Résumé of Alan Ryan (PhD, BSc)

EDUCATION SUMMARY & CONTACT DETAILS

Doctor of Philosophy: University of Limerick (2020)

Bachelor of Science (Digital Media Design): University of Limerick (2014)

QQI Level 5 Computer Systems and Networks (2010)

CompTIA A+ (2002)

City & Guilds Electronic Servicing 1 & 2 (2000)

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PEDAGOGIC EXPERTISE

Interaction Design

Human Computer Interaction

Video Production, including videography and editing

Photography, including editing and manipulation

Lighting for Video, Stills & Stage, including DMX control protocols

Arduino Electronics: (a programmable platform able to control lights, buttons, etc.)

Discrete Electronics: (a term referring to individual, separate components)

Programming Languages: Java & Processing

Adobe Photoshop: (the industry standard raster graphics editor)

Adobe Illustrator: (an industry standard vector editor, also used in digital fabrication)

Adobe Premiere: (an industry standard video editor)

Adobe After Effects: (an industry standard motion graphics & video effects compositor)

Microsoft Office Suite

RESEARCH SKILLS

Pedagogic Theory & Practice

Syllabus Design

Desk & Field Research

Interview & Elicitation Techniques

Quantitative & Qualitative Video Analysis

Thematic Analysis

Statistical Analysis

TEACHING/SUPERVISING EXPERIENCE

2019-2021

ROLE: CSIS Teaching Assistant

I conducted the Java & Processing programming labs for all the 1st Year Computer Science 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. I also created support for online and asynchronous learning. In addition, I reserved blocks of time for individual tuition with my students.

The student cohort was comprised of 2 common entry groups: **LM121 & LM122**.

LM121 Computer Science Common Entry is a gateway to either: Computer Systems, Mobile Communications and Security, or Computer Games Development.

LM122 Creative Media and Interaction Design Common Entry is a gateway to either: Music Media and Performance Technology or Digital Media Design.

My teaching modules were:

LM121	LM122
CS4141 - Introduction to Programming	CS4061 - Media Programming 1
CS4222 - Software Development	CS4072 - Media Programming 2

My responsibilities as **CSIS Teaching Assistant** included:

- Conducting the Problem-based Learning lessons in computer labs each week.
- Focusing on maintaining student engagement.
- Involving students in classroom discussions.
- Identifying student needs and providing additional academic support.
- Providing individual pedagogic support.
- Creating online support for both student cohorts.
- Assessing and grading assignments while providing appropriate and timely feedback to students.
- Maintaining records of attendance and assessments.
- Consulting on improvements to the pedagogic programs.

2019-2021

ROLE: Digital Learning Support Hub (DLSH) Content Creator

I created the instructional videos for the coding languages Java & Processing as part of the ICT Learning Centre'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 videos (5-10 mins) focus on the key areas that students need to understand at that stage of the module. This video content is then used by the Peer Supported Learning Group (PSLG) leaders as the focal point for the discussions during the PSLG sessions in the following week.

My responsibilities as **DLSH Content Creator** included:

- Consulting with the ICT Learning Centre to create the strongest pedagogical supports for the student cohort.
- Focusing on the cohort's pedagogical needs by incorporating student feedback from classroom discussions.
- Reducing a week's lecture material (for both the Java & Processing languages) to videos of the shortest possible duration, while maintaining conceptual coherence.
- Providing Accessibility Support by manually adding captions to the online videos.

2013-2021

ROLE: Guest Lecturer

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

My responsibilities as **Guest Lecturer** included:

- Creating presentations of entire fields of knowledge in limited lecture slots.
- Involving students in classroom role-playing and demonstrations.
- Identifying student needs and providing additional academic support.
- Assessing and grading assignments and projects while providing appropriate and timely feedback to students.

2012-2020

ROLE: Module Leader and/or Teaching Assistant

I was Module Leader for Introduction to Digital Media (**CS4031**) in 2014 & 2016, delivering and examining all content, and was Teaching Assistant between 2012-2018. In addition to delivering lectures, I supervised the lab work of 160+ students each year, bringing them through their first steps as they made the change from Media Consumers to Media Producers. This included 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.

I was Teaching Assistant for Interactive Multimedia (**CS4358**). I instructed the students in the programming language Processing (most of the cohort had studied Processing in 1st year), with supplementary lectures on Interaction Design best practice. Students were given a basic Processing program 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. They had to conduct usability testing and compile everything into a written report detailing their design decisions. A potential 50% of their final grade was awarded for their individual delivery of an improved version.

My responsibilities as **Module Leader/Teaching Assistant** included:

- Presenting lectures each week.
- Conducting the Problem-based Learning labs each week.
- Focusing on maintaining student engagement.
- Involving students in classroom discussions, role-playing and demonstrations.
- Identifying student needs and providing additional academic support.
- Assessing and grading assignments while providing appropriate and timely feedback to students.
- Maintaining records of attendance and assessments.
- Consulting on improvements to the pedagogic programs.
- Consulting on improvements to the examination methods.

2016-2017

ROLE: Final Year Project Supervisor

I supervised 2 students during their final year (both were Music, Media & Performance Technology). Both wanted to become video producers after graduating. 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.

I consider the FYP the most important work that an undergraduate can produce. It reflects the student's abilities and aspirations for their future more than anything else. My role was to guide the student through the academic and practical elements of their project. My background in Video Production meant that I could guide them toward professional best practice. This meant weekly meetings to discuss their plans for the following week. The initial meetings involved discussions of the themes and phycological elements that their work would reflect. Then, the practical and logistical elements were discussed. This including private tutorials regarding the production and post-production elements. Finally, both the rough cuts of the films and excerpts from the written reports were delivered weekly and necessary edits were discussed. I enjoyed this experience of guiding them as they narrowed their focus regarding the research elements of their projects.

My responsibilities as **FYP Supervisor** included:

- Conducting a meeting with each student every week.
- Guiding the students through the academic and practical processes.
- Identifying the students' needs and providing additional academic and practical supports.
- Discussing progress and proposing milestones.
- Assessing progress and milestones while providing appropriate and timely feedback to each student.
- Maintaining and sharing records of meetings and current objectives with each student.
- Assessing and grading assignments while providing appropriate and timely feedback to students.

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2005-2020
ROLE: 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. I remain focused on teaching Photoshop and Illustrator.
In addition, I designed and taught the Introduction to Computing course.

My responsibilities as **Adobe Suite Instructor** included:

- Creating and continually updating the syllabuses for each of the 5 courses.
- Creating all instructional material, including photographic and videographic elements.
- Conducting the Problem-based Learning labs each week.
- Involving the students in classroom discussions.
- Identifying their needs and providing additional online academic support.

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RESEARCH EXPERIENCE

2015-2016
ROLE: 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 gaming mouse release would be the number 1 seller in the world. Then, next year's model would comparatively 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 bespoke code, that enabled an analysis of the user-experience with the 5 peripheral's different qualities. For example, one series of experiments were speed and accuracy tests representing typical use that also isolated the feel of the mouse from its sound by playing loud music through the user's headphones. Then another series of experiments inverted this with an isolation box muffling the mouse clicks while the recorded clicks from the other mice were played in sync with the user's activity through sound-proofed headphones.

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

My responsibilities as **Research Assistant** included:

- Eliciting the exact needs of the client through interviews.
- Designing the experiments.
- Writing the code for the experiments.
- Recruiting appropriate end-users for the experiments.
- Conducting the experiments.
- Creating and maintaining records of experiment outcomes.
- Analyzing the experimental data and drawing conclusions and findings.
- Creating an appropriate final report and presenting it to the client.

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 Award

I received a 'First Seven Weeks' Commendation 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 module was CS4031: Introduction to Digital Media (Term 1: 2014). Without altering the core content, as Module Leader I adjusted the module so that it would also serve as an introduction to university and academic life in general. Half of the final grade was from an online open-book exam and the other 50% was from project deliverables. These deliverables were discussed during the computer labs. Each deliverable was carefully constructed to provide the cohort with necessary skill sets. The deliverables were varied to be either individual or group based, as most appropriate. In addition, the last 3 labs were dedicated to rehearsals for their final online exam.

All deliverables were detailed during their 1st lecture, including the exam requirements. The cohort were continually encouraged to voice any issues or concerns and were supported pedagogically for every step. The cohort always knew what they were doing and, more especially, why they were doing it.

ADDITIONAL WORK EXPERIENCE

2004-2013 Video Editor/Compositor/AV Producer as **Independent Contractor**

I 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.

2002-2004 Video Editor/Compositor/AV Producer for **EVI**

I worked as Video Editor, Video Effects Compositor, and Image Editor for EVI, and produced print and screen media for sports events/broadcasting, and industrial visualizations.

EVI was primarily involved in creating "3D Visualizations" for major 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 from all possible access routes. We then took detailed survey data, build a 3D model of the structure from the architect's CAD files, and integrated it accurately into the videos of the drive-bys.

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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.

Skills Acquired during PhD research program

- Comprehending large amounts of information.

- The development and management of a project.

- Forming and defending independent conclusions.

- Defining a problem and identifying possible causes.

- Designing a pedagogic exploration that tested a potential resolution to a known problem.

- Recruitment of volunteers for research purposes.

- Organizing and communicating ideas effectively in oral presentations to small and large groups.

- Working in unison with my supervisors and colleagues.

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.

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.