Dr. ALAN RYAN
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I am dedicated to producing the best results possible and have a critical eye for detail.
I am passionate about the power of education, and my research area is Design Education.
I recently completed my PhD in Computer Science at UL. The focus for my PhD was 'pedagogic practice in design education', specifically Interaction Design. I chose this topic because of my experiences as an undergraduate and my long-standing belief in the life-changing power of education. It was a deeply satisfying experience and a privilege to contribute to the field of knowledge regarding innovative practices in design education.

EDUCATION

2015-2020 Ph.D by Research
Thesis: Thinking with your Hands: Tacit Problem Reframing with Interaction Design Students
Award: Doctor of Philosophy
Summary: I explored pedagogic practice in Interaction Design through the development and evaluation of a pedagogic methodology for Interaction Design students, specifically the teaching of problem reframing in design. I created an environment that simulated the experience of 'problem reframing through design thinking'.
To become a designer, a design student must learn to think like a designer. For designers, the ability to solve design problems is obviously important. When design problems involve 'problem reframing', then the ability to reframe the situation is an essential element of design ability, of design thinking. When an Interaction Design student does not yet have the experience and knowledge to visualize and resolve a design problem, a pedagogic bridge should be constructed to overcome this ideation gap. Design knowledge can be mediated by words, but it can also be expressed through the medium of doing and making through material forms. My research focused on the construction of such a pedagogic bridge, a novel pedagogical methodology, by exploring the issues that surround tacit knowledge, knowledge that is difficult to transfer by words or writing and can only be acquired through practical experience in context.
An inspirational example was Problem-Based Learning, a pedagogical system that helped medical students develop their convergent thinking abilities so they can deduce the single correct answer to a well-defined medical problem, in a setting that mimics their future professional practice. Developing an equivalent to Problem-Based Learning in design pedagogy is fraught with difficulties, as design students need to develop divergent thinking abilities so they can create novel solutions, in a setting that mimics their future professional practice. My research explored how such an equivalent could be developed,

how pedagogic practice could be improved by presenting a student with tangible representations of design problems that required them to think like a designer to solve them. The research explored how the elements of tangibility and agency affected the tacit pedagogic experience in design through the theoretical framework of Self-Determined Learning (a general motivation theory) and Gamification as it related to Pedagogic Engagement theory.

2010-2014 B.Sc in Digital Media Design
Award: First Class Honours Degree
Summary: Digital Media Design focusses on Interaction Design, with the course content including Web Development, Media Programming, Audio & Video Editing, Design Research, Human Computer Interaction, Prototype Development, Software Requirements Engineering, Usability Testing, and a wide variety of Social Research Methodologies.

TEACHING/SUPERVISING EXPERIENCE

2021-Now University Teacher
I continue to teach the Java & Processing programming languages to all the 'Computer Science Common Entry' students. In addition, I teach/consult on a variety of Interaction Design modules. I will be supervising FYP projects for both undergraduate and master's students from next year.

2013-2021 Guest Lectures
I have given guest lectures on Interaction Design, HCI and Video Production for the following UL modules:

CS4358 - Interactive Multimedia: part of Digital Media Design/Music, Media & Performance Technology

CS6041 - Interactive Media Project: part of the MA/MSc in Interaction and Experience Design

BR4041 - Social Media for Social Good: part of the BSc in Business Studies

2019-2021 Teaching Assistant
I conducted the Java & Processing programming labs for all the 'Computer Science Common Entry' students. The pedagogic methodology employed in these computer-

based labs was Problem-based Learning, where the solving of a coherent set of programming puzzles (in ascending order of complexity) provided both a purposeful and enjoyable learning experience for the cohort. My modules were as follows:

CS4061 - Media Programming 1

CS4072 - Media Programming 2

CS4141 – Introduction to Programming

CS4222 – Software Development

2019-2021 Digital Learning Support Hub (DLSH) Content Creator

I created the instructional videos for the coding languages Java & Processing as part of UL's DLSH online instruction program. These learning supports are custom-made video content specifically for CS4061, CS4072, CS4141 and CS4222. They are released each week on the Digital Learning Support Hub (DLSH) SULIS site, to match the current topics in the computer labs. These short (5-10 mins) videos focus on those key areas that students needed to understand at that stage of the module. This video content is then used by the Peer Supported Learning Group (PSLG) leaders as the focus point for the discussions during the PSLG sessions in the following week.

2016-2017 Final Year Project Supervision

I supervised 2 students during their final year (both were Music, Media & Performance Technology). Both students wanted to become video producers after graduating. I enjoyed the experience of guiding them as they narrowed their focus regarding the research elements of their projects. Both eventually produced fine short films, with excellent reports detailing the technical details and the scientific and psychological underpinnings of their work. One of the student's films was screened at the Richard Harris International Film Festival.

2012-2018 Module Leader and/or Teaching Assistant

Module Leader and Teaching Assistant for Introduction to Digital Media (CS4031) in 2014 & 2016, delivering and examining all content.

I was also Teaching Assistant for CS4031 between 2012-2018. In addition to delivering some lectures, I supervised the lab work of 160+ students, bringing them through their first steps as they made the change from Media Consumers to Media Producers. This includes an informed use of Twitter, Wiki editing and blogging techniques, while the lecture and lab content was constantly updated to keep pace with emergent technologies and the concepts behind them. Their open-book, end-of-term online exam tested their thinking ability and understanding of the course content, rather than an ability to regurgitate information.

2015-2020 Teaching Assistant

Teaching Assistant for Interactive Multimedia (CS4358).

I instructed the students in the programming language Processing (with most of the cohort having studied Processing in 1st year), with supplementary lectures on Interaction Design best practice. Students were given a Processing program, a basic sketch that was operational and functional, but with no coherent design aesthetic or any consideration regarding usability. They had to create their own design aesthetic, improve usability, and then rewrite the program to reflect those improvements, with a written report detailing their design decisions. A potential 50% of their final grade was awarded for their individual delivery of an improved version.

2005-2020 Adobe Suite Instructor (Limerick College of Further Education)

I created and delivered the syllabus for both the Basic & Advanced Photoshop Courses and the Introduction to Illustrator Course. In addition to teaching these courses, I also designed and taught the Video Production Course, including instruction in editing with Adobe Premiere for several years. Because of professional hardware and software becoming both accessible and affordable, LCFE's video production courses have multiplied and diverged. For now, I remain focused on teaching Photoshop and Illustrator.

RESEARCH EXPERIENCE

2015-2016 Research Assistant

I worked, with my PhD supervisor, on resolving a long-standing UX issue for a major peripheral designer/manufacturer. Their issue was that in some years their main mouse release would be the number 1 seller in the world. Then, next year's model would fail in the marketplace, despite being a quantifiably improved model (from their viewpoint). They routinely employ an exhaustive testing program, including usability researchers, but they felt there was some aspect of the end-user's experience that was eluding them.

I designed and conducted a series of usability experiments with the purpose of testing user experience by delineating and isolating the different elements of that experience.

I requested 5 identical mice models with a variety of haptic and acoustic properties. I then created screen-based experiments, using my bespoke code, that enabled an analysis of the user-experience with the 5 peripheral's different qualities. For example, one series of tests were speed and accuracy tests that isolated the feel of the mouse from its sound (loud music through headphones), then the inverse (an isolation box to muffle the mouse clicks while the clicks from the other mice played through the sound-proofed headphones).

Through exhaustive tests and analysis, I was able to develop coherent, evidence-based explanations for their previous failings and offer some practical design insights so they could avoid repeating them in their future designs.

RESEARCH SKILLS

Pedagogic Theory & Practice
Syllabus Design
Desk & Field Research
Interview & Elicitation Techniques
Quantitative & Qualitative Video Analysis
Thematic Analysis
Statistical Analysis

PEDAGOGIC EXPERTISE

Interaction Design
Human Computer Interaction
Video Production
Photography
Lighting for Video, Stills & Stage, including DMX controllers
Arduino Electronics
Discrete Electronics
Programming Languages: Java & Processing
Adobe Photoshop
Adobe Illustrator
Adobe Premiere
Adobe After Effects
Microsoft Office Suite

CONFERENCES & PRESENTATIONS

Ryan, A. (2021) 'Thinking with your Hands: Tacit Problem Reframing with Interaction Design Students', *7th International Designs for Learning Conference Remediation of Learning*, available at: https://drive.google.com/file/d/1esDXJT8jvYgoCpS4WMKMzVPfCl8vV9V3/view

Ryan, A. (2019) 'Thinking with your Hands: A Constructionist Perspective on Design Pedagogy', *12th Irish Conference on Engaging Pedagogy*, available at: http://icep.ie/wp-content/uploads/2020/05/ICEP19_paper_12.pdf

AWARDS AND HONORS

2015 First 7 Weeks

I received a ‘First Seven Weeks’ Award from the Centre for Teaching and Learning at the University of Limerick. The First Seven Weeks is an initiative at the University of Limerick designed to provide strong, enhanced, and targeted support to students during the very early weeks of their time as UL students. The students are asked to vote for the instructor that had the greatest impact on them in their first term at university. This encouraged to continue with my methods of not disguising my enthusiasm for the subjects at hand.
This relationship with my students would come back into focus during the experimental phase of my PhD. Aiming to recruit 30 design students from all levels of training, I visited the relevant cohorts in their classrooms and gave a 5-minute speech just before their lecture. I had all the volunteers I needed by the end of the week, with all participants turning up for both the testing itself and the follow-up interviews.

OTHER QUALIFICATIONS

2009-2010 QQI Level 5 Computer Systems and Networks

Summary: This course focused on computer networks, network cabling, computer architecture, programming (Java), mathematics, an integrated ECDL course, etc.

2001-2002 CompTIA A+

Summary: This course focused on operating systems, troubleshooting and problem solving to support core IT infrastructure and networking, configuring PCs, mobile and IoT device hardware, data backup and recovery methods, data storage best practices, etc.

1999-2000 CITY & GUILDS Electronic Servicing 1 & 2

Summary: This course focused on electronics theory, fault-finding, op amps, analog and digital circuitry, discrete components, integrated circuits, testing equipment, etc.

WORK EXPERIENCE

2002-2013 Video Editor/Compositor/AV Producer

I have produced print and screen media for sports events/broadcasting, industrial visualizations, and have extensive experience leading the setups and subsequent troubleshooting of the audio-visual requirements for live events (conferences rather than music events), working with tight-knit teams that depended on my clear leadership.

I worked as Video Editor, Video Effects Compositor, and Image Editor for EVI, a company primarily involved in creating "3D Visualizations" for major industrial projects. As part of a

well-structured team, I would assist with Web Development, AutoCAD & 3D Modelling, as our final products were often an innovative combination of disparate technologies.
I was a crucial part of the team that developed the environmental visualizations for the €2.5 billion Shell Corrib Gas Project. We created visualizations that accurately presented the future visual impact of the structure once it was completed. We did this by visiting the site (before any work had commenced) and filmed the site from a car-mounted camera, driving from all possible routes. We then took detailed survey data, build a model of the structure from the architect's CAD files, and integrated it accurately into the videos of the drive-bys.

1993-2009 Professional Musician/Instructor
I played guitar/sang in a variety of cover/original bands, and taught guitar and music theory both privately and in schools.

REFEREES

Dr. Dermot Shinners-Kennedy	dermot.shinners.kennedy@ul.ie
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