeed playback, transcoding, and many more. This poster highlights how these technologies can be used together, what the benefits and pitfalls are. This Online Learning Video Platform is part of TutorStack 2019.

### **Submission ID**

131

## **Using the VLE to provide more flexible and accessible student support: Initial findings from a needs analysis.**

### **Authors**

Mr. Andrew Clarke - DkIT

Dr. Breda Brennan - DkIT

Ms. Ann Cleary - DkIT

Mr. Michael Denihan - DkIT

Mr. Gerry Gallagher - Dundalk Institute of Technology

Dr. Fiona Lawless - DkIT

Ms. Maria Maguire - DkIT

Dr. Moira Maguire - DkIT

Ms. Linda Murphy - DkIT

Ms. Lisa O'Regan - Maynooth University

### **Abstract**

Effective and accessible student supports play an important role in student success. Evidence suggests that the supports offered at XXXX are effective, however, service provision was designed largely around the needs of traditional full-time students on campus throughout the week. As our student body has become increasingly diverse we recognised the need for more flexible supports that also meet the needs of our commuting and part-time students. In response, XXXX is seeking to develop a framework to deliver more flexible and accessible student support using the Virtual Learning Environment (VLE), building on its role as a de facto one stop shop for learners. This online support provision will complement, and integrate with our current, largely face-to-face, provision. Additionally, the project will develop a strategy to use data generated to support service evaluation.

The project is funded under the Higher Education Authority (HEA) 2018 Innovation and Transformation Fund. The first phase of the project is a needs analysis to identify the needs of learners and other stakeholders. Existing data has been identified and mixed-methods are used to gather data from learners, service providers, academic schools and other stakeholders. This information will be used to guide the development of a framework and process to provide digital support.

This paper reports on the initial findings from the needs analysis phase. In particular, the presentation will address student perceptions of accessibility and attitudes towards accessing services via the VLE

**Submission ID**

134

## **WIT CTEL PODs – Teaching Spaces For Online Delivery**

### **Authors**

Mr. Colm Dunphy - Waterford Institute of Technology

Mr. Peter Windle - Waterford Institute of Technology

### **Abstract**

PODs are teaching spaces for online delivery at WIT. The idea behind them came from a ground-up demand from staff for simple, quiet, private spaces, to experiment, practice and deliver online. A key feature was to use inexpensive equipment producing good enough quality without tying up more elaborate expensive studios and technicians so that they could be scaled as needed. Effectively they started life as a make or break lab for practising online delivery in private with support if needed. Such has been the success that after just one year, the original space was replicated as demand grew, and two more were established. The rooms were renamed POD1, POD2 and POD3. This poster highlights the technology currently in use in each.

### **Submission ID**

135

# **A New Technology Integration Observation Protocol: A practical demonstration for use in Higher Education**

## **Authors**

Dr. Stephen Comiskey - Learnovate @ Trinity College Dublin

## **Abstract**

For close to three decades educators have been grappling with how best to integrate technology into teaching and learning (P. A. Ertmer, 1999; McGarr, 2009). With recent developments in computing, there has been a marked decrease in the cost of hardware and as such, a subsequent increase in uptake (P. A. Ertmer & Ottenbreit-Leftwich, 2013). While schools become outfitted with more technology, policies and practices for its effective use are slower to develop, particularly in Ireland (McGarr, 2009). One area of concern is in the evaluation of effective technology use.

Following on from their PhD work, the author will demonstrate a live example of their observational protocol. Based on the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), and incorporating elements from Bloom's Taxonomy (1956), Hughes' (2005) Technology Integrated Pedagogy and capturing classroom interactions, this observational protocol was used to examine 12 in-service and 12 pre-service teachers from a range of subjects. The findings of this work showed the framework was able to determine between two distinct types of teachers – those who use teacher directed methods and those who use student centred methods – and was able to categorise them by their level of technology integration accordingly.

This presentation will provide attendees with an opportunity to engage with the observation protocol. This will be achieved by showcasing a pre-service microteaching session and asking participants to rank accordingly. It is hoped that this interaction will not only provide attendees with an opportunity to engage with an evidence-based observation protocol, but also allow the researcher to determine the affordances and challenges of using such a framework in a higher education context.

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## **Submission ID**

137

## **Just One Click....**

### **Authors**

Dr. Anne Marie O'Brien - Athlone Institute of Technology

Ms. Nuala Harding - Athlone Institute of Technology

### **Abstract**

Clickers, Student response systems (SRS), student polls, call them what you will. The potential for transforming traditionally passive lecture classes into stimulating interactive classes has been documented. Student response systems can engage the attention of students, make them active participants in their learning, and provide them with immediate feedback on their understanding of material. They also provide staff with information on students' understanding of course concepts and the ability to adjust course activities based upon student responses. This paper tracks the evolution within an institute of higher education in Ireland and the development from being an early adopter of clickers in the class room through to its use by multiple users and ultimately to campus wide adoption. Clickers in the classroom is not a new concept, however what this paper investigates is the use of a hybrid system which enables the students to engage with the material using a combination of handheld clickers, mobile phone, App and or computer. Colleagues in this Institute have successfully used the SRS with mixed pedagogies such as TBL, flipped Classrooms or in laboratory practical's to check key threshold concepts. The student impact has been assessed in many cases and found to be very positive. Over a number of years there has been a gradual and natural progression in the use of this technology in the classroom which has led to a cross faculty collaboration in order to purchase a campus wide licence for this software. This Institute is presently developing a plan to have an official launch. Student response systems are not necessarily a revolutionary topic, however, this paper offers an insight into the progression from early adopter of a technology to campus wide adoption. It is hoped that the insights and journey under will be of assistance to other researchers trying to introduce a new technology to their workplace.

### **Submission ID**

138

# **An evaluation of the application of the Adobe Connect software package and Surface Pro pen device to teach an online module in Clinical Pharmacy and Pharmaceutical Care to pharmacy technician students**

## **Authors**

Dr. Aoife Guiry - Athlone Institute of Technology

Ms. Diane Patterson - Athlone Institute of Technology

## **Abstract**

### **Key words:**

Online learning, online teaching technology, pharmacy technician education

### **Abstract:**

Face-to-face delivery of education is often perceived as a superior teaching mode when compared to other methods such as the online platform. However, online teaching and learning provides the working student with the flexibility to undertake learning from the home at times that fit in with their busy schedules. Furthermore, online teaching can act as a logistical solution to continuing education for students who live in more remote regions. A number of studies suggest that students engaging in online delivery in higher education found learning more challenging than face-to-face delivery in the classroom. In this study a cohort of pharmaceutical technicians were taught an NFQ level 7 course in Clinical Pharmacy and Pharmaceutical Care over 12 weeks (4 hours per week) using the Adobe Connect online platform and using tools such as the Surface Pro™ pen to enhance delivery. Students and educators were both surveyed to attain their views on use of the software package, the use of the Surface Pro™ pen to enhance the online classes, as well as overall satisfaction and experience of the virtual class. 75% of students found the Adobe Connect software was exceptionally user friendly while 100% of users found that it was easy to learn in the online classroom. 85% agreed that the use of the Surface Pro™ pen improved the online learning experience and felt more engaged when the pen was highlighting key points on the slides. Overall, the student feedback was positive for both use of the Adobe Connect software and Surface Pro™ pen. All students surveyed stated that they were empowered to undertake another online module in the future based on their experiences of participating in this module.

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**Submission ID**

139

# The affordances of digital technologies and digital transformation

## Authors

Prof. Grainne Conole - Dublin City University

## Abstract

Open Educational Resources (OER) and Massive Open Online Courses (MOOCs) are challenging traditional educational offerings. The talk will consider the affordances of digital technologies and their implications for teaching and learning. It aims to provide a reflection on the current status of the open education movement. There are a number of principles associated with open practices, including: freedom to reuse, open access, free cost, easy use, digital/networked content, social/community-based approaches, ethical arguments for openness, and openness as an efficient model.

The nature of and benefits of open practices depends on the context. The use of open practices is complex, personal, and contextual and continually negotiated. HEIs require collaborative and critical approaches to openness in order to support learning in an increasingly complex environment. Furthermore, open education needs to be viewed along a continuum with varying degrees of openness and access to knowledge.

OER and MOOCs offer significant opportunities for opening up education and supporting social inclusion. Despite the potential, OER are not being used extensively by students or teachers, and there is still a concern that MOOCs are predominantly being taken by those who are already educated. More critical conceptions of digital literacies are needed to better harness the potential of OER and MOOCs to achieve the goal of education for all.

Furthermore, there is a lack of understanding and clarity of how to recognise learning through OER and MOOCs. Models are emerging, such as: digital badges, and certificates of participation/completion, but despite early lighthouse projects these are still in their infancy.

This connect and converse session will provide an overview of Open Education and some of the associated advantages and disadvantages.

## Submission ID

140

# Pedagogical approaches to learning

## Authors

Prof. Grainne Conole - Dublin City University

## Abstract

Digital technologies can be used to implement a range of innovative pedagogies. There are now a bewildering array of pedagogical frameworks for learning, This talk will consider some of the key frameworks and how they can use used.

Churchill provides an indication of the ways in which learning is (or needs to) shift from a focus on teacher-centred to learning-centred practice. Sfard argues that *acquisition* (teacher-centred) and *participation* (learner-centred) metaphors of learning are not mutually exclusive.

The talk will contends that efforts to harness the potential of new digital technology in education should be framed in the language of promoting *learning-driven* approaches, which recognise the value and need for a wide range of both traditional and contemporary teaching methods. Put another way, fostering learning-driven approaches that support a *variety* of teaching methods should be one of the outcomes we seek rather than theoretical exclusivity towards a specific pedagogy. In this respect, the HoTEL project provides a useful visualisation of the wide range of learning theories and pedagogies, mapping these back to cognate disciplines, key theorists and the central tenets of each theoretical perspective. The key point is that there is no one single pedagogical model for the use of digital technologies as the most appropriate designs for learning (both with and without technology) should be informed by the nature of the students, intended educational outcomes, and specific discipline cultures.

Approaches to learning can also be categorises as follows: format, pedagogical approaches, niche/specialised, empowering, contextual, work-focused, innovative, supportive and moral.[1]

This praactitioner talk will consider some of the key pedagogical approaches to learning and will describe how these can be used to facilitate learning activities and the student experience.

[1] <http://e4innovation.com/?p=1074>

**Submission ID**

141

# Augmented Reality for Maths in Irish Schools

## Authors

Dr. Monica Ward - Dublin City University

Dr. Joe Travers - Dublin City University

Mr. Odhran Daly - Dublin City University

Mr. Russell Brady - Dublin City University

## Abstract

Augmented Reality (AR) is a technology that superimposes a computer-generated image onto a real-world image or view. It can provide an interactive experience and it is an emerging area of educational interest (Wu et al., 2012). This paper reports on two new AR apps: Maths AR and AR-T. Maths AR is an app for mathematics that is aimed at 4 – 7 years old learners but could be used by older learners also. AR-T is an AR app for shape and space and basic technical graphics content.

The Maths AR app superimposes AR images on to a real-world view and covers counting, comparison and size estimates. The app has a set of questions for each learning topic. The app 'places' a certain number of cartoon characters on a flat surface and learners have to count them. The app encourages learners to not count with their fingers as they will generally use two hand to hold the tablet or phone. Young learners often find it more difficult to count abstract objects than real ones and Maths AR provides students with an opportunity to count abstract objects and improve their abstract counting skills. With the comparison topic, the student must decide if the number of characters on the left-hand side is less than, greater than or equal to that on the right-hand side.

The AR-T app helps students visualise 3-D objects using AR. AR-T shows learners different AR objects and the learners can scale and rotate the objects in different dimensions. The learners can also unpack a 3-D object to see how it is constructed. The app addresses the three facets of mathematical understanding of a concept: linguistic, conceptual and procedural. In order to be able to understand shapes and space, students must know and understand terms such as plane and edge. The graphical component of the app can help students understand the fundamental features of a given shape. The app also enables students to apply their knowledge and check their understanding of shapes and space.

Maths AR and AR-T provide students with a new and dynamic way of looking at mathematics, shapes and space. Both these apps have been tested in Irish schools (primary and secondary). The results have been encouraging and indicate that AR can be used in Irish schools without too much difficulty. AR educational apps should be pedagogically-driven

and research informed and both these apps are aligned with the relevant curricula. Bronack (2011) argues that *how* the AR technologies support learning rather than the underlying technologies per se is what is important. While there is still room for improvements, these apps provide interesting insights into what is possible with AR in Irish schools today.

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## Submission ID

142

# Irish WordBricks – The app that let's you ENJOY Irish Grammar

## Authors

Dr. Monica Ward - Dublin

Dr. Maxim Mozgovoy - University of Aizu, Japan

Ms. Marina Purgina - University of Aizu, Japan

## Abstract

Irish is a compulsory subject for all students (with some exceptions) in Irish schools from the beginning of primary to the end of secondary school. This paper is not going to open the can of worms that surrounds the teaching and learning of Irish. However, it will provide an overview of Irish WordBricks (IWB) which is an app that, *whisper it*, allows learners to ENJOY playing with Irish grammar.

Irish is an orthographically complex language. While there is a logic to the spelling of Irish words, this logic is not immediately obvious to learners and spelling mistakes are common (Hickey and Stenson, 2011). This makes it difficult for learners to input sentences to an app to see if they are grammatically correct. IWB enables learners to construct grammatically correct sentences in Irish without having to worry about spelling words correctly. It provides learners with a combination of bricks in different colours and shapes that they can join together to create new sentences. The bricks represent different parts of speech and the learners can see patterns emerging as they form sentences using a given grammatical construction. IWB uses the same underlying architecture and infrastructure as the original WordBricks app (Mozgovoy and xxx, xxx) which was developed for Japanese university students learning English. It was adapted for Irish and is aligned with the Irish primary school curriculum.

The Irish WordBricks app has been used in several primary schools in Ireland with learners ranging from second class to fifth class students. The usage scenario is that the students would learn a grammatical construction with the class teacher and follow the usual teaching and learning scenarios. The students would then get a chance to use the app to check their own understanding of the construction. The app has been used in several different scenarios including all students focussed on the classroom laptop, shared tablet use and individual tablet use. Findings indicate that the students find the app easy to use and they enjoy the learning process. Teachers report that the app is suitable for their students and they see it as beneficial to their students. Exposure to a language is a key part of the learning process. Unfortunately, Irish students, particularly those in English-medium schools have very limited exposure to Irish outside of the school and textbook setting. The IWB app provides students with extra exposure to the language, which they actually enjoy and

would like to use outside the classroom setting. Although the app was designed for young learners, it could of course be used by learners of any age.

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Mozgovoy, M., & Efimov, R. (2013). WordBricks: a virtual language lab inspired by Scratch environment and dependency grammars. *Human-centric Computing and Information Sciences*, 3(1), 5.

## **Submission ID**

143

# IMPACT OF TECHNOLOGY IN TEACHER EDUCATION IN GHANA

## Authors

Mr. emmanuel oduro-sarkodie - virtue international school

## Abstract

Globalisation and technology have made education closer to us than before and it has improved our curriculum and sharing knowledge. The case of Ghana, before everything was manually based but with the introduction of Information and Communication Technology not as only new subject, but also as catalyse for teaching and learning. My research provides evaluation of the pedagogical issues associated with information technology use in teacher education in Ghana. The methodology used in the study focused on meta-data analysis in which issues associated with integrating ICT in Ghana's education were reexamined to provide a better picture that will support future achievement of teaching and learning with ICT. The evidence suggests that the challenges of ICT use in education do not lie only in the lack of availability of technological resources, but also in the shortage of skilled human resources and other institutional factors.

## Submission ID

144

## Call to ARM at Griffith College - Moodle pages reviewed, re-stocked and refreshed

### Authors

Ms. Alice Childs - Griffith College

### Abstract

Last year we made a decision to engage college-wide in some dynamic change management – and we called the project A.R.M. or Annual Rollover of Moodle. In the past at Griffith College we reviewed and upgraded the module Moodle pages, and moved from one iteration of the VLE to the next during the summer months. But in 2018 we took the opportunity of a Moodle re-design, to change this practice and consign the last academic year pages to the archive. Every module was assigned a *box-fresh* empty Moodle page to populate, ready for a new cohort of learners to view and engage with VLE activities, in another busy academic year.

The seismic change in practice was planned some six months in advance, as we needed to communicate this shift and then support our 200 members of staff in grasping a very positive move. Working closely with IT the Digital Learning Department (DLD) tested the technology on a sandbox platform and then started to spread the word that a change was coming. This was done to plan, and co-ordinated very deliberately as follows ...

- Communicate ARM to faculty via college wide committees from Feb 2018.
- A series of emails sent to all lecturers with illustrations and useful links.
- The DLD created two videos to guide lecturing staff through this process - the first video was an overview of ARM - using *Video Scribe* software and the second was a step-by-step narrated walk-through of the roll-over on *Camtasia*.
- A webpage was created on the main Griffith College website and staff support Moodle page, with the two video guides, relevant links and contact details for the DLD Learning Technologists.
- A series of workshops were offered to staff, to explain and demonstrate the ARM process.
- Finally, as the old Moodle pages were archived (31st August 2018) the DLD staff offered desk-side support or Zoom conferencing to staff in all four campuses
- The DLD created a **Standardised Moodle page** guide with images, diagrams and video instruction, so staff could easily build up a working Moodle page on the newly designed platform

The project proved a success with reviewed/refreshed Moodle pages and over 1000 hits on the videos.

This connect and converse item will involve use of video artefacts and lively discussion of the ARM project and the benefits of this methodology for change management on a college-wide scale.

**Submission ID**

145

# **Integrating Universal Design in Agile UX Software Development Team Projects.**

## **Authors**

Mr. Enda Finn - Dundalk Institute of Technology

## **Abstract**

The Department of Visual and Human Centred Computing (DVHCC) at Dundalk Institute of Technology (DkIT), in collaboration with the Centre of Excellent in Universal Design (CEUD), has pioneered the development and delivery of Universal Design through Agile UX to undergraduate students in both 3rd year Universal Design Project and final year Team Project modules on the Honours Degree programmes in both Computing and in Games Development.

Modern software development teams are being tasked with creating sophisticated, highly interactive, visually rich applications, immersive 3D games and VR/AR simulations. The range and complexity of the application domains being considered and the specialist user needs addressed is continually expanding and diversifying. From content rich social media apps, to immersive and well-being enhancing games to sophisticated engineering support tools, such diverse scenarios present significant challenges related to interaction, modality, human factors and usability. These present substantial and realistic challenges and learning opportunities both to under-graduate developers and to the external collaborators alike and demand both user-centred and user participative design and development. Through the integration of Universal Design principles, design practices and Agile UX processes and tools into the learning space, significant progress can be made, achieving effective, innovative solutions whilst employing deeper, more empathetic understanding of diverse user needs and capabilities. Additional benefits include: managing complexity, realistic estimation and prioritisation of requirements, simulation of real-world development, cross team and cross discipline collaboration and potential for innovation and entrepreneurial endeavour.

This presentation will provide a brief overview of the Agile UX development process and tools used to integrate Universal Design thinking and practice into a small-scale undergraduate software development team. A sample Agile UX team project is outlined, in particular looking at a specific design scenario and associated user requirements, showing how these are evaluated based on application of specific Universal design principles.

## **Submission ID**

147

# **Instructional design process for designing online courses**

## **Authors**

Ms. Louise Kearins - IT Sligo

Ms. Jennifer Gilligan - IT Sligo

Ms. Mairead Noone - IT Sligo

## **Abstract**

This poster steps through the instructional design process required to identify the most appropriate instructional framework for an online programme. This framework is used to identify the suitable digital learning activities and resources for effective learning online.

When the characteristics of a theory is mapped to the instructional design methodology, we can see the implications for course design. Technology gives us the opportunity to analyse the success of an instructional design strategy and framework to maximise the enhancement of teaching and learning.

The instructional design model provides us with (a) the steps to go from analysing a situation to (b) identifying an instructional need to (c) evaluating the success of our instructional intervention. The review process will build in the lessons learned to refine and develop the instructional design model further through feedback and data analytics.

## **Submission ID**

149

# Flight of the butterfly: digital technologies and educational outcomes

## Authors

Prof. Mark Brown - Dublin City University

Prof. Grainne Conole - Dublin City University

## Abstract

**Keywords:** Digital technologies, educational outcomes, Learning Design

Cuban (2018) questions whether or not the use of digital technology has resulted in transformed teaching and learning in education. He argues that evidence of progress arises from gradual or incremental changes and the cross-pollination of ideas about new ways of teaching and learning rather than from top-down policy mandates. Metaphorically speaking, Cuban (2018) describes this change as the 'flight of a butterfly rather than the path of a bullet'.

The talk describes a recent EU-commissioned report (Brown et al., 2019). It explores some of the factors that influence the transformative use of digital technology, with a particular focus on innovations that contribute to enhancing educational outcomes. The underlying assumption is that digitisation is one of the greatest challenges and opportunities of today's world and that digital competence has become essential for successfully living, working and learning in the 21<sup>st</sup> century. After all, educational institutions do not exist to only prepare the next generation of workers and nor can they be expected to fix all the problems of an ever-changing society.

A theoretical lens underpinned the report:

- Digital technologies have the potential to enhance and transform traditional ways of teaching, learning and assessment, however pedagogical practices remain overall resistant to innovation.
- The quality and effectiveness of pedagogy and related educational outcomes is heavily dependent on the way teachers use and mediate the technology in their classrooms.
- New digital technologies are emerging all the time, such as Augmented Reality (AR) and Artificial Intelligence (AI) and these clearly have significant implications for teaching and learning.
- Digitally-enhanced learning offers a variety of opportunities to improve educational outcomes.
- Traditional models of instruction and assessment still dominate.

- It is particularly difficult to establish direct causal relationships between pedagogy and technology interventions.

The talk will conclude with a set of key principles, which arose from the report:

1. Research on technologies must take greater account of the complexity of the learning ecology.
2. Designs for effective learning with digital technologies should promote a variety of intentional pedagogical approaches that most appropriately support learners' needs, intended educational outcomes, subject discipline requirements, and instructional and institutional contexts.
3. Teachers' mindsets mediate technology implementation; teachers matter most.
4. Assessment needs to support deep learning. Where appropriate, technologies should be woven throughout formative and summative assessment, including final examinations, to support active, authentic and meaningful learning.
5. Leadership and institutional cultures have a strong impact on change. Institutional factors known to influence successful implementation of technologies should be the focus of targeted professional learning for educational leaders and shared widely within their existing communities of practice.
6. Future policies designed to enable the effective use of digital technologies in school education need to shift the current discourse away from the language of education *in* change to focussing on education *for* change.

## References

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Cuban, L. (2018), The flight of the butterfly or the path of the bullet?, Harvard Education: Harvard.

## Submission ID

150

# Enhancing Corrective Feedback in an L2 Academic Writing Course: An Evaluation of Screencasts and Quickmarks as Feedback Tools

## Authors

Ms. Cathriona Connor - Dundalk Institute of Technology

## Abstract

In second language (L2) academic writing courses, it is considered beneficial for learners to receive written corrective feedback (WCF) on their draft papers. WCF draws attention to errors, and provides scaffolding to learners as they self-correct. Traditionally, WCF includes the use of error codes (for example, the code *VF* signifies an error in verb form), in part so that learners can notice the types of errors they are making, and where they need to focus attention. However, such approaches can be unsustainably labour-intensive and repetitive; all the more so when a class size is large, or an assignment is lengthy. In an effort to overcome these challenges, this practitioner carried out an Action Research project where technologies were trialled. Two action cycles were completed, with the help of final-year undergraduate students writing dissertations in English as their L2. In cycle one, Microsoft Word's Comments feature was used to highlight errors, and spoken feedback was given via Screencast. While there were perceived benefits to the intervention, it did not resolve the issues of WCF being labour intensive, repetitive, and time consuming. In cycle two, she used Turnitin's Quickmarks feature to create a bank of frequently-used comments, tailor-made for these learners in this context. Each Quickmark contained a conventional L2 error code, an explanation of that code, and a textbox where the teacher could add further elaboration when needed. Quickmarks appeared to not only increase efficiency and effectiveness, but were also found to be highly suited to teaching and learning in an L2 context. The process was found to foster self-correction amongst L2 learners, supporting them in producing more accurate final drafts; and it facilitated teacher-learner mediation and negotiation of meaning. It was positively received by the learners, and resulted in the teacher developing a new approach and set of practices.

## Submission ID

151

## Flipsides: a flipped classroom model for educational partnership

### Authors

Dr. Gearoid O Suilleabhain - Cork Institute of Technology

Mr. Darragh Coakley - Cork Institute of Technology

### Abstract

The flipped or inverted classroom has around for some time now, dating back at least to work by Lage, Platt and Treglia (2000) with Salman Khan often being viewed as a key figure in popularising both the term and the approach. While definitions and practices vary, flipping or inverting the classroom broadly involves designing activities -- in particular content delivery or information transmission -- traditionally carried in the physical classroom or during class time to take place outside the classroom at the learner's home and taking activities usually carried out outside the classroom (aka "homework") and placing them inside it. Operationally, this has tended to mean learners streaming teacher developed or third party educational video content outside of the classroom (Akçayir & Akçayir, 2018) and using classroom time for teacher-directed discussion, collaborative work and other active learning activities. The commonly cited benefits of flipping the classroom include better use of classroom and teacher time and better student performance, engagement and motivation, though certain concerns and limitation are also discussed (see below). This article presents an alternative implementation of a flipped classroom model in which the model was used as the basis of an educational partnership between a higher education institute and a secondary school. Unlike many flipped classroom approaches the learning goals were not directly curriculum related but linked instead to a semester-long initiative to support first year secondary school students (n=90) to produce group-based mini documentaries about debates around the use of social media. Beginning with a suggested menu of topics, the higher education partner released a week-by-week series of asynchronous video-based content with activities which were shared via the school's LMS but also, significantly, played by the school teachers in class where they formed the basis for in-class activities and scheduled group work which culminated in the student groups makes a final submission of their work for review and, ultimately, a special screening event. Higher education teaching staff also visited for key milestone reviews. Early triangulated findings suggest the approach worked successfully as the basis for an extended outreach initiative and higher education school partnership. Moreover the approach addresses traditional concerns raised about the flipped classroom approach in terms of its potential exclusion of "technology-poor" learners, its over-reliance on an instructionalist pedagogy for information transmission as well as issues around low self-regulated learner behaviour, motivation and preparation for class time.

**Submission ID**

152

# **(Un)Bundle of Joy: Higher Education's Baby Steps into Disaggregation**

## **Authors**

Mr. Gavin Clinch - IT Sligo

## **Abstract**

Unbundling is seen as the disruption of higher education through the disaggregation of curricula provision and services facilitated by the affordances of digital technologies and the marketisation of the education sector.

An early example of unbundling came in the music industry when Apple launched iTunes and effectively unbundled the CD and allowed customers to purchase the music they wanted instead of the pre-packaged bundle normally provided by record labels. The traditional degree is higher education's bundle (Craig & Williams 2015). Put simply bundling has been central to HE's business model for centuries – a qualification package which generates revenue (Craig 2015).

As yet there is very little empirical research nationally about the nature, process and impact of unbundling and there is little or no explicit reference to it within current Irish policy texts or strategic documents. The Strategy for Higher Education 2030 does however, identify two major areas where change is necessary; the structural framework within which higher education operates and ways in which HE is funded. These areas for change speak directly to the perceived benefits of unbundling.

In the US there are a number of areas across public HE provision that are now being unbundled and delivered in partnership with private companies. Broadly these are: programme level planning, course design and development, course delivery, student support, evaluation and course maintenance.

This short presentation and subsequent, speed date discussion will briefly examine the areas for unbundling HE in Ireland and challenge the audience around the possible pros and cons of the potential disruption.

## **Submission ID**

153

## **FET - Digital Transformation**

### **Authors**

Mr. Paul Gormley - NUIG

### **Abstract**

FET - Digital Transformation for Paul

1st Research block

### **Submission ID**

154

# **Technology in Action 1**

## **Authors**

Mr. Paul Gormley - NUIG

## **Abstract**

Technology in Action 1

## **Submission ID**

155

## **Technology in Action 2**

### **Authors**

Mr. Paul Gormley - NUIG

### **Abstract**

Technology in Action 2

### **Submission ID**

156

## **Technology in Action 3**

### **Authors**

Mr. Paul Gormley - NUIG

### **Abstract**

Technology in Action 3

### **Submission ID**

157

## **Technology in Action 4**

### **Authors**

Mr. Paul Gormley - NUIG

### **Abstract**

Technology in Action 4

### **Submission ID**

158

# Steps: a Matlab-based interactive tool for teaching spectral image data analysis

## Authors

Dr. Aoife Gowen - University College Dublin

## Abstract

Spectral imaging combines spectroscopy and imaging to provide comprehensive analysis of objects and systems, such as foods, pharmaceuticals and plants. Matlab<sup>1</sup> is a powerful computational environment for the development of routines for analysis of spectral imaging data and is consequently widely used in research; however the availability of educational resources in this area is limited. Teaching spectral image data analysis is often achieved by providing students with example Matlab scripts, which students can modify to analyse new data. However, due to the ease with which scripts can be copied and pasted, this approach often fails to promote understanding of the various operations involved in spectral image data analysis. To overcome this challenge, a new tool, called 'steps' was developed. In this tool, the original example Matlab script is broken up into several steps, implemented as Matlab p-files that cannot be seen by the user. After each 'step' is completed, the corresponding commands to achieve that segment are explained and printed on the screen and a question related to the segment is presented to the user. The user cannot proceed to the next step until the correct answer is provided. The tool was trialed to a group of 7 students (mixed level from 4th year undergraduate to PhD level) and anonymous student feedback was obtained through Socrative<sup>2</sup>. Student feedback indicated that the tool increased student understanding of the topics covered.

## References

1 <https://www.mathworks.com/products/matlab.html>

2 <https://www.socrative.com>

## Submission ID

159