



Welcome to the Fifth All-Ireland Conference for Undergraduate Research (AICUR), hosted by the Centre for Teaching and Learning and all University of Limerick faculties.

What is AICUR?

AICUR is just like any other academic conference but what makes it special is that the presentations will be delivered by undergraduate students showcasing research work they have done as part of their studies.

The main aim of AICUR is to promote and applaud the fascinating and worthwhile research work that goes on at undergraduate level. In multi-faceted ways, it supports and recognises the development of UL's Graduate Attributes: articulate, proactive, responsible, collaborative, knowledgeable, and creative. The conference is designed to give undergraduate students (from first to final year) from colleges and universities across Ireland the opportunity to present their research and discuss their creative accomplishments through posters, performances, demonstrations and oral presentations. The goal is to give undergraduate students from across the country the opportunity to present their research work at an academic conference. This year's participants are paving the way for all future AICUR events and should feel themselves pioneers, exploring the parameters of what undergraduate research in higher education can achieve.

We have structured the programme to create interdisciplinary and cross disciplinary themes so that papers from different fields of study can come together allowing for, and encouraging students, and attendees alike, to interact with and learn from their peers across the academy. Apart from creating academic opportunities, we want to provide opportunities for a dynamic exchange of ideas as this is really at the core of AICUR. It is hoped that during the conference you will be able to meet and talk to undergraduate researchers and faculty across many disciplines and this, in turn, will provide an insight into how other disciplines approach research problems.

'By heightening awareness and creating dialogue, it is hoped research can lead to better understanding of the way things appear to someone else and through this insight lead to improvements in practice.'

Barritt (1986: 20)

The AICUR Organising Committee  
Limerick, 2018





## AICUR Organising Committee

### Members

Dr Fiona Farr, Dean of Teaching and Learning ([fiona.farr@ul.ie](mailto:fiona.farr@ul.ie)) (Chair)

Conor Hussey, UL Students' Union ([conor.hussey@ul.ie](mailto:conor.hussey@ul.ie))

Sarah Gibbons, Centre for Teaching and Learning ([sarah.gibbons@ul.ie](mailto:sarah.gibbons@ul.ie))

Vicky Kelly, Centre for Teaching and Learning ([vicky.kelly@ul.ie](mailto:vicky.kelly@ul.ie))

Dr Óscar Mascareñas Garza, Irish World Academy of Music and Dance

([oscar.mascarenas@ul.ie](mailto:oscar.mascarenas@ul.ie))

Dr Patricia M. McNamara, Education and Health Sciences ([patricia.m.mcnamara@ul.ie](mailto:patricia.m.mcnamara@ul.ie))

Maura Murphy, Centre for Teaching and Learning ([maura.murphy@ul.ie](mailto:maura.murphy@ul.ie))

Dr Walter Stanley, Science and Engineering ([walter.stanley@ul.ie](mailto:walter.stanley@ul.ie))

### Contact

AICUR Organising Committee  
Graduate Attributes Hub  
Millstream Courtyard, UL

Web: <https://www.ul.ie/ctl/students/all-ireland-conference-undergraduate-research-aicur>

Email: [Vicky.Kelly@ul.ie](mailto:Vicky.Kelly@ul.ie)

Phone: +353 61 234260



## Acknowledgements and Thanks

**Special Thank You** to the Deans and Faculties at the University of Limerick who contributed in many ways to the AICUR event. The AICUR Organising Committee would also like to thank our sponsors who have generously supported the AICUR awards.



**ZAGG Inc** (NASDAQ:ZAGG) is a global leader in accessories and technologies that empower mobile lifestyles. The Company has an award-winning product portfolio that includes screen protection, power management solutions, mobile keyboards, social tech, and personal audio sold under the InvisibleShield®, mophie®, ZAGG®, and IFROGZ® brands. ZAGG Inc has operations in the United States, Ireland, and China. For more information, please visit [www.zagg.com](http://www.zagg.com) and [mophie.com](http://mophie.com).

**O'MAHONY'S**  
BOOKSELLERS SINCE 1902



O'Mahony's was founded in 1902 at 120 O'Connell St. Limerick by J.P. O'Mahony, grandfather of the current owner Frank, and continues to trade from the same location. A family business O'Mahony's employs 80 staff who has a wealth of bookselling knowledge. With its Limerick headquarters – the recipient of an RIAI award – and three other branches, no Irish bookseller can match the wide diversity of stock and broad customer base as O'Mahony's.



## *The* STABLES CLUB ESTD. 1987

Founded in 1987, The Stables Club has become the focal point of campus social life. Their success has been based on their dedication to providing the best possible service and an atmosphere that lets both the student body and faculty relax in comfort. For 28 years, they've never been afraid to change and constantly look for ways to improve and build on the services they provide. At the back of it all has been a huge amount of work put in by our management team and staff. In fact, our management have been here since the day the Stables opened, and the experience they've built up over the years is second to none.



Aramark Ireland has over 5,000 employees across 980 locations. Our world-class experience and expertise in workplace solutions, food services, environmental services and property enables us to provide a fully integrated solution to Irish and EMEA companies who wish to achieve maximum value by working with a single partner.



Kindly sponsoring match tickets for this year's student conference

### Exhibitor



**Brenda Cullen, Undergraduate Awards**

Cited as the ultimate champion for high-potential undergraduates, The Undergraduate Awards is the world's largest international academic awards programme. It is uniquely pan-discipline, identifying leading creative thinkers through their undergraduate coursework. The Undergraduate Awards provides top performing students with the support, network and opportunities they require to raise their profiles and further their career paths, as well as awarding the Overall Winners with a gold medal and publishing their work in The Undergraduate Journal. Entrants to The Undergraduate Awards are invited to **The Undergraduate Global Summit** in November, a 4-day event celebrating undergraduate excellence and connecting top students from around the world to foster a spirit of collaboration and global social responsibility.



## ACHIEVING DREAMS

### Keynote Speaker – Dr Norah Patten



Dr. Norah Patten is a faculty member at the International Space University and became Ireland's first scientist-astronaut candidate with Project PoSSUM (Polar Suborbital Science in the Upper Mesosphere) in 2017. Norah is an experienced science communicator and is the founder of Planet Zebunar which develops products to inspire the next generation of engineers, astronauts, scientists and innovators.

In 2016, Norah participated in the New Frontiers Entrepreneur Development Program in ITT Tallaght, funded by Enterprise Ireland. She was a recipient of the Emerging Space Leaders Grant and a Next Generation Plenary panellist at the International Astronautical Congress in 2015.

Through a partnership with NanoRacks, Norah initiated and managed 'The Only Way is Up' project which launched Ireland's first student experiment to the International Space Station in 2014. She participated in the International Space University Space Studies Program in 2010, has industrial experience from The Boeing Company and Bell Labs Alcatel Lucent and was the Space Generation Advisory Council National Contact Point in Ireland for 4 years.

Norah holds a PhD in Aeronautical Engineering and a 1.1. bachelor's degree in Aeronautical Engineering from the University of Limerick. Norah has worked as a lecturer at the University of Limerick and spent three years at the Irish Centre for Composites as the Communications and Outreach Manager.



## **Student Presentations** (listed in alphabetical order by presenter name)

### **The transition of Ireland's Farming Woman to the Farmers' Wife – A Critical Discourse Analysis**

Irene Bermingham, BA Joint Honours English and New Media & Cultural studies (University of Limerick)

#### **Abstract**

This project exposes gender inequality within Irish agriculture through a critical discourse analysis of Irish Farmers Journal articles from 1950's to current day (2018).

Sources for uncovering the day to day details of women's work on the farm are difficult to come by, especially for female members of the farming family who were often unpaid and so left no paper trail in accounts or other records. Thus, through a critical discourse analyses this project observes how articles published by the Irish Farmers' Journal permitted and reinforced the regression of Ireland's Farming Woman to the Farmers' Wife. This study details the history of Irish women in agriculture. It explored the language of journalism and its place in society and how Irish women in agriculture are/were portrayed within agricultural journalism from the 1950's to present day. Finally, a critical discourse analysis of IFJ articles from the 1950's, 1970's and the current century shows that societal ideologies and media discourse ideologies work hand in hand.

Thus, the thesis concludes that change, in the form of progression or regression happens simultaneously in society and media discourse. The project concludes by stating that thankfully alterations have been largely progressive in recent years and although there is room for further improvements, gender equality issues in Irish agriculture recently have been and continue to be exposed, challenged and over turned by society, its institutions and its media discourse.

### **Ideation sketching in a paperless design studio**

Marie-Clare Boothman, Digital Media Design (University of Limerick)

#### **Abstract**

This research examines if drawing on iPad with an Apple Pencil using the iPad's default sketching software, affords enough ease of interaction for a designer to make the fluid, quick and often messy sketches which are a crucial part of the ideation stage in the design process. This research lies in the field of Human Computer Interaction and incorporates a combination of qualitative and quantitative methods, including self-completion questionnaires, non-participant observation, focus group with semi structured group interview questions and an experiment.



The experiment takes place in the UL Design Studio where students are trained in a method of loose, fast, freehand sketching executed with pen or pencil on paper using a swinging motion from the shoulder of the drawing arm. Advances in digital drawing technology have developed tools which replicate very closely the graphite pencil/pen on paper means of sketching. Apple's Pencil has the least time lag from pencil to line and the most refined pressure sensitivity between the user's hand and the drawing surface of all the digital drawing tools to date. The experiment is designed to examine how the participants in the sample group find the Apple tools compared to pen and paper for three specific free hand sketching tasks. Data collected will be analysed to compare these digital sketching tools with the traditional pen and paper for this type of sketching and looks at whether they might be adopted as the tool of choice for ideation sketching.

## **Does visibility matter? An investigation into the relationship between illness visibility, illness perceptions, coping strategies and mood**

Chelsea Carr, Psychology and Sociology (University of Limerick)

### **Abstract**

Previous research suggests that both illness perceptions and coping strategies are important factors influencing psychological outcome in patients. However, there has been little research examining the contribution of illness visibility to the variance of mood.

The aim of this study was to examine the relative contribution of illness perceptions, coping to the variance in mood among three medical conditions with varying visibility; psoriasis (highly visible), traumatic brain injury (mid-range visible) and cardiac (invisible) patients.

Design - Cross-sectional study. Seventy five individuals: 25 psoriasis, 25 cardiac and 25 traumatic brain injury patients participated in the study. Patients completed the Hospital Anxiety and Depression Scale (HADS), the brief COPE and the brief Illness Perception Questionnaire (Brief-IPQ). The Psoriasis Area and Severity Index (PASI) was utilized to assess psoriasis severity.

Correlational analyses will be conducted to determine the relationships between all study variables. The distribution of outcome data will be examined by QQ plots and a Shapiro Wilks test, independent samples t-test (or non-parametric equivalent), Pearson correlation coefficient (or non-parametric equivalent), and a Chi square test will be used in the initial examination of the data. The principal research question will be examined by regression analysis controlling for visibility of the respective conditions. It is expected that illness visibility will account for the greatest proportion of the variance in mood. The results will be discussed in light of previous research and will shed light on the importance of addressing psychological factors in clinical care.

## Mobile Phone Based NFC Capabilities for Use in Assisted Living

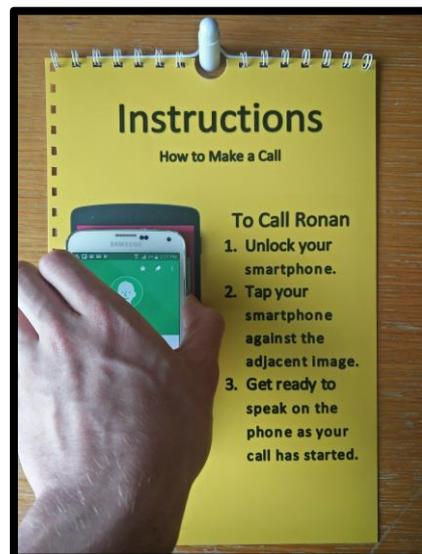
Ronan Carr, Electronic & Computer Engineering (University of Limerick)

### Abstract

In an age where technology is ubiquitous throughout all aspects of society, smartphones continue to dominate as the most used technological device. Despite this popularity, there still exists a significant deficit in the number of elderly people using smartphones.

The project aims to address this deficit and bridge the gap between old technology and new. This is done by exploring the capabilities that exist in an NFC enabled smartphone. NFC is the effortless tapping technology used in contactless payment.

The project simplifies a mobile phone for an older demographic. They can simply initiate a call or send a predefined text message by tapping a picture using their NFC enabled smartphone. A tagged picture phonebook called 'Easy Pages' similar to the 'Golden Pages' was devised as a means of display for the target audience to use.



Lastly, the project seeks to diminish commonly pre-conceived societal beliefs that all elderly people are incapable of using smartphones. The conclusion of the project helps to vindicate this.



## Chronological and Seasonal Variation in ST-elevation Myocardial Infarction (STEMI)

Napohn Chongprasertpon, Bachelor of Medicine, Bachelor of Surgery (University of Limerick)

### Abstract

ST-elevation Myocardial Infarction (STEMI) is a type of heart attack. Primary percutaneous coronary intervention (PPCI) is a form of treatment which can involve stenting of the coronary arteries supplying blood to the heart muscle. Recent research has indicated that STEMI treated with PPCI is not affected by the “weekend effect” of higher mortality at 30 days for patients admitted over the weekend. Similar results were reported for off-hours admissions. Variation in STEMI has been reported across the days of the week and throughout the day. STEMI has been reported to occur more often in Winter with higher risk associated with colder climate. Due to the lack of published data for an Irish population we sought to analyse for chronological and seasonal variation in STEMI. We also aimed to determine mortality associated with weekend and off-hours admissions. This was an observational retrospective study of 876 STEMI patients treated with PPCI at University Hospital Limerick from 2012 to 2016.

Analysis of continuous variables were performed using the Independent Samples t-Test and ANOVA. Categorical variables were analysed using Pearson’s Chi-Squared test. Our results indicated fewer patients presented between 11pm and 8am. This has important ramifications regarding staffing. We found no evidence of a ‘weekend effect’ with respect to mortality in STEMI patients presenting to our centre. This is reassuring, indicating our patients receive consistent care. Unlike previous reports, no seasonal variation was found in the incidence of STEMIs in our data, suggesting that seasonal variation previously described in STEMI may not exist ubiquitously.

## Do Drop Jumps Always Elicit Fast SSC Characteristics?

Vicky Costello, Michael Crawley, Jake Ryan, Tara Casey, Ian Quinn, Sport and Exercise Science (University of Limerick)

### Abstract

The Stretch-Shortening Cycle (SSC) is a natural muscle function where a muscle is eccentrically contracted, effectively stretched, immediately prior to a concentric shortening contraction. Schmidtbleicher (1992) categorised SSC into fast SSC, ground contact time (CT) <0.25s, and slow SSC, CT >0.25s. Fast SSC is key to explosive sporting performance. Drop jumps (DJs) are a commonly accepted fast SSC exercise whereby a person aims to jump as high and as quick as possible, minimising CT. The purpose of this study was to determine if DJs always exhibit fast SSC characteristics. Secondary aims were to examine differences between males and females and to compare differences between box heights.



20 healthy 18-23 year old participants (10 male, 10 female) who were familiar with DJ technique participated in the study. Participants performed 5 jump trials from 0.3m and 0.45m box height. It was found that 60% of participants' CTs were over 0.25s for both box heights. Also, 70% males had a mean CT >0.25s and 50% females had a mean CT >0.25s for both boxes. However, no significant differences between sex or box heights were found.

These findings led us to conclude that drop jump CTs are not always <0.25s. DJs may still be useful as an exercise to train fast SSC, providing the athlete has a CT <0.25s. Biomechanists, coaches and athletes should monitor ground contact time when training muscle function.

## Psychological distress mediates the impact of perceived stigma on the physical health of acne sufferers

Jamie Davern, Psychology and Sociology (University of Limerick)

### Abstract

Acne vulgaris has been described as a 'non-disease' and 'cosmetic problem' (Cotterill & Cunliffe, 1997) due to its widespread presence and non-life threatening nature. Nonetheless, previous research has demonstrated that acne can cause psychological consequences including deficits in self-esteem, body image and well-being (Tasoula et al., 2012). To date, few studies have investigated the effects of stigma on the psychological and physical health of acne sufferers.

This study aimed to determine if acne sufferers' levels of perceived stigma predict their levels of psychological distress and the occurrence of somatic symptoms. Moreover, the study examined whether the impact of perceived stigma on somatic symptoms is mediated by psychological distress.

A convenience sample of 276 acne sufferers at the University of Limerick participated in this cross-sectional study (265 students, 11 staff members). They completed measures of perceived stigma, psychological distress and somatic symptoms online. Additionally, they completed measures investigating potential confounds including gender, acne severity and acne location. The study was empirical in nature and utilised simple linear regression analyses and bootstrapping methods (Hayes, 2009).

Perceived stigma was found to have a direct effect on the participants' psychological distress and somatic symptoms, such that greater perceived stigma predicted higher levels of both. The direct effect of perceived stigma on somatic symptoms was rendered non-significant when psychological distress was taken into account. Therefore, the impact of perceived stigma on somatic symptoms is mediated by psychological distress. The findings address gaps in the literature, provide further insight into the consequences of acne and could have implications for the treatment and counselling of acne patients.



## Examination of Practical and Pedagogical Issues Surrounding Science Outreach Programs in Ireland

Cormac Dignam, Physics and Chemistry with Concurrent Teacher Education (University of Limerick)

### Abstract

The aim of this project was to investigate the extent of science outreach programs in Ireland, to find what is out there, how it is being run, what if anything could be done to improve this situation and to develop a framework for future science outreach initiatives. In the literature review, relevant examples related to the potential issues and advantages of each outreach type were reviewed to develop an organizational framework to aid further research. Following on from this, the research done in the literature review was used to develop a provisional pedagogical framework for the provision of outreach activities. This included both a practical and pedagogical approach to how outreach is organized and set up.

Once this literature based pedagogical framework was developed, questionnaires were utilized and targeted at the organizers and funders of science outreach programs across the country. From the results of these questionnaires, the provisional framework was discussed and modified in the results and analysis sections of the report. Subsequent to this, interviews were organized with a select few individuals based on the level of detail provided in their questionnaires. From this information, amendments were made to the framework to provide a more overall picture to the information being used. It was found through research the extent of a few varying types of outreach and how they organize themselves.

## Adsorption Parameters In Biochar Adsorption

Darragh Donnelly, Chemical and Biochemical Engineering (University of Limerick)

### Abstract

Research was performed on the viability of biochars of two agricultural waste materials; coconut husk and spent mushroom compost, as environmentally friendly adsorbents for the removal of heavy water ions from wastewater. Their performance was compared to that of activated carbon with considerations to quality of separation, cost and the environmental impact of production. Experiments were carried out using both batch and continuous setups for the determination of applicable kinetic and equilibrium models and the generation of a breakthrough curve. From these experiments calculations it was determined that the adsorption equilibrium followed the Langmuir model, had kinetics of a second order and the continuous breakthrough curve followed the Yoon Nelson model. From integral mass balancing the adsorbent loading parameters and breakthrough points were calculated. Looking at comparisons from metadata gathered from literature to experimentally gathered data it was shown that spent mushroom compost biochar offers a comparable adsorption performance at a fraction of the price.



## **Media Frames of Asylum Seekers in the Right to Work Campaign: A Case Study of The Irish Times**

Sinead Doran, Applied Languages (University of Limerick)

### **Abstract**

This FYP focuses on The Right to Work campaign which is a highly salient topic in Ireland at the moment. However, to date very little research has been carried out on its reportage in the media. In what way is the Right to Work Campaign framed in The Irish Times newspaper? Framing is the focus or omittance of certain aspects of an issue in order to portray a particular idea (Entman 1993).

The research was carried out using both Corpus Linguistics And Critical Discourse Analysis. Corpus Linguistics is the study of different aspects of language using collections of computerized text and particular computer-based techniques (Lee 2008). Critical Discourse Analysis is “the study of how texts, particularly media texts, frame the events or issues they describe” (O’Halloran 2010, p.563). A corpus was made from texts spanning 365 days, collected from The Irish Times newspaper surrounding the campaign discussion. It was then thoroughly analysed for a truly justified result.

This information is important for the entirety of the Irish public as this campaign is salient in all of our lives. The campaign is ongoing and it is important for one to know the quality of information they are receiving from the media surrounding this campaign. Overall, the newspaper is not supportive of the campaign. Whilst this evidence is not outright at first glance, it becomes clear from the use of Corpus Linguistics and Critical Discourse Analysis that The Irish Times newspaper is against the Right to Work campaign.

## **Examining the contributory effects of Body Esteem measures to Appearance, Social and Performance self-esteem in University students**

Cathal Ffrench, BA Psychology and Sociology (University of Limerick)

### **Abstract**

In contemporary society, particularly in college environments, body esteem is a prevalent issue with many individuals feeling dissatisfied with their outward appearance. However, the association between aspects body esteem and aspects of general self-esteem has been a relatively under-studied area. Poor self-image (body esteem) and low general self-esteem can have consequences on an individual’s psychological and emotional wellbeing, leading to depression and potential development of eating disorders.

The present study utilised an existing dataset to investigate the relationship between various elements of body esteem and performance, social and appearance self-esteem in male and female college students. The analysis for this study was conducted through correlational and stepwise regression techniques. One of the



main findings was that men did not differ significantly from females on body esteem, though the data did approach significance. The present study suggests that physical condition and weight concern regarding their bodies are the main predictors of the aspects of self-esteem used within this study. Future research should look to examine the influences of media on one's body esteem and its relationship with self-esteem, as media influence in the 21st century is at an all-time high and its impact cannot be ignored.

## Synthesis of a Fluorescent Sensors for DT Diaphorase

David Flood, BSc. Science (Maynooth University)

### Abstract

The role of cellular reductive stress has recently become an area of research interest as it can be symptomatic of numerous diseases which include Parkinson's disease, Alzheimer's disease and tumour growth. Reductive stress is a cellular condition which is characterised by the presence of reductive enzymes in higher concentrations than that of normal within the cell. Detection of reductive stress at the beginning stage of tumour development may therefore be critical in early diagnosis of cancer.

This research project therefore focused on designing a potential prodrug which would activate upon addition of one such reductive enzyme, DT Diaphorase. The probe design was a quinone based derivate which would act as the substrate for the enzyme to bind with and involved a three step synthesis with the addition of umbelliferone as the chemical fluorophore.

In the presence of DT Diaphorase, our designed molecule can be activated exhibiting an increase in fluorescent intensity. Fluorescent activity of the prodrug could subsequently be correlated to the activity of the enzyme. As a whole, the project implications may be significant as the potential application of such a prodrug could ultimately be used to indicate the level of reductive stress a cell is under through future *in cellulo* studies.

## Correlates of sleep in adults with Rheumatoid Arthritis. A systematic review.

Sinead Gaffney, Physiotherapy (University of Limerick)

### Abstract

Over 50% of those with a diagnosis of Rheumatoid Arthritis (RA) experience poor sleep quality (Scott 2010). This may result in altered health-related quality of life, in addition to decreased daytime function. The aim of this systematic review is to identify and compile an account of the correlates of poor sleep in those with RA.

Two reviewers carried out literature searches of nine electronic databases. Literature was chosen based on the application of eligibility criteria and quality assessment in accordance with the Preferred Reporting Items for



Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher *et al.* 2009). The correlating factors were categorised thereafter.

Fifteen studies were included in the review – fourteen of cross-sectional design, and one randomised controlled trial (RCT). This included 3,283 participants with a diagnosis of RA in accordance with the American College of Rheumatology criteria. The outcome measures included in the literature were largely heterogeneous in nature and therefore a meta-analysis was deemed to be unsuitable.

Pain was the most prominent correlate of poor sleep. There is evidence within the literature to suggest interactions between pain, fatigue, depression and functional ability play a role in sleep quality of those with RA. However, longitudinal data is required in order to determine the directionality of these relationships. There was conflicting evidence with regard to the association between sleep quality and disease activity, RA medications and patient demographics.

## **The antimicrobial efficacy of honey in wound care management and its influence on healing.**

Laura Griffin, BSc. General Nursing (University of Limerick)

### **Abstract**

Honey is a sugar saturated substance made by the honeybee. Its medicinal use dates back to ancient history but with the discovery of antibiotics the need for honey seemed to be nullified. However the topic of honey in wound care has resurfaced in recent years due to the emergence of multi-drug resistant (MDR) strains of pathogenic bacteria and a shift away from routine systemic antibiotic use. Honey has been proven to possess effective antimicrobial properties and to promote wound healing. There is also evidence to suggest that honey may be effective in treating MDR organism associated infections that are unresponsive to current antibiotic practice.

The aim of this presentation is to present the results of a review that examined the antimicrobial efficacy of honey in wound care management and its influence on healing.

An integrative review was conducted following the Wakefield (2014) model. Medline and CINHALL Complete databases were used and 12 studies were identified for inclusion following critical appraisal. Thematic analysis was conducted.

Included were 7 *in vivo* and 5 *in vitro* studies involving 496 participants and 562 wounds. Five themes emerged that reflect the positive impact of honey in wound care management and wound healing.

1. Antimicrobial activity of honey
2. Honey as a solution to multidrug resistance
3. Healing properties
4. Economic influences



## 5. Contraindications and adverse events.

The studies reviewed support the antimicrobial and healing properties of honey when used in wound care. Further research is recommended particularly around its efficacy in treating multi-drug resistant organism associated infections.

## The functions, motivations and purposes of code-switching with constructed languages in fictional works, focusing on Game of Thrones

Ailbhe Guilford, Applied Languages (University of Limerick)

### Abstract

The study of constructed languages is still relatively new territory in the field of linguistics and as has been found from my research, there has been no research conducted on code-switching which takes place through these languages. This project seeks to address this gap by exploring the functions and significance of code-switching through created languages in Game of Thrones. This will be done by analysing dialogue from episodes of the series and identifying the motives behind the code-switching, its functions and what cultural significance it brings to the show. It is noticed that there are three main functions performed by switching. It is mostly performed for interpretative purposes, romantic reasons or secret communication.

The various nuances of these language shifts offer viewers insights into the characters and the scenes surrounding them, while the conlangs themselves add a more cultural dimension to the show. On the whole, these instances of code-switching were that of the intersentential variety and were largely situational, due to changes in the communicative situations and there were many grammatical errors, serving to highlight the characters' language development and personal growth. It is postulated that code-switching can be effectively employed by more shows to represent intercultural contact situations in the multilingual societies of imagined worlds. It can also improve characterisation, by creating unique identities.

In conclusion, I reflect on further linguistic research that could be done in the area of language creation in fictional works, suggesting directions for future study which I hope will be pursued.

## How Luxury Fashion Brands Use Social Media to Communicate to a Globalised Audience: A Social Semiotic and Virtual Ethnographic Analysis.

Sarah Hayes, Arts Joint Honours in French & Media (University of Limerick)

### Abstract

Luxury fashion brands are known to be prestigious and for one selected elitist group, however by using social media in certain ways we can see that brands are now selling their products to a wider global audience which



includes a range of ages, sexes and ethnicities.

Following multiple global recessions and economic downturns, society continues to welcome luxury fashion brands into their homes with open arms due to outstanding quality and prestige. Luxury fashion brands are having to evolve and transition into the 21<sup>st</sup> century due to the emergence of social media and the web 2.0.

The aim of this project is to use a virtual ethnographic and social semiotic analysis to discover how luxury fashion brands are using social media to enhance their online presence and to try break down the barriers of elitism that often exist within the luxury fashion industry. We will analyse three images posted on Instagram from each of the following brands Spring/Summer 2017 fashion campaigns; Marc Jacobs, Tommy Hilfiger and Chanel.

My findings indicate that through social media and the web 2.0 combined with intrinsic and strategic marketing plans, luxury fashion brands are changing the way in which luxury fashion is viewed, as it's more accessible to people and consumers through this online interaction and engagement.

## **To investigate the relationship between chronotype, sleep quality, and impulsivity with delay discounting**

Eimile Holton, BSc. Psychology (Maynooth University)

### **Abstract**

Delay discounting is a facet of impulsivity where a smaller instant reward is favoured over a larger delayed reward. It is seen to be a prevalent behavioural choice in a number of disorders such as ADHD and addiction. ADHD in particular is linked with circadian misalignment and symptoms appear to be aggravated by poor sleep quality. Studies investigating sleep deprivation on delay discounting in healthy volunteers, have had mixed results. In considering this, delay discounting has yet to be investigated in relation to chronotype in healthy participants. An investigation into the relationship between sleep quality, chronotype and impulsivity, with delay discounting was undertaken.

The four IVs were: chronotype (MSFsc), sleep quality (total PSQI), and impulsiveness (total BIS-11). The dependent variable (DV) delay discounting, which scores were yielded from the Quick Delay Questionnaire, comprised of two subscales (delay aversion and delay discounting). Following a correlational analysis and an assessment of the predictability of the IVs on the DV, it was concluded that no relationship was found between the four IVs and delay discounting. As mixed results were found previously in assessing delay discounting in healthy participants, the lack of relationship in this instance may be due to the fact delay discounting is difficult to detect in healthy participants.



## The Impact of the Repeal the 8<sup>th</sup> Campaigns

Naoimh Howe, BA Psychology & Sociology (University of Limerick)

### Abstract

If at first you don't succeed, try, try again. This research builds on a dynamic model of collective action, the DIME model (Louis, et al., 2016) which compares outcomes of successful and failed collective action and aims to predict collective actors' trajectories of radicalisation and de-radicalisation. The study aims to identify factors that decrease or increase future conventional or radical collective action based on a group's previous successful or failed activism. The research aims to answer whether failure as a result of conventional action leads to support for more radical methods of activism and how success or failure shapes future action intentions.

Participants were screened into either a pro-choice or pro-life scenario depending on how strongly they aligned with either movement on a 7-point likert scale. Individuals who scored aligned significantly or non-significantly with both campaigns were randomised into either condition. Participants were shown vignettes in which they randomly assigned as active participants in, or observing a protest related to the "Repeal the 8<sup>th</sup>" referendum. The protest was either conventional or radical, and successful or failed. The participants completed measures of identification and tactical preferences for future collective action such as Identification (Cameron, et al., (2004); Disidentification (Becker, J. C., & Tausch, N. (2014); Democratic Values and Support for Democracy (Louis et al., 2016).

The study will necessitate a 4 (campaign alignment) x 2 (activism participation) x 2 (activism type) x 2, (activism outcome) factorial design to assess how collective action methods and outcomes affect future collective action.

## Space-ial Awareness

Stephen Jameson, Eric Lambert, Sean Donnelly, Conor Bennett, Thomas Bowles, BSc. Computer Games Development (University of Limerick)

### Abstract

Space-ial Awareness is a game developed for a Studio Ireland competition at Games Fleadh. It's a top-down shooter set in space where the player is an alien fighting against human soldiers on board of their space ship. This project showcases our knowledge and skills in the field we study.



## **Acoustic and convective microfluidic cell dispensing**

Meriam Jassim, Biomedical Engineering (University of Limerick)

### **Abstract**

Dispensing cells is an important feature of High Content (HC) and High Throughput (HT) systems. Combining this with a microfluidic technology leads to much faster throughput at reduced cost of consumables.

Cells generally have a greater density than the media in which they may live in-vitro. They therefore fall to the bottom of any container. They also have an attractive force to catch each other leading to cell-clumping with time. These two factors make long-term cell dispensing a challenge.

Long-term is here in defined as greater than 24 hours. It is desirable because it greatly reduces the cost of ownership of such a system through reduced labour costs. This research will propose how acoustics and convection extend the suspension time of cells even further to achieve prolonged cell circulation effects.

## **A consultation document on media reporting of gender based violence in Ireland**

Aisling Kennedy BA Sociology & Anthropology (Maynooth University)

### **Abstract**

This research poster represents an interdisciplinary project between Media Studies and Sociology. Under the mentorship of Professor Mary Corcoran, Dr Pauline Cullen and Dr Anne O'Brien, this poster showcases my research into developing an Irish code of practice in the Media Reporting of Gender Violence.

## **Is smoking associated with blunted reactivity?**

Tracey Keogh, BSc. Psychology (University of Limerick)

### **Abstract**

The cardiovascular reactivity hypothesis stipulates that exaggerated responses to mental stress are associated with poorer health outcomes. However, blunted cardiovascular reactivity to acute mental stress has also been found to promote cardiovascular morbidity and is associated with addictions, such as alcohol and smoking. This study examined if smoking was associated with blunted reactivity on a psychological stress task and if the hemodynamic profile was underpinned by blunted reactivity.



This study employed a 3 × 3 mixed factorial design. Participants were exposed to a time pressured mental arithmetic task and a speech task. Participants identified as current, social or non-smokers.

Results indicated that there were no significant between-group differences in the magnitude of blood pressure response for current smokers and social smokers. Both groups displayed a hemodynamic mixed response which veered towards a vascular response. However, the non-smoking group demonstrated a significant myocardial response to the stress task.

The present study could not identify that smokers exhibited blunted reactivity to psychological stress. While no main effects for smoking or phase × smoking interaction were found on the cardiovascular parameters, there was a significant change in the hemodynamics of non-smokers.

## The Female Athlete: Nutritional Practices

Nicole Lavin & Georgina Buckley, Sport and Exercise Sciences (University of Limerick)

### Abstract

Optimal nutritional practice is one of the most crucial contributors to a successful performance. It must be met to ensure ideal fuelling, recovery, muscle growth, and reduction in adipose tissue. GAA is an increasingly popular sport among female athletes however research remains minimal among this population. Female athletes are often given the same nutritional recommendations as male athletes, even though their requirements have many differences. The timing and composition of meals are of significant importance to performance. The primary aim of the study is to investigate peri-training nutrition of female athletes and how it affects key performance parameters.

Elite level gaelic football player (N=22) were recruited. They each wore Sensewear armbands for 7 consecutive days, completed an activity log including a RPE scales, and completed a 7-day food and fluid diary. Measurements of TEE and EEE was obtained from armbands and analysed. Food diaries used to quantify TEI and pre, during and post training/competition meals compositions, were analysed using Nutritics Software (v5).

Results: In Process. Results will demonstrate dietary outputs through Nutritics and energy expenditure (EE) through Sensewear software. Analysis will be conducted on SPSS to compute statistical results addressing the research question using the domains of dietary and EE analysis mentioned.

## Effect of late chronotype of temporal discount

Dominyka Majauskaitė, BA Psychology (Maynooth University)

### Abstract

Studies examining Attention-deficit/Hyperactivity-disorder (ADHD) have linked ADHD with excessive



impulsivity with temporal discount in rewards ( Paloyelis , Asherson , MRCPsych and Kuntsi , 2009 ) . Also further studies , suggested that impulsivity is highly linked with chronotype . And as a result it has been suggested that individuals with ' late chronotypes' ( 'poor quality' sleepers ) would tend to discount more due to excessive impulsivity ( Wang and Chartrand , 2015 ) .

Present study examined the link between temporal discount and chronotype , hypothesising that there will be a significance between late-chronotypes and temporal discount .Sample of 39 individuals was recruited using online survey by administering self-report based tests - 27-Item Monetary Questionnaire , Pittsburgh Sleep Quality Index ( PSQI ) and Munich Chronotype Questionnaire ( MCTQ ) . Based on Pearson's correlational analysis it was found that those of early-chronotype ( 'good quality' sleepers ) were more likely to discount and no further correlations was found between other variables . However it was highly acknowledged that there could have been major limitations to the study .

## Developing and Assessing a Novel Relational Abilities Index of Human Intelligence

Aoife Malone, BA Psychology (Maynooth University)

### Abstract

To date, an exact definition of what constitutes intellectual abilities has proven elusive. However, recent developments in a Relational Frame Theory account of language and cognition have provided an alternative, behavioural approach to conceiving intellectual behaviour in a more functional, and non-mentalistic manner, in which the skill of *derived relational responding* is proposed to underlie intellectual performance. The current study purported to assess a novel omnibus relational abilities index of intelligence, by examining the extent to which scores on this measure correlated with scores on a standardised measure of Intelligence. Additional analyses were conducted in an attempt to identify the specific contributions of the individual relational skills assessed by the omnibus RAI+, in terms of their influence on intellectual abilities.

Participants ( $n=60, 18-45$ ) were first administered the WASI IQ test to obtain scores of Full-Scale, Verbal and Performance IQ, before assessing their level of relational skill proficiency, as assessed by the RAI+. A series of correlational analyses were conducted to explore the relationship between these variables.

Consistent with previous research, a strong positive correlation was established between RAI+ and Full-Scale IQ ( $r_{ho} = .74, p < .001$ ), thus indicating the importance of relational responding in intellectual ability. While robust correlations were observed between four of the five relational tasks within the RAI+, tasks assessing Analogical relational reasoning, demonstrated poorer-than-expected correlations with both IQ scores ( $r_{ho} = .30, p = .021$ ), and other RAI+ components ( $r_{ho} = .25 - .40$ ). Possible explanations for these results are discussed, and suggestions for future research are highlighted.



## **Housing in Ireland**

Eileen McCabe, Patrick Molan, Penina Das Chagas, Esther Brereton, BA Politics and Public Administration (University of Limerick)

### **Abstract**

The housing crisis in Ireland is possibly the greatest challenge facing the government today. This paper will set out where responsibility rests for planning and delivery of housing in Ireland. The paper will also give a brief back ground into housing policy changes in Ireland in the past sixty-five years and why those policies failed.

It will also argue that while housing is delivered through a combination of the state, voluntary and private sectors and very strong policy initiatives have been taken in recent times, the government is failing to deliver on its own commitments. This argument is supported by a critical analysis of supply and demand where Ireland needs to be building 25,000 homes per annum but is only building half this number.

## **Multimodality and Multilingualism: an investigation into emerging online day-to-day communication trends on Twitter**

Niamh McMahon, BA Joint Honours (University of Limerick)

### **Abstract**

Twitter, a popular microblogging platform, is a digital nerve centre that facilitates the rapid communication and dissemination of information across its millions of global users. To gain further insight into the communication practices of this network, this research project seeks to establish if Twitter users are favouring a multimodal delivery system of communication and examines the strategic choice of languages used by three bilingual and multilingual Twitter users when communicating with their followers.

The tweets collected from these three feeds form the data of this research and, through Critical Discourse Analysis they inform us that multimodal communication is an integral practice of online day-to-day communication and plays an essential role in aiding the dynamic promotion of each of these Twitter users' personal brand. Moreover, language selection is deemed a critical tool in establishing language bridges and fostering connections between the Twitter users and the global digital communities who follow them. In addition, the evidence conveys that followers engage with content that is meaningful to them despite the language the message is written in. These findings are of relevance to researchers seeking to identify communication trends on this ever-evolving platform.



## Factors Affecting Student Adjustment to Host Country: A Case Study of UL Undergraduates' Perception of Study Abroad

Cassandra Murphy, BA Joint Honours, Criminal Justice and Psychology, (University of Limerick)

### Abstract

'Study Abroad' is an international phenomenon all around the world which takes many different forms such as Erasmus+, Study Abroad and International Exchange. This period of study in a foreign country has become quite popular with non-language students who are outside of the humanities. Despite the lack of prior host-language knowledge these students seem to adjust well to the local culture. This research sets out to determine the factors that aid or impede these students' adjustment and what influenced them to choose a non-Anglophonic country to study in. It also examines the benefits they gain from the experience.

21 students who study psychology modules at the University of Limerick were researched using an online questionnaire. All the participants had spent a minimum of 3 months in a country outside of Ireland. The responses have proven that non-language students do adjust to the culture and perceive many personal benefits from the experience. It is also shown that adjustment is not dependent on the country one studies in or knowledge of the host language. The results from research would be useful to universities wishing to expand and promote the study abroad initiative in their schools as well as providing useful information to students hoping to participate in a study abroad programme.

## Do Endurance Athletes Meet Current Recommended Dietary Guidelines and Are These Guidelines Fit For Purpose?

Clodagh Murphy, Sports and Exercise Science (University of Limerick)

### Abstract

Common sense suggests and research supports the premise that performance is influenced by dietary habits. Emerging research supports consideration for nutrient prescription beyond recommended daily intakes (RDI), referred to here as peri-training nutrition (PTN). The primary objective of this pilot study is to determine whether current dietary recommendations are met by endurance athletes and to determine whether or not these guidelines are fit for purpose in relation to athletic training and intent.

Pursuant to informed consent seventeen endurance athletes were recruited to provide detailed accounts of habitual dietary intakes using a seven-day, weighed food intake record. Dietary data were subsequently coded and analysed using *Nutritics* nutrition analysis (*Nutritics*. Dublin: Nutritics Limited, 2011) on mean daily intake (MDI), actual daily intake (ADI), meal level analysis (MLA) and relative to a training stimulus (TS) for energy and macronutrients. A concomitant assessment of energy expenditure was carried out using a physical



activity diary and an on-body device, the SenseWear armband (SAB), subsequently analysed using Bodymedia Innerview (Pittsburgh, Pennsylvania, USA).

Results: 6% (n=1) of athletes were excluded for dietary under-reporting assessed through an energy intake: energy expenditure ration (EI:  $EE < 0.8$ ).

Mean daily intake analysis revealed that 26% (n=4) of athletes met the carbohydrate RDI and 38% (n=6) achieved RDI's for protein. Meal level analysis showed 75% (n=13) did not achieve RDI for carbohydrates and 82% (n=14) did not achieve RDI for protein in the **pre** training meal. Intakes relative to **post** training meals were not met by 77% (n=13) of athletes for carbohydrates and 58% (n=10) for protein.

Assessment of Actual daily intake (ADI) was performed to determine whether the athletes self-selected to consume differently on rest (R), resistance (RT) or endurance (E) training days. On E training days the average consumption of protein was 1.7g/kg BM and CHO was 4.1g/kg BM. For RT training days the protein mean intake increased to 1.9 g/kg BM and the CHO mean intake decreased to 3.5g/kg BM.

In conclusion, endurance athletes are not meeting current RDIs for carbohydrates but are for protein and fat. Athletes appear to have specific consideration for the nutrient demands of a specific training stimulus. Athletes are suboptimal in nutrient intake for pre, intra and post training meals. Practitioners need to take specific consideration in relation to athlete's nutrient intake on training days and nutrient intake timing around various training stimuli.

## Do 'earn while you learn' apprenticeships offer a better work-life balance than higher education?

Claire O'Brien, BA History, Politics, Sociology and Social Studies (University of Limerick)

### Abstract

This project was submitted in fulfilment of module SO4037 Qualitative Methods for Sociological Research. The purpose of this project was to take a qualitative approach to gain understanding the recent increase in uptake for trade apprenticeships and if they provide a more flexible lifestyle in comparison to the higher education route. The central question around the research project was to find out if individuals see work life balance as an individual issue or a structural one through a 30 minute interview with a selected candidate. The candidate was asked to compare the 'earn while you learn' apprenticeship scheme with his previous experiences with higher education. This study found that the apprenticeship scheme provided more opportunities for improved work-life balance.

From this, it can be deduced that he sees work-life balance as a structural issue as he contrasts his different experiences of working life. This thirty-minute interview was coded and then divided into three organising themes. These themes include: Work-Life balance for young apprentices, Financial struggles of working class higher education students and perceptions of higher education.



## Tracworx: Increasing Perioperative Efficiency by Tracking the Patient Journey

Eoin O'Brien, BSc Computer Systems (University of Limerick)

### Abstract

The presentation, titled *Tracworx: Increasing Perioperative Efficiency by Tracking the Patient Journey*, will detail and discuss Tracworx™, an IoT-based patient tracking and efficiency monitoring system developed by Pinpoint Innovations Ltd., an alumnus of the Nexus Innovation Centre in the University of Limerick founded by three UL students in 2016. The project was initiated and developed in collaboration with University Hospital Limerick (UHL). The system was the subject of a clinical pilot and case study in UHL in mid-2017.

The objectives of the pilot were to validate the efficacy of Tracworx™ by tracking the perioperative journey of over 100 patients and analysing the resulting dataset to report on key performance indicators (KPIs). The system's wearable IoT devices were used to passively collect anonymised location data for each patient, which were then stored for later analysis.

The presentation will discuss the solution architecture and development of Tracworx™. Additionally, the process of the pilot and case study in UHL will be discussed, with particular focus given to the deployment, maintenance and adaptation of the IoT solution to a production environment. Findings on performance of the system, lessons learned from the process and the resulting direction of future development will be presented. Subject to approval by UHL, the findings of the case study may be summarised.

## Constructing womanhood in De Valera's Ireland. The writings of Gertrude Gaffney 1936-1937

Patricia O'Brien, European Studies (University of Limerick)

### Abstract

While crafting a new Constitution for the Irish nation, De Valera was constructing a clear definition of womanhood for Irish women and what their role in society would be. At the same time there were women who were constructing their own ideas of womanhood, far from the imaginings of De Valera's perfect woman, the female journalist Gertrude Gaffney was among them. Having carved a successful career in journalism, by 1936 she was writing her own column in the *Irish Independent*. De Valera and Gaffney were at complete opposites when it came to their vision of womanhood. Gaffney was living her life in a manner that was completely antithesis to that which De Valera envisaged for Irish women and which he was setting out to make law by plebiscite in July 1937.

Gaffney was one of the first people who openly spoke out against De Valera and his proposed Constitution. She was well-placed to comment on the proposed legislation, she reported on a wide range of matters in Irish society and was aware of the challenges people were facing in their daily lives, as a working woman she



would be affected by the changes and additions he was proposing to make in relation to women in the Constitution.

This presentation will look at this key period in Irish History, examining the period through De Valera and Gaffney to create a clear picture of what De Valera proposed and what women including Gaffney stood to lose when the Constitution became law.

## Instagram Use and Wellbeing

Hazel O' Connor, BSc. Psychology (University of Limerick)

### Abstract

With the increasing popularity of social networking sites (SNS), the potential unintended consequences of their use has become a widely researched topic. In particular, researchers have investigated whether there may be negative consequences for psychological well being and the way young people feel about themselves. For example, previous research has demonstrated that SNS use is related to deficits in self-esteem and body esteem, among other variables. The most popular SNS to date, Facebook has attracted much of this research, however, the growing popularity of Instagram, an image and video-based app, requires further research. This is because usage of Instagram is growing extremely fast among young people but also because Instagram is specifically image-based suggesting it may be especially likely to impact users' feeling about their appearance and sense of self. The purpose of the current study is to investigate the relationship between Instagram use and wellbeing. More specifically we aim to explore people's existing use of Instagram in terms of time spent on Instagram, the type of content viewed by the user, the motivation to use Instagram and the degree to which users engage in social comparison with others and to examine the relation of these variables to wellbeing outcomes of body image and self-esteem. Participants consisted of 225 Instagram users from the University of Limerick. The participants completed an online questionnaire. The results and implications of the study are pending but we anticipate they will shed light on the consequences of Instagram use for how young people feel about themselves.

## Understanding if assessment type influences student's learning approach for examinations in third level education

Jessica O'Connor, BSc. Psychology (University of Limerick)

### Abstract

Learning in third level education is a widely investigated topic among researchers who see the value in exploring what ways of learning are most beneficial. Much of this research has used Biggs' Revised Study Process Questionnaire to discover if a student adopts a surface or deep learning approach when studying for examinations. Previous literature predominately deals with student's attitudes towards learning or



examination types in third level. This research aims to discover how student's learning approach for examinations varies depending on the type of examination anticipated by applying a manipulation, rather than measuring attitudes.

Sixty students currently attending third level education were administered the Revised Study Process Questionnaire and instructed to take a short examination in the laboratory. Results are pending. This research will contribute to our understanding of learning approaches of students in third level education and expand our knowledge of the topic of learning as a whole.

## Perceived control and cardiovascular reactivity to laboratory-induced stress

Lorraine O'Connor, BSc. Psychology (University of Limerick)

### Abstract

Previous research illustrates that perception of control is detrimental to one's physiological and psychological response to stress. Physiologically, higher perception of control has been associated with lower skin conductance response to a stressful stimulus. The aim of the present study is to examine the effect of perceived control on individual's cardiovascular response to stress. In total, 62 healthy, young university students completed the Spheres of Control Scale (SOC) and were labelled high or low on perceived control based on their score. Participants completed self-report measures prior to and following participation in a stress-inducing arithmetic task. Systolic blood pressure, diastolic blood pressure and heart rate were measured throughout.

Results show that while the arithmetic task did induce psychological and physiological stress in participants, there was no significant difference between the high perceived group and low perceived control group in response to stress. Furthermore, perceived control did not moderate the increase in cardiovascular parameters from baseline to task. The SOC focuses on individuals' beliefs of their ability to control personal, interpersonal and socio-political events in their life. In recent times, perceived control has been acknowledged as a multi-faceted construct encompassing an individual's belief of their ability to control external life events and internal states. While perceived control over life events does not appear to influence cardiovascular reactivity to a stressful task, future research may focus on the effect of perceived control of internal states, i.e. thoughts, emotions and responses, on cardiovascular reactivity.



## **The persistence of cognitive deficits following recovery (or remission) from an eating disorder: A systematic review and meta-analysis**

Ailish Phillips, BSc. Psychology (University of Limerick)

### **Abstract**

Cognitive functions are higher order mental process that encompass attention, memory, learning and language, assisting in the gathering and processing of information. An abundance of literature has emerged that highlights cognitive deficits in both anorexia nervosa (AN) and bulimia nervosa (BN). However, the degree to which these deficits, persist following recovery or remission, remains uncertain. The aim of this systematic review and meta-analysis, therefore, is to investigate the extent to which cognitive deficits persist, following full or partial recovery from AN and BN.

Following database searching and additional hand-searches of relevant reference lists and journals through December 2017, sixty-two studies (59 of recovered anorexia nervosa (recAN) and 14 of recovered bulimia nervosa (recBN)) were retained. From this, the means and standard deviations of participant's performance on each neuropsychological test battery was extracted, and the overall weighted, mean effect sizes were calculated. A meta-analysis was carried out which pooled together the results of these neuropsychological measures, in addition to a sub-group analysis that compared cognitive functioning in those that were fully and partially remitted. Results are pending.

Thus far, no systematic review and meta-analysis has investigated the persistence of cognitive deficits following recovery from an ED. This present research establishes a greater understanding of the pattern of cognitive functioning in the course of AN and BN. It is imperative that the cognitive deficits observed in ED patients are considered during treatment, to accomplish both stable recovery and to implement strategies to manage these deficits, in order to prevent relapse.

## **Tissue Engineering of Porcine Bladder**

Philip Poillot, BEng in Biomedical Engineering (University of Limerick)

### **Abstract**

Current strategies in bladder reconstruction, such as autogenic or allogenic tissue repair, remain insufficient to meet the persistent demand. Tissue engineering is an emerging field that has the possibility to produce readily available, off-the-shelf tissues and organs. However, there is a lack of controlled studies in this area, particularly in decellularisation methods, leading to insufficient knowledge to allow for clinical translation of experimental successes. The objective of this FYP was to investigate the effects of isolated decellularisation reagents (SDS and



Triton X-100) on the bladder tissue ultrastructure, and to evaluate the effect of protocol parameters surrounding these reagents.

This was done by first optimising such protocols through DNA quantification and uniaxial tensile testing. Optimised protocols were then compared for their effectiveness and ultrastructure disruption through DAPI staining and SEM. Results showed that SDS was more disruptive to the bladder tissue than Triton X-100, with disruption to collagen and reductions in the strength and failure strain of the tissue. Triton X-100 caused similar reductions in failure strain, while largely preserving the strength and collagen content of the tissue. Unlike Triton, the effectiveness of SDS in removing cellular material was proportional to these disruptions, which was influenced by exposure time and reagent concentration. Disruption caused by Triton X-100 may be due to removal of elastin or GAG content, but further testing is required.

These results allow for more robust design of future decellularisation techniques, suggesting that Triton is a superior decellularisation reagent to SDS.

## Designing Creative Reasoning Tasks for Junior Certificate Mathematics and Science

Aishling Reilly & Ailbhe Garry, Science with Education (Maynooth Limerick)

### Abstract

#### *Designing Creative Reasoning Tasks for Junior Certificate Mathematics and Science*

Johan Lithner, a Swedish researcher specialising in Mathematics Education, defined reasoning as 'the line of thought adopted to produce assertions and reach conclusions in task solving'. This understanding of reasoning led him to develop his Reasoning Framework, which defined four types of reasoning required for completion of mathematics tasks. These four types fell into two broader categories, namely imitative and creative reasoning.

For six weeks from the beginning of June, we worked as a team under the guidance of Dr Majella Dempsey and Dr Ann O'Shea (Maynooth University Department of Education and Department of Mathematics and Statistics, respectively) on a project focusing on the idea of reasoning. The aim of our project was to extend Lithner's 2008 framework for mathematical reasoning to science, and to then use our framework to develop tasks requiring different types of scientific reasoning. We also used it to analyse and classify Junior Certificate examination tasks according to their required types of reasoning. Using data from the last three Junior Certificate examinations, we concluded that the papers contained very few creative reasoning tasks, with just one task classified in the highest reasoning category.

Using our framework we developed modifications of some of the imitative reasoning tasks found in the Junior Certificate papers, in an effort to demonstrate how creative reasoning could be promoted at this level. We



feel our project is of particular interest at the moment, as the new Junior Cycle Science Specification is one year away from examination for the first time.

## The educational experiences of female students in male dominated courses

Pauraic Ryan, BSc Psychology (University of Limerick)

### Abstract

Though female students make up the majority of graduates from university, they continue to be underrepresented in Science, Technology, Engineering and Math's (STEM) courses. According to the "Leaky Pipeline" analogy, females are being lost from STEM at each stage of the education process, and for those that do persist, the underrepresentation of females in this field creates a wholly different educational experience for female students.

The current study takes a phenomenological qualitative approach to the investigation of undergraduate female students, and their experience of studying a course in which their gender is underrepresented. 10 female students were recruited from undergraduate courses in the University of Limerick Faculty of Science and Engineering. Each participant took part in a 15-25 minute semi structured interview, in which they answered questions pertaining to their educational experience, particularly their experiences studying in a male dominated course. Results: Thematic analysis was used to analyse the resulting data. Analyses of data yielded four common themes across the data. Importance of school and early socialization, impact of gender imbalance, external factors influencing STEM experience and future in STEM were identified as common themes across the interviews. Discussion: These findings shed further light on the experiences of female students studying STEM, however, they do not provide support for the idea of female underrepresentation contributing to females not continuing in STEM education and careers, as all participants indicated their intention to continue in STEM. Possibilities for future research is discussed.

## Mountain SOS

Richard Taylor, Electronic and Computer Engineering (University of Limerick)

### Abstract

Navigational errors, lack of convenient means of communication, and general inexperience account for dozens of mountaineering related incidents on Irish mountains every year. Particularly during holiday seasons, inexperienced climbers and tourists take to the mountains in droves, many without proper clothing, supplies or basic navigation equipment. The result of this behaviour is increased pressure on local mountain rescue services which are forced to navigate dangerous terrain with no bearing on where affected hikers may be or what weather conditions they may be exposed to.



The purpose of this project is to provide an integrated hardware and software solution for mountaineers which will enable them to receive hyperlocal weather and GPS data while on the move. In addition, for hikers who get into difficulty on the mountains, a built-in SOS feature will enable users to easily inform mountain group leaders, emergency contacts, or emergency services relative to their exact location and external weather conditions.

It is hoped that this project will serve to benefit both hikers and mountain rescue personnel with the goal of reducing mountaineering related incidents and improving the overall safety of mountaineering in Ireland.

## Youth Engagement and Participation in Politics and Activism

Niamh Tubridy & Glen Kiely, Law Plus (University of Limerick)

### Abstract

The research that I have conducted is in relation to the participation of young people within politics and other forms of activism. It is commonly thought that young people are disengaged and uninterested in current affairs and political matters, however perhaps it is that young people aren't being encouraged to participate and get involved.

This research explores the attitudes of young people towards what are typically thought to be 'adult issues'. It also shows to what degree young people feel they are being engaged and informed about opportunities available to them, or if they are being deprived of platforms in which to express their opinions on various matters.

The sample of young people I have taken examines the attitudes and opinions of young people from a range of ages and nationalities, not exclusively Irish young people. The data was collected through a number of surveys, in addition to discussions and more informal conversations to encourage participation. The aim was to contrast and compare cultures to see if this was exclusively an Irish issue or an international conundrum. The research found that many young people do not feel as though they have a voice, or that they are accurately represented. It showed that many felt they did not have access to, or know how to gain access to, platforms where they could express their opinion and be heard.



Notes

