

**Creating an Innovative, Online Resource
to Support Teachers in Integrating Digital
Literacy Skills into the Junior Cycle
English Curriculum**

Laura Sloyan

Ph.D.

2023

**Creating an Innovative, Online Resource
to Support Teachers in Integrating Digital
Literacy Skills into the Junior Cycle
English Curriculum**

Laura Sloyan B.A.Th., P.G.C.E., M.Sc.

Dissertation Submitted for the Award of Ph.D.

School of STEM Education, Innovation and Global
Studies
Dublin City University

Supervisors: Dr. Yvonne Crotty
Dr. Margaret Farren

March 2023

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Ph.D. is entirely my own work, and that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed: Laura Ojajar ID. No.: 58211612 Date: 12/3//2023

Table of Contents

<i>List of Figures</i>	11
<i>List of Tables</i>	16
<i>List of Videos</i>	17
<i>List of Abbreviations</i>	18
<i>Link to Online Resources</i>	21
<i>Glossary of Terms</i>	22
<i>Acknowledgements</i>	25
<i>Abstract</i>	27
<i>A Note on the Structure of the Dissertation</i>	28
Chapter 1	31
Introduction	31
1. The Global Context	31
2. The National Context	31
3. The Irish Education System	34
3.1. The Junior Cycle	35
3.2. Developing Equality of Opportunity in Schools (DEIS)	37
4. Rationale for this Research	38
5. Research Aims	39
6. Dissertation Layout	40
Methodology	46
1. Introduction	46
2. Research Paradigms	46
2.1. Critical Theory	47
3. Action Research	51
3.1. The Origins of Action Research	51
3.2. What is Action Research?	54
3.3. Key Characteristics of Action Research	55
3.3.1. Closes the gap between theory and practice	55
3.3.2. Draws out tacit knowledge	56
3.3.3. Collaborative	57

4.	Educational Entrepreneurial Approach to Action Research	58
4.1.	A personal reflection on my adoption of Crotty’s Educational Entrepreneurial Approach to action research	58
4.2.	Educational Entrepreneurship	61
4.3.	The Four Stages of Crotty’s Educational Entrepreneurial Approach to Action Research	64
4.4.	Explore	65
4.4.1.	Educational Values, Passion and Motivation	66
4.4.2.	Work Culture	68
4.4.3.	Literature and Policies	69
4.5.	Understand	70
4.6.	Create	71
4.6.1.	Creativity	71
4.6.2.	Risk & Performance	74
4.6.3.	Collaboration	77
4.7.	Transform	78
4.7.1.	Personal Transformation	79
4.7.2.	Cultural Transformation	79
4.8.	Reflection	80
5.	Data Collection Methods	83
5.1.	Reflection Journals	84
5.2.	Questionnaires	85
5.3.	Interviews	86
5.4.	Video	88
5.5.	Photographs	89
5.6.	Personal Correspondence and Student Work Samples	90
6.	Validity	91
6.1.	Winter’s Criteria of Rigour	91
6.1.1.	Collaborative Resource	92
6.1.2.	Plural Structure	92
6.1.3.	Risk	93
6.1.4.	Theory, Practice and Transformation	94
6.2.	Social Validation	94
7.	Ethical Considerations	96

8. Conclusion	98
Chapter 2	101
An Exploration of Self	101
1. Introduction	101
2. Exploration of self	102
2.1. Parental influences on my educational values	104
2.2. Influence of my own work experience on my educational values: Ireland	106
2.2.1. Educational inequities in socio-economically disadvantaged areas	106
2.2.2. Educational inequities in school retention and progression to third level	108
2.3. Influence of my own work experience on my educational values: Australia	110
2.4. Exploration of my educational passions and skills	115
3. Conclusion	118
Chapter 3	120
Developing a greater understanding of the literature, attitudes and perspectives around Teacher Continuous Professional Development	120
1. Introduction	120
2. What is Continued Professional Development for Teachers?	120
2.1. What does effective CPD look like?	123
3. Factors affecting teachers' motivation to engage in CPD	129
3.1. Intrinsic Factors	130
3.2. Contingent Factors	132
3.3. Tangential Factor: CPD is compulsory	133
3.4. Factors that inhibit teachers' participation in CPD	134
4. Exploration of Work Culture	136
4.1. Exploration of national CPD culture	137
4.1.1. Cosán: A National Framework for Teachers' Learning	139
4.1.2. The Junior Cycle and its Implications for CPD	142
4.2. Exploration of Personal Work Culture	143
4.2.1. Teachers' Willingness to Access Online CPD	147
5. Conclusion	151
Chapter 4	155
Digital Literacy	155
1. Introduction	155

2.	Traditional Literacy	155
2.1.	Definitions of Literacy from International and National Policy Making Perspective. 158	
2.2.	Multiple Literacies/ Multiliteracies	161
3.	‘New’ Literacies	164
3.1.	Multiliteracy and Digital Literacy	166
3.2.	Media Literacy	167
3.3.	Information Literacy	171
4.	Digital Literacy	176
4.1.	The Evolution of Digital Literacy	177
4.2.	Defining Digital Literacy	178
4.3.	Digital Literacy Frameworks	185
4.3.1.	Ng’s (2012) Digital Literacy Model	185
4.3.2.	Eshet-Alkalai’s (2004a, 2012) Digital Literacy Framework	188
5.	Conclusion	195
	Chapter 5	196
	Digital Inequality	196
1.	Introduction	196
2.	What is Digital Inequality?	196
3.	First , Second and Third Level Digital Divides	199
3.1.	First Level Digital Divide	199
3.2.	Second Level Digital Divide	200
3.2.1.	Mobile Access	203
3.3.	Third Level Digital Divide	205
4.	The Digital Divide and COVID-19	208
5.	Addressing the Digital Divide	212
6.	Conclusion	214
	Chapter 6	216
	Digital Natives- Born or Made?	216
1.	Introduction	216
2.	Digital Natives	216
2.1.	The Digital Native Argument	216
2.2.	Young People’s Actual Technology Use	219

2.3.	The Impact of the Digital Native Argument on Education and Learning	220
2.4.	What Factors Impact Digital Skills/ Digital Literacy?	221
3.	The Irish Government’s Plan for Improving Digital Literacy	225
3.1.	The Digital Strategy for Schools 2015-2020	226
3.1.1.	Teaching Learning and Assessment Using ICT	227
3.1.2.	Teacher Professional Learning	230
3.1.3.	Leadership, Research and Policy	232
3.1.4.	Infrastructure	233
3.2.	The Digital Learning Framework for Post-Primary Schools	234
3.3.	The Junior Cycle and Digital Literacy	235
3.3.1.	The Framework for Junior Cycle 2015	235
3.3.2.	The Junior Cycle English Specification	238
3.3.3.	The Junior Cycle Digital Media Literacy Specification	239
4.	Exploring young people’s ICT Use in my own work setting	240
4.1.	Student access to digital technologies	242
4.2.	Student use of digital technologies	244
4.3.	Discussion	248
5.	Conclusion	249
	Chapter 7	253
	Putting My Own Home in Order	253
1.	Introduction	253
2.	Erasmus+	256
2.1.	A Peace of Europe	257
2.2.	Digital Activities in Year Two of the ‘Peace of Europe’ Project	258
2.2.1.	Reasons for War- Movie Making Activity	259
2.2.1.1.	Preparation	259
2.2.1.2.	PowToon Workshops in Wales	263
2.3.	Creating Digital Artefacts with my own Students	267
2.3.1.	Task 1: Creating a Short PowToon Animation Movie	269
2.3.2.	Task 2: Researching and Making a Presentation on Nobel Prize Winners	285
2.4.	Presenting and Sharing PowToon Animation and Video Presentations	294
3.	Transformation	296
3.1.	Student Transformation	296

3.2.	Personal Transformation	297
3.3.	Insights Gleaned from PoE Work and Subsequent Research Transformation	300
4.	Conclusion	305
Chapter 8		308
Curriculum Creation- Design		308
1.	Introduction	308
2.	Designing a Digital Literacy Curriculum for use in the English Classroom	311
2.1.	The Look and Layout of the Curriculum	311
2.1.1.	Photo-Visual Skills	311
2.1.2.	Reproduction Skills	315
2.1.3.	Branching Skills	319
2.1.4.	Socio-emotional Skills	320
2.2.	Structure of, and Elements Included in, Curriculum	322
2.2.1.	Curriculum Structure	323
2.2.2.	Elements of the individual task plans	329
2.2.2.1.	Aims, Objectives and Bloom’s Taxonomy	330
2.2.2.2.	Junior Cycle Learning Outcomes	331
2.2.2.3.	Step-by-Step Instructions	332
2.2.2.4.	Digital Literacies Addressed	332
2.2.2.5.	Additional Resources	332
3.	Conclusion	333
Chapter 9		335
Curriculum Creation- Content		335
1.	Introduction	335
2.	The curriculum as a means to integrate digital skills into the Junior Cycle English classroom	336
2.1.	Topic 1- Conducting Internet Research	337
2.2.	Topic 2- Writing a Documentary Script	340
2.3.	Topic 3- Storyboarding	347
2.4.	Topic 4- Presentation and Performance	352
2.5.	Topic 5- Making an Animated Documentary	357
3.	The Curriculum as Means to Address Digital Inequality	364
3.1.	The First Level Digital Divide	364

3.2.	The Second and Third Level Digital Divide	366
3.2.1.	Providing Opportunities to Develop Digital Literacy Skills	367
3.2.2.	Motivation and Engagement	370
3.2.3.	Student Autonomy	371
4.	Conclusion	374
Chapter 10		376
Creating the CPD Elements of the Curriculum		376
1.	Introduction	376
2.	Technological, Pedagogical and Content Knowledge (TPCK)	376
2.1.	Content Knowledge	380
2.2.	Pedagogical Knowledge	380
2.3.	Technological Knowledge	380
2.4.	Pedagogical Content Knowledge (PCK)	381
2.5.	Technological Content Knowledge (TCK)	381
2.6.	Technological Pedagogical Knowledge (TPK)	382
2.7.	TPCK and Its Place in the Curriculum	382
3.	Creating an Online CPD Course for Teachers to Support the Implementation of the Curriculum in Class	383
3.1.	The Rationale for Creating an Online CPD Course for Teachers	383
4.	Creating an Online CPD Course for Teachers- Design	387
4.1.	Choosing Course Authoring Software- Storyline 360	387
4.2.	Creating the Course Content- Informational PowToon Videos	389
4.2.1.	Visuals	390
4.2.2.	Audio	393
4.3.	Mayer’s Cognitive Theory of Multimedia Learning	396
5.	Inserting Content into the Storyline Course Platform	403
5.1.	Design	403
5.2.	Structure	407
6.	Seeking Feedback from Colleagues	411
6.1.	Curriculum	411
6.2.	Storyline 360 CPD Course	415
7.	Aligning My Work with My Values	418
8.	Conclusion	422

Chapter 11	426
Transformation	426
1. Introduction	426
2. My Primary Educational Value- Equality	426
3. Collaboration and Risk	429
3.1. Supervisor	430
3.2. Conferences	431
3.3. Peers and Colleagues	433
4. My Own Digital Skills	435
5. Work Culture	438
5.1. Using my digital skills to create virtual open day for my school during Covid-19 related school closures	438
5.2. Leading the Implementation of the Digital Media Literacy Junior Cycle Short Course	443
5.3. Appointment to Assistant Principal II position with responsibility for digitally enhanced teaching, learning and assessment	445
5.3.1. Staff Course Club	446
5.3.2. Teaching and Learning Google Classroom and Staff Library	447
5.3.3. Digital Learning Plan	449
6. Wider Society	451
6.1. Digital Skills Workshops through the International Centre for Innovation and Workplace Learning	451
6.2. Erasmus+ Project	452
7. Conclusion	453
Chapter 12	455
Conclusion	455
1. Introduction	455
2. Original Contribution to Knowledge	458
3. My Research	459
3. Relevance for Teachers and School Leaders	462
4. Relevance for Policy	465
5. Final Thoughts	467
References	469

List of Figures

- Figure 1.1.** *The key skills of Junior Cycle*
- Figure M.1.** *Basic Action Research Cycle*
- Figure M.2.** *“A non-linear pattern of planning, acting, observing and reflecting” (Adapted from Noffke and Stevenson, 1995, p2)*
- Figure M.3.** *Infographic outlining the Educational Entrepreneurial Approach to Action Research (Crotty, 2014)*
- Figure M.4.** *Skills and attitudes of the educational entrepreneur (Adapted from Vandenhoven, 2013; Crotty, 2012; Smith and Peterson, 2006)*
- Figure M.5.** *Four stages of the Educational Entrepreneurial Approach to Action Research (Adapted from Crotty, 2015)*
- Figure M.6.** *Reflection-on-Action- Questioning actions taken in a particular situation (adapted from Schön, 1995)*
- Figure 2.1.** *Five factors common to most definitions of values (Schwartz and Bilsky, 1987)*
- Figure 3.1.** *Teacher CPD motivational model*
- Figure 3.2.** *Research Model of Professional Learning Activities, (Kwakman, 2002)*
- Figure 3.3.** *Four quadrants of scale values for teachers’ expectancy for success in and value for implementing in their classrooms what they learn in professional development (Warner and Osman, 2020, p8)*
- Figure 3.4.** *Graphic depicting key elements of cosán*
- Figure 3.5.** *The distribution of teachers who completed additional formal qualifications after their initial teacher training*
- Figure 3.6.** *Chart showing the likelihood of participants’ involvement in online CPD*
- Figure 3.7.** *Teacher responses to whether they would be likely to engage in online CPD*
- Figure 4.1.** *Seven pillars of information literacy*
- Figure 4.2.** *Revised bloom’s taxonomy (Anderson & Krathwohl, 2001)*
- Figure 4.3.** *Webwise’s 7 key components of digital literacy*
- Figure 4.4.** *Ng’s digital literacy model*

- Figure 4.5.** *Eshet-Alkalai's holistic conceptual model for digital literacy*
- Figure 5.1.** *Van Dijk's potential tripartite structure of the network society*
- Figure 6.1.** *Three Approaches of UNESCO ICT Competency Framework for Teachers*
- Figure 6.2.** *Technological Pedagogical Content Knowledge (TPCK) Framework*
- Figure 6.3.** *Students age when first accessing the Internet*
- Figure 6.4.** *Where students are most likely to use the Internet*
- Figure 6.5.** *School Day Internet Use*
- Figure 6.6.** *Non-School Day Internet Use*
- Figure 6.7.** *Students' preferred social media sites*
- Figure 6.8.** *Snapchat picture with an old woman filter, stickers, and drawing*
- Figure 7.1.** *Using tiki-toki.com to create an interactive timeline*
- Figure 7.2.** *Personal Correspondence, September 2015*
- Figure 7.3.** *Personal Correspondence, October 2015*
- Figure 7.4.** *Powtoon Interface (2015)*
- Figure 7.5.** *Students learning to use PowToon during the workshops*
- Figure 7.6.** *Teachers and students working together to learn how to use PowToon*
- Figure 7.7.** *Squashed classroom of students using laptops to work on their movies*
- Figure 7.8.** *'Table Mat' for collaborative work/research*
- Figure 7.9.** *Students working collaboratively on their table mat research*
- Figure 7.10.** *Coming to a whole class consensus on the pertinent points to include in the movie*
- Figure 7.11.** *Plan for movie making process*
- Figure 7.12.** *Pupils' ideas for the concept of the 1916 movie*
- Figure 7.13.** *Student roles in movie making process*
- Figure 7.14.** *'J' outside Liberty Hall in Dublin*
- Figure 7.15.** *1916 leaders represented using free-to-use 'picto' characters*
- Figure 7.16.** *Screenshots from reshoot of 'live action' scene*

- Figure 7.17.** *Email correspondence with Danish Colleague*
- Figure 7.18.** *Students Skyping with their Danish Counterparts*
- Figure 7.19.** *Sample Internet Research Template- Nelson Mandela-Education*
- Figure 7.20.** *Using the Monosnap application*
- Figure 7.21.** *Student Collaborative Padlets*
- Figure 7.22.** *Email asking tutors to show 1916 movie to tutor groups*
- Figure 7.23.** *Sample reply from colleague praising students' work*
- Figure 7.24.** *Students at the Lighthouse Cinema in Dublin with their JAFSA award*
- Figure 7.25.** *Students presenting their work in Denmark at the partner meetings*
- Figure 8.1.** *Feedback loop: How an improvement in my own digital literacy skills fed back into the creation of the curriculum.*
- Figure 8.2.** *Sample of Padlet featuring potential curriculum design elements*
- Figure 8.3.** *Padlet Screenshot with Font Options*
- Figure 8.4.** *Title and body text choices*
- Figure 8.5.** *Screenshot of character/ icon inspiration from Padlet*
- Figure 8.6.** *Collection of robot characters from pixababy.com*
- Figure 8.7.** *Sample colour scheme generated by Adobe Colour Wheel*
- Figure 8.8.** *Final Colour Scheme.*
- Figure 8.9.** *Iteration 1, 2 and 4 of the lesson plan layout*
- Figure 8.10.** *Iteration 5, 7 and 8 of the lesson plan layout*
- Figure 8.11.** *Pinterest board with audio, visual and text graphic design inspiration*
- Figure 8.12.** *First Iteration versus final iteration of task plan layout*
- Figure 8.13.** *TPCK Framework as applied to the curriculum*
- Figure 8.14.** *Initial planned structure of digital literacy curriculum*
- Figure 8.15.** *Planned Structure of Curriculum- Reflection Journal, July 2017*
- Figure 8.16.** *Elements included in task plan (Topic 1, Task 1)*
- Figure 9.1.** *Self-assessment marking rubric for script writing task*

- Figure 9.2.** *Initial considerations on storyboard self-assessment rubric*
- Figure 9.3.** *Storyboard self assessment rubric*
- Figure 9.4.** *Audacity- Graphic Interface*
- Figure 9.5.** *Audio recording self-assessment rubric*
- Figure 9.6.** *PowToon’s graphic interface*
- Figure 9.7.** *Sub-menu with controls for individual elements of video*
- Figure 9.8.** *Samples of tasks with non-digital alternatives suggested*
-
- Figure 10.1.** *Technological, Pedagogical and Content Knowledge Framework as applied to the curriculum*
- Figure 10.2.** *Screenshot of course objectives slide from the curriculum’s accompanying CPD course*
- Figure 10.3.** *Articulate Storyline Graphic Interface*
- Figure 10.4.** *An extract from the Digital Inequality Script*
- Figure 10.5.** *PowToon ‘looks’ with Whiteboard*
- Figure 10.6.** *Explainer characters from PowToon’s Cartoon ‘look’*
- Figure 10.7.** *Cognitive Theory of Multimedia Learning (Mayer, 2014, p37)*
- Figure 10.8.** *Screenshot of Digital Inequality module of course with five sequential videos*
- Figure 10.9.** *Screenshots of first iteration of my CPD course using Articulate Storyline 2*
- Figure 10.10.** *Sample of graphics downloaded from Envato Elements*
- Figure 10.11.** *Design feedback via WhatsApp*
- Figure 10.12.** *Iterations of course plans and structure*
- Figure 10.13.** *Final structure of online course*
- Figure 10.14.** *Emails to colleagues to elicit feedback on the curriculum and CPD course.*
- Figure 10.15.** *Written feedback from English Department colleague on the curriculum*
- Figure 10.16.** *Written feedback from English Department colleague on the Storyline 360 CPD course*
- Figure 10.17.** *Sample of list of potential instructional videos*

- Figure 11.1.** *Presenting at the Computers in Education Society of Ireland's (CESI) 2019 Conference*
- Figure 11.2.** *Email sent to staff outlining the virtual open day*
- Figure 11.3.** *Main menu and core and optional subject layers from virtual open day*
- Figure 11.4.** *Feedback from colleagues regarding the virtual open day*
- Figure 11.5.** *Email pitch to school management to include DML in the school timetable*
- Figure 11.6.** *Email confirming appointment to APII role*
- Figure 11.7.** *Sample of a course assigned to participants of staff 'Course Club'*
- Figure 11.8.** *Screenshot of Teaching and Learning Google Classroom*
- Figure 11.9.** *Staff Teaching and Learning library*
- Figure 11.10.** *Emails sent to staff looking for volunteer members of a digital strategy steering committee*
- Figure 11.11** *Sample page from Digital Learning Plan with hyperlink to document in progress*
- Figure 11.12** *Poster advertising International Centre for Innovation and Workplace Learning workshops*

List of Tables

- Table 2.1.** *Sample of 2019 NAPLAN results for indigenous and non-indigenous students in the Northern Territory, Reading, writing and numeracy: Year 9 (ACARA, 2021)*
- Table 3.1.** *Teacher Reasons for not partaking in CPD- shown in descending order (TALIS, 2009 2013 & 2018)*
- Table 4.1.** *Range of possible multimodalities*
- Table 4.2.** *Media Literacy competencies and/or components*
- Table 5.1.** *A summary of uses if ICT according to socio-economic status*
- Table 6.1.** *UNESCO ICT Competency Framework for Teachers*
- Table 6.2.** *Linking the Framework for Junior Cycle to the Digital Strategy for Schools*
- Table 9.1.** *Digital literacy skills integrated into each task*
- Table 9.2.** *Opportunities for students to work autonomously*
- Table 10.1.** *11 'researched based-principles for how to design computer-based multimedia instructional materials to promote academic learning' as applied to the curriculum's CPD support material .*
- Table 10.2.** *Digital inequality video segmented into five smaller chunks*
- Table 10.3.** *Digital literacy video segmented into four smaller chunks*
- Table 10.4.** *Table showing feedback and how it was addressed*
- Table 11.1.** *Applications and software used in the creation of a digital literacy curriculum and CPD course for teachers leading to an improvement in my digital skills.*

List of Videos

- Video M.1.** *Presentation of Digital Artefact as part of MSc in Education and Training Management in Dublin City University- 2010*
- Video 7.1.** *Alternative to Stop Motion*
- Video 7.2.** *First Draft of 1916 Rising PowToon Movie*
- Video 7.3.** *Final Draft of 1916 Rising PowToon Movie*
- Video 7.4.** *Conducting Internet Research- Instructional Screencast*
- Video 7.5.** *Theodore Roosevelt Video Presentation*
- Video 7.6** *Nelson Mandela Video Presentation*
- Video 10.1.** *First iteration of the 'What is Digital Literacy?'*
- Video 10.2.** *Sample instructional video- 'How to record audio using Audacity'*

List of Abbreviations

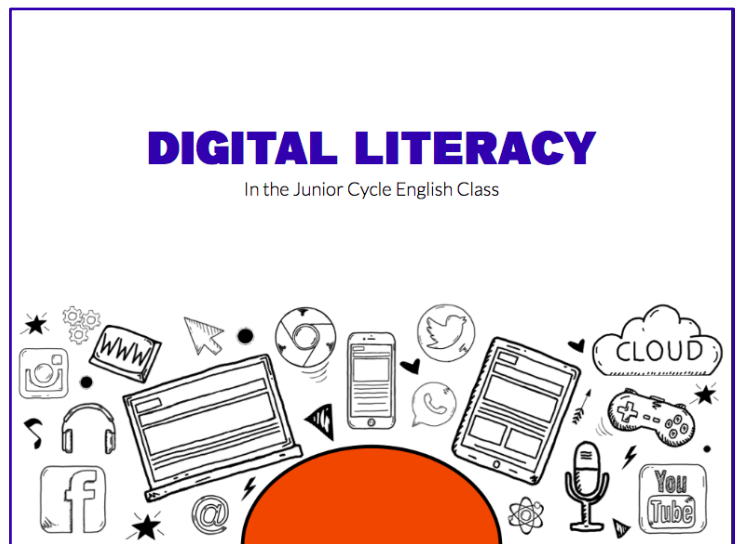
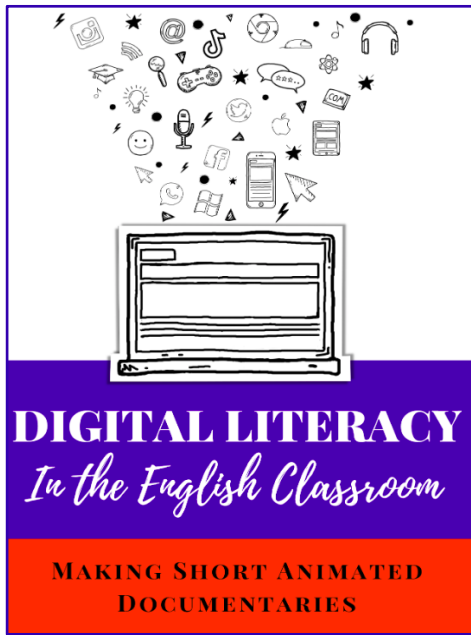
4IR	Fourth Industrial Revolution
ACARA	Australian Curriculum, Assessment and Reporting Authority
AFL	Assessment for Learning
BAI	Broadcasting Authority of Ireland
CBA	Classroom Based Assessment
CPD	Continuous Professional Development
DCU	Dublin City University
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
DESI	Digital Economy and Society Index
DETE	Department of Enterprise, Trade and Employment
DLF	Digital Learning Framework
DML	Digital Media Literacy
DSS	Digital Strategy for Schools
ECCE	Early Childhood Care and Education Scheme
EC	European Commission
EEA	Educational Entrepreneurial Approach [to Action Research]
EU	European Union
GDPR	General Data Protection Regulations
H.Dip.	Higher Diploma
HSCL	Home School Community Liaison Coordinator
IALS	International Adult Literacy Survey

ICT	Information and Communication Technologies
JC	Junior Cycle
JCT	Junior Cycle for Teachers
KA2	Key Action 2
LO	Learning outcomes
LSE	London School of Economics
MEME	MSc in Education and Training Management (eLearning)
NAPLAN	National Assessment Plan- Literacy and Numeracy
NCCA	National Council for Curriculum and Assessment
NDP	National Development Plan
NESC	National Economic and Social Council
NPP	Nobel Peace Prize
NQT	Newly Qualified Teacher
NT	Northern Territory of Australia
OECD	Organisation for Economic Co-operation and Development
PCK	Pedagogical Content Knowledge
PDF	Portable Document Format
PDST	Professional Development Service for Teachers
PDST TiE	Professional Development Service for Teachers: Technology in Education
PGC	Postgraduate Certificate
PISA	Programme for International Student Assessment
PoE	Peace of Europe (Erasmus+ Project)
RSE	Relationships and Sexuality Education

RTE	Radó Telefis Éireann (Ireland's National Broadcaster)
SCP	School Completion Programme
SEC	State Exams Commission
SEN	Special Educational Needs
SES	Socioeconomic Status
SLAR	Subject Learning and Assessment Review
SPHE	Social, Personal and Health Education
SSE	School Self-Evaluation
TALIS	Teaching and Learning International Survey
TCK	Technological Content Knowledge
TPCK	Technological, Pedagogical and Content Knowledge
TPK	Technological Pedagogical Knowledge
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VO	Voice-over

Link to Online Resources

Central to this research was the creation of an innovative, online, curriculum for use in Junior Cycle English classes. An accompanying online, asynchronous continuous professional development course for teachers was also created. These digital resources can be accessed by clicking the link below.



[Click here to access the curriculum and online CPD course](#)
[or scan the QR code below](#)



Glossary of Terms

Adobe Audition	<u>Adobe Audition</u> is digital audio recording and editing software.
Adobe Colour Wheel	<u>Adobe Colour Wheel</u> is an online application that allows the user to extract a colour palette from an uploaded image.
Adobe InDesign	<u>Adobe InDesign</u> is a layout and page design software for print and digital media.
Articulate Replay 360	<u>Articulate Replay</u> is a software for creating screencasts. Users can record what is happening on their screen, add voiceover and insert webcam footage. It is easy and intuitive to use.
Articulate Rise 360	<u>Articulate Rise 360</u> is an online software for creating e-learning courses. The courses are created in the user's web browser and are built using pre-created blocks of content.
Articulate Storyline 360	<u>Articulate Storyline 360</u> is a course authoring software for creating e-learning courses.
Audacity	<u>Audacity</u> is a free, open source digital audio recording software.
Canva	<u>Canva</u> is an online design and publishing website. It allows users to create graphic design elements for free. Users can also subscribe to a 'pro' package with a wider wider variety of content.
Envato Elements	<u>Envato Elements</u> is an online subscription that offers subscribers unlimited downloads of creative assets (i.e. stock photos, videos, graphic templates, illustrations, music and fonts). All assets are licensed for use on work or personal projects.
Garageband	<u>Garageband</u> is the digital audio recording and editing application available on Apple products.
GIF	<u>GIF</u> stands for graphics interchange format. A GIF is a type of image file. GIF files also allow images or frames to be combined, creating basic animations.
iMovie	<u>iMovie</u> is a movie making and editing software that is available on Apple products such as Mac computers or iPhones.

Infographic	Infographics are visual and graphic representations of knowledge or data. They present information succinctly and clearly.
Instagram	Instagram is an online photo sharing application. Users can share photos, videos and stories with followers.
Kahoot	Kahoot is a ‘game-based learning platform’. Users can create quizzes called ‘kahoots’. The quiz host shares a unique PIN with players who play the ‘kahoot’ on their own device.
Mentimeter	Mentimeter is an online interactive presentation software. Users can create presentations with interactive elements such as questions, polls, quizzes, slides, images and GIFs.
Monosnap	Monosnap is an online software for capturing screenshots and screencasts.
mp3	An mp3 is a type of audio file.
mp4	An mp4 is a type of video file.
Padlet	Padlet is an online collaborative tool in which users can post text, images, links, documents, videos and voice recordings onto a blank ‘wall’.
Piktochart	Piktochart is an online design and publishing website. It allows users to create graphic design elements such as infographics, posters, presentations and videos.
Pinterest	Pinterest is an online virtual ‘pinboard’. Users can save links, pictures and ideas as pins to their boards.
Podcast	A podcast is an audio program made available for download over the Internet.
Powtoon	Powtoon is an online visual communications platforms. Users can make simple videos and animations online.
Prezi	Prezi is a web based application for making presentations.
Quizlet	Quizlet is a website where users can create their own, or access premade study aids such as flashcards, quizzes and matching games.

Screencast	A screencast is a video recording of what is happening on a computer or mobile device screen.
Screencast-o-Matic	Screencast-o-matic is an online tool for creating screencast videos.
Skype	Skype is a software for making video calls
Snapchat	Snapchat is a mobile messaging application used to share photos, videos, text, and drawings. Messages sent disappear after a few seconds (Webwise, 2018, para 1)
Storyboard That	Storyboard That is an online platform that allows users to create storyboards and comic strips.
Tiki-Toki Timeline	Tiki Toki Timeline is a free online tool that allows users to make interactive timelines. Users can embed images, audio and video into their timelines.
YouTube	YouTube is a video sharing service where users can watch, like, share, comment and upload their own videos. The video service can be accessed on PCs, laptops, tablets and via mobile phones' (Webwise, 2015, para 1)

Acknowledgements

My sincere gratitude to the staff and students of the school in which I work. To the Board of Management for permitting me to carry out facets of the research in the school. To my colleagues for their friendship, support, advice and feedback. But mostly, to the students who are a constant source of motivation, inspiration and enthusiasm. It is a privilege to work in such a wonderful school, I am very lucky.

Although it is some years ago now, I acknowledge the part the students and staff of schools in Milingimbi and Yirrkala, Northern Australia, played in this research. It was during those months teaching in the 'Top End' that an idea to undertake research in the provision of online CPD began to germinate. I will be forever grateful for my experiences there.

To my supervisors Dr. Yvonne Crotty and Dr. Margaret Farren. We first met at the interview for MSc in eLearning. Luckily, you gave me a spot on the course and I'm still here 14 years later! Thank you so much for all your help, guidance, support and encouragement over the years and for your generous feedback at all stages of the research, I deeply appreciate it.

Thank you to my family. To my boys Tom and Leo, thank you for being so good and patient. You can have a full time mammy back now. My sisters for their help, support, tea and pep talks when I needed them. My dad, for championing the importance of education and encouraging me always. Thank you most of all to my mam, Mona. My educational

role model. A dedicated teacher herself, a champion for educational equality and the best Gangan there is.

Finally, to my husband Robbie, there is simply no way I could have completed this work without your seemingly unending patience, support, understanding and encouragement. You're amazing and I can never thank you enough.

Abstract

Creating an Innovative, Online Resource to Support Teachers in Integrating Digital Literacy Skills into the Junior Cycle English Curriculum

The proliferation of digital tools into all facets of society in recent years has had no small impact on the field of post-primary education. The Irish government's Digital Strategy for Schools (DSS) (2022, 2015) emphasises the importance of seamlessly integrating digital literacy skills into subject curricula. However, this is a new frontier for Irish post-primary teachers. As a practising teacher I identified a need for teachers to be supported in embedding digital literacy skills into their teaching practice through the provision of relevant, practical and quality resources that met the learning objectives of the subject and through access to continuous professional development (CPD) in this area. Through this Ph.D. research I created an innovative, online resource to assist post-primary English teachers in integrating digital literacy skills into the Junior Cycle curriculum. Taking a methodologically inventive approach (Dadds and Hart, 2001) I used an Educational Entrepreneurial Approach to Action Research (Crotty, 2014) to explore my passions, skills, values, work culture and the literature around digital literacy, digital inequality and digital natives. This exploratory process led me to a greater understanding of issues of inequality in my own work practice as a teacher in a DEIS school; namely that students weren't as digitally literate as we might assume and that teachers, whose digital literacy also exists on a spectrum, may not have the time, money or motivation to upskill. I worked with students to create an animated, digital documentary and drew on these experiences to create an innovative, online, curriculum for Junior Cycle English teachers with an accompanying online, asynchronous CPD course. This dissertation presents a detailed explanation of this collaborative creative process and draws out the variety of media used to create online digital resources as a means of creating a pluralistic representation of the process. In line with Crotty's (2014) EEA the creation of these digital resources proved transformative to me personally, to my school's digital culture and continues to impact the wider education sphere.

A Note on the Structure of the Dissertation

I have always been a lover of the written word. From a young age I read voraciously and as I grew and was introduced to drama, I came to thoroughly enjoy seeing a writer's work come to life on a theatre stage.

Drama is central to the post-primary English curriculum, and I have been fortunate enough to explore both Shakespearean and contemporary plays with my students over the years.

As I wrote this dissertation, using an educational entrepreneurial approach to action research (Crotty, 2014), it became apparent that there are many parallels between an action research journey and the five-act structure of traditional theatre. Both involve a central problem or issue that should be resolved (for better or worse), an introductory or exposition stage, the rising action of getting to grips with the issue at hand, complications that arise, the climactic resolution of the issue and the final denouement or 'unknotting' of all that has taken place.

To me, the five-act structure seems an ideal analogy for this action research dissertation and the dissertation structure is in line with that of the traditional dramatic structure.

However, some liberties have been taken. While Shakespearean drama is resolved, either tragically or comedically, such a neat denouement is not possible in the case of action research. Drawing on the realism of contemporary drama it is acknowledged that the problems faced by a practitioner-researcher are 'messy, confusing and incapable of a technical solution' (Schon, 1995, p28). This analogy uses the more open structure of

contemporary drama in which the ending does not bring about a conclusive solution or result.

The research methodology, the educational entrepreneurial approach to action research (Crotty, 2014), encompasses so much in this theatrical analogy. It is the director of the research, the guide, letting me know how I should proceed, where I should go and why I should go there. It acts as the stage directions, providing practical instructions for the technical aspects of the research. Indeed, it is the set itself. The framework within which all the action takes place. With this in mind, the methodology is presented as a somewhat standalone chapter that can be read and then consulted as needed throughout the dissertation.



Fig P.1. *The Abbey Theatre Spring Programme Cover (2009)- I am in the centre of the picture.*

Prologue

The prologue foreshadows events to come, provides background information and establishes a point of view

Chapter 1

Introduction

'The future is already here – it's just not very evenly distributed'

-William Gibson

1. The Global Context

The world is changing. The 20th century saw the vast proliferation of digital technology and its integration into our daily lives that became known as the third industrial revolution. This rapid digitalisation of so many areas of everyday life, work and culture led to a more complex and interconnected world and continues to drive changes in these sectors (Philbeck & Davis, 2019). The 21st Century has seen the dawn of the fourth industrial revolution (4IR) which 'extends the impact of digitization in new and unanticipated ways' (Davis, 2016, para 2). The 4IR and the advent of cyber physical systems brings with it a multitude of new possibilities for embedding technology into society (Davis, 2016).

2. The National Context

This exponential growth of technology and its impact on the 'structure, nature, character and dynamics of communication, consumption, production, employment and learning' (Charalambos, 2019, p34) has created, and continues to create, novel types of jobs and education. These new forms of employment and education require people to have, at the very least, basic digital literacy skills in order to survive and thrive in this 'speedy, complex, hyper-connected and increasingly knowledge-based society' (Charalambos, 2019, p35). This need has not been overlooked by the Government of Ireland; the [Project](#)

[Ireland 2040](#) initiative looks to a future in which Ireland has one million more citizens. Such population growth will require new homes, social and educational amenities, enhanced connectivity and improved environmental sustainability (Government of Ireland, 2021). The National Development Plan 2018 - 2027 (NDP) is central to Project Ireland 2040 and reflects the role technology will play in the delivery of these needs, with investment in innovation and technology high on the list of the government's priorities. The NDP highlights the importance of the development of Ireland's knowledge economy and an investment in intangible assets to support the enterprise and innovation that are essential for the growth of the economy. The NDP sees significant investment in third level Institutes of Technology and the provision of a €500 million disruptive technologies innovation fund (DETE, 2021; Government of Ireland, 2018). In line with the NDP, the Future Jobs Ireland initiative states that 'new technologies such as virtual, augmented and mixed reality are transforming how we view and experience the world and fundamentally changing and enhancing products and services with digital content'. The Future Jobs document is explicit in articulating the government's assertion that there will be 'fundamental changes in many occupations that exist today, and the creation of entirely new roles in the workplace' (DETE, 2019, p4). It recognises that 'digitalisation requires investment by enterprises to innovate and by our people to learn new skills' (DETE, 2019, p4).

It seems that Ireland is making good progress in meeting its goals for an innovative, technology driven and digitalised society. The European Commission's (EC) Digital Economy and Society Index (DESI) ranks Ireland 6th out of 28 member states in terms of

5 key areas; connectivity, human capital, use of Internet services, integration of digital technologies and digital public services (European Commission, 2020). Indeed, Ireland ranks first in the European Union (EU) in terms of the integration of digital technologies in society. However, Ireland ranks 11th in the human capital dimension; the DESI results show that while Ireland has a relatively large population with *high* digital skills (7% of all college graduates are ICT specialists), only 53% of the population (16-74 years) have *at least basic* digital skills (up from 48% in 2018), this is below the EU average (EC, 2020). Drawing on the DESI results the National Economic and Social Council (NESC) note that there are clear shortcomings in relation to digital exclusion in Ireland. As well as generally having below the EU average of basic digital literacy skills, older Irish people were shown to have much lower skills than their European counterparts. Moreover, socio-economic divides were also apparent with unemployed people, those with lower levels of education, lower incomes and those from lone parent households less likely to own a device or engage with information and communication technologies (ICTs) to use software, download apps, carryout practical online tasks such as Internet banking or interact with the government online (NESC, 2021). Despite the strides being made, Ireland still has some way to go before we have a mostly digitally literate population and are a fully digitally inclusive society.

Also under the aegis of Project Ireland 2040 and the National Development Plan is the Digital Strategy for Schools (DSS). The DSS seeks to embed digital technologies in all aspects of teaching, learning and assessment and, to this end, an investment of €210 million was made from 2015-2020. The 2015-2020 strategy was replaced in April 2022

with the DSS to 2027 and this new strategy will see a further €200 million investment made in the integration of digital technologies in school (DES, 2022). This huge investment in digitally upskilling Ireland's primary and post-primary students again highlights the government's recognition of the importance of having a highly digitally literate population.

3. The Irish Education System

Education is compulsory in Ireland from ages 6 - 16. State funded pre-school is available to all children through the Early Childhood Care and Education (ECCE) scheme. Primary school is compulsory for children from six years of age, although they may begin primary school the September after their fourth birthday. Students complete eight years of primary education before transitioning to second level or post-primary school at around 12 years of age.

Post-primary schools fall into four broad categories; secondary, vocational, comprehensive and community schools. The different categories have much in common and the main differences stem from historical context and management structure (DES, 2005a). Post-primary education is made up of the junior and senior cycle and lasts for 5 years, with an optional *transition year* (TY) at the start of the senior cycle of post-primary. The Junior Cycle comprises 1st - 3rd year and culminates in the Junior Cycle state exams. Students may leave school after these first three years of post-primary school, although Ireland has very high rates of completion of senior cycle (or upper secondary) education (OECD, 2020). The Senior Cycle consists of 4th - 6th year (4th year or TY is optional). At the end

of Senior Cycle students take the Leaving Certificate state exams which often determine access to third level institutions. The Leaving Certificate Applied (LCA) offers a less academic option to senior cycle students. The LCA is a practical programme that focuses on preparing students for the world of work and lifelong learning (PDST, n.d.).

3.1. The Junior Cycle

2015 saw the beginning of the phased introduction of a new Junior Cycle Framework (DES, 2015). This new framework sought to address issues within the old model, among them; that students were not making sufficient progress in English and Maths, that second year students were becoming disengaged, the final exams were outdated with too much onus placed upon them and that teachers had little say in assessment procedures (DES, 2013). The new Junior Cycle framework was rolled out over five phases, starting with English (phase one) in the 2014/15 academic year. The final phase began in 2019 and by 2022 all JC subjects will be assessed in line with the framework.

The framework is supported by [8 principles](#); quality, creativity and innovation, engagement and participation, continuity and development, wellbeing, choice and flexibility, inclusive education and learning to learn. Expected student learning is detailed in the [24 statements of learning](#) with a focus on communication, creativity and critical thinking. Central to the new Junior Cycle are the [key skills](#) that students are expected to

develop throughout the three-year cycle (Fig. 1.1). The skills are applicable to all subjects and are intended to ‘support learners in their social and work lives’ (NCCA, 2014). Students can study a maximum of ten subjects at Junior Cycle which are assessed by the State Exams Commission (SEC). One of the major changes in the JC framework is the way subjects are assessed. The framework takes a dual approach to assessment with classroom based assessments (CBAs) across the three years and a final state exam. CBAs cover a range of activities; ‘oral presentations, different types of written work, practical or designing and making activities, artistic performances, experiments, projects, etc.’ (DES, 2015, p37). The assessment of CBAs are moderated via a subject learning assessment review (SLAR) in which teachers share and discuss a variety of sample CBAs to ensure they are in line with assessment guidelines.



Fig. 1.1. The key skills of Junior Cycle (DES, 2015)

3.2. Developing Equality of Opportunity in Schools (DEIS)

Developing Equality of Opportunity in Schools (DEIS) is the Department of Education and Skills' (DES) standardised system for 'identifying, and regularly reviewing, levels of disadvantage' and seeks to 'bring together, and build upon, existing interventions for schools and school clusters/communities with a concentrated level of educational disadvantage' (DES, 2005, p5). DEIS schools benefit from supports such as smaller class sizes, increased financial supports, School Completion Programme (SCP), a Home School Community Liaison Coordinator (HSCL), improved numeracy and literacy supports and supported access to third level education. DEIS planning involves setting and meeting targets for numeracy, literacy, attainment, retention, progression and partnership with parents and others. The 2020/21 academic year saw 658 primary schools and 194 post-primary schools involved in the DEIS programme (DCU, 2021).

My own work context, which was central to the research, is in a Dublin community school. The school is run by a board of management and is under the trusteeship of a religious order. The school is categorised as DEIS and avails of all of the supports listed above. I have worked at the school since 2005 and am a teacher of English and Religious Education. In 2016 I was appointed to the position of HSCL for a five-year term. This position involved working with parents and guardians to support their involvement in their child's education.

4. Rationale for this Research

Having taught in areas of low socioeconomic status (SES) for many years, I have seen first hand how low levels of digital literacy skills present themselves and seem to negatively impact digital exclusion and digital inequality. Teachers are well placed to equip students with digital literacy skills, either through stand-alone instruction or through the embedding of digital literacy skills into the curricula. Indeed, the Digital Strategy for schools 2015-2020, and the more recent DSS to 2027, place great onus on the embedding of digital literacy skills across all school curricula ‘to ensure all learners develop the digital skills necessary to navigate a complex digital world’ (Department of Education, 2022, p16). However, many teachers themselves do not have the requisite digital skills to integrate technology into their classes in innovative ways and may find themselves without the time, financial means or motivation to upskill in this regard (TALIS, 2018, 2013, 2008).

This action research inquiry is my attempt to address the needs of both students *and* teachers who are teaching and learning in this age of the third and fourth industrial revolutions by creating a Junior Cycle English curriculum into which opportunities to enhance digital literacy skills are embedded. Given the trajectory of Ireland’s economy towards a knowledge economy, it is essential that all students, regardless of socioeconomic status are imbued with basic digital literacy skills that allow them to fully function in, and benefit from, today’s digital society.

5. Research Aims

Embarking on this action research journey, I initially sought to create an online continuous professional development (CPD) course for teachers in the area of digital literacy.

However, as the research progressed I came to understand the importance of addressing student digital literacy within a curriculum context and that attempts to address student and teacher digital literacy were inextricably linked.

My focus has shifted ...to encouraging teachers to be digitally literate. How can teachers promote digital literacy if they themselves are not digitally literate? I have started to think that any CPD course would have to focus on enhancing the digital literacy of teachers before that could be then transferred to students.

Reflection Journal, September 2015

Inspired by digital learning activities carried out with my students as part of an Erasmus+ project, my research aims began to emerge, as follows:

- To create a Junior Cycle Curriculum for English that integrates digital literacy skills
- To create foundational, online continuous professional development (CPD) material for teachers to support the implementation of the curriculum
- To improve my own practice so that I am better placed to support my students in helping them to close second and third level digital divides (Hargattai, 2002; Van Dursen and Hessler, 2015).

6. Dissertation Layout

As outlined in the opening ‘Note on the Structure of the Dissertation’ I have used a five act structure as an analogous way to layout this dissertation. The content of each of the five acts is as follows:

Prologue

Chapter 1: Introduction

This chapter has broadly outlined the context within which the research has taken place, including the global and national economic and technological considerations. It has outlined the Irish education system and specified the particulars of the school where I work and in which the research took place.

Stage Notes/ Directors Notes

Methodology

This research uses an educational entrepreneurial approach (EEA) to action research (Crotty, 2014). The EEA consists of four stages- explore, understand, create and transform. An understanding of the four stages was essential for me to complete this research and so it is presented here as a somewhat standalone chapter to highlight its importance to my research journey and to act as a guide to the reader.

Act I- Exposition

Chapter 2: An Exploration of Self

This chapter describes a personal exploration of my educational values and how they were shaped by the influence of my mother and my experiences of teaching in areas of disadvantage in Ireland and Australia.

Chapter 3: Developing a greater understanding of the literature, attitudes and perspectives around Teacher Continuous Professional Development

Chapter 3 details an exploration of the national culture surrounding CPD in Ireland and the culture and attitudes towards formal and informal CPD in my own work context at the outset of this research inquiry.

Act II- Rising Action

Chapter 4: Digital Literacy

Chapter 4 explores the literature around digital literacy. It briefly examines traditional literacy as well as literacies associated with digital literacy; information and media literacy. The evolution of a definition of digital literacy is also explored. The chapter ends with the presentation of a digital literacy framework that underpins the research in general and the creation of the curriculum and associated CPD digital artefacts.

Chapter 5: Digital Inequality

Chapter 5 reviews the literature surrounding digital inequality. It looks generally at digital inequality before exploring the nature of the first, second and third level digital divides. It addresses the impact of the Covid-19 pandemic on digital inequality and looks at how digital inequality can be addressed with particular reference to the role of schools.

Chapter 6: The International and National Context

Chapter 6 explores the international, national and school context in which the research takes place. It looks at the literature surrounding digital natives and the influences on a person's digital skills. It also looks at the Irish Government's plan for improving the digital literacy levels of young people, examining policies such as the Digital Strategy for Schools, the Digital Learning Framework and the Framework for Junior Cycle. The chapter closes with the presentation and analysis of an in-school questionnaire that sought to garner a greater understanding of my students' use of digital technologies.

Act III- Complication

Chapter 7: Getting My Own Home in Order- Erasmus+

Chapter 7 details my attempts to 'get my own home in order' (McNiff, 1992, p3) through carrying out a number of creative digital learning tasks with one of my own class groups as part of an Erasmus+ project. My learning from facilitating students to create a short, animated movie on the 1916 Rising and digital presentations on Nobel Peace Prize winners was the inspiration and foundation for creating a digital literacy curriculum for Junior Cycle English teachers with embedded CPD elements.

Act IV- Climax

Chapter 8: Curriculum Creation- Design Elements

Chapter 8 describes the process of creating a curriculum for use in JC English classes that integrated digital literacy skills, hereafter referred to as the *digital literacy curriculum*. This

chapter focuses on the design aspect of the creative process, including the look and layout of the curriculum, the elements included and the overall structure. The chapter outlines how my own digital literacy skills developed through the creative process, learning which in turn, was fed back into the creative process.

Chapter 9: The Curriculum as a Vehicle for transmitting Digital Literacy Skills and Addressing Digital Inequality

Chapter 9 focuses on the creation of the digital literacy curriculum in terms of its content. The chapter explores each of the topics and tasks of the curriculum and identifies how and why they were included. The chapter explores how digital literacy skills are integrated into the curriculum while meeting the learning outcomes of the JC English specification. The curriculum's potential impact on digital inequality is also explored in some detail.

Chapter 10: The Curriculum as CPD for Teachers

Chapter 10 continues to detail the creative process of designing the digital literacy curriculum. The chapter focuses on the CPD elements of the curriculum, including the design, development, and creation of a supplementary online course for teachers using Articulate Storyline 360 software and instructional screencast videos to support the implementation of the curriculum.

Act V- Denouement

Chapter 11: Transformation

This chapter details the transformation that was initiated as a result of this action research inquiry. Here I detail my personal transformation as well as the impact my research had on my work culture.

Chapter 12: Conclusion

This final chapter concludes the dissertation with a discussion about the key findings and the research's relevance for teachers, school leaders and educational policy.

Stage Directions

Stage directions are instructions in a play for technical aspects of the production. Stage Directions provide vital information for the action and relationships between people, things and places inside a text.

Methodology

1. Introduction

This chapter describes the methodological framework I used in carrying out this Ph.D. research. To conduct this study, I used an action research methodology using Crotty's (2014) Educational Entrepreneurial Approach (EEA) to Action Research. In this chapter I will discuss my understanding of action research's place within the critical theory paradigm. I will then explore action research as an overall methodology in its own right and subsequently discuss in detail the EEA. The data collection methods used in the study will then be described and issues surrounding validity and ethics in conducting this action research inquiry will be addressed.

2. Research Paradigms

A paradigm is referred to by Creswell as a 'general philosophical orientation about the world and the nature of research that a researcher brings to a study' (Creswell, 2014, p35) which can be described generally as "a basic set of beliefs that guide action" (Creswell, 2014, p35). McNiff and Whitehead (2011) succinctly define a paradigm as "a set of ideas or theories appropriate to a specific context" (McNiff and Whitehead, 2011, p45). More comprehensively, Guba and Lincoln define a paradigm as "a set of *basic beliefs* that deals with ultimates or first principles. It represents a *worldview* that defines, for its holder, the nature of the 'world', the individual's place in it and the range of possible relationships to that world and its parts" (Guba and Lincoln, 1994, p107). Jungck (2001) states that paradigms are not simply abstract, philosophical notions but, in a real and meaningful way,

they influence our perception of the world and ‘dominate our language’. Zuber-Skerrit (2001) and Creswell (2014) posit that the researcher must make their paradigm or philosophical worldview explicit so that the research audience is aware of the researcher’s perspective and can evaluate said research through a relevant lens.

While some attest that action research is a paradigm in its own right (Pine, 2008) and others suggest it is a multi-paradigmatic methodological approach (Katsarou, 2016), my understanding is that action research sits within the critical theory paradigm. I will now present my understanding of critical theory with reference to relevant literature and then briefly describe how my ontological and epistemological perspectives led to my adoption of an action research methodological approach within a Critical Theory paradigm.

2.1. Critical Theory

The Institute of Social Research was established in Frankfurt, Germany in 1923. Also known as the Frankfurt School, its membership was comprised of many prominent theorists including Erich Fromm, Franz Neumann, Herbert Marcuse, Leo Lowenthal and Jürgen Habermas (Kellner, 2017). Garlitz and Zompetti state that the central purpose of the Frankfurt School was to ‘embrace multidisciplinary academic works to understand the complexities emerging in neo-industrial societies’ (Garlitz and Zompetti, 2021, p2). Synthesising philosophy and social theory, the members of the Frankfurt School produced a critical theory of the contemporary era (Kellner, 2017).

Kincheloe and McLaren (2005) suggest that it is difficult to come to a definitive explanation of critical theory given that there are many different critical theories, for example, feminist theory, queer theory, race theory and critical pedagogy and that the critical tradition is constantly evolving. However, it is generally agreed that critical theory seeks to “advance research on the nature of oppression and emancipation” (Leonardo, 2004, p11), to emancipate the disempowered and promote equality and freedom in an egalitarian society. The notion of emancipation is at the forefront of critical theory, it seeks to go beyond merely understanding or describing a situation to transforming it with the intention of emancipating individuals and groups in a democratic society (Cohen et al, 2005; Scott and Morrison, 2005). Critical theory is overtly political; one of its main aims is to give people power to control their own lives, a power that may have been taken away due to matters of race, class, gender, ideologies, religion, and other social constructs. Critical theory assumes that one person or group has illegitimate power and control at the cost of another person’s or group’s (Gray, 2014; Cohen et al, 2005) and so it attempts to “expose the forces that prevent individuals and groups from shaping the decisions that crucially affect their lives” (Kincheloe and McLaren, 2005) *emancipating* them from these “dominatory and repressive factors” (Cohen et al, 2005). Critical theory has a transformative agenda, aiming to bring about social change in unjust social systems through dialogue and democratic means (Katsarou, 2016; Gray, 2005; Cohen et al, 2005) with the understanding that social situations are constructed by people and so can also be deconstructed and reconstructed by people (McNiff and Whitehead, 2011).

Critical theory's ontological perspective is one of *historical realism* (Guba and Lincoln, 1994). Reality is socially constructed and shaped by political, economic, ethnic, race, gender, age, disability and cultural factors (Al Riyami, 2015; Mertens, 2007; Guba and Lincoln, 1994). However, these may be 'illegitimate' realities given the inequitable levels of privilege afforded to certain sectors of society (Mertens, 2007; Guba and Lincoln, 1994). Critical theorists need to be aware of this privilege "in determining the reality that holds the potential for social transformation and increased social justice" (Mertens, 2007, p216).

Epistemologically, critical theory takes a *transactional* and *subjectivist* approach. The researcher and object of research should be interactively linked meaning that the researcher's values bear significant influence on the inquiry (Guba and Lincoln, 1994). Critical theorists believe that knowledge "is an expression of power rather than truth" (Al Riyami, 2015) and Cohen et al (2007) attests that knowledge is what those who hold power purport worthwhile knowledge to be.

The research methodologies used by critical theorists are *dialogic* and *dialectical* (Guba and Lincoln, 1994). Given the interactive link between the investigator and the investigated there must be a dialogue between the two in order to "transform ignorance and misapprehensions into more informed consciousness" (Guba and Lincoln, 1994, p110). Al Riyami (2015) points to critical action research as a suitable methodology within the critical theory paradigm.

Critical theory has been criticised for its lack of empiricism. Habermas, a prominent critical theorist, acknowledged that his views had only a hypothetical status when not supported by empirical cases and examples (Al Riyami, 2015; Cohen et al, 2007). Given critical theory's intention to emancipate the oppressed and develop an equal and democratic society one might consider that that is a measurable intention (i.e. to what extent has emancipation, equality, democracy been achieved or improved?). The trouble with measuring such improvements is that they do not happen overnight, progress in such respects is slow and difficult to measure on an immediate basis (Al Riyami, 2015; Cohen et al, 2007). Without such measurements critical theory risks being "merely contemplative" (Cohen et al, 2007, p33) rather than transformative as it professes to be.

Another criticism levelled at critical theory is that it is too political, its agenda too transformative. It is argued that a researcher should be "dispassionate, disinterested and objective" (Cohen et al, 2007, p30). Critical theorists, of course, would counter argue that it is such 'disinterested' attitudes that allow the inequitable status quo to go unchallenged and be reproduced.

Given my own ontological perspective, that reality is somewhat fluid and socially constructed and my epistemological stance, that knowledge is contextualised, created in conjunction with others and value-laden, the critical theory paradigm best reflects my own worldview. At the outset of this research inquiry I aspired to create knowledge collaboratively with my colleagues, students, management and educational policy makers. However, I believed that such an undertaking would not be possible, particularly in the

DEIS (educationally disadvantaged) context in which I work, without the research being strongly underpinned by my educational and social values, in particular, equality. A desire to have my research be potentially transformative and bring about a modicum of social change led to the adoption of an action research approach, within a critical theory paradigm to conduct my research. I will now explore action research in some detail.

3. Action Research

3.1. The Origins of Action Research

American social psychologist, Kurt Lewin, is generally credited with coining the term ‘Action Research’ in 1944. Lewin rejected the traditional positivist view that research can ascertain an absolute ‘truth’ in which the *researcher* and the *researched* are separate (Guba and Lincoln, 1994) believing instead that each of the sciences had a “logically unique body of concepts” (Peters and Robinson, 1984) and that phenomena could be explained by studying the “meanings, norms and values that are the immediate determinants of behaviour” (Peters and Robinson, 1984) while acknowledging that these ‘meanings, norms and values’ would, of course, vary across social contexts.

Peters and Robinson (1984) state that Lewin wanted to bridge the gap between the concrete and the abstract, between action and theory. However, it wasn’t enough to simply *know* what a problem was in order to solve it, one had to gain an understanding of the “specific character” of the problem through *diagnosis*, a step which should be followed by *action* and subsequently an *evaluation* of the previous steps.

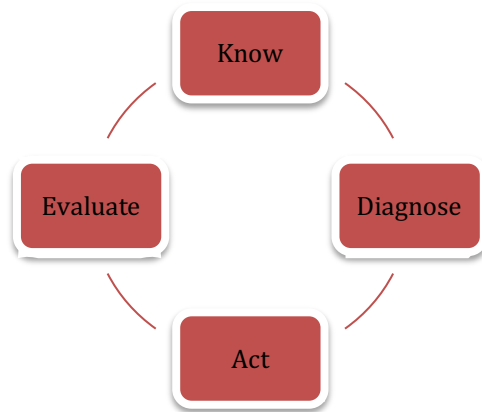


Fig M.1. Basic Action Research Cycle (Adapted from Peters and Robinson, 1984)

Noffke describes Lewin’s novel approach to research as a “non-linear pattern of planning, acting, observing and reflecting on the changes in social situations” (Noffke, 1995, p2). Even now many action research studies are carried out in the basic cycle of observe – reflect – act – evaluate – modify, a cycle which can be repeated as needed (McNiff and Whitehead, 2011).

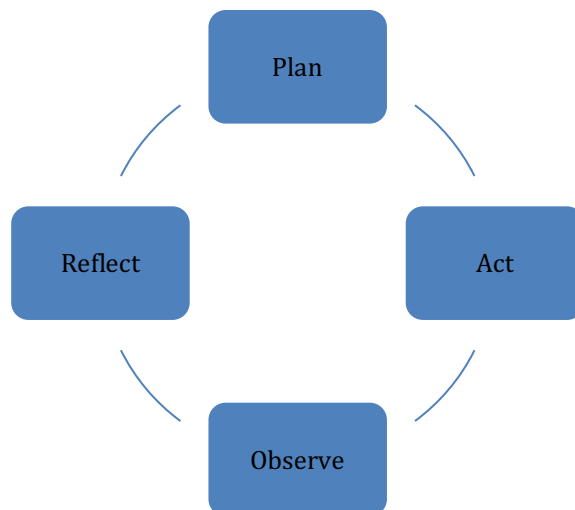


Fig M.2. “A non-linear pattern of planning, acting, observing and reflecting” (Adapted from Noffke and Stevenson, 1995, p2)

Adelman (1993) highlighted the importance of collaboration in Lewin's vision of action research, insisting that the democratic nature of action research was fundamental. Problems should be identified through group discussion and an understanding of the problem garnered in a similar collaborative manner. Participants in the study (both the researcher and the researched) should actively participate in the "exploration of problems that they identify and anticipate" (Adelman, 1993, p9). Once the participants identify and explore a problem, group decisions, monitoring and recording should take place with progress reviews to follow. Certainly this new action research was a departure from the positivist tradition which had held sway for centuries and assumed that the investigator and investigated were separate entities with "the investigator capable of studying the object without influencing it or being influenced by it" (Guba and Lincoln, 1994, p110).

Although Lewin himself was a social psychologist, seeking to "change the life chances of disadvantaged groups in terms of housing, employment, prejudice, socialisation and training" (Cohen et al, 2007, p344) his ideas about research soon came to be applied to other academic endeavours, education in particular. In the UK, influenced by Lewin, Lawrence Stenhouse's views on education and the role of the teacher in educational research came to be very influential in the growth of action research within the field of education. He believed that teachers, as highly professional experts, were central to educational research and should be treated as such in academic circles (McNiff and Whitehead, 2011; Hammersley, 2004; Skilbeck, 1983; Elliott, 1983; Stenhouse, 1975). Stenhouse criticised more traditional educational research methodologies arguing that

findings often ‘cannot be successfully applied in classrooms’ (Stenhouse, 1981, p110), discarded teachers’ judgement and failed to consider different teaching approaches for different children or classes (Skilbeck, 1983).

Stenhouse viewed education as a form of praxis rather than as a technological process, in that education should foster the realisation and actualisation of “our ideals in an appropriate form of action” (Elliott, 1983, p109). Moreover, in line with the ‘reflect’ stage of a basic action research cycle [the practice of] education requires continuous self-reflection and analysis (Elliott, 1983). With this in mind, Stenhouse (1975) came to the idea of the ‘teacher-as-researcher’. Teachers, delivering curricula, test and develop educational ideas and therefore must be central to the generation of educational theory (Stenhouse, 1981; 1975). Like their students, teachers cannot be engaged by knowledge bestowed from what Schön (1995) called the academic ‘high ground’; research and inquiry are ‘essential to the teaching-learning process’ (Skilbeck, 1983).

3.2. What is Action Research?

Action research as a methodology is a form of ‘practitioner-research’ borne out of the critical theory paradigm and has been considered as a way to realise the aspirations of critical theory. Educational action research is a form of systematic inquiry conducted by stakeholders in the educational arena (teachers, principals, school counsellors, etc.) to gather information about how their schools operate and how teaching and learning takes place in their specific situation. Information is gathered with the intention of using it to

revise and improve practice for the benefit of those involved in the research (Mills, 2000, p6). Jungck describes the process of action research as follows:

“Action research consists of identifying a general idea or goal, information gathering, general planning, developing related actions, implementing and evaluating those actions and then reassessing and perhaps even revising the initial ideas or goals. Researchers spiral through on-going cycles of these, essentially researching in action”.

(Jungck, 2000, p340)

3.3. Key Characteristics of Action Research

In order to build a foundation for a discussion on my chosen action research model, Crotty’s (2014) Educational Entrepreneurial Approach (EEA), I will first give a general overview of three key characteristics of action research as a methodology; that it *closes the gap between theory and practice, draws out tacit knowledge* and is *collaborative*. These characteristics are discussed here in a general sense relating to educational action research but will be developed further in later in the chapter with specific reference to Crotty’s EEA.

3.3.1. Closes the gap between theory and practice

One of the fundamental aims of action research is to improve practice (Elliott, 1991). This involves dealing with problems found in what Schön (1995) calls the ‘swampy lowlands’ where, he believes, the problems of greatest relevance to the practitioner lie. Finding ways to solve or improve these issues involves “observing ourselves in the doing, reflecting on what we observe, describing it and reflecting on the description” (Schön, 1995). Elliot (2006) refers to educational research as a ‘discursive and democratic process’ (Elliott,

2006, p182) involving *techne* (technical rationality) and *phronesis* (practical wisdom/commonsense).

With its dual aims of generating knowledge and improving practice, action research challenges the norms of the distinct roles of the scholar and the practitioner (Somekh and Zeichner, 2009). Traditionally theorists' theories are influenced by *their* practices of reading and researching, while practitioners' practices are informed by *their* theories or interpretations of their own practices (Kemmis, 2009). Action research is a methodology that "treats theorists as practitioners and practitioners as theorists" (Kemmis, 2009, p468). In an educational setting, teachers are concerned with how they can improve the quality of their teaching and learning; action research allows educators to "develop the practical situation and the knowledge about the practice of the participants" (Altrichter et al, 1993) in order to make these improvements. Problems and solutions seek to be practical and rooted in the experience of the researcher, thus attempting to bridge the "radical separation between research and practice" (Schön, 1995) and give "practitioners intellectual and moral control over their practice" (Kemmis, 2009).

3.3.2. Draws out tacit knowledge

In order to solve the practical problems of the 'swampy lowlands' action research requires us to be reflective practitioners. Often, as professionals, we do things instinctively, solving problems almost subconsciously as they arise. If asked to describe how or why we took certain actions we may be unable to as "we know more than we can tell" (Polanyi, 1966). Hopkins (2008) describes this tacit knowledge as "knowledge we cannot articulate"

(Hopkins, 2008, p73). Action Research seeks to articulate the knowledge that practitioners have so that it may be made known to the wider field. Action research calls for the careful observation and monitoring of the implementation and effects of our actions (reflection) as a means of making our knowledge explicit.

3.3.3. Collaborative

Adelman describes action research as ‘ordinary people participating in collective research’ (Adelman, 1993, p8) and certainly action research affords educational practitioner-researchers the opportunity to work with others (colleagues, pupils and other stakeholders) in an effort to improve practice. Kemmis, McTaggart and Nixon (2014) go as far as to claim that action research is *only* action research when it is collaborative. Action research is not done *on* participants as with more traditional, empirical forms of research, it is done *with* participants as part of a dialogical process. McNiff (2002) suggests collaborating with others on a number of levels.

1. As **research participants**, for example, by getting feedback from the people whose situation you are trying to improve.
2. As **observers**. Inviting others to observe your research means that your research is not ‘mysterious’ and is “rooted in an ethic of respect for others’ opinions” (McNiff, 2002, p87).
3. As **validators**. Allowing colleagues to validate your work ensures that your conclusions are agreed on by others. Critique can be used to inform further action.
4. As **potential researchers**. By collaborating with others in your organisation you are encouraging them to become reflective practitioners, thus establishing “communities of

action researchers who are studying how they can improve their learning for mutual benefit” (McNiff, 2002).

Essentially, all participants in the action research contribute to the data and the meanings and conclusions that are drawn from it (MacIssac, 1996).

4. Educational Entrepreneurial Approach to Action Research

4.1. A personal reflection on my adoption of Crotty’s Educational

Entrepreneurial Approach to action research

As a practising teacher, action research allows me to examine my own practice, identify where improvements can be made and observe and record my own practice while initiating that improvement. In my role as a teacher I must be able to adapt to ever changing pupils, pedagogies, technology and policies. There will always be areas for improvement, always opportunities for me to be a practitioner-researcher. Reading Schön’s (1995) article ‘*The New Scholarship Requires a New Epistemology*’ led to an understanding that the tacit knowledge I possessed as an experienced teacher was relevant and valid and that through my own scrutiny could be made explicit in order to disseminate it to others. Schön argued that the competencies displayed by teachers in “situations of uncertainty, complexity and conflict” (Schön, 1995, p29) were describable and susceptible to a different standard of rigour than the traditional conception of professional knowledge. This idea was a revelation and one which cemented my commitment to using action research to investigate my own practice, to reflect *in* and *on* my actions and make my tacit knowledge explicit where possible and beneficial to do so.

Dr. Yvonne Crotty's doctoral thesis (Crotty, 2012) formed the basis of a new approach to action research that she called the Educational Entrepreneurial Approach (EEA). Crotty's (2014) EEA consists of four consecutive steps: *explore- understand- create – transform*. Reflection is not a separate step, as with other models of action research, but an essential element of each stage of the EEA. Within this approach there is an emphasis on “the individual's ability to turn ideas into action” (Crotty, 2012, p170) while encouraging creativity, innovation and risk-taking (Crotty, 2012).

While choosing the action research model I would use to carry out this Ph.D. research I was assisting Dr. Crotty, reading and offering feedback on the work of students on the Masters in Education and Training Management (eLearning) course (MEME) at Dublin City University (DCU). Many of these students were using the EEA to carry out their research and I was drawn to this approach as it is underpinned by the researcher's values while maintaining a structure that offered me a yardstick by which to measure my progress.

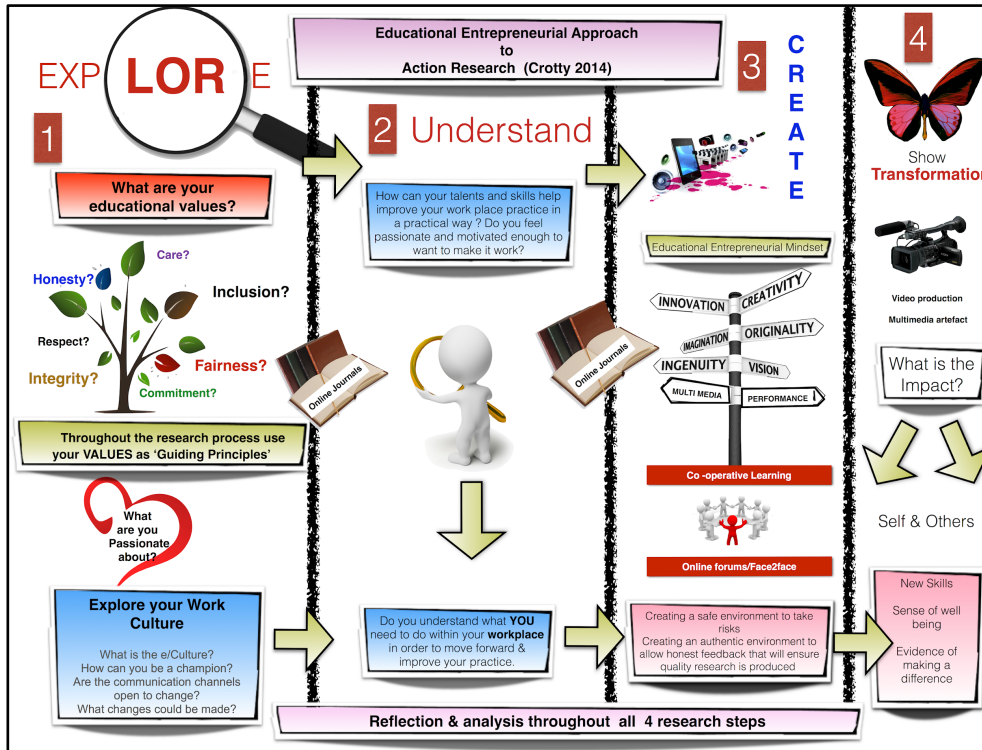


Fig M.3. Infographic outlining the Educational Entrepreneurial Approach to action research – Crotty, 2014
[\(Click to enlarge\)](#)

Using an Educational Entrepreneurial Approach to Action research as my methodological framework allowed me to be guided by my educational values of equality and creativity. It required me to face the fears I have of failing to live up to my own standards of judgement in my practice and my research as it insists that I take risks to show transformation in myself, my practice and my work and wider culture. Importantly for me, it emphasised the importance of creativity in educational practice. Reflecting on the importance of creativity as a central facet to the Educational Entrepreneurial Approach to action research in May 2015, I concluded that this model was the most appropriate framework for my doctoral studies.

Reading the MEME dissertations [that used an EEA to action research] I became more and more aware of the authenticity of the focus on creativity in this approach. It seems to come from a deep and genuine belief in the importance of creativity for the improvement of one's practice. [Dr.

Crotty's] dedication to creativity is not just lip service, it's a passion of her's that is clearly transferred to her students on the eLearning MSc. This further cements my belief that Crotty's EEA is, for me, personally relevant.

Reflection journal, May 2015

4.2. Educational Entrepreneurship

The notion of entrepreneurship in education has come to the fore in recent decades (Lackéus, 2015). Entrepreneurship is an individual or group's capacity to recognise a problem, envision a novel approach to solving said problem and to then carry out that vision (Smith and Peterson, 2006) or, as Crotty (2012) succinctly puts it, it is "an individual's ability to turn ideas into action". Stevenson and Jarillo define entrepreneurship as "a process by which individuals, either on their own or within organisations, pursue opportunities without regard to the resources they currently control" (Stevenson and Jarillo, 1990, p23).

Lackéus (2015) posits that there are wide and narrow definitions of entrepreneurship and that the definition adopted by an educational entrepreneur will impact educational outcomes (for example, course content design, teaching methods, assessment, etc.). The narrow view, he contends, focuses on "*becoming an entrepreneur*"; identifying business opportunities, business development, self-employment and so on. While within the wider view the emphasis is on "*becoming entrepreneurial*"; "personal development, creativity, self-reliance and initiative taking". It is this wider view that is central to the Educational Entrepreneurial Approach (EEA) to Action Research. Crotty argues that entrepreneurship is not a subject in itself but an "innovative approach to education that can be successfully

applied to any discipline” (Crotty, 2012, p172). Furthermore, she suggests that an integration of teaching and entrepreneurial skills can lead to the creation of an environment in which students flourish.

To be an educational entrepreneur requires a desire to be ‘a disruptor of practice’ (Dubner, 2017). Smith and Peterson (2006) speak of the entrepreneur’s frustration with the status quo and their deep desire to ‘disrupt’ it. They believe that entrepreneurs (in the wider sense) have the “potential to spark more rapid, dramatic, change” (Smith and Peterson, 2006, p31) than might otherwise happen in organisations where a sense of ‘how things are done’ prevails.

The educational entrepreneur must possess a number of skills; they must be proficient in planning, organising, managing, analysing, delegating, communicating, reflecting, taking risks (Crotty, 2012, p173), scanning, identification and evaluation (Vanderhoven, 2013). The aspiring entrepreneur must “use their initiative, be independent and innovative, take risks, minimise failure through research, be ambitious, have drive and motivate themselves” (Crotty, 2012, p173). Indeed, Smith and Peterson (2006) describe the educational entrepreneur as a “rare breed of innovator” whose skills, attitudes and subsequent activities may bring about significant transformation in education systems.



Fig M.4. Skills and attitudes of the educational entrepreneur (Adapted from Vandenhoven, 2013; Crotty, 2012; Smith and Peterson, 2006)

In addition to the skills and attitudes outlined above a positive sense of self- efficacy is essential to the educational entrepreneur. Self-efficacy refers to how a person judges his or her own capabilities (Bandura, 1982) and their ability to exercise influence over events that impact their lives. A person’s “self-efficacy beliefs determine how they feel, think, motivate themselves and behave” (Bandura, 1994, p71). Educational entrepreneurs must have strong belief in their own abilities (Crotty, 2012) and their ability to exercise influence over the lives and situations of themselves and others, to disrupt the status quo where necessary.

4.3. The Four Stages of Crotty's Educational Entrepreneurial Approach to Action Research

The EEA seeks to 'guide practitioner researchers as they embrace technology to resolve an identified need in a workplace context' (Crotty and Kilboy, 2015, p35) through the creation of a multimedia artefact or innovative curriculum designed to 'bring about change in workplace practices or improve a situation' (Crotty, 2015, p97).

The EEA is comprised of four consecutive stages:

- Explore
- Understand
- Create
- Transform

Each of these stages is essential to the practitioner-researcher as they attempt to create the innovative curriculum or multimedia artefact that improves their workplace practice. One must address one stage of the EEA before moving on to the next stage, once a stage has been undertaken the researcher may move back and forth between them or work on them concurrently (for example, while *creating* an innovative educational artefact or curriculum the researcher may continue to *explore* and *understand* the relevant literature). Throughout the EEA process the researcher should engage in continued reflection; recording their thoughts, observations, experiences, ideas and insights in a reflection journal (Crotty, 2015). This reflective journal is an important source of data and evidence for the researcher.

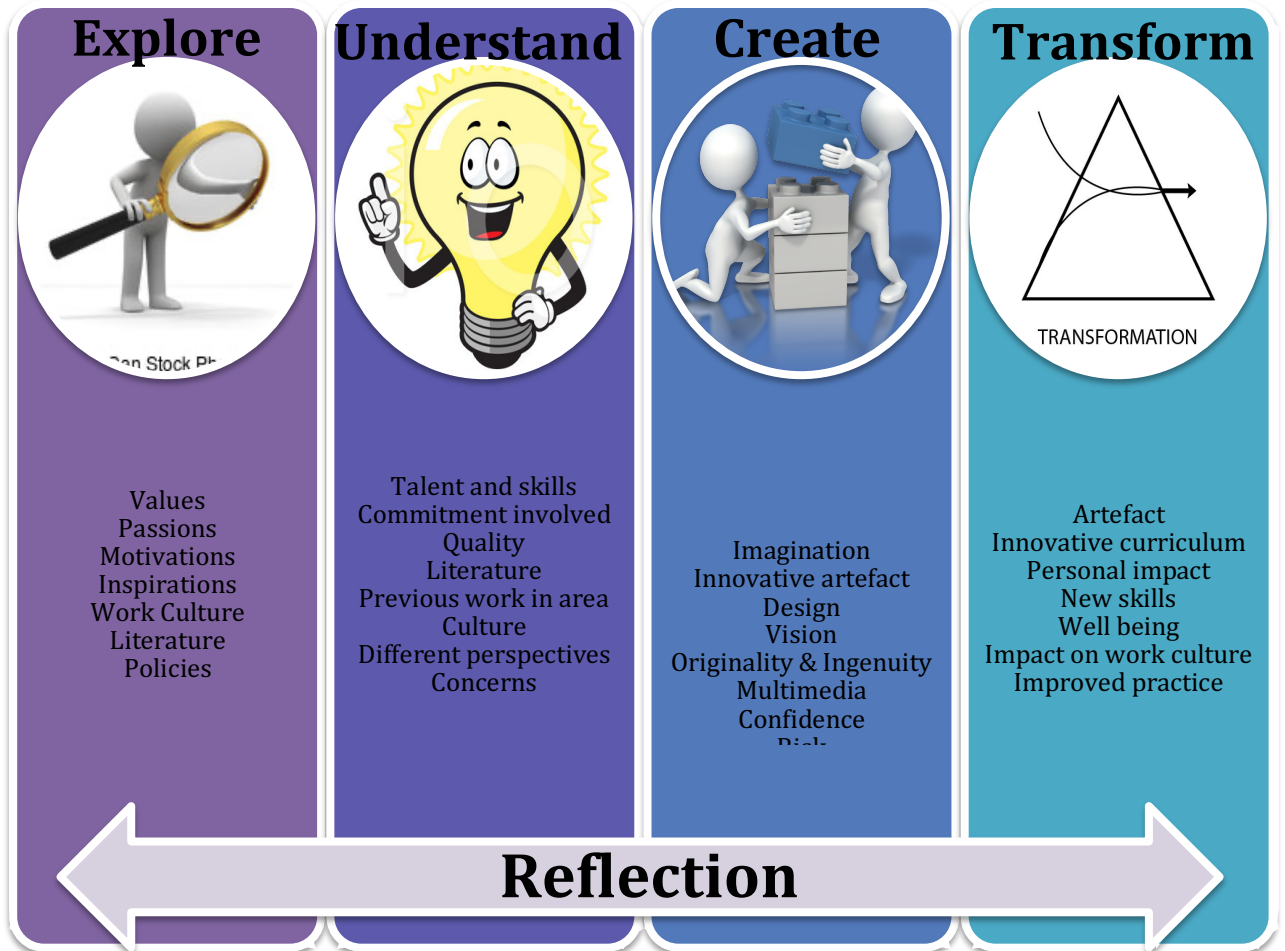


Fig M.5. Four stages of the Educational Entrepreneurial Approach to Action Research (Adapted from Crotty, 2015)

4.4. Explore

The explore stage of the EEA calls for the practitioner researcher to examine their educational values, their passions and motivations, their work culture and the literature and policies that surround the research topic (Crotty, 2015). This exploration helps the researcher to pinpoint their area of interest and refine the research question.

4.4.1. Educational Values, Passion and Motivation

At the start of an EEA action research project the researcher should explore their educational values in detail. Values are the beliefs and concepts that influence our actions and behaviours (Hitlin & Piliavin, 2004) and are central to most action research approaches. EEA is "value driven experiential learning" (Crotty and Kilboy, 2015). Having a clear idea of what your educational values are is essential when carrying out reflective practitioner research, as values are used as the guiding principles during the research process ensuring that the researcher is genuine in their efforts, 'marrying the heart and the head' (Crotty, 2012) and avoiding becoming what Whitehead calls 'a living contradiction' (Whitehead, 1989) in that educational values are out of line with educational practice. The researcher's values guide the research and the actions taken within the research process.

In exploring their values the researcher must ask themselves- 'What are my passions? What motivates me and inspires me in work?'. Answering these questions, the action researcher is able to pinpoint their driving values, make them explicit and have the values guide and inform their research. Duckworth considers passion and how it leads to success in her book *Grit: The Power of Passion and Perseverance*. She argues that passion starts with genuine interest, "intrinsically enjoying what you do" (Duckworth, 2016, p91), being captivated by the work and finding it meaningful. If a person finds their work engaging and meaningful then it could certainly be argued that it is in line with their values.

Secondly, Duckworth (2016) posits that perseverance is a key element of passion. She poses the questions 'What do you enjoy so much that you can devote yourself to it? That

you will keep going even when the going gets tough?' Perseverance is essential to the entrepreneur, the action researcher and educational entrepreneurial action researcher. To succeed in any endeavour, be it a business, social or educational venture one must be willing to fail and then try again, to take risks or in AR terminology to observe an action, reflect on it and revise the general idea if it is not quite right before starting another AR cycle. It's essential that in my own case, I am passionate enough about creating a Junior Cycle English curriculum with integrated digital literacy skills and accompanying CPD course for teachers to persevere when it seems like a difficult task or like I am failing in my efforts. Of course, this is all underpinned by my main educational value- 'equality'. My belief that all students should have equal opportunity to become digitally literate and that their teachers have the skills and resources to facilitate them in their efforts underlies my research at all stages.

Duckworth highlights the importance of *purpose*, insisting that to be passionate about your work you must have a conviction that your work matters- "It is imperative that you identify your work as both personally interesting and integrally connected to the well being of others" (Duckworth, 2016, p91). Indeed, if a researcher's values are truly the foundation and guide of their research then it is certain they will have a strong conviction that their work does indeed matter and that they are making *worthwhile* educational change (Elliott, 2010) for the benefit of students, colleagues and other stakeholders.

And so, in order to proceed with an EEA action research project the researcher must first clarify what their educational values are, what are "the qualities that give meaning and

purpose to their personal life" (Whitehead 2004, cited in Crotty and Farren, 2012). To proceed with the research they must ensure that they are staying true to their values, in my own case the values of equality and creativity in education.

4.4.2. Work Culture

The EEA requires the researcher to explore their work culture. That is, to explore the ideologies and principles of the organisation and the thought processes and attitudes of the people within it. As part of the 'explore' stage of the EEA the researcher must explore the attitudes and behaviours of the students, teachers, management, policy makers and other relevant stakeholders in relation to making changes to practise within their educational context. They need to know what is valued within their work context before seeking to make changes to it, as being sensitive to the attitudes and behaviours of others makes it easier to identify needs and make changes.

Applebaum et al's (2012) retrospective examination of Kotter's (1996) *Leading Change* says that "no one person is capable of leading and managing change within an organisation". Kotter (2017) states that a 'guiding coalition', made up of people with power, leadership, expertise and credibility, is needed to make change. Crotty (2015) draws on the work of Marc J. Rosenberg, who calls these people 'champions' (Rosenberg, 2001) and suggests that, when exploring their work culture, the researcher identifies these people and seeks their support or assistance in implementing the changes they wish to make. At its core, action research is a collaborative process and the researcher must be cognisant of

their work culture in order to engage such a 'guiding coalition' (champions) and get the support of other stakeholders.

The researcher should explore the channels of communication within the workplace in order to effectively communicate their research aims and objectives . Communicating with others, exploring the work culture and being sensitive to the 'values, traditions, beliefs, interactions, behaviours, and attitudes' (Rosenberg, 2001) within an organisation will help the researcher make informed and enlightened decisions as they engage in action research in collaboration with others. Schools, and the extended educational systems, are collaborative and collegial networks. New initiatives only work if people are enthusiastic about them and willing to take them on. The way to find out if people are open to new ideas and initiatives is to ask them, to communicate with colleagues, to test the water, to take on board other points of view and let this, initially, help direct the research. If I am to try and make changes to my practice and the CPD practices of others I need to explore what the culture around digital literacy is in my workplace and attempt to drive change from a common starting point and hopefully in the same direction (Applebaum, 2012).

4.4.3. Literature and Policies

Crotty (2015) emphasises the need for a thorough exploration of the relevant literature and policies that elucidate the research area. The literature review "summarises and evaluates the existing knowledge on a particular topic" (Machi and McEvoy, 2012, p2). However, the literature review is not always a simple summary of previous work; it helps to identify gaps in accepted knowledge and areas in need of further, original research (Machai &

McEvoy, 2012; Oliver, n.d.). Exploring literature and policies in a systematic way can reveal different ways of understanding a topic (Oliver, n.d.) and clarify for the researcher what it is they want to highlight in the area (Crotty, 2015). Oliver (n.d.) suggests that a good literature review leads not only to a clear research question but also to “ideas and approaches that inform ... data collection and analysis” (p5).

4.5. Understand

The next stage in the EEA is *understand*. Having explored their values and passions Crotty (2015) urges the researcher to develop a greater understanding of their motivations and passions with regard to their research. The researcher must recognise the commitment that is required to carry out action research and to develop and create a quality digital artefact and commit to persevere (Duckworth, 2016) in their undertaking even when the “confusing but critically important situations” of the “swampy lowlands” (Schön, 1995) may seem overwhelming.

As previously attested to, the researcher must explore the relevant literature and subsequently gain an understanding of what has been done before in this area and how they can add to the existing knowledge. It is not enough to simply read previous studies; the researcher must understand *how* the previous studies connect with their story (Crotty, 2015) and how they will develop it to enhance research in the area.

One of the central tenets of action research is the practitioner researcher’s desire to change or improve their practice. Action research empowers teachers to generate their own

knowledge and facilitate change based on the knowledge they create (Fichtman Dana & Yendel- Hoppey, 2009; Elliott, 2009). Vital to the EEA is the researcher's understanding of how researchers can use their talent and skills to create an artefact and improve their workplace in a practical way. Sir Ken Robinson (2014) holds that talent is buried and one must go looking for it; it is in this spirit that the EEA researcher must 'go looking' for their talents and skills and come to an understanding of how they can be used to make a multi-media artefact, initiate change in practice and generate knowledge.

4.6. Create

The third stage of the EEA is '*create*'. At this point the researcher engages the imagination to design and create an innovative curriculum or digital, multi-media artefact (Crotty, 2015). The researcher uses the information gathered through exploring and understanding their skills, talents, values, passions, work culture and literature and policies in the area of research to create a video, online course, curriculum or other digital artefact that will improve their practice and/or their workplace.

4.6.1. Creativity

It is essential that the researcher shows ingenuity and originality in their artefact (Crotty, 2015) requiring them to be creative. The Irish government's '*Creative Ireland Programme*' founded in 2017 to "facilitate an eco-system of creativity" in Irish society defines creativity as "a set of innate abilities and learned skills... the capacity to transcend accepted norms and ideas by drawing on the imagination to create new ideas that bring additional value to human activity" (Government of Ireland, 2017). This definition echoes

other conventional definitions of creativity in the literature where creativity is seen as an individual's (or organisation's) ability to produce work that is both novel and appropriate, both original and useful (Moran, 2010; Dewett, 2006; Sternberg & Lubart, 1999, Zhou, 1998; Amabile, 1997). Crotty (2012) concurs with Csíkszentmihályi's (1996) understanding of creativity as "any act, idea or product that changes an existing domain into a new one" (Csíkszentmihályi, 1996, cited in Crotty, 2012) and it is this understanding of creativity which underpins the EEA to action research.

Creative people have certain traits; they are curious, interested and full of wonder. They are open to new experiences and have 'fluid attention' that allows them to process events in their environment. Moreover, creative people can adapt easily to situations and use whatever resources are at hand to achieve their goals (Csíkszentmihályi, 1996). As aspirational as this list of characteristics seems, Moran (2010) argues that most people have the capacity to come up with solutions to problems, new ways of approaching things and "to think in terms of possibilities rather than only perceiving and reacting to what is". As Robinson (2014) suggests, our talents and capabilities are hidden and we must go looking for them. Csíkszentmihályi concurs, stating that "most people do not know their creative capabilities" (Csíkszentmihályi, 1996, as cited in Crotty, 2014). That creativity allows people to "manifest latent aspects of themselves" (Moran, 2010) is an important facet of the EEA. Crotty (2012, 2014) maintains that creativity can be developed in people, but it must be done sensitively, in a supportive and caring environment that allows the person to tap into their latent, hidden and unknown creativity.

To be creative is essential to an entrepreneurial approach to action research. Creativity, like action research, is multi-functional in that it both devises and frames problems while also seeking to solve them on an individual and societal level. Creativity seeks to make changes to the cultures in which we operate (Robinson, 2014; Moran, 2010; Sternberg & Lubart, 1999; Csíkszentmihályi, 1996). Csíkszentmihályi (1996) considers the most developed type of creativity to be that which changes the culture in a significant way; Moran (2010) refers to this as the ‘improvement role’ of creativity. Creativity can greatly impact cultures; it can lead to new inventions, scientific discoveries, art movements, social programmes, etc. (Sternberg & Lubart, 1999) such changes do not happen over-night and require consistent effort on behalf of the ‘creator(s)’ (Csíkszentmihályi, 1996). It is worth noting that creativity could be considered amoral and there is a responsibility on the part of the creator (researcher) to be mindful of the effects of their creativity, particularly in relation to its ‘improvement role’ given that creative endeavours have the potential to impact on our cultures and societies and upset the status quo (Moran, 2010). However, concerns aside, I am inclined to agree with Robinson (2014) that human culture progresses through the power of imagination and creativity.

Secondary to the ‘improvement role’ of creativity is the ‘expression role’. The focus of this role is on the individual creator rather than the culture or society as a whole. Creativity is central to our lives, it gives meaning to our existence and when truly engaged in the creation of something meaningful “we feel we are living more fully than in the rest of life”, we experience ‘flow’ (Csíkszentmihályi, 1996, 1997). When a person is creative they understand something in a way that is personal to them and share this understanding with

the immediate or wider environment through some sort of product (art, music, social programme, digital artefact, etc.) in the hope of making an impact on the environment. The “under-lying value assumption” is that what they have done is important, that they have expressed themselves and reached their potential in some way and this is an inherently positive experience (Moran, 2010, p18).

4.6.2. Risk & Performance

Given that one of the main roles of creativity is a personally expressive one (Moran, 2010; Amabile, 1997) it stands to reason that sharing one’s creation is a risky activity. Brown (2012) asserts that people may be inclined to attach a sense of self-worth to how their creative ‘product’ is received. Sharing a creation that is personally important and relevant means the creator exposes themselves to criticism or failure, and this leaves them feeling vulnerable and induces fear (Brown, 2012; Rolfe, 2010; Dewett, 2006). Brown (2012, p63) suggests that to avoid this vulnerability the creator is likely to ‘strip away a layer or two of the juiciest creativity and innovation to make the revealing less risky’ (Brown, 2012, p63) or if they do share their work at its most creative, are ‘crushed’ if it is not well received.

Risk-taking is essential to creativity and innovation (Brown, 2012; Rolfe, 2010; Dewett, 2006). A willingness to take risks at work (in the positive, productive sense) is “positively and significantly related to employee creativity” (Dewett, 2006, p37) and can and should be nurtured and developed. Dewett (2006) found that in work cultures supportive of creativity there was a higher level of comfort with creativity-associated risk among employees. This claim that people’s willingness “to engage in risk is related to their

creativity as judged by their immediate supervisor” (Dewett, 2006) is supported by Crotty’s (2012, 2014) contention that creativity can be developed in people; that the fear of failure or vulnerability associated with sharing a creation can be moderated in a caring, safe and supportive environment.

The EEA calls specifically for the researcher to share their digital artefact with peers at regular intervals during the creative process in safe and supportive validation groups (Crotty, 2015 & 2014; Crotty and Kilboy, 2015). This involves the researcher working with others to give and receive constructive feedback in order to ensure quality in their digital artefact (Crotty and Kilboy, 2015). Presenting work in this way can be a daunting experience for the researcher. The performance element can leave them feeling vulnerable and open to negative feedback. However, such feedback, delivered appropriately, can facilitate creativity (Zhou, 1998).



Video M.1. [Presentation of digital artefact as part of MEME programme in DCU \(Crotty and Sloyan, 2010\).](#)

Csikszentmihályi discusses the importance of “hearing people, seeing people and exchanging ideas” (Csikszentmihályi, 1997, p94) in the creative process, quoting sculptor, Nina Holton, who describes the importance of sociability in her work: “you have to have some sort of feedback. You can’t be sitting there entirely by yourself... you cannot help being part of a fellowship” (Csikszentmihályi, 1997, p95). This notion of ‘fellowship’ has positive and supportive connotations and indeed, research has shown, not only that positive feedback is more facilitative to creativity than negative feedback, but that the manner and environment in which it is delivered also has an impact on creativity (Zhou, 1998; Amabile, 1997). Amabile (1997) asserts that organisational encouragement, work group supports and supervisory encouragement are important factors in influencing creativity. In such an encouraging and supportive environment feedback can be delivered in an *informative* style (Zhou, 1998). Informational feedback allows the creator (researcher) to be in control of their own behaviours; they are not being given feedback in relation to external demands or expectations (*controlling* style of feedback) and this is likely to lead the creator (researcher) to interpret the feedback as constructive, informative, understanding and supportive (Zhou, 1998). Delivered in such a way, even negative feedback is framed as comprehensive and functional can be seen to “maintain a high level of creative performance” (Zhou, 1998, p263).

The EEA calls for the researcher to present their work at regular intervals and in a variety of contexts (e.g. face-to-face, online forums) to their peers (Crotty & Kilboy, 2015). The researcher must take the risks associated with performance and sharing their creative

‘product’ in order to receive valuable *informative* feedback. This social validation encourages creativity (Zhou, 1998; Amabile, 1997) and helps to shape a high-quality artefact in collaboration with others (Crotty & Kilboy, 2015).

4.6.3. Collaboration

Action research is a collaborative process (Kemmis et al., 2014; McNiff and Whitehead, 2011; Cohen et al., 2007; Ferrance, 2000; McTaggart, 1994) and this is no less true for the EEA to action research where educational digital artefacts and curricula are co-created in collaboration with others. Validation groups of peers provide informative feedback for the researcher throughout the creative process and this facilitates the co-creation of knowledge in line with McTaggart’s (1994) assertion that action research produces knowledge and improvement of practice in socially committed groups.

Within action research the researcher, “I”, is always at the centre of the inquiry asking questions such as ‘How can *I* improve what *I* am doing?’ (McNiff and Whitehead, 2011). However, this does not mean that the researcher acts in isolation. Knowledge is created as the researcher works *with* others at all stages of the process. At the create stage of the EEA collaboration allows for the researcher to take on board a number of different perspectives in relation to the creation of their artefact, and the direction of their inquiry in general. Hobson (2001) compares the collaborative aspect of action research to viewing a scene through a prism; viewing a problem from different vantage points and through different perspectives can provide rewarding and enlightening insights. McTaggart (1994) points out that collaborative action research groups are not homogenous and often involve people

from different backgrounds; this diversity can enrich the knowledge created in collaboration with others.

In their work with teacher-researchers Dana and Yendol-Hoppey found that working in collaboration with others, researchers found a “crucial source of energy and support” that kept them motivated (Dana and Yendol-Hoppey, 2009, p60). Additionally, they maintain that through collaboration researchers are able to build on each others’ work, strengthening their own knowledge and avoiding ‘reinventing the wheel’.

In creating a digital artefact the EEA researcher is engaged in learning and knowledge creation as a collaborative process in communication and dialogue among peers (Crotty and Farren, 2012). Regular presentation of the work to peers provides valuable feedback but also facilitates the creation of a “shared vision based on the ideas of collaboration, co-operative learning and co-creation of knowledge with others” (Crotty and Kilboy, 2015, p36).

4.7. Transform

The final stage of the EEA is to show transformation on a personal and cultural level. Crotty (2015) asks the researcher what impact their research and the creation of their digital artefact or innovative curriculum has had on themselves, their practice, their work culture and the wider society.

4.7.1. Personal Transformation

One of the fundamental aims of action research is to improve practice (Elliott, 1991). This improvement is signified by a realisation of one's values, connecting the heart and the head, in one's practice (Crotty, 2012; Crotty and Kilboy, 2015). Action research is often seen as socially transformative but its effects on the researcher can also be considerable. Noffke and Zeichner (1987, cited in Cohen, 2007) suggest that action research can increase feelings of self-worth and confidence and change values and beliefs. Using an educational entrepreneurial approach to action research, the researcher should reflect on this transformation, acknowledge it and seek to show it explicitly in their research. Using the EEA the researcher may discover a whole new skill set around the creation of digital educational artefacts (film making, editing, photography, podcasting, etc.), they may develop a sense of well-being that comes from engaging their skills in appropriate challenges, a state Csíkszentmihályi (1997) calls 'flow', and their research can contribute to both their personal and professional development.

4.7.2. Cultural Transformation

Freire (1970) saw knowledge as an agent of social change for oppressed peoples. Lewin, regarded as the person who coined the term *action research*, considered the amalgamation of *action* and *research* as a way of improving the life chances of disadvantaged people in terms of housing, employment, socialisation, education, etc. (Cohen et al, 2007). At its core, action research attempts to impact society in a positive sense, to improve and understand the world (Kemmis et al., 2014).

With creativity as one of its foundation stones, the EEA seeks to make changes to the cultures in which we operate (Robinson, 2014; Moran, 2010; Sternberg & Lubart, 1999; Csíkszentmihályi, 1996). Crotty (2014) asks the researcher to consider the impact of their research on their work culture; have they made a difference to their workplace? Have they adhered to their values throughout their research? Has their own practice and the practice of others changed for the better? The creative and collaborative nature of the EEA allows for “a positive spiral of productivity and achievement” (Moran, 2010, p13), a ripple effect in which the researcher and ‘early adopters’ can take a risk, try something new and reach out to others in their work, or wider, culture.

4.8. Reflection

Crotty advises that at all stages of the research process the researcher should be “documenting thoughts, ideas, experiences and insights” (Crotty, 2015, [Video](#), 1m40s) in a reflective journal. Reflection is essential at all stages of the EEA and is a vital source of data and evidence for the study (Crotty, 2015).

Hobson (2001, p8) considers reflection to be a “process of making sense of one’s experiences and telling the story of one’s journey”. Moon (2004) attests that reflection is a process related to thinking and learning, a means through which we learn something new. Both Hobson and Moon refer to reflection as a *process*. This notion of a *process* signals the deliberate nature of reflection as posited by Dewey who considered reflection to be “active, persistent and careful consideration of any belief or supposed form of knowledge” (Dewey, 1993, p9) in an attempt to solve a problem or “transform a dubious or perplexing

situation” (Dewey, 1995, p95) that is borne out of experience. For reflection to be effective Dewey believed that a practitioner needed to be open minded (free from prejudice), whole-hearted (have an absorbed interest) and be personally committed to resolving these “perplexing situations”. It is interesting to note that these attitudes are similar to those required to be an effective educational entrepreneur.

“To do action research is to plan, act, observe and reflect more carefully, more systematically and more rigorously than one usually does in everyday life” (Kemmis and McTaggart, cited in Cohen et al, 2007). It is in these four steps that knowledge and theory can be generated and made explicit. Schön (1995) argues that all practitioners have tacit knowledge that they are often unable to articulate. He states that this knowledge is *in* our action (knowing-*in*-action) and must be observed before it can be described; the practitioner must observe their actions/doing, reflect on their observations, describe them and reflect on their descriptions in order to make their tacit knowledge explicit. Often the practitioner reflects while in the midst of their actions, what Schön (1995) calls reflection-*in*-action. For example the teacher in class constantly monitors and evaluates how their lesson is going; their experience and tacit knowledge allows them to make adjustments and redirect their course of action as they see necessary to achieve the desired outcomes for the class. However, in order to make their tacit knowledge explicit the practitioner must also reflect-*on*-action; that is to ask themselves, in hindsight, questions about the actions they took in a particular situation (fig. 13).

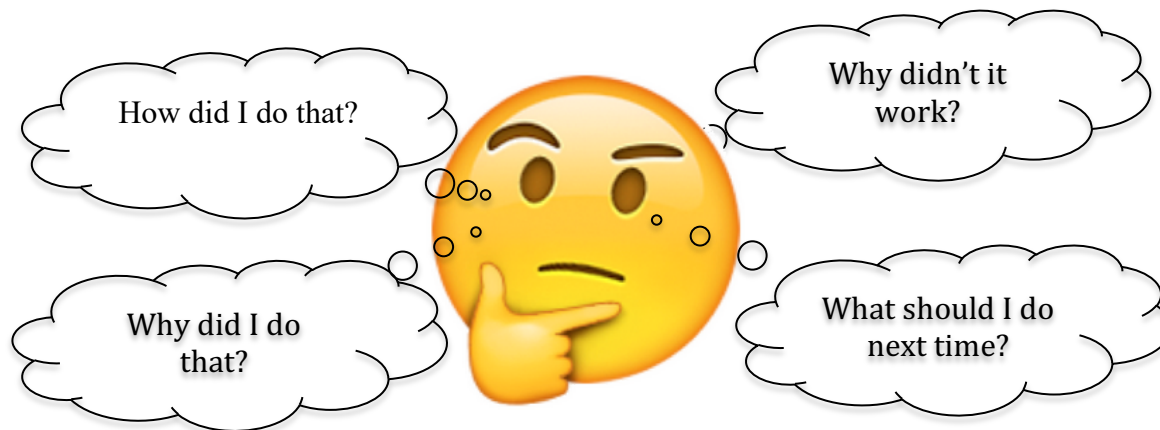


Fig M.6. *Reflection-on-Action- Questioning actions taken in a particular situation (adapted from Schön, 1995)*

Reflection-*on*-action allows a practitioner to make sense of, and learn from, their own experiences for the purpose of improving practice (Moon, 2004). Furthermore, the content of their reflections is generally what they already know, they are simply reorganising this previously held knowledge to gain further insights (Moon, 2004) and “say what they know” (Schön, 1995).

Schön (1995) asserts that reflection-*on*-action ‘occurs in the medium of words’. The EEA requires the researcher to keep a written reflective journal to record their observations, thoughts, insights and analysis of the actions taken throughout the research project.

Reflecting-*on*-action in this way

makes explicit the action strategies, assumptions, models of the world or problem-settings that were implicit in reflection-in-action. It subjects them to

critical analysis and perhaps also to restructuring and to further on-the-spot experiment.

(Schön, 1995, p30)

Hobson (2001) echoes this sentiment stating that the journal provides a medium for the research project to be described, reflected on and analysed allowing the practitioner to put their findings to use in their practice. The journal pulls into focus the development of a research project and serves as a record of emergent practice for the researcher (Hobson, 2001; Altrichter et al, 1993).

5. Data Collection Methods

Dadds and Hart (2001) advocate for the use of innovative and unique methodological approaches in practitioner/ teacher research, positing that teacher-researchers might adopt innovative ‘modes of inquiry and reporting that are congruent with their personal ways of thinking and learning’ (Dadds and Hart, 2001, p147). Their contention that teacher-researchers, familiar with existing methods and methodologies, might ‘pick and mix from existing approaches or create their own approaches for their own purposes’ (Dadds and Hart, 2001, p163) rings true when I consider the data collection methods used in this inquiry. While working within an EEA to action research methodological framework, I drew data from a variety of sources, some traditional qualitative methods (for example, interviews and questionnaires) and others which are relevant to my day-to-day practice (for example, reflection journals, photos, video, student work samples and personal correspondence). These less traditional types of data helped generate new insights into my research topic and create a pluralistic structure that consists of various accounts and

perspectives (Winter, 1996) . The following section discusses the data collection methods used in this inquiry.

5.1. Reflection Journals

Throughout this research project I kept regular journals on the blogging site www.blogger.com, this gave my entries a reliable time and date stamp as well as storing them in relative safety of ‘the cloud’. However, as my reflective journals were a personal account of my research journey and emerging practice and theory I did not wish them to be public. www.blogger.com has a password protect facility which I utilised.

Keeping a reflection journal is an integral element of the EEA. It is not a separate stage but integral to all 4 stages. A reflection journal is a rich source of data as it is a record of the actions taken throughout the research process but also of the researcher’s thoughts, observations, feelings, beliefs, insights, ideas, explanations and analyses during the process (Crotty, 2015; Hobson, 2001; Schön, 1995; Altrichter et al, 1993).

Despite Moon’s (2004) assertion that deeper reflection leads to better outcomes in terms of learning, it is important not to disregard descriptive writing when keeping a reflection journal. Descriptive writing contains little discussion but it encourages the researcher to examine their experiences more thoroughly, recreating their perception of events (Hobson, 2004). However, descriptive writing should be only one facet of the reflection journal. More valuable in terms of learning is critical reflection (Hatton and Smith, 2005, cited in Moon, 2004), which sees the researcher stand back from their experiences/ actions and

view them from multiple perspectives. Critically reflective writing moves from describing an event to providing a commentary on it; looking for connections, associations and meanings that were previously unnoticed (Hobson, 2001) and attempting to convey a feeling of participating in the action/ event (Elliott, 1991).

Journals should be kept regularly and dated and contextualised (Altrichter et al, 1993; Elliott, 1991). Whitehead and McNiff (2009) assert that journal entries need not be perfect, indeed the researcher should develop their own style of journal writing and avoid self-censorship as it limits the flow of ideas (Altrichter et al, 1993).

5.2. Questionnaires

Questionnaires were used in this study to garner information on the culture of continuous professional development (CPD) in my workplace, in particular, teachers' experiences of their participation in formal CPD and their willingness to partake in online CPD.

Additionally, an online questionnaire was carried out with students to gather data on their use of digital devices and experiences online.

Questionnaires were deemed to be a suitable method of data collection as they are easy to administer and relatively straightforward to analyse (Cohen et al, 2013), additionally questionnaires allowed me to collect relatively 'large amounts of data from sizeable groups of respondents in a relatively short amount of time' (Bartram, 2019, p3). The teacher CPD questionnaire primarily wanted to establish the range of opinions and attitudes (Bartram, 2019) towards formal and online CPD within my work context. The questionnaire carried

out with students also aimed to establish a general overview of students' views and experiences of using digital devices and the Internet. My experience aligned with Bartram's contention that questionnaires are useful tools to capture a 'surface impression' (Bartram, 2019, p1) of a given topic. Cohen et al point to the 'possible unsophistication and limited scope of the data that are collected' through questionnaires (Cohen et al, 2014, p377) however, for the purposes of this study I deemed this an acceptable limitation as I sought to gain a broad, general understanding of two key issues of the study; teacher attitudes to CPD and student use of digital tools.

Bartram (2019) advises that as questionnaires are a predominantly written form of data collection it is important that the researcher take into account the literacy skills and confidence of respondents. This issue was pertinent to the administering of the student questionnaire. To overcome any literacy issues, I was present when the respondents carried out the questionnaire and read the questions aloud to the students.

5.3. Interviews

Interviews are commonly used in qualitative studies and are an effective way of soliciting research participants' beliefs, thoughts, attitudes, opinions and values about their personal experiences and behaviours (Saldaña, 2011; Altrichter et al, 1993). In this research I used interviews to elicit the thoughts and opinions of my colleagues on the topic of online CPD and their openness to engaging with it. While exploring my values, I interviewed my mother on her experiences as a teacher in a socio-economically disadvantaged school. The interviews conducted were semi-structured which allowed for the interviewee's answers to

develop (Saldaña, 2011; Altrichter et al, 1993). Interviews were recorded using a digital recording app on an iPhone and then imported to Apple's Garageband software and saved as mp4 files.

Saldaña (2013) cautions the researcher to be aware of "power dynamics" between the interviewer and interviewee; differences between ages, gender, social class, education, etc. can create a perceived imbalance, however, I considered this to be a low risk as the interviewees were my colleagues and peers.

The generation of data from an interview involves a two-way dynamic: One person to speak and one to understand what is being said (Altrichter et al, 1993). In this way it is absolutely essential that the interviewer is an empathetic and active listener (Saldaña, 2013; Hopkins, 2008; Altrichter et al, 1993) and this can be achieved by not interrupting the interviewee, by accepting pauses in conversation thus allowing the interviewee time to hone their thoughts and by indicating 'neutral attentiveness', that is, accepting what is said without passing judgement and regardless of own views (Saldaña, 2013; Hopkins, 2008; Altrichter et al, 1993).

Of course, interviews as a method of data collection have a number of drawbacks. The interviews *only* give indirect information that is seen from the perspective of the interviewee (Creswell, 2014; Saldaña, 2013; Altrichter et al, 1993). Altrichter et al (1993) warn that what people say is not always what they do or intend to do and this can be a source of misinformation, as can "selective memory, rationalisation, the difficulty of the

topic, the personality and status of the interviewer, the presence of a tape (or video) recorder and the social and environmental framework in which the interview takes place” (Altrichter et al, 1993, p104). It is also worth noting that interviewees are not always sure why they have taken certain actions or interpreted things in certain ways, nor are all interviewees equally perceptive or articulate (Creswell, 2014; Altrichter et al, 1993).

5.4. Video

Digital audio-visual recording technologies are ubiquitous in today’s society. Video and still images make up a significant proportion of our day-to-day communicative exchanges (Knoblauch et al, 2013) and are central to the lives of many. This rise of digital audio-visual recording in everyday life is reflected in the use of video recordings as a method of data collection. Videos are a rich source of data; they provide multi-modal, detailed records that are durable, malleable and shareable (Jewett, 2012). The use of video as a method of data collection has a number of advantages. It allows events to be viewed repeatedly, giving the researcher opportunities to pick up on details unnoticed during the events themselves, to diagnose the origins of problems and to identify patterns of behaviour (Hopkins, 2008). The ability to re-watch the data can assist the researcher in developing a greater understanding of the data and the easily shareable nature of video means that it can be viewed by multiple people and thus can generate multiple perspectives leading to deeper analysis (Jewett, 2012).

Jewett (2012) states that within action research video is used to explore people’s experiences and produces three types of data:

- The video as a ‘product’
- The process of its production
- The process of video editing

This research predominantly uses the first two of these types of data generated through the use of video as a means of data collection but all three are essential to the creation of a digital artefact, a key component of the EEA.

5.5. Photographs

Photography is often used in action research as a method of data collection. As interviews, surveys, and questionnaires capture words, photographs capture still images of action taking place. Photos serve a dual purpose when used as a method of data collection. They can be used to document an activity or action over time (Fichtman Dana & Yendol-Hoppey, 2009) or they can be used as a discussion prompt after the fact (Fichtman Dana & Yendol-Hoppey, 2009; Hopkins, 2008; Kanstrup, 2002). In the case of this research, photographs are used to document activities over time, more specifically the carrying out of digital activities in class. The use of photographs in this way gave the researcher and participants an opportunity to establish an overview of a situation.

However, photographs, unlike video recordings, provide only a non-verbal, visual account of a situation and can be considered to lack depth as a form of data (Kanstrup, 2002, McNiff & Whitehead, 2002). As photographs portray only an abstract moment in a given situation they must be contextualised in other ways (McNiff & Whitehead, 2002).

Additionally, like video recording, the presence of a camera can be distracting for some

participants, the click and flash of the camera can make participants aware that they are being observed and this may affect behaviour (Kanstrup, 2002). Unfortunately, this is unavoidable as photographs are a type of data that can only be collected *in situ*; it is up to the researcher/photographer to be as discreet as possible.

5.6. Personal Correspondence and Student Work Samples

Personal correspondence is used as a form of data to inform this research inquiry. Emails and [WhatsApp](#) messages provide insight and perspectives from research participants and also serve as a form of evidence to substantiate claims made within the research. There is little in the literature regarding the use of personal correspondence as an accepted form of data collection (see Raito, 2009 or Harris, 2002) however, it was one of the ‘different data sources’ that I believed needed to be included in order to ‘develop [my] work in a way that was worthwhile and empowering’ (Dadds and Hart, 2001, p157) as, in my experience, personal correspondence generated understanding and insight when reflected upon (Dadds and Hart, 2001).

Student work samples are also used as a source of data. Samples of students’ written, audio and video work form another account in the plural structure of this research. Lomax and Parker (1996) argue that forms of representation used in educational research should coincide with educational forms of understanding. Observing my students engaged in an activity and reflecting on and assessing their work is essential to my understanding of what is happening in my practice and if my practice is effective. Within this research, analysing and reflecting on students’ work allowed me to develop accounts of what was happening in

my classroom in terms of using digital tools for teaching and learning and identify ways in which my practice could be improved (Lomax and Parker, 1996), data which in turn, fed back into the creation of an educational digital artefact that is central to this EEA study.

6. Validity

As Schön (1995) posited in “The New Scholarship Requires a New Epistemology” the academy’s traditional conception of what can be considered valid knowledge differs from that of the practitioner-researcher working on ‘messy and confusing’ problems in the ‘swampy lowlands’ of day-to-day practice. What the practitioner-researcher knows to be true is difficult to prove by traditional academic standards; knowledge generated does not demonstrate generalisability or replicability (Scott & Morrison, 2005; Whitehead and McNiff, 2006; McNiff, 2002). However, validating action researchers’ knowledge has moved beyond the traditional standards (McNiff, 2002, Dadds and Hart, 2001) and a number of forms of validation can be applied to an action research study. In this research inquiry I endeavoured to validate my claim to knowledge by adhering to Habermas’ (1975) criteria of social validation, exposing my research to critical feedback from colleagues, conference delegates and my supervisors and by applying Winter’s principles and procedures for the conduct of action research (Winter, 1996).

6.1. Winter’s Criteria of Rigour

Winter (1996, p9) queries “how action researchers can claim to be less biased than those they are researching?”. He argues that all researchers have an ideology (this is unavoidable as we are all members of social groups) and that for research to be worthwhile it must go

beyond these ideologies to initiate the potential for change in our thinking and practice. In order to do this, he describes six criteria for action researchers to abide by to avoid these ideological biases. I applied these criteria to my study in an effort to support a claim to knowledge that was both rigorous and valid, as outlined below.

6.1.1. Collaborative Resource

Action research should be a collaborative process in which the researcher acts and learns in collaboration with others (McNiff, 2002). While carrying out this research I sought to take on board a variety of viewpoints from a number of sources including, students, colleagues, peers, my supervisor and conference delegates. This spectrum of opinions helped to create a rich resource for comprehending the situation I was attempting to change. I was not looking to synthesise the opinions of others into one overall opinion but to examine the differences between the viewpoints to foster a greater understanding and to keep my own subjective views in check when creating my digital resources (Winter, 1996).

6.1.2. Plural Structure

While more traditional forms of research aim to produce a cohesive, decisive, unifying argument, action research takes a different, but no less valid, approach.

“Our dialectical, reflexive, questioning, collaborative form of inquiry will create a plural structure consisting of various accounts and various critiques of those accounts, not ending with conclusions but with questions, possibilities, intended to be relevant in different ways for different readers.”

Winter, 1996, p19

Lomax and Parker suggest that educational research be pluralistic and diverse so it can ‘celebrate the unique, personal and subjective strengths of individual action research and

help action researchers display their own personal signatures' (Lomax and Parker, 1996, p302). I have included many voices and accounts in this research inquiry. The insights of my students, colleagues, peers and conference participants have been included to create a plural structure as per Winter's suggestion for a rigorous inquiry bringing about a valid claim to knowledge.

6.1.3. Risk

Risk is an essential part of action research and the EEA in particular (see section 4.6.2). The action researcher "must accept risk as an inevitable aspect of creative practice" (McNiff, 2002, p107). In carrying out this study I was exposed to a degree of risk in a number of ways. Initially, I had to disturb the status quo in my own practice; to develop new and innovative ways of integrating digital literacy skills into the Junior Cycle (JC) English curriculum and to try these approaches out with my students, leaving them and myself open to 'failure'. In order to generate new learning experiences I had to challenge the taken for granted ways in which my colleagues and I have taught JC English (Winter, 1996). I presented my work to my colleagues, my supervisors and at conferences leaving myself open to criticism and negative feedback, which was a daunting but rewarding process that held my research accountable to the high standards of my collaborators.

Additionally, Dadds and Hart (2001, p158) propose that quality practitioner research can be achieved when the researcher has the 'courage' to reject conventional approaches where appropriate and choose individual, innovative ways of collecting data or presenting research that aligns with the needs and demands of their own research inquiry. I have,

where appropriate, tailored my research to suit my own professional and academic context with particular regard to some of my methods of data collection and how I have presented my research. The exposure to risk is necessary in bringing about change, learning and new knowledge.

6.1.4. Theory, Practice and Transformation

Action research aims to bridge the gap between theory and practice. Although, Winter (1996) states that this isn't an unbridgeable gulf, that theory and practice contain elements of each other, "need each other and contain mutually indispensable phases of a unified change process" (Winter, 1996, p21). In this action research inquiry my actions were questioned and reflected upon in light of relevant theory enabling me to engage in a reflexive and dialectical critique which helped bring to the fore other possibilities for further or repeated actions (Winter, 1996).

A key stage of the EEA is to show transformation. Through my research I sought to transform my practice through the creation of a quality digital artefact. Being able to show a genuine transformation personally, professionally and culturally validates my claim to knowledge and indicates that the process was indeed rigorous.

6.2. Social Validation

Throughout this action research inquiry I presented my work in a variety of contexts, seeking feedback and critique from my peers, colleagues and my PhD supervisors.

Habermas' (1976) puts forward 4 criteria for social validation, namely, comprehensibility,

truthfulness, authenticity and rightness/ appropriateness. In seeking social validation I was held accountable to these four criteria when communicating my research to ensure that my conclusions were “reasonably fair and accurate” (Whitehead & McNiff, 2006).

At regular intervals during the research process I met with my supervisors, Dr. Yvonne Crotty and Dr. Margaret Farren, in person and via video call and email to discuss and evaluate my research. Dr. Crotty and Dr. Farren provided support in a number of ways, as collaborators and co-creators of both the digital artefacts and the research itself. Dr. Crotty provided technical advice, expertise and regular feedback in the creation of the digital artefact. Additionally, they acted as guides and mentors with regard to writing academically and finding my own path for my PhD research. Being held to Dr. Crotty and Dr. Farren’s high standards helped to ensure that my research was rigorous and that my claim to knowledge was valid and truthful.

Performance is an essential component of the EEA. At various stages the researcher should make use of different types of communication (face-to-face, Skype, online forums, email, etc.) to present their work to their peers and be open to an honest critique of their work (Crotty, 2015). Crotty asserts that these validation meetings “strengthen and refine the study and ensure that it is rigorous” (Crotty, 2015, [Video](#), 4m10s). Throughout the course of this action research inquiry I shared my work at a number of academic conferences. Though nerve wracking, the experience of sharing my work with others in such a public forum helped ensure comprehensibility of my research as well as eliciting feedback and critique that was taken on board and acted upon.

The digital artefacts I created as part of this EEA inquiry were shared with my work colleagues and feedback sought on the usability and applicability of the artefacts in the classroom. Though I felt vulnerable and exposed sharing the work with my colleagues, their feedback and critique was invaluable in ensuring that my work was comprehensible, authentic and appropriate to the lived experience of, in particular, my English department colleagues. Sharing my work with others helped to ensure that my research is ‘comprehensible, that there is enough evidence to justify claims, that the background of the accounts are made explicit and the accounts are authentic’ (Crotty, 2014, p92).

7. Ethical Considerations

In carrying out an action research inquiry it is incumbent upon the researcher to ensure that it is carried out in line with strict ethical guidelines. Locke, Alcorn and O Neill (2013) suggest that this can be difficult in collaborative action research as the line between researcher and participant is not always distinct and the collaborative nature of action research means that issues concerning anonymity and ‘ownership’ of findings and their dissemination are ambiguous. I will outline the steps I took to conduct my research ethically using the eight principles posited by Locke, Alcorn and O Neill (2013) as a guideline (appendix A).

I sought and received approval from the Dublin City University (DCU) research ethics committee (REC) who identified that my inquiry was ‘low-risk’ and would be carried out in line with the ethical standards laid down by the university.

As a part of my research was carried out with my students, who are under 18, I recruited them as participants on a voluntary basis. I sought informed assent from them and consent from their parents or guardians to use our class activities as a basis for my inquiry. All participants were given a [plain language statement](#) (PLS) to ensure that they understood what participation in the inquiry entailed. It was made clear to the students that they were free to withdraw from the study at any time, if they so wished. Permission was granted from the board of management (BOM) to conduct the research in school.

In terms of teachers participating in the online CPD course, they too were made aware of the research inquiry, given a PLS and asked to give their informed consent to partake in the research. At all times I endeavoured to maintain transparency with regard to my inquiry. The investigation was carried out *with* and not *on* the participants whose opinions and feedback were sought and respected throughout. The completed research report and accompanying digital artefact is available to anyone who wishes to read it.

In line with my own standards of judgement I am obliged to carry out my study in line with my values of inclusivity and equality, thus minimising any risk associated with this action research inquiry and holding myself accountable to observe good ethical practice throughout.

8. Conclusion

This chapter has detailed both my journey to choosing Crotty's Educational Entrepreneurial Approach (EEA) to Action Research and the EEA itself. I have considered where I believe action research is situated in the spectrum of research paradigms and the origins of action research in general. I have discussed some of the key figures that were influential in the development of action research and some of the main characteristics of the methodology. I reflected on my decision to adopt the EEA to conduct my inquiry and attempted to gain a greater understanding of the four stages of the approach: explore, understand, create and transform. Finally, I outlined my data collection methods and considered the important issues of validity and ethics.

There is an analogical structure to this dissertation, with its framework comparable to that of a five-act drama. Within this analogy the methodology, the Educational Entrepreneurial Approach to Action Research (Crotty, 2014), serves as the stage directions, and indeed, the stage itself on which the action takes place. Having been witness to inequalities in teachers' ability to access CPD in the area of digital literacy and in students' levels of digital literacy, I wanted to make a tangible improvement to my work practice for the benefit of my students and the wider work culture and to bring my practice in line with my primary value of *equality*. Adopting an action research approach allowed me to put myself in the centre of the research as an active participant, collaborating with others to bring about change. The EEA specifically required me to be creative, passionate and collaborative in creating a digital artefact to bring about a transformation. The EEA to Action Research guided this research, providing clear but flexible directions to *explore* and

come to an *understanding* of myself, my work culture, my values and passions, the relevant literature, to then *create* a curriculum and digital artefact that would lead to personal and professional *transformation*, generate new knowledge and bring my practice in line with my values.

Act I

Exposition

Information that familiarises audiences and readers with the background of the characters and the circumstances that confront them. Prepares the audience for the action in subsequent acts.



Chapter 2

An Exploration of Self

“It is the story that matters, not just the ending.”
— Paul Lockhart

1. Introduction

This chapter charts the exploration stage of an action research inquiry that aims to create a curriculum for use in Junior Cycle (JC) English classes with integrated digital literacy skills and foundational online continued professional development (CPD) elements teachers to support the implementation of the curriculum. The chapter details my ‘story’ of engaging in a personal and professional exploration in an effort to identify my educational values and come to an understanding of how and where my values, skills and passions can be applied to improve my work place for myself and others (Crotty, 2014).

My personal and professional values lie at the core of this story. I entered teaching as a graduate who valued education, equality, creativity, and the opportunity to enhance the lives of students in some small way, as some of my own teachers had enhanced mine. Over twenty years later I am still passionate about education and within it equality, creativity and the ability to empower students. However, it has become clear that in recent years my values have become misaligned from my day-to-day practice. This ‘values based study’ (Crotty, 2014, p13) is guided by a desire to realign my professional practice with the values that I have espoused since entering the profession.

‘Every child and young person deserves an equal chance to access, participate in and benefit from education’ (DES, 2005). Unfortunately this is often not the case, as inequalities exist in our society and educational system (OECD, 2015). Practitioner research can be utilised to address these inequalities as practitioners themselves are best placed to identify, and resolve, ‘confusing but critically important’ workplace problems that are of great ‘human concern’ (Schön, 1995). Identifying problems in the ‘swampy lowlands’ (Schön, 1995) of teaching is unavoidable, and teaching in socio-economically disadvantaged areas I have been witness to many inequalities that are faced by both students and in other respects, teachers. One such problem is teachers’ unequal access to appropriate CPD (TALIS, 2018, 2013, 2009). Through action research cycles of inquiry I endeavoured to find a possible solution to this inequity of access through the provision of online CPD elements embedded into a digital literacy curriculum for use in the JC English Classroom. Schön (1995) states that practitioner researchers’ methods of inquiry include ‘experience, trial and error, intuition and muddling through’. I believe that the ‘story’ of my attempts to ‘muddle through’ and find an accessible way of delivering digital literacy CPD online is as important as the creation and delivery of a curriculum and CPD course itself. It is within the story that my tacit, professional knowledge can be found, made explicit and shared in a public arena where it may be of ‘value to [other] practitioners’ (Schön, 1995).

2. Exploration of self

Crotty (2015) recommends that in the initial stages of an action research inquiry using an educational entrepreneurial approach (EEA) a thorough exploration of one’s own

educational values should be undertaken. Having embarked on such an exploration I considered what educational values are. Schwartz and Bilsky (1987, Cited in Hitlin and Piliavin, 2004) identify five factors common to most definitions of values.

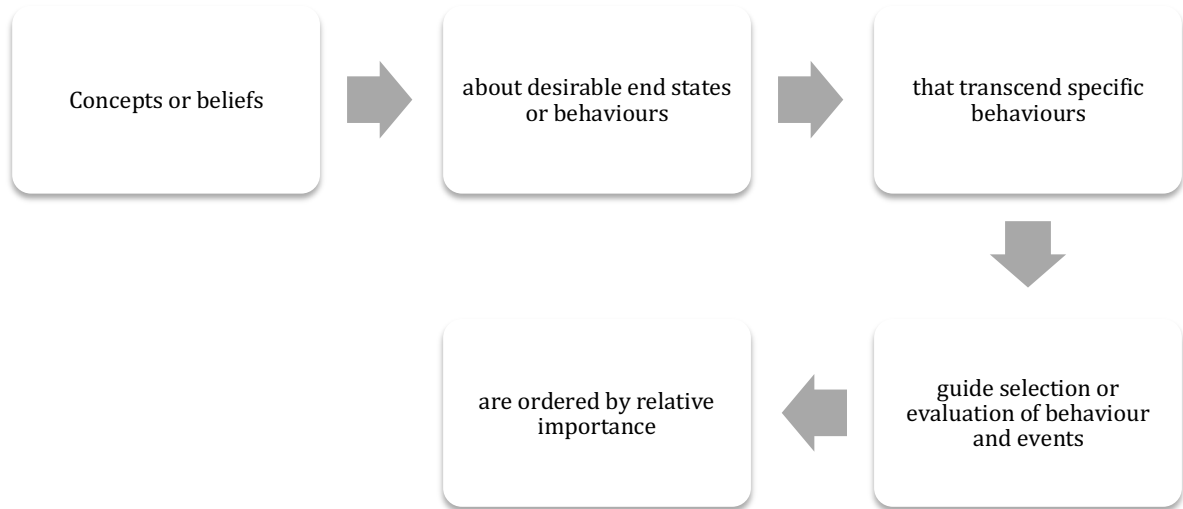


Fig2.1. Five factors common to most definitions of values (Schwartz and Bilsky, 1987)

What are the ‘desired end states’ or ‘modes of conduct’ that I believe are preferable to an opposite end state or mode of conduct? (Rokeach, 1973 cited in Whitbeck & Gecas, 1988). My own work place is a Developing Equality of Opportunity in Schools (DEIS) School, meaning that it is one of the most disadvantaged in the country (DES, 2005). The desirable ‘end state’ for me would be to see all my students being given a fair chance in the school system and equal access to the advantages that education brings. While this may not be possible given outside factors such as socio-economic status, language difficulties, poverty, culture, familial problems, single-parent families, etc. also play a role in students’ access to education (Hampden- Thompson, 2013; Combat Poverty Agency, 2002) it is the

ideal which guides my behaviour (Schwartz & Bilsky, 1987) in my professional practice. Thus, *equality* emerged as my main educational value.

2.1. Parental influences on my educational values

It may seem natural that a parent's values would directly transmit to their children but the influence of parental values on those of their children has been extremely difficult to authenticate in research (Whitbek & Gecas, 1988). Regardless, I believe that my valuing equality in education was not borne out of my own teaching experience, but my mother's. My mother worked as a teacher in socio-economically deprived areas of Dublin for over 30 years. I was lucky enough to see her teach a number of times and it was clear to me that she was a dedicated and natural teacher. She seemed to adore teaching and, perhaps because of her obvious satisfaction with her role, I chose to follow in her (and my maternal grandfather's) footsteps and become a teacher (Schulenberg, Vondracek and Crouter, 1984).

When I embarked on my own teaching career my mother advised me to find a similar, disadvantaged community to teach in. I believe that she enjoyed the camaraderie, sense of community and, in some respects, informality that comes with teaching in a deprived area.

"I just loved working with the poorer kids and never had a desire to work anywhere else"

[Personal Communication, Dec 2105](#)

In my reflection journal I considered what it was that she enjoyed so much about teaching in a socio-economically deprived area.

I think that she liked that perhaps she was making a difference in this area and that she could have a positive influence on the lives of the students she taught.

Reflection Journal, Nov 2015

I discussed this with her at a later date to see if I had accurately identified her attitudes towards working where she did.

I remember when I started teaching there, there were no shops, no nothing... there was [sic] no facilities. Life seemed so unfair for [the students], I remember thinking that. And we'd try and be so nice to the kids to make their life a little bit easier.

[Personal Communication, Dec 2015](#)

Later in her career my mother became the 'Traveller teacher' in her school (a position that no longer exists in Irish schools). Her role was a combination of remedial teacher for Traveller students and a liaison between the school and Traveller parents. I knew she loved this job from the enthusiasm with which she spoke about it at home. However, I also knew that the inequalities that existed for many of her Traveller students offended her. From her regular visits to the local halting sites she was aware that many of her students lived a comfortable life but that others lived in desperate poverty. I vividly remember her telling me of one family of eight who lived in a tiny, green caravan in terrible, cramped conditions.

...The little fella, who was only 4 at the time, feeding the twins, one in each hand, and the only heat they had was off the ring of the gas cooker

Personal Communication, Dec 2105

Two-thirds of her Traveller students would not get more than a primary education; fewer still would complete their Junior Cert or Leaving Cert perpetuating an on-going,

intergenerational cycle of educational disadvantage (Central Statistics Office (CSO), 2016; Forkan, 2006). Through her experiences I was made aware at an early age that not everyone had the same comfortable lifestyle as I did; that the social and educational advantages I enjoyed did not, unfortunately, extend to everyone in Ireland (Jeffers & Lillis, 2021; Byrne and McCoy, 2017; DES, 2005; Combat Poverty Agency, 2002).

Whitbek and Gecas (1984) posit that the influence of parental values and attitudes on those of their offspring increases substantially if the child accurately perceives their parents' values and attitudes. In this respect, I feel that I had formed an accurate representation of my mother's values of equality and fairness in education and therefore it is unsurprising that they shaped my own educational values.

2.2. Influence of my own work experience on my educational values:

Ireland

2.2.1. Educational inequities in socio-economically disadvantaged areas

Like my mother, I too teach in a socio-economically disadvantaged area of Dublin. The school, located in Dublin has an enrolment of approximately 400 pupils, both boys and girls. The school caters for a large number of Traveller and international students. The All Ireland Research Observatory (AIRO, 2011) categorises the catchment area of the school as disadvantaged or very disadvantaged and for our students this brings with it many problems associated with neighbourhoods of socio-economic disadvantage; namely, adolescent behavioural problems, inappropriate peer and adult role models, low levels of

neighbourhood cohesion, and a range of emotional problems including depression as well as conduct disorders (Schneiders et al, 2003).

The 1998 Education Act defines educational disadvantage as “impediments to education arising from social or economic disadvantage, which prevent students from deriving appropriate benefit from education in schools”. In order to combat such impediments May 2005 saw the introduction of the Delivering Equality of Opportunity in Schools (DEIS), Action Plan for Educational Inclusion (DES, 2005). Under this action plan DEIS post-primary schools are entitled to additional resources to try and redress the educational disadvantages in socio-economically deprived areas. The supports include (DES, 2015):

- DEIS grant paid based on level of disadvantage and enrolment
- Access to a Home School Community Liaison teacher (HSCL)
- Access to Schools Meals Programme
- Access to range of supports under School Completion Programme (SCP)
- Access to Junior Certificate Schools Programme (JCSP)
- Access to Leaving Certificate Applied Programme (LCAP)
- Access to planning supports
- Access to a range of professional development supports
- Additional funding under School Books Grant Scheme or the Textbook Rental Schemes in School

There is also a strong ethos of pastoral care in the school and the most recent whole school evaluation (WSE) report indicated that within the school a ‘highly committed staff ensure that the school has an outstanding culture of student support and care’ and that ‘the school

provided a broad range of subjects, programmes and resources to meet the needs of its students' (DES, 2018, 2015).

Despite the resources in place to try and address the effects of educational disadvantage, teaching in a DEIS school means that I am witness to the vast inequalities that exist in our society and education system.

You don't need to study education to understand that some people have greater educational advantages than others. We live in a country where free education is available to all but my own experiences have shown me that due to other outside influences not everyone will reap the same rewards from this system.

Reflection Journal, Nov 2015

Down through the years I have observed that students, due to a myriad of outside influences, have been prevented from 'deriving appropriate benefit from education in schools' (Education Act, 1998, 32(9)). Culture, English as an additional language, low literacy and numeracy levels, neglect, family structure, addiction, crime, emotional issues, behavioural difficulties, etc. (Hampden- Thompson, 2013, DES, 2011; Schneiders et al, 2003, Combat Poverty Agency, 2002) have impeded students in reaching their full potential.

2.2.2. Educational inequities in school retention and progression to third level

The 'dropout rate' from senior cycle in DEIS schools is higher than the national average (Irish Examiner, 2017; Irish Times, 2015a). The most recent Department of Education (DE) Retention Report shows a gap of 8.6% in retention of students to Leaving Cert between DEIS and non-DEIS schools, with a retention rate of 93.4% for non-DEIS and a

retention rate of 84.8% for DEIS schools for students who entered post-primary education in 2014 (DE, 2021, p7). It is worth noting, however, that this 'DEIS gap' (DE, 2021, p8) has fallen from 16% for the 2001 entry cohort and has levelled out at between 8-9% since the 2010 entry cohort.

In terms of progression to third level education, the rates within the traditional Leaving cert cohort are below national averages. According to The Irish Times' Feeder Schools Map (2021a) between 2010 -2020 an average of 35.5% of Leaving Certificate students in my workplace have progressed to third level education (ranging from 30% in 2012 to a high of 54% in 2015). In comparison to the national level of progression (80.3%), it is clear that inequities persist in the attitudes towards and access to education (The Irish Times, 2021).

A 2015 OECD report highlighted the benefits of a third level education for students who make the progression. Within the labour market workers with a tertiary education are more likely to be employed, earn an average of 60% more than their upper secondary (senior cycle) educated counterparts and are endowed with a diploma or degree, considered by employers to be the primary indicator of a worker's skills. Beyond the workplace the report states that 'adults with high educational attainment are more likely to report that they are in good health, that they participate in voluntary activities, that they trust others and that they have a say in government... they are more engaged with the world around them' (OECD, 2015, p27). It seems incredible that these considerable benefits are available to 35.5% of my students but up to 99% of students who live within a 10km radius (The Irish Times, 2021a).

It seems so unfair to me that up to 70% of students, who for whatever reasons, are from the moment they leave post primary school, at a disadvantage. If the OECD statistics are to be believed they will be less employable, less financially secure, less happy, less trusting, less engaged with life.

[Reflection Journal, Nov 2015](#)

2.3. Influence of my own work experience on my educational values:

Australia

In 2011 I worked, for a period of seven months in schools in indigenous Yolngu communities in the Northern Territory (NT) in Australia. This experience, although extremely enjoyable, was eye-opening; I was teaching pupils who, it seemed to me, were educationally disadvantaged in every possible way.

Their culture had been diluted, they were being taught in a language that wasn't their first, or possibly even second or third language, their health was often poor, scabies was rife, glue sniffing was a major problem in one of the communities leading to many students dropping out early from school.

Reflection Journal, Nov 2015

There has been much written about educational disadvantage in remote indigenous communities that reflects my own experiences there. The picture painted in the literature is a grim one. Attendance and enrolment rates are significantly lower for indigenous than non-indigenous students (Speering, 2015; Guenther, Bat and Osborne, 2013) with the rates worsening as students progress through the school years (SGRGSP, 2014). Only a minority of 17-20 year old indigenous students make the transition to post-school education, training *or* employment (SGRGSP, 2014). Results from the National Assessment Program-Literacy and Numeracy (NAPLAN) tests indicate that huge gaps exist between indigenous

and non-indigenous students in the NT. Indigenous students are far behind national averages in all aspects of literacy and numeracy. Table 2.1 shows the percentages of Year 9 indigenous and non-indigenous students in the NT who were at or above the national minimum standard for reading, writing and numeracy (ACARA, 2021).

	Non-Indigenous Students (NT)	Indigenous Students (NT)
Reading	89.3%	33.6%
Writing	72.4%	17.9%
Numeracy	96%	57.2%

Table 2.1. Sample of 2019 NAPLAN results for indigenous and non-indigenous students in the Northern Territory, Reading, writing and numeracy: Year 9 (ACARA, 2021)

Although a 2008 human rights report highlighted the importance of recognising, acknowledging and supporting culture as a primary influence on improving learning outcomes for indigenous students (AHRC, 2008) educational disadvantage was furthered by the lack of indigenous studies on school curricula (Guenther, Bat and Osborne, 2013). While one of the schools I taught in was unusual in that it had [an onsite cultural and language centre](#), most schools have little access to curricula that has cultural relevance for the indigenous students.

...A school system that probably had no relevance for [the students] at all. As a 'balanda' (white) teacher I did not speak the local language, Yolngu, and yet I was supposed to impart my wisdom to these students.

[Reflection Journal, Nov 2015](#)

The system I witnessed when teaching in these communities was one which failed to engage the students; instruction was through a second or third language (English) and the

very basis of the educational system was shaped by western educational philosophies and values (Guenther, Bat and Osborne, 2013; AHRC, 2008) that had little relevance for the indigenous students. ‘When these value systems are foreign to the beginning student, they can have a negative impact on the ways in which indigenous students see themselves as learners’ (AHRC, 2008, p121). Measured against standard Australian indications of success, well- paid employment, higher education achievements, career choice, progress and aspiration (Guenther, Bat and Osborne, 2013), the students I taught and their families were far from successful. In fact, the levels of disadvantage in terms of unemployment, low English literacy levels, poverty and social marginalisation (Guenther, Bat and Osborne, 2013) seemed staggering. As difficult as I found this inequality to observe, a question posed by Guenther, Bat and Osborne (2013) resonates with me- ‘What does an advantaged education look like in aboriginal contexts, particularly in remote communities?’. Regardless, in Australia advantaged education is judged by western standards and in this respect students in remote indigenous communities are left wanting.

Another area in which remote students are at a disadvantage concerns the provision and training of indigenous teachers. In my, admittedly limited, experience in remote communities I was aware that non-indigenous teachers greatly out-numbered indigenous teachers and was concerned about how this affected the relevance of school for the students. Indeed the Australian Human Rights Commission states that ‘indigenous teachers and leaders show Indigenous students that school is relevant and reflective of their world’ (AHRC, 2008, p134). In the NT, where 40.12% of the school-aged population is

indigenous, only 6.5% of teachers are themselves indigenous (ACDE, 2021). I considered the difficulties of training more indigenous teachers:

There were some Yolngu teachers at the schools. They generally taught the younger classes or delivered Yolngu lessons to the whole school. Here is where I saw other elements of inequality come into play. There was an indigenous teacher training college outside Darwin, however that was an expensive 2-hour flight away. How could more Yolngu teachers be trained if there was limited access to the courses? Moreover, how did trained teachers access CPD deemed so necessary for keeping up with latest developments in education?

Reflection Journal, Nov 2015

It should be noted however, that in 2021 the NT Government (2021) launched a pilot programme aimed at supporting Indigenous people to become teachers or assistant teachers. The Remote Aboriginal Teacher Education (RATE) programme, offers a number of supports including scholarships for indigenous people to do a Bachelor of Education or a Masters of Teaching and in-school traineeships for assistant teachers.

Speering (2015) outlines the difficulties in accessing inservice CPD in remote communities and the same issues could be applied to initial teacher training. He states that CPD in the NT is mainly targeted at metropolitan areas due to the high staff turnover in remote schools and the isolated locations of the schools. Remote communities in the NT are generally accessed via hours driving on graded tracks or by plane. Access can be cut off completely during the wet season (Speering, 2015). This I believed was further evidence of educational inequality in this region. Students were hampered by not only poor attendance, poverty, marginalisation and teachers who did not have an inherent understanding of their culture but the teachers they did have were unable to keep up to date with the latest developments in education due to limited access to professional development. Teachers

who have access to high-quality CPD ‘are in a position to provide benefit to their students and their schools’ (AHRC, 2008, p129) and provision of quality CPD can act as a retention strategy in an area with a high teacher turnover rate (AHRC, 2008, p129). My own experiences led me to the conclusion that many of the indigenous teachers were eager to progress professionally. More than one teacher approached me looking for guidance with teaching strategies and lesson ideas and I wondered why more effort wasn’t made to provide CPD to these teachers on a more regular basis. Having recently completed my MSc in Education and Training Management- eLearning (MEME) at Dublin City University (DCU), I was aware of the benefits of using video and other online resources to observe and reflect upon effective teaching practices (Newhouse, 2007; Gamoran- Sherin, 2000). It appeared to me that the Internet, which was accessible in the school, could be utilised to provide training and professional development for teachers in the NT for the benefit of teaching and learning in the schools. It was in this remote corner of Australia that I began to consider how I might use my knowledge, skills and creativity to create a resource that could improve teacher access to CPD.

My mother’s influence and my own subsequent teaching experiences in Ireland and Australia have played no small part in shaping my educational values. Although *equality* is not my only educational value it is, without doubt, my primary one. The inequalities I have witnessed in my own practice have led directly to my undertaking an action research project that allows me to identify and address an inequality that I see in my day-to-day practice. Like my former colleagues in the remote Northern Territory I believe that continued professional development (CPD) is not equally accessible to all Irish teachers.

Busy work schedules, family responsibilities, financial issues, lack of appropriate CPD courses (TALIS, 2014) and geographical constraints all serve as barriers to participating in CPD which in turn could impact the teaching and learning of students (TALIS, 2018, 2014; Earley and Bubb, 2010; Harwell, 2003; Powell et al, 2003).

2.4. Exploration of my educational passions and skills

In addition to exploring our values, Crotty (2015) recommends that we examine what we are passionate about and what our skill sets are. Having identified my primary educational value as *equality* I reflected on what I am passionate about professionally and how that impacts on my teaching practice.

I consider myself to be a creative person. I enjoy artistic and creative activities that allow me to use my imagination and become engaged in a process.

I have been 'arty' since a young child, I loved drawing and painting, as soon as I could work a camera I wanted one and I've always loved the intimacy of making someone a card or gift rather than buying one.

Reflection Journal, September 2015

This creative side has always been reflected in my teaching practice, as I noted in a reflection journal entry.

Within my own work context, activities and exercises I set for my students can often be visually creative ones... so much so that it came as something of a shock to me in my early teaching days that not all students loved these types of activities as much as I did when I was a student.

Reflection Journal, September 2015

During my initial teacher training, as computers became more accessible, I developed an interest in using information and communication technologies (ICT) to create educational resources for use in my classes. This interest bloomed as I began my teaching career in schools that afforded me plentiful access to ICT equipment, allowing me to create my own educational resources and encourage my students to do likewise. I enjoyed the scope that ICT gave me to create engaging and interesting activities for my students and in order to deepen my knowledge and skills in the area of educational technology I enrolled in the eLearning strand of Dublin City University's (DCU) MSc in Education and Training Management (MEME).

Undertaking the MEME opened up an array of new e-learning techniques to me. The course increased my knowledge base, digital literacy skills and my ability to 'creatively design and integrate technology to enhance my workplace practice' (DCU, 2021). I found that I thoroughly enjoyed many of the course assignments and often found myself 'completely immersed' in creating a video, podcast, comic strip or animation in a state that Csíkszentmihályi (1997) calls 'flow'. Csíkszentmihályi maintains that the 'flow experience acts as a magnet for learning... for developing new levels of challenges and skills' (1997, p33) and I certainly found this to be the case as I acquired new digital skills through the MEME course.

I thought about the areas of my work and study that engage me.... I enjoy making and creating resources, particularly digital ones. My work with students on digital projects such as video making, podcasts, website articles, ebooks, animotos, etc. is always enjoyable and never seems like a chore. I enjoy the process of making something and I really like seeing the finished product.

Reflection Journal, February 2015

I began to use digital tools, particularly video, to try to engage students in learning but also in school life. I worked with students to create videos for intercultural weeks, make-a-book competitions, literacy events, open days, guest visitors and musical performances by the school's intercultural music group. The videos are shared on the school's social media platforms (school website, Facebook, Twitter) and often reach thousands of people (Facebook analytics) with the intention that they connect students, parents and the community at large with the school in a positive way.

Hague and Payton (2010) note that it can be tempting for teachers to take-over students' digital projects in order to have a high-quality end product. They warn against intervening unnecessarily and stress the importance of allowing students to learn to use the technology and learn from their mistakes. A video making exercise in one of my own classes led me to the following reflections on being digitally creative.

*So what if the end result isn't as beautiful or as polished as it should be? ... I need to be mindful of as my role of facilitator and guide rather than the old-fashioned teacher dictating how the students can work for me to create **my** vision. This is their project and the vision and the end project has to be theirs' as well.*

Reflection Journal, November 2015

As much as I enjoy creating digital artefacts I must be cognisant that as a teacher I can create resources for my students to use in class but I must also give them to opportunity to explore their own creativity and experience 'flow' (Hague and Payton, 2010; Marcus-Quinn and McGarr, 2013).

Having embarked on a journey of professional self-exploration I began to clarify that which I already had some awareness of. I am creative and I have a desire to communicate and transmit some of this passion to my students. I passionately believe that students must be prepared for today's society by being truly digitally literate; being able to critically engage with technology, to communicate and represent knowledge in different formats, to be able to critically evaluate information and to 'participate meaningfully' with digital technologies in today's society (Hague and Payton, 2010). Students are already creating digital content by editing their social network pages, making videos, editing photos, etc. Teachers are ideally placed to help students develop their digital literacy by encouraging them to think more critically and creatively in their interactions with digital technologies (VanDijk, 2020; Accenture, 2020; Marcus-Quinn and McGarr, 2013; Hague and Payton, 2010; Hargiatti, 2002;).

3. Conclusion

This chapter has outlined a personal exploration of my primary educational value, equality. I considered the main influences on the emergence of equality as my primary value, namely, the influence of my mother and my experiences teaching in two very different areas of educational disadvantage. The inequalities I witnessed in my teaching experiences in both Ireland and Australia inspired me to address an inequality that I was aware of in my own teaching practice. Post-primary teachers' inequitable access to CPD is the 'everyday, practical problem' (Elliott, 1991) I wanted to address, as I believe that this unequal access for teachers has a further detrimental effect on students who may already be educationally and digitally disadvantaged. Exploring my personal context led me to consider how I might

use my own passions, skills and knowledge to address this issue, with particular emphasis on digital literacy. Having explored my personal context, I set out to gain a greater understanding of my work culture and context, which would further inform my approach to try and address the identified issue. This exploration of my work context is described in the following chapter.

Chapter 3

Developing a greater understanding of the literature, attitudes and perspectives around Teacher Continuous Professional Development

1. Introduction

This chapter describes the continued *exploration* and *understanding* stages of this action research inquiry using an educational entrepreneurial approach (Crotty, 2014). The literature surrounding the notion of effective continued professional development (CPD) is examined. I then consider the culture surrounding CPD, with an emphasis on online CPD, within the Irish educational system. The chapter concludes with an exploration of my own workplace culture in relation to CPD. Through this exploration, working within an Educational Entrepreneurial Approach to Action Research framework I developed a greater understanding of what effective CPD looks like and what motivates and inhibits teachers from engaging with CPD.

2. What is Continued Professional Development for Teachers?

The OECD (2013, 2008) Teaching and Learning International Survey (TALIS) outlined the main challenges faced by teachers today based on feedback from secondary level teachers across 24 countries (Ireland was not included in the most recent, 2018, TALIS). In both 2008 and 2013 teachers surveyed indicated that their greatest needs, in terms of professional development, were in the areas of differences in student learning styles, dealing with differences in student backgrounds, using ICT effectively and improving

student behaviour (OECD, 2011, p22). One of the central aspects of in-service CPD is the acquisition of new skills and knowledge (Darling-Hammond et al, 2017; McMillan 2014, TALIS 2013, OECD, 2011, Bubb, 2010, Yoon et al, 2007, Kwakman 2002) to deal with these ever evolving challenges. Pre-service training alone cannot prepare teachers for the challenges they will face throughout their careers (OECD, 2011, p18) and therefore CPD is *necessary* for teachers to develop professionally (Kwakman, 2002). However, the purpose of CPD is not simply the acquisition of new skills and knowledge but also the maintenance of ‘quality, competence and accountability’ (McMillan 2014, TALIS, 2013, Lawless and Pellegrino, 2007).

Darling-Hammond et al (2017, p2) define CPD as ‘as structured professional learning that results in changes to teacher knowledge and practices, and improvements in student learning outcomes’. Earley and Bubb (2010, p1) state that ‘staff development is about adult learning, ultimately for the purpose of enhancing the quality of education of children and young people’. More comprehensively they define professional development as:

An on-going process encompassing all formal and informal learning experiences that enable all staff in schools, individually and with others, to think about what they are doing, enhance their knowledge and skills and improve ways of working so that pupil learning and well-being are enhanced as a result. It should achieve a balance between individual, group, school and national needs; encourage a commitment to professional and personal growth; and increase resilience, self-confidence, job satisfaction and enthusiasm for working with children and colleagues.

(Earley and Bubb , 2010, p1).

Their broad definition is supported by much of what has been written in the area of CPD. It encapsulates areas of lifelong learning (Kwakman 2002, Putnam and Borko, 2000), reflection (Teaching Council, 2015; Kwakman 2002, Schön, 1995), the advancement and

maintenance of knowledge and skills (Darling-Hammond et al, 2017; Teaching Council, 2015; McMillan 2014, TALIS, 2014, OECD, 2011, Lawless and Pelligrino, 2007, Kwakman 2002, Day 1999), impacting student learning (Darling-Hammond et al, 2017; Early and Bubb, 2010; Lawless and Pelligrino, 2007, Kwakman, 2002) and CPD as a social endeavour (Teaching Council, 2015; Kwakman 2002, Putnam and Borko, 2000).

TALIS (2018, 2013) outlined a number of different types of CPD activities:

- Courses and workshops
- Educational conferences and seminars
- Observational visits to other schools
- Observational visits to business premises, public organisations or non-government organisations (NGOs)
- Mentoring, peer observation and coaching
- In-service training courses
- Qualification programmes
- Participation in teacher networks
- Individual or collaborative research

While this list is not exhaustive Kwakman (2002) asserts that all CPD activities can be categorised as reading, doing, reflection or collaboration. She maintains that *reflection* is the foundation of all professional development as it is essential for recognising and changing routine behaviour. Furthermore, Kwakman believes that *collaboration* is the most important of the four categories of CPD as it allows for support for learning, feedback from management and peers and it helps to bring about new ideas and challenges.

2.1. What does effective CPD look like?

Effective CPD can be difficult to quantify (Yoon et al., 2007). Powell et al (2003) insist that the effectiveness of CPD should not be judged solely on quantifiable data, such as a measured improvement in students' attainment. Just as important are teachers' responses, thoughts and reflections into their own in-service training. With this in mind 6 significant themes have been drawn from relevant literature to illustrate what effective CPD might look like. Effective CPD:

1. Is supported by a positive school climate/ culture
2. Is not necessarily free
3. Is intensive and sustained
4. Enhances the quality of education in the classroom leading to an improved service for our 'clients' (Bubb and Earley, 2007, p3)
5. Is a social endeavour

Effective CPD is supported by a positive school climate/ culture

School culture plays an important part in the provision of *effective* CPD (OECD, 2011; Teaching Council, 2011; Supovitz & Zeif, 2000). Schools need to provide an 'environment in which participation in professional learning activities are widely appreciated and therefore intentionally stimulated' (Leithwood et al., 1999, cited in Kwakman, 2002).

Earley and Bubb (2010) contend that organisations which place great importance on staff development benefit by improving their staff's way of working. The 2013 TALIS report stated that school systems and leaders who are committed to helping their staff develop

professionally should support, both financially and otherwise, teachers' endeavours to upskill. The same report outlined a number of ways in which this support could be provided. Schools should offer formal induction programmes for newly qualified teachers (NQTs), additionally, participation in mentoring programmes should be encouraged at all stages of a teacher's career as either a mentor or a protégé. TALIS (2018) recommends that opportunities to take part in appropriate CPD should be available to all teachers and that school systems and school management should make every effort to remove barriers to teachers' participation in CPD. Moreover, the report suggests that incentives for teachers to partake in CPD be put in place. Such incentives need not be monetary but could include 'recognition in front of colleagues or a connection to a teacher's development plan that might further motivate them to seek professional development' (TALIS, 2013, p114).

Effective CPD is not necessarily free

TALIS (2013) states that there is a positive relationship between teachers who do not pay for their professional development activities and their participation rates. However, the provision of free CPD for teachers does not necessarily lead to their participation in CPD activities (MacMillian et al 2014, OECD, 2011). A 2011 OECD report found that when teachers paid for their own professional development (courses, workshops, etc.) they were more inclined to participate in CPD. Indeed, they took over twice as many courses as those who engaged in free CPD and the courses undertaken tended to lead to qualifications. Providing free CPD for teachers is not the only way to encourage participation as teachers may be seeking out development opportunities for improved career and earning potential (MacMillian et al, 2014, OECD, 2011).

Effective CPD is 'intensive and sustained'

When partaking in CPD activities teachers claim to prefer short (one-day) courses led by an interesting instructor, where they can leave at the end of the day with relevant, useful class materials (Supovitz & Zeif, 2000). However, research suggests that such short courses are not necessarily the most effective form of professional development (UCET, 2021) and have been considered 'intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented and non-cumulative' (Ball and Cohen, 1999).

On-going CPD courses that are both 'intensive and sustained' (Supovitz & Zief, 2000), include training and provide time for follow up and feedback (Darling-Hammond et al, 2017; OECD 2011) have a much greater chance of making positive changes to teachers' practice (Yoon et al, 2007). Harwell (2003, piii) in the aptly titled 'Teacher Professional Development: It's not an Event, It's a Process' concludes that 'systematic professional development programmes that unfold as *processes* over time are generally superior to individual workshops and seminars'. Longer-term courses allow teachers the chance to take their time with new materials and concepts and to learn more authentically (UCET, 2021; OECD, 2011). Yoon et al (2007), in a review of nine rigorous studies, found that more than 14 hours of CPD translated into a positive impact on student achievement. On the contrary, the programmes that provided the least amount of CPD hours (between 5 -14 hours) showed no measured improvement in student achievement. It should be noted that the availability of sufficient time is not an automatic precursor to effective CPD. The time must be 'well organised, purposefully directed and focused on content and/or pedagogy'

(Guskey and Yoon, 2009, p497). Guskey and Yoon (2009) warn that extra time spent doing ineffective things does not improve them.

Summer workshops, with on-going support for teachers throughout the year, are a viable option for the provision of CPD (Putnam and Borko, 2000, Yoon et al, 2007). Putnam and Borko (2000) believe that removing teachers from the classroom environment and from the pressures of term-time allows them to engage with the course material on a much deeper level as they do not have to concern themselves with what needs to be done in school the next day. Supovitz & Zeif (2000) acknowledge however, that summer workshops/courses are a very unpopular choice with teachers and suggest that they take place in the first week of the summer term to encourage attendance.

Effective CPD should enhance the quality of education in the classroom leading to an improved 'service' for students

It seems logical to assume that there is a direct link between effective CPD and an improvement in student attainment. However, such an assumption is difficult to validate (Sims and Fletcher-Wood, 2021; Yoon et al, 2007, Powell, 2003). So much so, that in an analysis of over 1300 possible studies investigating the relationship between CPD and improved student attainment, only nine met the U.S. Institute of Education Sciences' (IES) standards for inclusion in a comprehensive syntheses of research on effective CPD (Yoon et al, 2007, Guskey and Yoon, 2009). Yoon (2007, piii) refers to the 'paucity of rigorous studies that directly assess the effect of inservice teacher professional development on

student achievement in maths, science and reading and English language/arts’, a sentiment supported by Sims and Fletcher-Wood (2021).

This dearth of rigorous studies aside, there seems to be a consensus that CPD *should* make improvements to teaching practices for the benefit of the students (Sims and Fletcher-Wood, 2021; TALIS, 2013; Earley and Bubb, 2010; Harwell, 2003). However, Powell et al (2003) warn that over-simplifying the relationship between Teacher CPD and improved student attainment ‘reflects a restricted relationship of the complexities inherent in the interplay between teaching and learning’ (Powell et al, 2003, p391). They contend that achieving higher pupil standards is not an immediate impact of teacher CPD but rather a longer-term outcome of sustained professional development. Evidence linking teacher learning to raising student achievement is an area for further research (Sims and Fletcher-Wood, 2021; Guskey & Yoon, 2011; Powell et al, 2003). To facilitate such research it is incumbent upon schools to monitor and evaluate this relationship.

Effective CPD is a social endeavour

There has been much written in recent years about the nature of knowledge. However, most of this discussion centres on how *students* learn, there is little emphasis on how *teachers* themselves learn new ways of teaching (Putnam and Borko, 2000, p4).

Situative cognitive theorists posit that ‘the physical and social contexts in which an activity takes place are an integral part of the activity and that the activity is an integral part of the learning that takes place within it... the situation in which a person learns becomes a

fundamental part of what is learned' (Putnam and Borko, 2000, p4). They believe that knowledge is social and distributed, meaning that cognition is distributed across other people and tools. Such distribution allows learners to accomplish tasks and construct knowledge that is beyond what they could accomplish alone. Hanks (1991), discussing the work of Lave and Wenger (1991), states that learning takes place in a 'participation framework' and is mediated by the varying perspectives of the 'co-learners'. Succinctly, he says that 'learning is distributed among co-participants... it is not a one-person act' (Hanks, foreword Lave and Wenger, 1991 p15).

Situative cognitive theory supports a move away from a traditional model of teacher CPD. Traditionally CPD has focused simply on the dissemination of knowledge (McMillan, 2014; Collinson, 2009; Kwakman, 2002; Supovitz and Zeif, 2000; Putnam and Borko, 2000). However, people learn more effectively when allowed to construct their own knowledge (Lieberman, 1995; McLaughlin, 1997 cited in Kwakman, 2002); this view not only applies to students but to teachers as well. Teachers should be given an opportunity 'to construct their own knowledge and direct their own learning' (Kwakman, 2002, p150). Kwakman (2002) reiterates that traditional CPD activities neglect to help teachers teach for understanding and asserts that new teaching skills should be acquired in practice.

A broad and holistic approach to CPD may be most effective (MacMillian, 2014) as teachers need access to 'advanced continuous learning as well as opportunities to engage in dialogue and inquiry to create new knowledge' (Collinson et al, 2009, p4). Effective CPD

employs inquiry and group based approaches (OECD, 2011) involving a collaborative network of reflective professionals (McMillan et al, 2014).

Supovitz and Zeif (2000) found that CPD programmes which offered opportunities for ‘active exploration’ were in opposition to teachers’ traditional notions of effective CPD namely, short, instructor-led, one-day workshops that provided useful classroom resources. In contrast, more contemporary models of CPD give teachers access to a forum that allows their, usually insular, work practices become public through working collaboratively. These modern approaches to teachers’ professional development are social in nature and provide opportunities for teachers to ‘work collaboratively, disseminate learning and contribute to their own, their colleagues and their organisations improvement’ (Collinson et al, 2009).

Sims and Fletcher-Wood (2021) question the veracity of the consensus opinion of the features of effective CPD that is found in the literature. In conducting a methodological review of a number of meta-reviews they found that there was inappropriate inclusion criteria and a lack of rigor in a number of the underlying studies and so suggest that it is actually unclear what effective CPD looks like.

3. Factors affecting teachers’ motivation to engage in CPD

McMillan et al (2014) carried out a study examining the factors that motivate teachers to engage in in-service CPD. They developed a Teacher CPD Motivation Model which will be used here as a framework for discussion in the area of Teacher motivation.

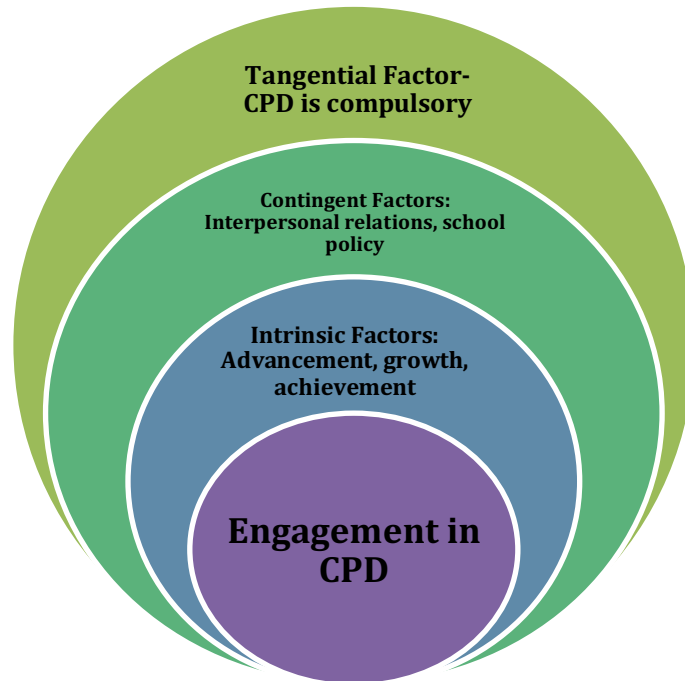


Fig 3.1. Teacher CPD Motivational Model, (McMillan et al, 2014)

3.1. Intrinsic Factors

Intrinsic motivations are most influential when it comes to teachers engaging with CPD.

McMillan et al (2014) found that teachers who are motivated enough to seek out their own CPD are highly likely to engage with said CPD. Their sample of Irish and Northern Irish teachers revealed that the top three personal CPD motivation factors were:

- Personal choice out of interest in the area (Growth)
- Personal choice for career advancement (Advancement)
- Personal choice to improve one's teaching (Achievement)

They directly linked these choices to Herzberg's (1959) two-factor theory and the motivating factors of *growth*, *advancement* and *achievement*. Similarly, Powell et al (2003) found that personal factors such as improving practice, obtaining qualifications and

exploring educational issues were of significant importance to teachers when participating in CPD.

Kwakman (2002) outlines a research model of factors affecting teachers' participation in professional learning activities. She identifies 3 main motivational categories; Personal factors, task factors and work-environment factors.

'Participation in professional learning activities depends to a large extent on personal characteristics of teachers themselves' (Kwakman, 2002, p167) and, in line with the findings of McMillan et al, personal factors are most significant in predicting engagement with CPD activities.

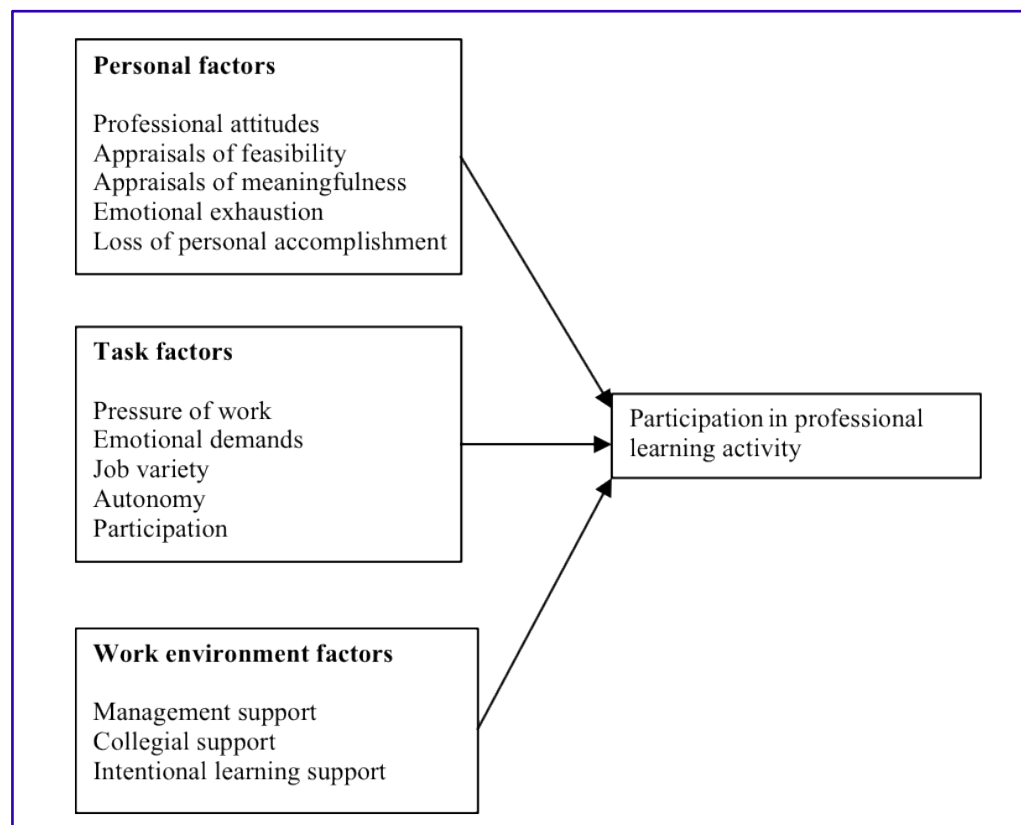


Fig 3.2. Research Model of Professional Learning Activities, (Kwakman, 2002)

3.2. Contingent Factors

Relating to Herzberg's two-factor theory's *hygiene* factors, McMillan et al (2014) note a number of extrinsic influences, or contingent factors, on a teacher's motivation to take part in CPD. These contingent factors 'can either support or inhibit intrinsic motivation but cannot of themselves provide motivation' (McMillan et al, 2014, p10). Examples of these external contingent factors include financial incentives, school policy and interpersonal relations. Ng (2010) asserts that external career goals alone are insufficient to motivate teachers to engage in CPD if there are no 'strong, intrinsic professional learning goals'. These findings are again supported by the work of Powell et al (2003) who cite external factors such as research opportunities, contact with university tutors and school development objectives as 'less important' factors that teachers consider when undertaking CPD. Within the framework of Kwakman's (2002) Research Model of Professional Learning Activities (Fig. 2), the influence of *task factors* and *work environment factors* (or indirect factors), are reduced if *personal factors* are also taken into account. Kwakman acknowledges however that task and work environment factors do affect teachers' involvement in CPD activities but these factors are 'mediated by personal characteristics'.

McMillan et al's (2014) study found that financial incentives rated the lowest in their list of contingent factors. Money or financial gain does not, it seems, motivate teachers to participate in CPD beyond a certain level. Pink (2010) acknowledges that base rewards such as salary can only motivate a person to a certain extent in the absence of internal motivation. The OECD (2011) concedes that there is a need for financial reward for teachers who seek to develop professionally but realise that teaching careers are about

more than a good salary. Interestingly, Supovitz and Zeif (2000) claim that a school district in New Jersey which offered the, non-financial but external, reward of graduate credit for teachers who attended science CPD workshops saw a 34% increase in participation in these workshops.

3.3. Tangential Factor: CPD is compulsory

McMillan et al (2014) note that the main 'system-wide' motivator to partake in CPD is that in many education systems, including the Irish one, CPD is mandatory. They state that in situations where teachers have to attend compulsory CPD courses, motivation is tangential to their engagement. However, they acknowledge that compulsory CPD does not necessarily negate a teacher's intrinsic motivation to participate in professional development. In fact, they refer to the General Teaching Council of Northern Ireland's (GTCNI) assertion that a 'top-down' approach to CPD is ineffective and that teachers ought to be central to the process of deciding what CPD is needed by, and therefore offered to, teachers.

In relation to the Teacher CPD Motivation Model McMillan et al (2014) refer to the complex interaction between the intrinsic, contingent and tangential factors stating that:

All three levels must be skillfully interwoven, with opportunities for negotiation and compromise, but teacher CPD must be prioritised from the centre, since the impetus for change originates within the personal aspect of professional learning'.

McMillan et al, 2014, p14

A teacher who is intrinsically motivated to engage in CPD by the likelihood of *growth, advancement* and/or *achievement* and is supported by one or more of the contingent

factors, *interpersonal relations, school policy, etc.* is highly likely to succeed in their professional development endeavours.

3.4. Factors that inhibit teachers’ participation in CPD

Studies show that certain factors are likely to inhibit teachers’ motivation to participate in CPD. A Teaching Council (2015) consultation with teachers found that lack of time is most often cited as an inhibiting factor in taking part in CPD. The 2009 TALIS report listed six primary reasons that teachers did not partake in CPD. These reasons were again prominent in the 2013 TALIS report with an additional demotivating factor identified as a lack of incentives offered for participating in professional development. The 2018 TALIS showed no change in order from 2013 but Ireland was not included in the 2018 TALIS results.

2009 TALIS Report	2013 & 2018 TALIS Report
Conflict with work schedule	Conflict with work schedule
No suitable/ appropriate CPD	No incentives for participating
Family responsibilities	PD too expensive
PD too expensive	No suitable/ appropriate CPD
Lack of employer support	Lack of time- family responsibilities
Did not have the necessary prerequisites.	Lack of employer support
	Did not have the necessary prerequisites.

Table 3.1. Teacher Reasons for not partaking in CPD- shown in descending order (TALIS, 2009 2013 & 2018)

Prior to the publication of the TALIS results, Supovitz and Zeif (2000) found that many teachers were willing to attend CPD courses on ‘professional release days’ but were unwilling to make any further commitment due to lack of time and family commitments. Additionally, they found that teachers’ perceptions of appropriate or suitable CPD (short, compact courses) were at odds with contemporary models of CPD that were likely to ‘catalyse improvement’ in teaching (intensive, sustained and exploratory). Teachers who lacked motivation to partake in CPD held notions about effective CPD that were out of sync with emerging views. Professional developers that try to address the discrepancies between teachers’ beliefs about suitable CPD and that which initiates improvements in practice will ‘reach more deeply into the teaching pool’ (Supovitz and Zeif, 2000).

Osman and Warner (2020) present a scale for measuring teachers' motivation to integrate CPD into practice. The scale draws on expectancy-value theory and considers three broad motivational factors; beliefs about one's competence for success (‘Can I do it?’) and beliefs regarding the purposes for engaging in behaviours (“Why do it?”) and the cost (things that are invested, required or that have to be given up in order to complete a task) (Osman and Warner, 2020, p3). Engaging in CPD can be difficult, time consuming, stressful and it may mean the loss of other valued approaches. However, their research indicated that if teachers have high expectations of success and perceive a high value to the CPD then they are more likely to put their CPD learning into practice. They suggest that it is incumbent upon CPD providers to ‘modify professional development experiences in ways that foster educators’ motivation to implement’ (Osman and Warner, 2020, p10) although they

counter that teachers' motivation may be person specific and suggest this as an area for further research.

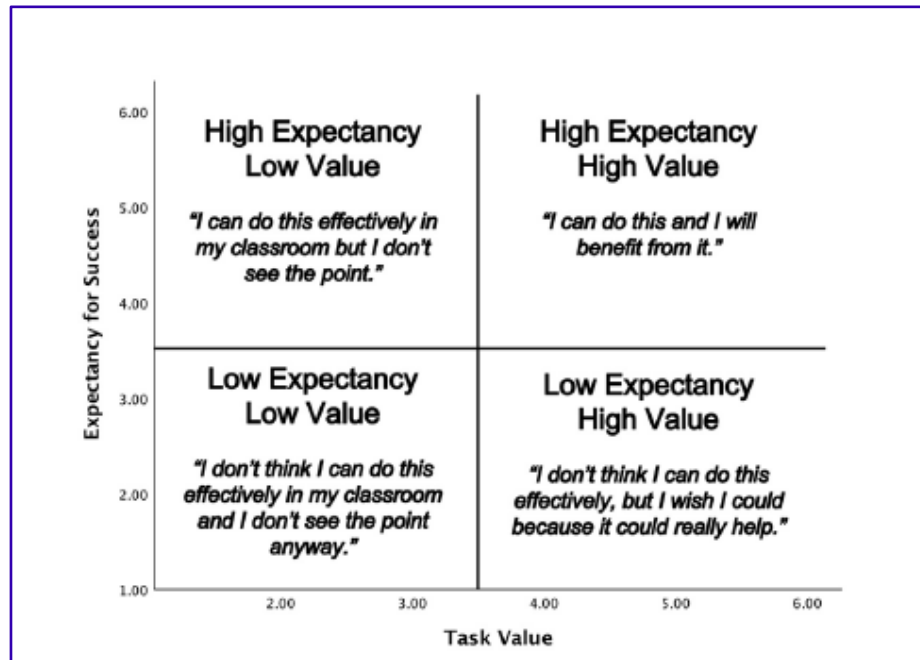


Fig. 3.3. Four quadrants of scale values for teachers' expectancy for success in and value for implementing in their classrooms what they learn in professional development (Warner and Osman, 2020, p8)

4. Exploration of Work Culture

As my research focus developed I honed in on the area of digital literacy CPD for post-primary English teachers. Crotty (2014) asserts that practitioner researchers should explore their work culture to determine the e-culture, e-champions, the nature of communication and to identify changes that can be made to improve practice. This initial exploratory phase focused on the culture surrounding CPD with an emphasis on attitudes towards the online delivery of CPD for teachers. I explored these aspects on both a national level and in relation to my own personal work context.

4.1. Exploration of national CPD culture

According to the Teaching Council (2011, p8) Continuing Professional Development (CPD) refers to “lifelong teacher learning and comprises the full range of educational experiences designed to enrich teachers’ professional knowledge, understanding and capabilities throughout their careers”. CPD is obligatory for both primary and post-primary teachers, however, there is no system in place for ensuring that teachers partake in CPD (McMillan et al, 2014). Within the Irish, post-primary context teachers are expected to be reflective practitioners. Teachers have a responsibility to reflect on how their own practice can be improved and to work with colleagues, sharing and developing excellent teaching practices (The Teaching Council, 2012, 2016); teachers are supported in this endeavour by the Professional Development Service for teachers (PDST). The PDST was established in September 2010 in order to provide both primary and post-primary teachers with “high quality professional development and support that empowers teachers and schools to provide the best possible education for all pupils/students” (PDST, 2017, p12). The PDST offers CPD in a variety of subjects via workshops and seminars throughout Ireland’s twenty-one education centres. In some instances the CPD provided takes place within school hours however, the majority of the CPD takes place in the afternoon or evening-time. Anecdotal evidence would suggest that some Irish, post-primary teachers engage in their own CPD through outside agencies, such as universities, undertaking diplomas or Masters degrees. As additional qualifications do not necessarily lead to greater remuneration one might conclude that teachers take on this extra study purely for the benefit of their own professional knowledge and career development.

Through the PDST Technology in Education (PDST TiE), Post Primary teachers are offered a number of *online* CPD courses. During Spring 2015, when I was carrying out my initial exploration, the PDST Technology in Education's website, www.teachercpd.ie, offered two moderated and two unmoderated online courses, ranging from one to five hours in duration. However, in the interim there has been growth in the number of online courses offered via teachercpd.ie, with seven post-primary courses being offered in 2022. It should be noted that for most of 2020 and 2021 all CPD offered by the PDST was delivered via online webinars due to the Covid-19 pandemic (PDST, 2021). As the pandemic is ongoing it is too early to tell if this indicates a permanent change in the way CPD is delivered or if there will be a return to predominantly in-person CPD events.

The provision of CPD for post-primary teachers is in stark contrast to the availability of online CPD available for Irish primary school teachers. It is common in Ireland for primary teachers to partake in CPD courses during the summer months. Participating in summer courses is incentivised by the allocation of three extra personal vacation (EPV) days off during the school year in lieu of the time spent doing the courses. Many of the summer courses are available online through websites such as <http://primaryteachers.cpdcollege.com> or www.icepe.ie. The online courses are accredited and approved by the Department of Education and Skills (DES). No such incentive is offered to post primary teachers.

4.1.1. Cosán: A National Framework for Teachers' Learning

In 2015, the Teaching Council entered into consultation with teachers across Ireland to 'refine a national framework for teachers' learning' (Teaching Council, 2015). The framework, published in 2016, is called *Cosán*, the Irish for pathway, reflecting the belief that CPD is a journey and not a one-off event (Teaching Council 2016; OECD, 2011; Harwell, 2003; Supovitz & Zief, 2000). *Cosán* seeks to 'affirm the value of teachers' learning' and acknowledge and support the range of learning activities that teachers partake in throughout their careers' (Teaching Council, 2016). The framework is currently in the development phase, with schools across Ireland opting in to apply the framework, allowing for different approaches to be trialled in a variety of contexts (Teaching Council, 2021).

The *Cosán* framework (Teaching Council, 2016, p6) is underpinned by seven key principles that signal a desire for a strong and supportive CPD culture at an administrative level.

- **Cosán recognises teachers as autonomous and responsible learning professionals**

Central to *Cosán* is the idea that teachers are autonomous professionals. The framework highlights the importance of being intrinsically motivated to undertake CPD (McMillan et al, 2014) and recognises that teachers themselves are best placed to identify their CPD needs.

- **Cosán is a flexible framework**

The framework recognises that teachers' careers and life trajectories are subject to change and that CPD needs will vary depending on the career stage a teacher is at. Cosán allows for such changes while holding in mind the needs of students, schools and the system in general.

- **Cosán facilitates teachers in identifying and pursuing relevant learning opportunities**

The Cosán consultation phase indicated that teachers seek CPD that is relevant to their day-to-day practice. The framework allows for a 'significant measure of choice and autonomy' (Teaching Council, 2016, p7) to ensure that CPD is appropriate in terms of teachers' practice and their learning needs.

- **Cosán facilitates teachers in identifying opportunities for quality learning, and will allow for innovative approaches to quality assurance**

The framework aims to ensure that teachers' learning needs are met with quality and effective CPD in line with the literature. Cosán recognises the importance of CPD that is sustained, relevant to classroom practice and collaborative.

- **Cosán recognises the importance of teachers having access to rich and varied learning opportunities**

The framework recognises that there are barriers to access to quality CPD and calls on stakeholders to create time, space and resources for teachers to access quality learning opportunities. The Teaching Council acknowledges the importance of 'effective school leadership and management, in fostering a culture of professional learning and engagement, and actively supporting teachers' engagement in learning at school level' (Teaching Council, 2016, p8).

- **Cosán provides a long-awaited opportunity for teachers and stakeholders to formally acknowledge and recognise teachers' learning**

Cosán acknowledges that teacher learning should be recognised and accredited. Under the framework, the Teaching Council takes on an accreditation role to ensure that teacher learning is positively promoted and celebrated within educational spheres and to the wider public.

- **Cosán facilitates teachers in valuing their learning, and in prioritising learning that benefits them and their pupils**

The framework appreciates the impact teacher learning has on their practice, their students, their schools and the wider school community. The development of Cosán seeks to 'create opportunities whereby teachers can 'think clearly and in an evidence-based way about the contribution of professional learning to teachers' effectiveness individually and collectively' (Teaching Council, 2016, p10).

Figure 3.3 illustrates the key elements of Cosán, the dimensions of teacher learning, the learning processes and the learning areas. These facets are all upheld by the values and principles of Cosán. Supporting and enhancing all aspects of teacher learning is reflective practice, as teachers are expected to critically reflect on their teaching and learning while identifying further areas of need.

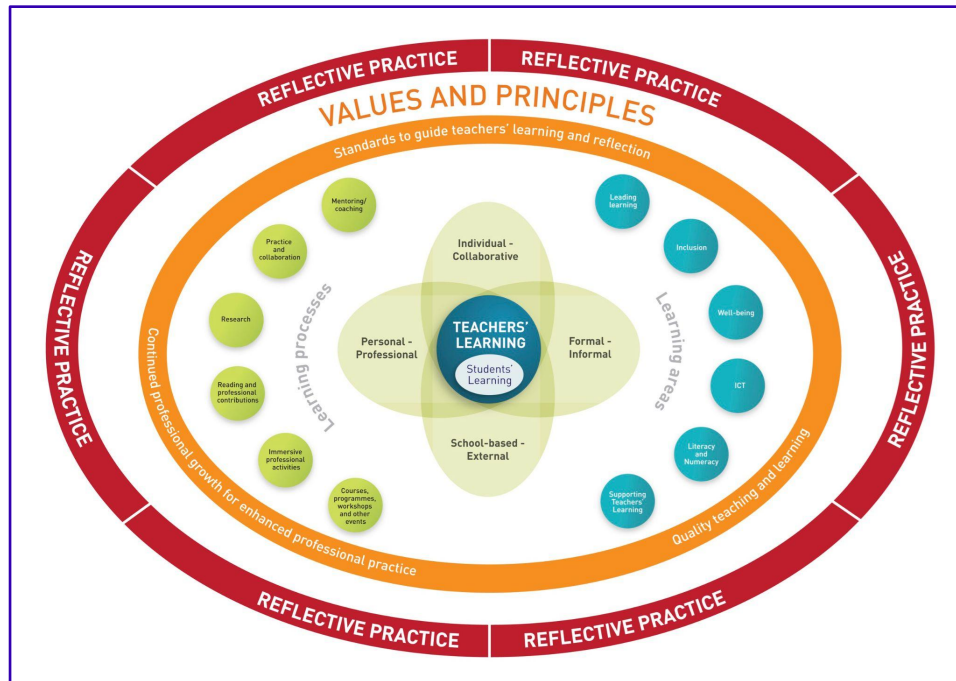


Figure 3.4. Graphic depicting key elements of Cosán ([click to enlarge](#))

4.1.2. The Junior Cycle and its Implications for CPD

The Junior Cycle for Teachers (JCT) is a support service which assists schools in implementing the Junior Cycle (JC) framework and its subject specifications (previously called syllabuses). The JCT provides teaching and learning resources for teachers and both formal and informal CPD opportunities. The [JCT website](#) hosts a variety of teaching and learning resources as well as offering a number of [informal CPD opportunities](#), such as pre-recorded webinars, ‘how-to’ screencast videos and workshop materials such as PDF files, exemplar materials and PowerPoint presentations. Additionally, the JCT has a series of podcasts entitled [Junior Cycle Talks](#) which cover a wide variety of topics. In terms of formal CPD the JCT provides a comprehensive range of in-person CPD for school leaders and teachers. Subject cluster days are held twice a year to upskill teachers on approaches to

delivering subject specifications. Furthermore, the JCT offers whole school training days in areas such as wellbeing and assessment. The JCTs approach to CPD aims to ‘promote professional dialogue and the sharing of experiences among school leaders and teachers’ (JCT, 2015, p30).

The Covid-19 pandemic has, of course, impacted the delivery of JCT CPD, with no face-to-face CPD taking place from March 2020 until at least November 2021. All subject specific and whole school CPD has moved online since the start of the pandemic as the JCT continued to support teachers via live online support meetings and workshops (DES, 2020a).

Current policy, curricula and teacher training reforms have had an undeniable impact on the culture surrounding CPD in Ireland on a national level. The formalisation of an on-going continuum of teacher education coupled with the implementation of the Junior Cycle has meant that the culture surrounding CPD is becoming formalised. The continued development of Cosán and the recent implementation of Junior Cycle reforms mean that high quality, appropriate and accessible CPD is recognised as essential for teachers.

4.2. Exploration of Personal Work Culture

In order to ascertain the attitudes towards CPD of both management and staff in my own workplace I conducted a survey to gauge the perception of CPD and the perceived needs in this area. This exploration was conducted at the outset of my research journey and as such the results present a snapshot in time. However, given the low staff turnover in the school

and the continued willingness of teachers to undertake formal and informal CPD I believe that the results are still reflective of the current workplace culture. Questionnaires were distributed to 50 members of teaching staff with a return of 72%. In addition to the questionnaires, semi-structured interviews were conducted with 15 teachers. The interviews gave greater insight into the CPD needs of staff members and helped to garner post- primary teachers' opinions on their participation in formal CPD. They also sought to discern whether teachers would be willing to partake in online CPD were it available. The interviews were recorded and can be [accessed here](#).

The Teaching Council (2015) stresses the importance of school leadership in fostering a culture of professional learning and engagement in schools. In my own work place I have been encouraged to, and have undertaken, many CPD courses over the years in the areas of English, literacy, social, personal and health education (SPHE) and relationships and sexuality education (RSE). I have never encountered any impediments in being released from my teaching duties to attend training days. My impression of the culture surrounding CPD in my workplace has always been positive. I believe that both management and staff are aware of the benefits of CPD and willing to engage in it when appropriate CPD is available. The school's commitment to CPD is indicated by its involvement in the *Driochead* pilot scheme. *Driochead* (meaning 'bridge' in Irish) is a model of induction and probation for newly qualified teachers (NQTs) which involves mentoring and guiding NQT's through an induction period where their professional practice is supported by more experienced teachers (NIPT, 2021).

In terms of formal, accredited CPD, the 2008 TALIS results showed that Irish teachers were less likely than those in other countries to take part in qualification programmes. However, this may no longer be the case. Many teachers surveyed in this study had enrolled in, and completed to a high standard, courses within the education sphere, through universities and other outside agencies. The 36 participating Dublin-based post-primary teachers revealed that *since* finishing their Higher Diplomas (H.Dip) or Postgraduate Diplomas in Education (PGDE), 62% had completed additional formal qualifications such as a Masters degree, a H.Dip or Certificate. The topics that teachers chose to study included:

- Behaviour Management
- History
- Chaplaincy
- Psychology
- Child-safety
- Psychotherapy
- Counselling
- Special Educational Needs
- E-Learning
- Theological Studies
- Education Management

That such a high percentage of, already highly educated, teachers had undertaken further formal education qualifications is a strong indicator of post-primary teachers' intrinsic motivation to improve their own practice and seek opportunities for growth, achievement and advancement (McMillan, 2014). Post-graduate certificates (PGC), higher diplomas (H.Dip) or Masters degrees require dedication and effort as they are 'intensive and sustained' (Supovitz and Leif, 2000) programmes of study. Additionally, such post-graduate endeavours are generally carried out at considerable expense to the teacher themselves thus signifying a desire to improve career and earning potential (McMillan et al, 2014; OECD, 2011)

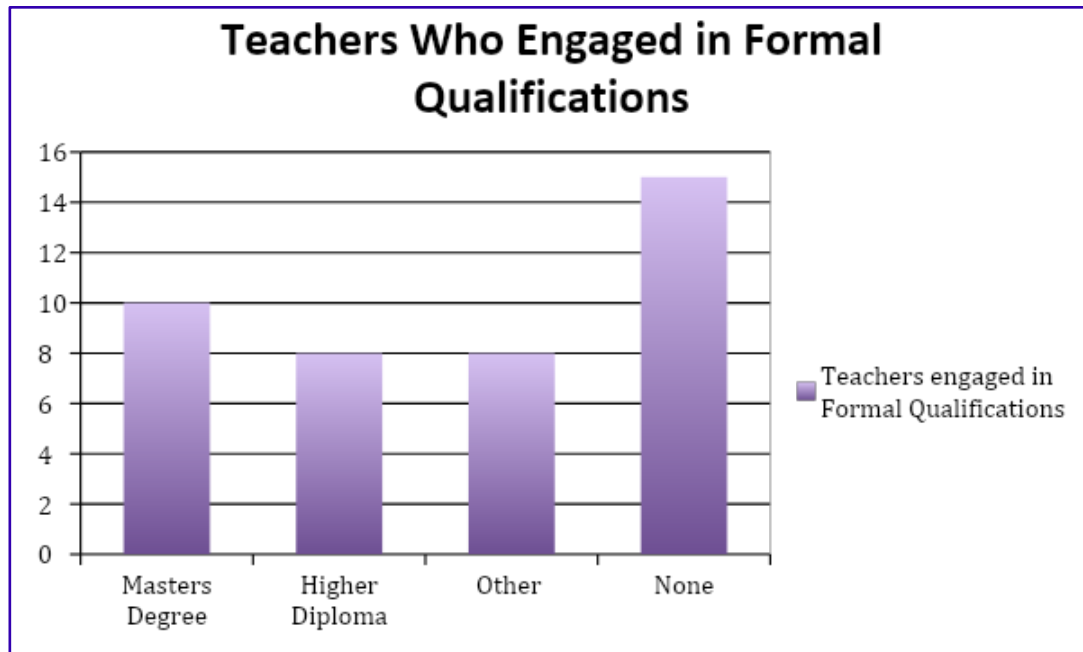


Fig 3.5. Chart showing the distribution of teachers who completed additional formal qualifications *after* their initial teacher training.

In addition to carrying out formal CPD many of the study participants had engaged in activities that could be construed as ‘informal’ CPD. In the years preceding this exploration phase, cuts to the public service budget meant that promotions to posts of responsibility were rarely available to teachers. The data showed that teachers picked up the workload on a voluntary basis with 53% of respondents having taken on duties, voluntarily, for the sake of their own professional development. In volunteering to take on extra-responsibility teachers were ensuring that they would have relevant work experience *should* a promotion arise. Data showed that teachers were acting on a desire to progress professionally (*advancement*), to acquire new skills (*achievement/growth*) and to be in control of their own workplace learning (*achievement*). Participants indicated strong personal motivations for engaging in informal CPD (McMillan et al 2014; Powell et al, 2003; Kwakman, 2003); they wished to develop professionally and were willing to participate in learning opportunities if they arose (Richter

et al, 2011). Examples of positions that surveyed teachers filled of their own volition and for no recompense included:

- Assistant Year Head
- Board of Management representative
- Build and maintenance of wireless Internet network
- Build and maintenance of school website
- Delivery of in-service training for PDST
- Erasmus+ Coordinator
- Post Leaving Cert Course (PLC) coordinator
- Implementation of E-portal system
- DEIS coordinator
- Musical coordinator
- Driochhead coordinator
- Curriculum Planning coordinator
- Sports coach
- Student Council facilitator
- Sustainable Energy Authority of Ireland (SEAI) coordinator
- Gaisce Coordinator

4.2.1. Teachers' Willingness to Access Online CPD

Teachers too need to learn new ways of teaching consistent with new agendas (Putnam and Borko, 2000). Survey respondents strongly supported the assertion that online CPD would be a welcome development with 85% indicating that they would be either likely or very likely to avail of CPD courses were they available online.

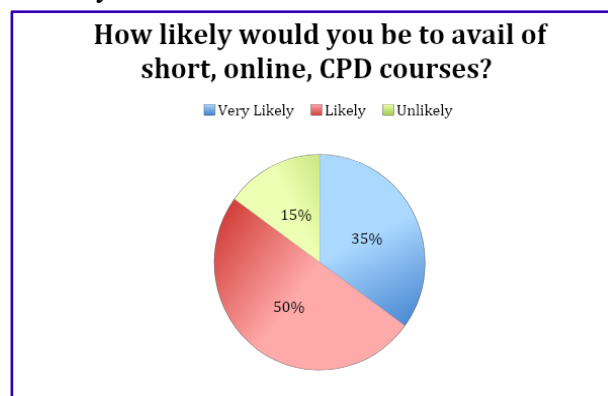


Fig 3.6. Chart showing the likelihood of participants' involvement in online CPD



Fig 3.7. Teacher responses to whether they would be likely to engage in online CPD

When probed further many teachers identified convenience and accessibility as two of the main motivating factors for wanting to engage in online CPD. While there is certainly CPD available to post-primary teachers, it is not always easily accessible; respondents expressed a belief that online CPD may be a way to address the issue of inaccessibility, as illustrated in fig. 3.6.

However, some teachers specified caveats to their claim that they would be likely/very likely to avail of online CPD courses. Some expressed concerns about structure and organisation.

“If it was very well structured I’d avail of it. I know online is the way to go but it needs to be so structured and so geared to individual subjects. A general literacy thing is only alright because it means that I still have to go off as a teacher and develop all my own stuff”

(<http://tinyurl.com/nnz74c7> @ 0.51min)

Absolutely, as long as it’s well done.

(<http://tinyurl.com/nnz74c7> @ 0.51min)

Referring to the issue of incentives some teachers stipulated that incentives would be an important motivating factor.

I would like to think that I would but there would but you’d need something in return... for there to be meaningful take up of it there’d need to be some sort of incentive.

(<http://tinyurl.com/nnz74c7> @ 8.20min)

A need for accreditation (or other incentives) to be ‘not just a piece of paper’ was expressed.

One teacher, drawing on previous experience of an accredited course, stated that:

"It was a useless course. Accreditation without any learning is a bit pointless. I like the idea of accreditation but I want to learn something along the way. A piece of paper isn't really worth my time"

(Reflection journal, 18th Dec 2013)

Despite these caveats, teachers communicated their aspirations for growth, achievement and advancement.

The minority of respondents asserted that they would be unlikely to undertake any online CPD.

No, It's just me and computers... I never look at computers, I hate them.

(<http://tinyurl.com/nnz74c7> @ 3.40min)

Another expressed a lack of motivation to self-start at home and stated that she would need the impetus of being physically at a course and away from the demands of her young family in order to participate meaningfully in a CPD course.

The results indicate that the school has a strong culture of supporting informal CPD. The teachers who took part in this investigation took on unpaid, extra jobs in an effort to learn new skills, develop their skill-set, engage with students outside the classroom, take a more administrative role in the school or simply to enhance their CV. These findings again implied teachers' strong desire for 'growth, advancement and achievement' (McMillan et al, 2014). Many teachers, it would seem, have a desire to take an active role in the "Continuum of Teacher Education" (Teaching Council, 2011) and to be life-long learners who 'avail of

opportunities for career long professional development' (Teaching Council, 2012), be they online or face-to-face.

5. Conclusion

An exploration of my values, skills, passions, inspirations and knowledge, as described in Chapter Two, identified what I perceived as an issue within my professional context, that is post-primary teachers' inequitable access to CPD and the impact this can have on their students, with a particular focus on the use of digital tools in class to improve students' digital literacy. In line with the methodological framework of this study, the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014) I embarked on an exploration of the literature around CPD and the culture within my own work context to gain a greater understanding of the what effective CPD looks like and what motivates and inhibits teachers from engaging with CPD.

While CPD is for the acquisition of new skills, it also involves the maintenance of quality, competence and accountability (McMillan et al, 2015). Effective teacher CPD takes place in a supportive, positive school culture, is intensive and sustained, enhances the quality of education in the classroom and is a social endeavour. Teachers' motivation to engage in CPD is impacted by a number of factors, the most powerful of which are intrinsic motivators, such as the potential for growth and achievement. However, contingent and tangential factors, for example, interpersonal relationships or compulsory CPD are also in play (McMillan, 2015). Teachers can face barriers in accessing CPD. TALIS reports from 2009, 2013 and 2018 identify a number of barriers to teachers' engagement with CPD such as conflict with work

schedule, a lack of time due to family responsibilities and other commitments, a lack of incentives for participation in CPD or there being no suitable or appropriate CPD available.

In Ireland, The Teaching Council's Cosán initiative provides a framework for teacher learning that recognises teachers as autonomous, responsible professionals and advocates for teachers' access to quality learning opportunities and rich, varied, innovative CPD that benefits teachers and students (The Teaching Council, 2016). Formal CPD for post-primary teachers is provided through the Professional Development Service for Teachers (PDST) and the Junior Cycle for Teachers (JCT). The PDST Technology in Education (PDST TiE) provides a number of asynchronous online courses in the area of digitally enhanced learning.

In exploring the culture surrounding CPD and online learning in my own workplace I found that many teachers engaged in formal and informal CPD to improve their practice, including postgraduate courses, inservice training and taking on voluntary responsibilities for the purpose of professional development. This exploration led to the understanding that there was a positive culture of CPD in the school and teachers were willing to engage in various forms of professional development *if* they had high expectations of success and they perceived a high value to the CPD (Osman and Warnet, 2020).

Developing a greater understanding of the literature, attitudes and perspectives around CPD provided a foundation on which to begin to create a CPD resource for Junior Cycle English teachers that would support their learning in integrating digital literacy skills into teaching, learning and assessment. However, in order to fully understand the nuances around the issue

further exploration was needed of the literature around digital literacy, digital natives and digital inequality. The following chapters present that exploration.

Act II

Rising Action

Rising Action propels the plot by introducing further circumstances or problems related to the main issue



Chapter 4

Digital Literacy

1. Introduction

As part of the *explore* and *understand* stages of the Educational Entrepreneurial Approach to Action Research (Crotty, 2014), this chapter examines the literature surrounding digital literacy and seeks to give a definition of the concept that underpins this study. In order to garner an understanding of what the relatively new concept of digital literacy is, we will firstly look at traditional literacy and its role as the foundation of digital literacy.

Subsequently, we will explore the construct of ‘new literacies’ with particular focus on media and information literacy, which are inextricably linked to digital literacy. The evolution of digital literacy will be charted before offering some of the more common definitions of digital literacy and identifying their similar characteristics. Finally, I will present Eshet-Alkalai’s (2004, 2012) six-skill, holistic digital literacy model as a theoretical framework on which this action research study is based.

2. Traditional Literacy

The term *literacy* is an ambiguous one, with no precise, universally accepted definition (Venezky, 1990; United Nations Educational, Scientific and Cultural Organisation (UNESCO), 2006, Cambridge Assessment, 2013). The word ‘literate’ is derived from the Latin term *litteratus*, which in the classical period referred to a learned person and by the Middle Ages came to denote a person who could read Latin. With the spread of vernacular languages the idea of being ‘literate’ evolved to mean familiar with literature or one who

could read and write in their native tongue (Venezky, 1990; UNESCO, 2006). The term continues to be defined in a variety of ways (UNESCO, 2006). This section will briefly discuss the evolution of the definitions of literacy and outline their development, from meaning a basic set of skills to multiple literacies, dependent on context and with socio-cultural connotations and influence.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) outlines four broad understandings of literacy in the 2006 Global Monitoring Report: Literacy for Life. The first understanding is *literacy as an autonomous set of skills*. This is a simplistic view that perceives literacy as the ‘process of acquiring basic cognitive skills’ (UNESCO, 2006, p147). Venezky (1990) names these skills as reading, writing, numeracy and document processing; although he concedes that these skills are not equal partners, with reading being the primary skill. This particular understanding of literacy does not consider the context in which the skills are acquired or the background of the person acquiring them.

Since the 1950’s UNESCO has carried out a number of influential studies in which ‘literacy was viewed as a continuum of skills, including reading and writing, but ‘applied in a social context’ (Venezky, 1990, p4). Indeed, the second understanding of literacy outlined in the 2006 Monitoring Global Report, *literacy as applied, practised and situated*, saw the development of the notion of functional literacy. UNESCO’s definition of functional literacy was coined in 1978 but is still widely in use today. It defines a functionally literate person as one ‘who can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading,

writing and calculation for his own community's development' (UNESCO, 2006, p154).

From the mid 20th century the notion of literacy was beginning to incorporate context and the relevant application of skills, whereas previously it had been 'neutral and independent of context' (UNESCO, 2006, p151).

The third understanding of literacy discussed in the report is *literacy as a learning process*, which builds on the idea of literacy within a social context. Here literacy is an active process with people becoming literate as they learn. Paulo Freire's work is central to this understanding of literacy as he highlighted the importance of centring a person's 'socio-cultural realities into the learning process itself and then using the learning process to challenge these social processes' (UNESCO, 2006, p152). Becoming literate can emancipate the learner from their repressive 'socio-cultural realities'. The OECD (2016) supports this view in its definition of literacy acquisition, stating that literacy is acquired not only in childhood but is a set of ever expanding skills built upon over a lifetime in various contexts and in conjunction with a person's community. Venezky (1990) argues that age must also be taken into account when measuring literacy, as different activities (for example, work, voting or home management) require appropriate but differing literacy levels. Again, context is central.

The final understanding of literacy detailed in the report is *literacy as text* in which literacy is viewed in terms of subject matter and the texts that are produced and read by those who are literate. This approach sees literacy as a part of wider 'communicative and socio-political practices that construct, legitimate and reproduce existing power structures' (UNESCO,

2006, p152). The report indicates that this understanding raises concerns about the relevance of literacy, as taught in schools, for both child and adult learners.

2.1. Definitions of Literacy from International and National Policy Making Perspective.

Internationally, the Organisation for Economic Co-operation and Development's (OECD), its Programme for International Student Assessment (PISA) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) are central to the international education policy community, with their influence being apparent in national and regional educational policy (Baird et al, 2011). The OECD (2000) offered a wider view of literacy in its report on the International Adult Literacy Survey (IALS) entitled Literacy in the Information Age. This report defined literacy as

A particular capacity and mode of behaviour... the ability to understand and employ printed information in daily activities, at home, in work and in the community- to achieve one's goals and develop one's knowledge and potential (OECD, 2000, px).

UNESCO (2004) broadened the scope of literacy, defining it as a developing continuum with, again, an onus on its place within a person's community and wider society.

Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society (UNESCO, 2004, p13).

PISA's (2016) definition focuses on reading and is defined as

Understanding, using, reflecting on and engaging with written texts in order to achieve one's goals, develop one's knowledge and potential and participate in society (OECD, 2016, p1).

These definitions of literacy from influential international agencies span 16 years, yet their interpretation of literacy contains common key elements; the ability to read and understand written material in a way that allows a person to participate in society.

Within the Irish context there are a number of key documents from early years to post-primary education that provide their own definitions of literacy. Aistear, the early childhood curriculum framework states that literacy is

More than having the ability to read and write. It is about helping children to communicate with others and to make sense of the world. It includes oral and written language and other sign systems such as mathematics, art, sound, pictures, Braille, sign language and music. Literacy also acknowledges the changing nature of information communication technology and the many forms of representation relevant to children including screen-based (electronic games, computers, the internet, television) (NCCA, 2009, p56).

The National Council of Curriculum and Assessment (NCCA) draws heavily on the work of PISA, the OECD and UNESCO in its 2012 report, 'Literacy in Early Childhood and Primary Education' (Kennedy et al, 2012). It does not offer its own definition of literacy but acknowledges that apart from simply reading and writing literacy is a learning continuum that involves and enhances participation in society. Kennedy et al (2012) highlight the

importance of the multi-modality of literacy, insisting that any definition of literacy must include multiple modes of representation, including play and drawing, as well as both linguistic and non-linguistic forms of representation.

Within both the primary and post-primary sector the key policy document with regard to literacy is the Department of Education and Skills' (DES) national strategy for literacy and numeracy 'Literacy and Numeracy for Learning and Life' (NCCA, 2011). The strategy defines literacy as

The capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media and digital media (DES, 2011, p8).

While this definition does not explicitly refer to the importance of context or the role literacy plays in a person's ability to participate in society, the strategy does go on to state that

'without the skills of literacy and numeracy, a young person or adult is cut off from ... participating in and contributing to many aspects of the society and culture in which they live. Young people and adults who do not have adequate literacy and mathematical skills cannot participate fully in schooling or in further and higher education, and they have fewer opportunities to take up satisfying jobs and careers'. (DES, 2011, p9).

The definitions outlined above from International agencies (OECD, PISA and UNESCO) and key Irish stakeholders (DES, NCCA) share many common characteristics. The focus on the basic skills of reading and writing are still central to any definition of literacy while incorporating elements such as a continuum of life-long learning, critical literacy, the socio-

cultural and political implications of literacy. The notion of new literacies or multiple literacies have also come to the fore and this will now be discussed in more detail.

2.2. Multiple Literacies/ Multiliteracies

In recent years, literacy has been discussed in terms of multiple *literacies* or *multiliteracies*. The term ‘multiliteracies’ was coined by the New London Group (1996) in their seminal paper ‘The Pedagogy of Multiliteracies: Designing Social Futures’. Their work was concerned with the ever growing importance of two types of literacies- the multilingual and the multimodal (The New London Group 1996; Cope and Kalantzis, 2009). They argued that dramatic changes were taking place in society; new business and management theories abounded, ‘fast capitalism’ replaced mass production, emergence of a ‘knowledge economy’, economic rationalism, privatisation, deregulation were transforming public institutions and new technology saw a growth in iconographic text and screen based modes of communication (The New London Group, 1996). Given these seismic changes a new literacy was needed to make meaning in our working lives, public lives and private lives (The New London Group 1996; Cope and Kalantzis, 2009). Multilingualism was used not only in the conventional sense but also referred to the variety of ‘social languages’ people were now required to speak in various contexts (professional, ethnic, subcultural, etc.) and so English was becoming multiple ‘Englishes’ (Cope and Kalantzis, 2009). The multi-modality of representation, although burgeoning in the mid 1990’s with the growing ubiquity of computers, the widespread use of television and a host of other technological advances, had yet to see the explosion of new communication practices that the 2000’s brought about. Cope and Kalantzis (two original members of The New London Group) updated the multimodality

aspect in their 2009 paper and stated that with ‘new communication practices, new literacies emerged...embodied in social practices- ways of working in new or transformed forms of employment, new ways of participating as a citizen in public spaces, and even new forms of identity and personality’ (Cope and Kalantzis, 2009, p167). The reasons stated for this new type of literacy was a simple one; to help students access jobs and opportunities in this ever changing economy, especially if students were disadvantaged in any way (The New London Group 1996; Kalantzis and Cope, 1997; Cope and Kalantzis, 2009). The new economies that emerged in the 1980’s required a literacy that wasn’t simply reading and writing. It required a familiarity with new ‘communication strategies, ever diverging according to the cultures and social languages of the technologies, functional groups, types of organisations and niche clienteles’ (Cope and Kalantzis, 2009, p175).

As with other definitions of literacy, the social aspect is central within the scope of multiliteracies (The The New London Group 1996; Kalantzis and Cope, 1997; Cope and Kalantzis, 2009), with the purpose of literacy teaching not simply to transfer a set of basic skills and competencies but to create a person who is central to designing their own meaning and is open to differences, change and innovation (Cope and Kalantzis, 2009). ‘As designers of meaning, we are designers of social futures, workplace futures, public futures and community futures’ (The New London Group, 1996, p65).

Multiliteracies focus on forms of representation outside language alone. The concept suggests that there are many ways in which to ‘read’ the world and these differ depending on culture and context (The New London Group, 1996). Traditionally, literacy focused on the

written language but in more recent times new forms of media are able to mix modes of meaning in ways that were simply not culturally or technically possible in the past. Cope and Kalantzis (2009) outline a range of possible modalities (Table 4.1).

Modality	
Written language	Writing- handwriting, the printed page, the screen
Oral language	Live or recorded speech
Visual representation	Still or moving image, sculpture, craft ; View, vista, scene, perspective
Audio representation	Music, ambient sounds, noises, alerts; hearing, listening
Tactile representation	Touch, smell, taste, body sensations and feelings, physical contact, skin sensations, grasp, manipulable objects, artefacts, cooking and eating, aromas [SEP]
Gestural representation	Understood broadly as a ‘physical act of signing’. Hand and arm movements, facial expressions, movement of the body, fashion, hairstyle, dance, ceremony, ritual, etc.
Representation to oneself	Feelings, emotions
Spatial Representation	Proximity, spacing, layout, interpersonal distance, territoriality, architecture/building, streetscape, cityscape, landscape

Table 4.1: Range of possible multimodalities (Cope and Kalantzis, 2009, p178)

Cope and Kalantzis (2009) argue that although something can be expressed in parallel through different modes, the meaning cannot be directly represented in different modes (for

example, a movie can be similar to a novel but will never be exactly the same). It is this juxtaposition between the parallel yet disparate modes of meaning that makes multimodality so integral to the idea of multiliteracies. In this technological age when communication is moving from writing on the page of a book or newspaper to the visual on a screen there is an overlap of modalities that must be addressed; written language is not going anywhere but it is becoming interwoven with other modes and becoming more like them in many respects (Cope and Kalantzis, 2009).

The concept of multiliteracies was adopted by international organisations such as UNESCO, PISA and the OECD and, in turn, by national bodies such as the NCCA and DES. In their view, multiliteracies might include technological, health, visual, information, media or financial literacy among others (The New London Group, 1996; Bishop, 2003; UNESCO, 2006; Martin, 2006; NCCA, 2009; DES, 2011; NCCA, 2012; Bhatt, 2015; NCCA, 2019). Some critics have suggested that this view of multiple literacies dilutes the traditional concept of literacy and leaves the core skill of reading undermined (UNESCO, 2006). However, the idea of multiple literacies persists and definitions of literacy have shifted from an autonomous set of skills to an ‘emphasis on literacy as functional, incorporating Freirean principles, and more recently, embracing the notion of multiple literacies, literacy as a continuum and literate environments and societies’ (UNESCO, 2006, p155).

3. ‘New’ Literacies

Osterman (2012) contends that digital literacy is a dimension of the broader concept of ‘New Literacies’. New literacies are a difficult construct to understand given that they mean

different things to different people. Some see new literacies as social practices congruent with new technologies, others see them as discourses made possible by new technologies. Another take sees new literacies as strategies necessary for reading, comprehension, learning and communicating in online environments. Others still understand new literacies in terms of multiliteracies or multi-modal contexts. When these views are taken in tandem with concepts such as ICT literacy or information literacy, 'new literacies' become even more difficult to comprehend (Leu et al, 2007). However, Leu et al (2007, p41) outline four generally agreed characteristics of new literacies.

- (i) New technologies require new strategies, skills and dispositions for their use.
- (ii) New literacies are vital for full civic, personal and economic participation in a global society.
- (iii) New literacies are 'deictic'. They change as technologies change.
- (iv) New literacies are 'multiple, multimodal and multifaceted. They benefit from analysis that brings multiple points of view to understand them'.

Much like the term *new literacies* there is no unequivocal definition of the term *digital literacy*. While digital literacy concerns itself with a person's ability to navigate technology rich environments (Littlejohn, Beetham and McGill, 2012; Jacobs, 2013) there has been some disagreement on whether the focus of digital literacy should be on the use of information communication technologies (ICTs) or how a person deals with the information so easily accessible via these technologies (Eshet-Alkalai, 2004; Bawden, 2008) . One of the reasons digital literacy may be so difficult to define is that it is often conflated with terms like multiliteracy (Jacobs, 2013) but it also subsumes other types of literacy (Martin and Grudziecki, 2006; Buckingham, 2006; Bawden, 2008; Koltay, 2011; Bhatt, de Roock and

Adams, 2015). This section will outline how digital literacy crosses over with multiliteracies, media literacy and information literacy, three ‘new’ literacies strongly linked to digital literacy, leading to an examination of the various definitions of digital literacy found within the literature.

3.1. Multiliteracy and Digital Literacy

The term *multiliteracies* has been used interchangeably with digital literacy (Jacobs, 2013). Indeed it is true that they share many characteristics and overlap in places. When thinking of ‘new literacies’ or multiliteracies it is natural to think of how technology influences literacy (Leu et al, 2007). As far back as 1996 the New London Group, in their seminal paper on multiliteracies, acknowledged that changing technologies, a rise in iconographic text and screen based communication all required a new pedagogical approach to literacy, what they termed multiliteracies (The New London Group, 1996). Both multiliteracy and digital literacy are concerned with how people ‘read’ or construe the world, both deal with issues of inequity and both are aware of the power of communities of practice and informal learning networks in learning to be multi or digitally literate (Jacobs, 2013). However, an important distinction between the two is that while digital literacy is concerned with how people navigate and learn in technology rich environments (Littlejohn, Beetham and McGill, 2012; Jacobs, 2013), multiple literacies consider how people engage with multimodal texts regardless of the technology involved (Jacobs, 2013).

3.2. Media Literacy

The concept of media literacy was borne from a critical evaluation of mass media (Martin and Grudziecki, 2006). Media and information literacy, although distinct, have considerable overlap as they both focus on critically ‘reading’ multimedia messages (Koltay, 2011); that is ‘informational and creative contents included in texts, sounds and images carried by different forms of communication, including television, cinema, video, radio, websites, video games and virtual communities’ (European Commission, 2007, p3). ‘Society is saturated by media... it influences people’s perceptions, beliefs and attitudes’ (Koltay, 2011, p211) therefore it is prudent for people to have an ability to ‘read’ these mass media messages with some level of criticality (McDougall et al, 2019; Aufderheide, 1992; BAI, 2016; Leaning, 2017), in fact, Aufderheide calls this the ‘fundamental objective of media literacy’ (Aufderheide, 1992, p1).

An oft-cited definition that succinctly encapsulates media literacy came from the 1992 National Leadership Conference on Media Literacy. It states that a media literate person has ‘the ability to access, analyse, evaluate and communicate messages in a variety of forms’. Definitions of media literacy tend to state a number of skills that a digitally literate person should have (Leaning, 2017); as with the European Commission’s definition which stated that media literacy is ‘the ability to access the media, to understand and to critically evaluate different aspects of the media and media contents and to create communications in a variety of contexts’ (European Commission, 2007, p3). Within the Irish context, the Broadcast Authority of Ireland (BAI) is explicit in its focus on skills, stating ‘media literacy is the key to empowering people with the skills and knowledge to understand how media works in this changing environment, to interrogate the accuracy of information, to counter unfair and

inaccurate representation, to challenge extremist views and ultimately, to make better and informed media choices' (BAI, 2016, p1). It promotes the idea that becoming media literate can help a person be creative and problem solve in tech-rich environments (BAI, 2016).

Buckingham describes 'four broad conceptual aspects that are generally regarded as essential components of media literacy' (Buckingham, 2015, p26). Table 4.2 summarises these concepts while cross-referencing them with other influential models of media literacy; the Aspen Institute's (Aufderheide, 1992) 5 basic precepts of media literacy and Livingstone's (2003, 2004) four-component model of media literacy and, for an Irish perspective, the BAI's (2016) three core competencies of media literacy. The discussion that follows considers the models in relation to each other in order to find common ground and present a concise summation of the key features of media literacy.

Buckingham’s 4 essential components of media literacy	BAI’s 3 core competencies of media literacy	The Aspen Institute’s 5 basic precepts of media literacy	Livingstone’s 4 component model of media literacy
<ul style="list-style-type: none"> ● Representation ● Language ● Production ● Audience 	<ul style="list-style-type: none"> ● Understand and critically evaluate media to make informed choices and best manage media use ● Access and use... media in a safe and secure manner ● Create and participate, via media, in a responsible and effective manner in the creative and cultural and democratic aspects of society 	<ul style="list-style-type: none"> ● Media are constructed and construct reality ● Media have commercial implications ● Media have ideological and political implications ● Form and content are related in each medium, each of which has unique aesthetic codes and conventions ● Receivers negotiate meaning in media 	<ul style="list-style-type: none"> ● Access ● Analysis ● Evaluation ● Content Creation

Table. 4.2- Media Literacy competencies and/or components according to Buckingham (2015), BAI (2016), The Aspen Institute (1992) and Livingstone (2003, 2004)

Representation: Media, including digital media, does not simply reflect the world it represents it Buckingham, 2015). Indeed, media constructs reality (Aufderheide, 1992) and offers a view of reality which portrays specific values and ideologies. Consumers of media should have an understanding that media has political, commercial and ideological implications (Aufderheide, 1992) and be able to assess the motivations of the creators of

media considering issues such as authority, reliability and bias as well as the voices represented or lack thereof (Buckingham, 2015; BAI, 2016).

Language: In order to be truly literate in any sense (traditional, media, information, digital) one must be able to use language and understand how it works (Livingstone, 2003; Buckingham, 2015). One must have an understanding of the ‘codes and conventions’ of different forms of media and how form and content are related in each medium (Aufderheide, 1992; Buckingham, 2015).

Production: To be literate, one must understand who is communicating with whom (Buckingham, 2015). Indeed, Aufderheide (1992) counsels that media have commercial, ideological and political implications and as such people need to be aware of the influences at play in the production of media and the influence this can have on one’s wallet, but also on one’s political and ideological outlook (Buckingham 2015). The BAI cites accessing media (digital and otherwise) in a safe and secure manner and participating ethically in cultural and democratic society, via media, as core competencies of being media literate.

Audience: ‘Receivers negotiate meaning in media’ (Aufderheide, 1992, p10). This point is vital when considering the role of audience in literacy. People, coming from different vantage points, will interpret media differently and one should have an understanding of how media are targeted at audiences (Buckingham, 2015; Livingstone, 2004). Buckingham (2015) refers specifically to websites, and encourages an awareness of how the user is urged to navigate them and how information is presented to them.

As much of today's media is delivered and consumed by digital means (SCONUL, 2009; Leaning, 2016) an overview of the main components and competencies of media literacy seemed prudent. Media literacy and information literacy are often defined in similar terms, indicating that they share some of these basic components and competencies (Martin and Grudziecki, 2006). However, they are distinct literacies (Leaning, 2016) with media literacy focused on the way messages are 'constructed and interpreted' in various media genres and information literacy focused on how information is accessed and subsequently evaluated (Martin and Grudziecki, 2006). Given that people access vast swathes of information today via digital means, information literacy and digital literacy also have considerable areas of overlap (Alder, 1999; Kay and Ahmadpour, 2015). We will now look at information literacy and its place within the sphere of digital literacy.

3.3. Information Literacy

The term information literacy was coined by Paul Zurkowski in the 1970's. Zurkowski, writing as the President of the Information Industry Association, clarified his definition of information, framing information as a subject matter to be studied in its own right (Badke, 2010).

'Information is not knowledge; it is concepts or ideas which enter a person's field of perception, are evaluated and assimilated reinforcing or changing the individual's concept of reality and/or ability to act. As beauty is in the eye of the beholder, so information is in the mind of the user.'

(Zurkowski, 1974, p1)

According to Martin and Grudzeicki (2006) information literacy came to prominence in the 1970's in a pre-digital context as a response to the growing trend of student-centred learning and the subsequent need for a new type of 'bibliographic instruction' in academic libraries.

It is interesting to note that information literacy is generally defined in terms of the skills or abilities an information literate person possesses (Welsh and Wright, 2010). Adler (1999), reporting from the Aspen Institute's Forum on Communications and Society, cited 4 components of information literacy:

- The ability to read
- The ability to publish one's views
- The ability to manipulate symbols
- The ability to think critically and independently

Library associations have played a key role in defining information literacy and these definitions draw on the ability to find, understand and evaluate information within a societal context. The Association of College and Research Libraries (ACRL) defined information literacy concisely as 'the ability to access, evaluate, and use information effectively' (ACRL, 2019). The International Federation of Library Associations (IFLA) in its famous Alexandria proclamation of 2005 went so far as to suggest that to be information literate was a basic human right. It stated that:

Information literacy... empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations.

(IFLA, 2015)

Drawing on this proclamation UNESCO (2017) asserted that being information literate allows people to find information on important topics such as health, environment, education and work. Information literacy is an empowering ability that facilitates people in interpreting and making informed judgements on information sources and critical decisions about their own lives, as well as enabling people to produce their own information. The IFLA focuses on the socio-cultural dimensions of information literacy, positing that it ‘provides the key to effective access, use and creation of content to support economic development, education, health, human services and all other aspects of contemporary societies’ (IFLA, 2015, Online). From an education point of view, information literacy is ‘common to all disciplines, all learning environments and all levels of learning’ (Welsh and Wright, 2010, p2).

The definitions presented all list skills and abilities associated with information literacy, most prominent among them the ability to find, evaluate and use relevant information for our own good and the good of the wider culture and society. In line with these definitions the UK’s Society of College, National and University Libraries (SCONUL) describes an information literate person as one who has ‘an awareness of how they gather, use, manage, synthesise and create information and data in an ethical manner and [has] the information skills to do so effectively’ (SCONUL, 2011, p3). However, they also devised a widely used information literacy model that defines in greater detail the skills, competencies, attitudes and behaviours that are at the core of information literacy development (SCONUL, 2011). In a model developed in 1999, but still influential today, SCONUL (1999, p6) identify the Seven Pillars of Information Literacy as:

1. The ability to recognise a need for information [1]

2. The ability to distinguish ways in which the information ‘gap’ may be addressed ^[L]_[SEP]
3. The ability to construct strategies for locating information ^[L]_[SEP]
4. The ability to locate and access information ^[L]_[SEP]
5. The ability to compare and evaluate information obtained from different sources ^[L]_[SEP]
6. The ability to organise, apply and communicate information to others in ways appropriate to the situation ^[L]_[SEP]
7. The ability to synthesise and build upon existing information, contributing to the creation of new knowledge ^[L]_[SEP]

Identify	Scope	Plan	Gather	Evaluate	Manage	Present
Understands:	Understands:	Understands:	Understands:	Understands:	Understands:	Understands:
<ul style="list-style-type: none"> •How information & data is constantly being produced & that there is always more to be found •Being information literate involves developing a learning habit so new information is being actively sought all the time •Ideas and opportunities are created by investigating / seeking information •Scale of the world of published and unpublished information and data 	<ul style="list-style-type: none"> •What types of information are available •The characteristics of the different types of information source available to them & how they may be affected by format •The publication process in terms of why individuals publish & the currency of information •Issues of accessibility •What services are available to help & how to access them 	<ul style="list-style-type: none"> •Range of searching techniques available •Differences between search tools •Why complex search strategies can make a difference to the breadth & depth of information found •Need to develop approaches to searching such that new tools are sought for each new question •Need to revise keywords & adapt strategies •Value of controlled vocabularies & taxonomies in searching 	<ul style="list-style-type: none"> •How information & data is organised •How libraries provide access to resources •How digital technologies are providing collaborative tools to create & share information •Issue involved in collecting new data •Different elements of a citation •Use of abstracts •Need to keep up to date •Difference between free & paid for resources •What is involved in operating in a virtual world •Importance of appraising & evaluating search results 	<ul style="list-style-type: none"> •Information & data landscape or their learning / research context •Issues of quality, accuracy, relevance, bias, reputation & credibility relating to information & data sources •How information is evaluated & published, to help inform personal evaluation process •Importance of consistency in data collection •Importance of citation in their learning / research context 	<ul style="list-style-type: none"> •Responsibility to be honest in all aspects of information handling & dissemination •Need to adopt appropriate data handling methods •Role play in helping others in information seeking & management •Need to keep systematic records •Importance of storing & sharing information/data ethically •Relevance of Freedom of Information to research activities •Need to curate and archive research data ethically •Importance of metadata •Role of professionals in advising with all aspects of info management 	<ul style="list-style-type: none"> •Difference between summarising & synthesising •Different formats of writing / presentation styles •Data can be presented in different ways •Personal responsibility to store & share information & data •Personal responsibility to disseminate information & knowledge •How their work will be evaluated •Processes of publication •Concept of attribution •Individual can take an active part in creation of information through traditional publishing & digital technologies
Is able to:	Is able to:	Is able to:	Is able to:	Is able to:	Is able to:	Is able to:
<ul style="list-style-type: none"> •Identify a lack of knowledge in a subject area •Identify a search topic / question and define it using simple terminology •Articulate current knowledge on a topic •Recognise a need for information and data to achieve a specific and define limits to the information need •Use background information to underpin research •Take personal responsibility for an information search •Manage time effectively to complete a search 	<ul style="list-style-type: none"> •“Know what you don’t know” to identify any information gaps •Identify which types of information will best meet the need •Identify the available search tools, such as general and subject specific resources at different levels •Identify different formats in which information may be provided •Demonstrate the ability to use new tools as they become available 	<ul style="list-style-type: none"> •Scope their search question clearly and in appropriate language •Define a search strategy by using appropriate keywords and concepts, defining and setting limits •Select the most appropriate search tools •Identify controlled vocabularies and taxonomies to aid in searching if appropriate •Identify appropriate search techniques to use as necessary •Identify specialist search tools appropriate to each individual information need 	<ul style="list-style-type: none"> •Use a range of retrieval tools & resources effectively •Construct complex searches appropriate to different digital & print resources •Access full text information •Use appropriate search techniques to collect new data •Keep up to date with new information •Engage with their community to share information •Identify when the information need has not been met •Use online & print help & can find personal & expert help 	<ul style="list-style-type: none"> •Distinguish between different information resources •Choose suitable material on their search topic •Assess the quality, accuracy, relevance, bias, reputation & credibility of the resources found •Assess the credibility of the data gathered •Read critically, identifying key concepts & arguments •Relate the information found to the original search strategy •Critically appraise & evaluate own findings •Know when to stop 	<ul style="list-style-type: none"> •Use bibliographic software if appropriate to manage information •Cite printed & electronic resources using suitable referencing styles •Create appropriately formatted bibliographies •Demonstrate awareness of issues relating to the rights of others including ethics, data protection, copyright, plagiarism & other intellectual property issues •Meet standards of conduct for academic integrity •Use appropriate data management software & techniques to manage data 	<ul style="list-style-type: none"> •Use the information & data found to address original question •Summarise documents and reports verbally & in writing •Incorporate new information into context of existing knowledge •Analyse & present data appropriately •Synthesise & appraise new & complex information from different sources •Communicate effectively using appropriate writing styles in a variety of formats •Communicate effectively verbally •Select appropriate publications & dissemination outlets in which to publish •Develop a personal profile in the community using appropriate personal networks &

Fig 4.1: Seven Pillars of Information Literacy (SCONUL, 2011, p12)

[Click here for larger image](#)

Here the skills required to be digitally literate are emphatic. One must be able to *recognise* the need for information, *identify* how to fulfil that need, *plan* how to locate the information, *gather* the information, *evaluate* the gathered information, *manage* the information by

organising, applying and communicating it appropriately (Martin and Grudziecki, 2006) and finally, can *present* the information in different ways, synthesising it and creating new knowledge. It should be noted that the Seven Pillar Model was designed to be applied in a higher education context and the seventh pillar of information synthesis and creation is applicable within this specific context (SCONUL, 1999). However, later studies focused on education and applied this notion of using information to create knowledge in a broader sense, considering various age ranges from school students to lifelong learners (Bishop, 2003; Kay and Ahmadpour, 2013). Kay and Ahmadpour (2013) contend that constructivism, social constructivism and Bloom's taxonomy (and the revised Bloom's taxonomy) all have had considerable influence on the development of information literacy, particularly the emphasis these learning theories have on a learner's own construction/creation of knowledge.

Leaning (2016) points out that information literacy is often linked to digital literacy.

Whereas, in the pre-digital era of information literacy was the remit of university libraries and the academics within them, the proliferation of information and communication technologies (ICTs) into wider society now means that a much wider population needs to be information literate (Leaning, 2016). As technology changes and becomes more pervasive in society the standards of information literacy change (Welsh and Wright, 2010). Indeed, the National Council of Teachers of English (NCTE) state that 'Because technology has increased the intensity and complexity of literate environments, the 21st century demands that a literate person possess a wide range of abilities and competencies' (NCTE, 2017, <http://www.ncte.org/digital-literacy>). It lists the afore-mentioned skills of managing, evaluating, sharing, synthesising and creating information as vital information literacy skill

but also cites additional, technology related capabilities such as being proficient with ICTs, working with multimedia texts and being ethical and responsible in these relatively new and complex environments. The line here between information and digital literacy is blurred, an indistinction not lost on some of the attendees of the 1999 Aspen Institute's Forum on Communications and Society who believed that technology was evolving so quickly, and causing such seismic changes to the notion of information literacy that it was pointless to try and define it (Adler, 1999). However, since the 21st century people *have* tried to define information literacy as it is obvious to even a casual observer that in our current society, with the ubiquity of technology, that to be truly information literate one must have the ICT skills to access, evaluate and even create information (UNESCO, 2017). It is clear that information and digital literacy are inextricably linked but whether information literacy subsumes digital literacy (SCONUL, 2011) or vice versa (UNESCO, 2018; Bawden, 2008; Martin and Madigan, 2006; Eshet-Alkalai, 2004; Eshet-Alkalai and Amichai-Hamburger, 2004) is yet to be decided definitively.

4. Digital Literacy

Digital literacy will now be explored in some detail. Firstly, I will discuss the evolution of digital literacy. This will be followed by a discussion about how digital literacy has been defined and the commonalities between definitions. Two digital literacy frameworks will then be presented with particular emphasis on Eshet-Alkalai's (2004, 2012) six-skill holistic digital literacy framework.

4.1. The Evolution of Digital Literacy

Belshaw (2011) gives an overview of the history of the term *digital literacy*, detailing some of what Martin and Grudziecki (2006) termed ‘literacies of the digital’. The notion of a literacy that was tied to technology emerged in the 1970s and 1980s as *technology literacy*, an academic approach which was focused on the skills of using technology and was defined by political and economic concerns (Belshaw, 2011). Technology literacy focused on the ‘potential danger of technological developments for the environment and humanity and the fear that developing technologies would render the workforce ... vulnerable to competition from countries with more technological awareness’ (Martin and Grudziecki, 2006, p251).

The growing prevalence of the personal computer in the 1980s necessitated a different type of *computer literacy*. Computer literacy was concerned with how to use the computer, how to program it and with the social and economic effects of computers (Martin and Grudziecki, 2006). Although difficult to define, computer literacy’s key concerns were an ability to effectively use technology to live and flourish in the modern world. In time, computer literacy came to be equated with the ability to program a computer and later the ability to use computer applications (Belshaw, 2011).

Given that the scope of computer literacy was narrow and skills-based a newer iteration of the concept came about in the form of *Information Communications Technology (ICT) literacy*. One approach to ICT literacy saw it as less a set of technological skills and more a set of conceptual problem solving and critical thinking skills associated with handling information via technology (Belshaw, 2011; Katz and Macklin, 2007). These conceptual

skills included ‘using digital, technology, communication tools and/or networks to access, manage, integrate, evaluate and create information in order to function in a knowledge society’ (International ICT Literacy Panel, 2002, p2). The parallels with information literacy (SCONUL, 2011), Bloom’s taxonomy (Bloom, 1956) and the revised Bloom’s taxonomy (Anderson, Krathwohl and Bloom, 2001) are clear, with the skills presented in sequence where each step requires increased cognitive ability (International Literacy Panel, 2002). However, as Belshaw (2011) points out ICT literacy meant different things to different people and some, including the European Commission, interpreted ICT literacy as the ability to operate technology without any of the higher order skills outlined by the International ICT Literacy Panel (2002). The elusive nature of the definition of ICT literacy led to a move away from the discussion towards the newer concept of digital literacy.

4.2. Defining Digital Literacy

The oft-quoted Glister (1994) is credited for coining the term *digital literacy* or at least bringing it into the public consciousness (Martin and Grudziecki, 2006; Bawden, 2008; Belshaw, 2011; Lankshear and Knobel, 2015). Glister defined digital literacy as

The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. The concept of literacy goes beyond simply being able to read; it has always meant the ability to read with meaning, and to understand. It is the fundamental act of cognition. Digital literacy likewise extends the boundaries of definition. It is cognition of what you see on the computer screen when you use the networked medium.... Not only must you acquire the skill of finding things, you must also acquire the ability to use these things in your life.

(Glister, 1997, p1-2)

Unlike the earlier concepts of computer literacy or technology literacy, Glister's (1997) digital literacy is not applicable to any particular technology or indeed even technology at all

(Bawden, 2008). Digital literacy in this regard is about ‘ideas and mindsets, within which particular skills and competencies operate and about information and information resources’ (Bawden, 2008, p19). Critical thinking rather than technical competence is the core skill of Glister’s digital literacy, with a focus on how to evaluate what is found on the Internet as opposed to the skills used to find it (Martin and Madigan, 2006; Martin and Grudziecki, 2006). As he succinctly states, ‘digital literacy is about mastering ideas, not keystrokes’ (Glister, 1997, p1). Although Glister’s definition is now over 20 years old and his writing has been criticised for being too wide-ranging with numerous definitions of digital literacy (Belshaw, 2011), the central concept of ‘ideas over keystrokes’ is one that has gained traction and is significant in many of the subsequent prevailing definitions of digital literacy.

Particularly relevant to this study is Eshet-Alkalai’s assertion that digital literacy ‘involves more than the mere ability to use software or operate digital device; it includes a large variety of complex, cognitive, motor, sociological and emotional skills, which users need to function effectively in digital environments (Eshet-Alkalai, 2004a, p93).

The OECD (2019) states that digital literacy is made up of the same basic abilities as traditional literacy, that is the ability to read, interpret, make meaning, communicate and critically evaluate and filter information when applied in digital contexts and using digital tools. As with Glister’s definition, the technology appears secondary to the skills involved in using it and the information found via the tools themselves (UNESCO, 2011b, Eshet-Alkalai, 2004a, 2004b). While distinct from, but closely linked to information literacy, a number of definitions do focus on the digitally literate person’s ability to handle information gleaned using technology. UNESCO defines digital literacy as ‘the ability to access, manage,

understand, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies' (UNESCO, 2018, p6). In the US, the Educational Testing Service (ETS) concisely identifies digital literacy as 'obtaining, understanding, evaluating, and using information in a variety of digital contexts' (Sparks, Katz and Beile, 2016, p3), indeed Lankshear and Knobel (2015) cite an earlier ETS definition of digital literacy which again had a primary focus on the acquisition and use of information rather than the technologies themselves; technology was merely the 'tool' through which the digitally literate could research, organise, evaluate and communicate information.

The notion of digital literacy as a basic *life skill* is prevalent in the literature. Martin and Grudziecki (2006), as part of the DigEuLit project, developed a definition of digital literacy that takes the idea of skills over technological competency and places it in specific life contexts. They assert that digital literacy is the

...Awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process.

(Martin and Grudziecki, 2006, p255)

Here digital literacy is afforded the same gravitas as traditional literacy in that it is considered a basic life skill, necessary for functioning in today's information and digital society (PDST, 2017; Webwise, 2017; Lankshear and Knobel, 2015; UNESCO, 2011b; Futurelab, 2010; Bawden, 2008; Martin and Grudziecki, 2006; Eshet-Alkalai, 2004a, 2004b). Bawden (2008) interprets Glister's (1997) view of digital literacy as simply 'literacy of the digital age' and the current form of traditional literacy that is an essential life skill. In this respect, digital literacy has much in common with concept of functional literacy, which

enables a person to effectively function in, and contribute to, their communities and the wider society (UNESCO, 2006). Definitions of digital literacy with an emphasis on these life skills and their place in society highlight the applicability of these skills in industry, business and creative processes (New Zealand Ministry of Education, 2003) as well as the moral, ethical and social implications of the extensive use of ICTs in one's day-to-day life (PDST, 2019; Webwise, 2019; Ng, 2012; Eshet-Alkalai, 2004a, 2004b, 2012).

Along with the notions of digital literacy as 'mastering ideas over keystrokes' (Glister, 1997), digital literacy as a basic life skill and digital literacy as a conduit to participating fully in society, common interpretations of digital literacy also stress the importance of the ability to create or synthesise information. Eshet-Alkalai (2012) highlights the importance of using the web to construct, create and share knowledge. This idea is reflected across the literature with a number of researchers listing the skills associated with digital literacy in a way that is reflective of Bloom's Taxonomy (Bloom, 1956) and the Revised Bloom's Taxonomy (Anderson, Krathwohl, & Bloom, 2001) citing, in ascending order, capabilities such as searching, assessing, analysing, evaluating, synthesising and creating knowledge, information or content as key to being digitally literate (Neumann, Finger and Neumann, 2017; NCCA, 2017; PDST, 2017; World Economic Forum, 2016; Bulger, Mayer and Metzger, 2014; Ng, 2012; Martin and Grudziecki, 2006; Eshet, 2004a, 2004b, 2012). Indeed, within the DigEuLit project *digital transformation*, that is the ability to 'enable innovation and creativity, and stimulate significant change within the professional or knowledge domain' as the definitive indicator of being digitally literate (Martin and Grudziecki, 2006, p259).

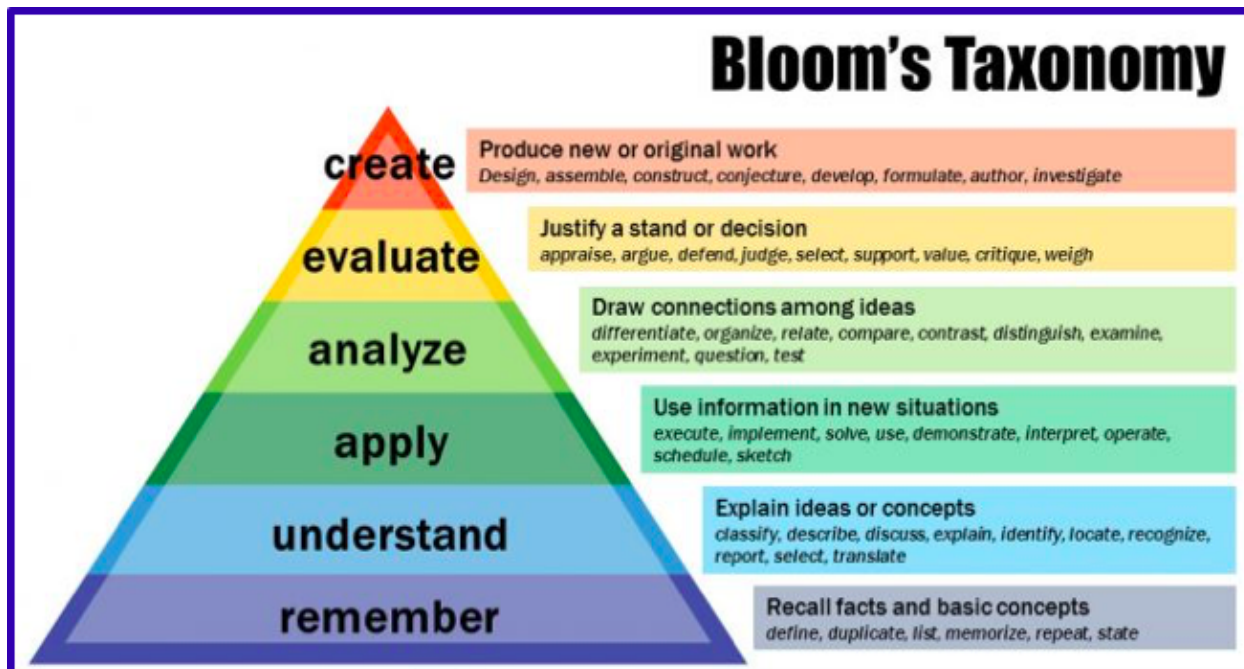
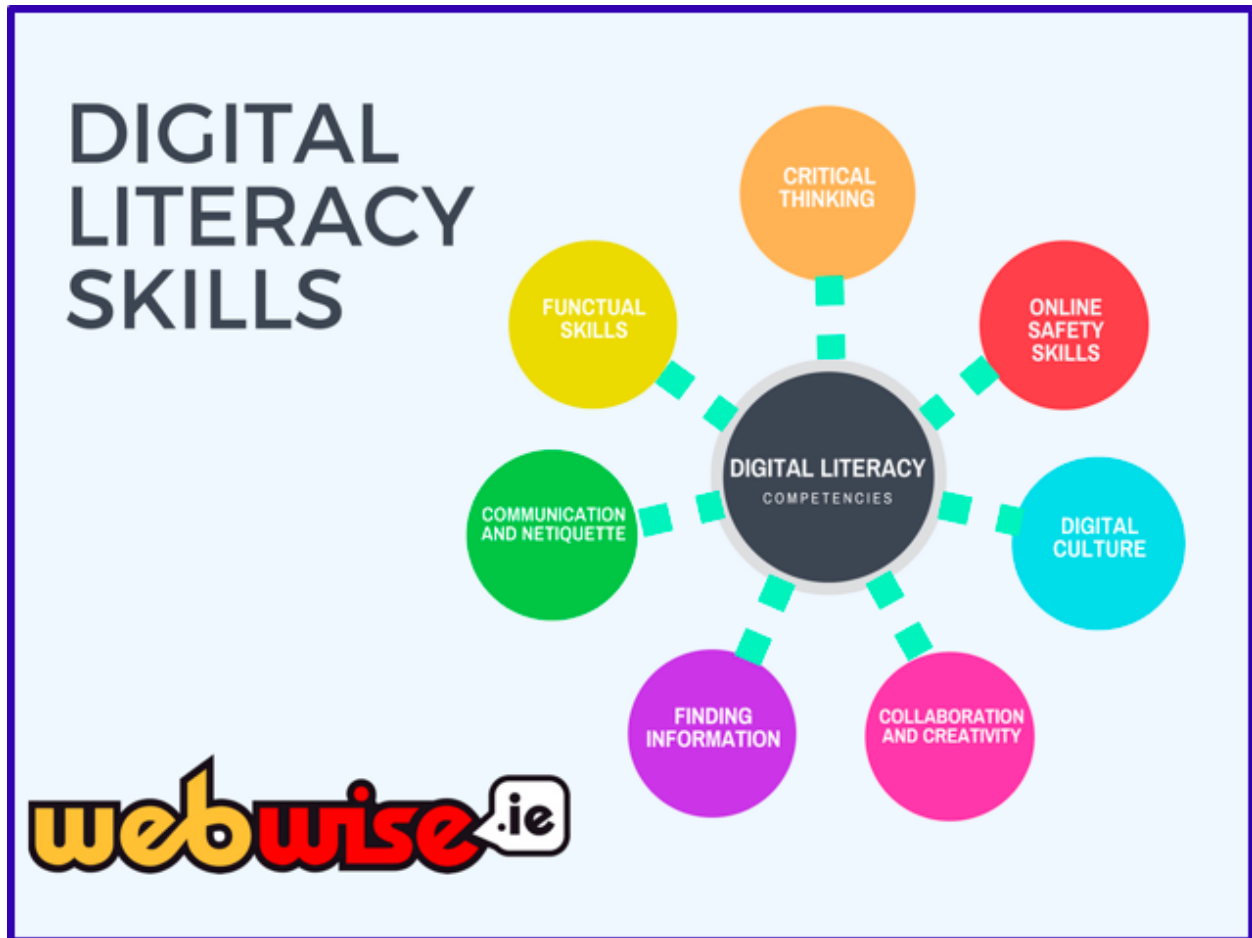


Fig. 4.2. Revised Bloom's Taxonomy (Anderson, Krathwohl, & Bloom, 2001)
[\(https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/\)](https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/)

Within the Irish education domain, creativity is integral to the interpretations of digital literacy put forward by the NCCA and the Professional Development Service for Teachers (PDST). The NCCA, as well as considering lower order skills such as finding and understanding information, also states the importance of analysing and evaluating information and the ability to ‘create, collaborate and communicate effectively and ethically’ (NCCA, 2016, p6). Similarly, the PDST (2017) and its affiliate website, webwise.ie, cite *Collaboration and Creativity* as one of its Seven Key Components of Digital Literacy along with *critical thinking, online safety skills, digital culture, finding information, communication and netiquette and functional skills* (Fig. 4.4).



*Fig. 4.3. 7 Key components of Digital Literacy (Webwise, 2017)
(https://www.webwise.ie/teachers/digital_literacy/)*

Bawden (2008, p29) outlines ‘four generally agreed components of digital literacy’ which provide a useful overview of the commonalities of the various interpretations of digital literacy in the literature.

i. Underpinnings

- Literacy
- ICT literacy

As discussed above, the traditional concept of literacy, as well as the somewhat out-dated ICT literacy, are foundational to digital literacy.

ii. Background knowledge

- The world of information
- The nature of information resources

Bawden suggests that in the pre-digital world when information was shared via printed matter, most educated people had a good grasp on where their information was coming from, i.e. from author, to editor, to publisher, to bookseller/ library and so on. He argues that in this digital age there is no such clear cut model of information distribution but that having some sort of an understanding of these new forms of information is essential to being digitally literate.

iii. Central competencies

- Reading and understanding digital and non-digital formats
- Evaluation of information
- Knowledge assembly
- Information literacy
- Media literacy

This broad set of skills is essential to any claim to digital literacy. The inclusion of non-digital material comes from Bawden's assertion that knowing when to use non-digital sources of information is a vital element of digital literacy. However, he does contend that 'all information today is either digital, has been digital or could be digital' (Bawden, 2008, p19)

iv. Attitudes and perspectives

- Independent learning
- Moral/ social literacy

Like others, Bawden argues that the basic skills and competencies of digital literacy must be placed within a moral framework. This is the most difficult aspect of digital literacy to teach but vital as a transformative, structuring force.

4.3. Digital Literacy Frameworks

It is generally agreed within the literature that there is no definitive agreement as to what exactly digital literacy is. As discussed, there are features common to many of the definitions but still some ambiguity remains. In terms of this study a theoretical digital literacy framework was needed to ground the research. In the following section, I outline two digital literacy frameworks; Ng's (2012) digital literacy model and Eshet-Alkalai's (2004, 2012) digital literacy frameworks. Ng's model is an adaption of Eshet-Alkalai's and provides a useful and concise structure to aid understanding of digital literacy in an educational setting. Eshet-Alkalai's framework was ultimately chosen to underpin this study given its widespread acceptance, clear configuration of six key skills and its holistic approach.

4.3.1. Ng's (2012) Digital Literacy Model

Ng (2012) proposes a simple framework for digital literacy which consists of three broad intersecting aspects of digital literacy and the more specific concepts within them. The framework draws on The New London Group's (1996) work on multiliteracies (see section 2.2) and Eshet-Alkalai's conceptual digital literacy framework (discussed in more detail in section 4.3.2). Ng's framework addresses 3 dimensions of digital literacy (i) Cognitive, (ii) Technical and (iii) Social-Emotional.

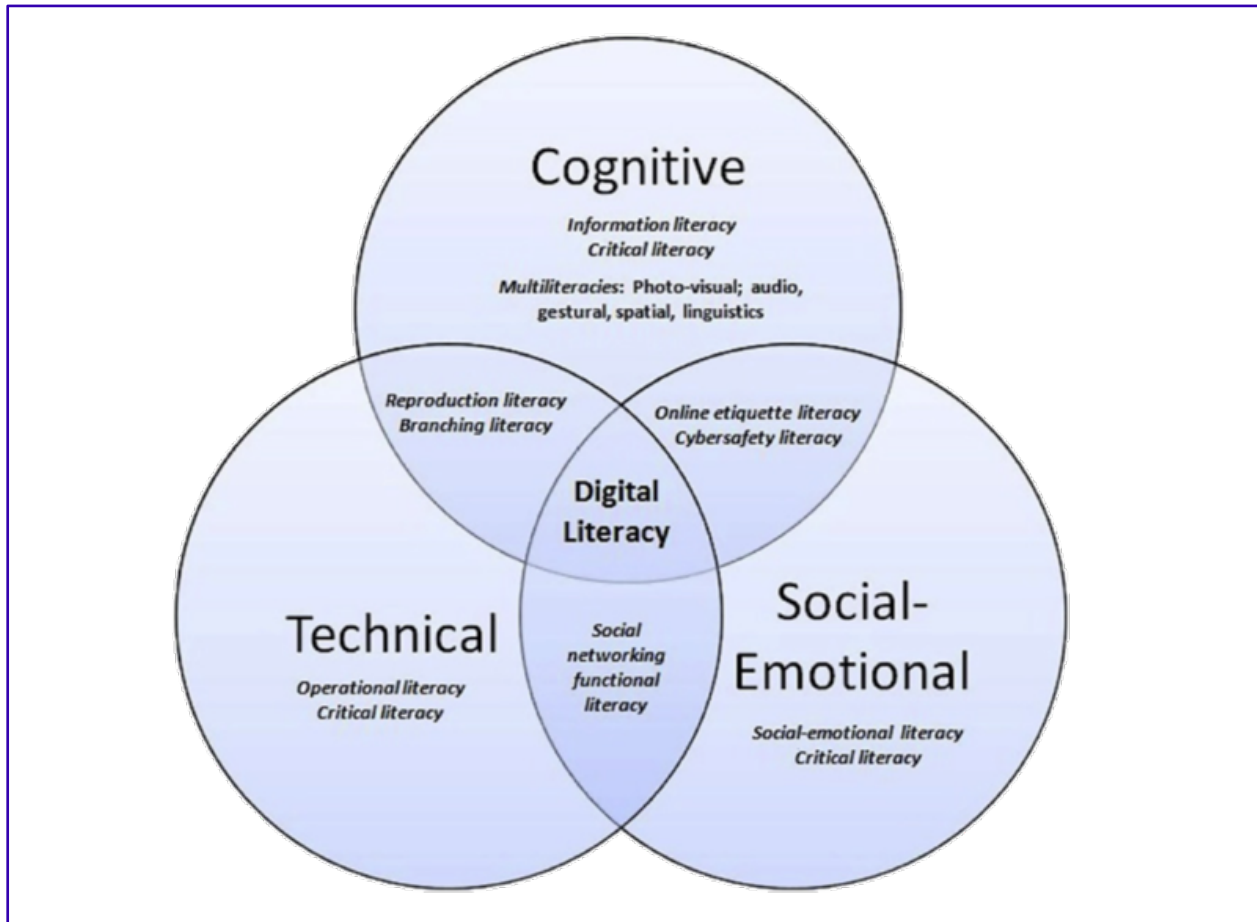


Fig. 4.4. *Digital Literacy Model (Ng, 2012, p1067)*

i. Technical dimension

The technical dimension refers to a digitally literate person’s ability to adequately use and operate ICTs for both learning and day-to-day use. This refers to simple tasks such as managing files to more advanced operations such as finding and installing applications, data transfer, sending and receiving email attachments and knowing about and understanding the interactive elements of software (e.g. dragging, dropping, collapsing) as well as iconographic text and its relationship to content.

ii. Cognitive dimension

The cognitive dimension of Ng's digital literacy model is closely linked to a person's ability to think critically when searching, evaluating and creating in the 'cycle of handling digital information' (Ng, 2012, p1068). A person's ability to find, analyse and select appropriate software is also an element of the cognitive dimension. Also essential is an understanding of multiliteracies (The New London Group, 1996); a digitally literate person should be able to work with text-based information as well as audio, images, video, podcasts, maps, etc.

Ng points out that the overlap between the cognitive and technical dimensions is what Eshet-Alkalai (2004, 2012) refers to as reproduction and branching literacies. That is, the ability to navigate non-linear sources of information and synthesise and create new information and content.

iii. Social-emotional dimension

The social-emotional dimension and its associated intersection with the cognitive dimension refers to the ability to behave appropriately online and when learning, socialising and communicating. Although a relatively new phenomenon a person should be able to interact with others in a respectful manner, be able to keep themselves safe and protect their privacy and know how to deal with unwelcome or threatening behaviour online.

As indicated in fig 4.5, *critical literacy* is central to all three dimensions of digital literacy within the framework. Being aware of, and able to evaluate, the motivations of online content

creators and/ or the commercial or political forces at play is a significant element of digital literacy (Buckingham, 2015).

4.3.2. Eshet-Alkalai's (2004a, 2012) Digital Literacy Framework

The underlying digital literacy framework that has been chosen to support this study is Eshet-Alkalai's (2004) digital literacy framework. An ultimate definition or framework of digital literacy is somewhat unattainable; different people, life-stages and scenarios require different digital literacy components (Bawden, 2008), it is up to the practitioner-researcher to decide which is most appropriate for the given circumstances (Jacobs, 2013). In this instance, Eshet-Alkalai's framework has been deemed most appropriate as it is 'largely derived from, and applicable to, the context of formal education' (Bawden, 2008, p27).

Eshet-Alkalai's (2004a) digital literacy framework is a 'five-skill conceptual model for digital literacy' which he argues 'covers most of the cognitive skills users and scholars employ in digital environments' (Eshet-Alkalai, 2008, p3219) and furnishes designers of digital environments with tangible and specific guidelines (Eshet-Alkalai, 2004). The terminology used to refer to these skills changed somewhat over the years. In Eshet-Alkalai's 2004 papers the skills were referred to as *literacies*, by 2008 he referred to them as *digital literacy thinking skills* in the 2012 revised model they were simply termed *skills*. This is indicative of the evolving nature of our understanding of the different components of digital literacy and here we will simply refer to them as 'skills'. The framework is supported by task-based empirical studies carried out with high school students, university students and

adult university graduates (aged 30-40) (Eshet-Alkalai and Hamburger, 2004; Eshet-Alkalai and Chajut, 2009, 2010).

The skills included in the framework are (i) photo-visual skills (ii) reproduction skills (iii) information skills (iv) branching skills and (v) socio-emotional skills. A sixth skill (vi) real-time thinking was subsequently added to the framework (Eshet-Alkalai, 2008) following a discussion at the 2005 EDMEDIA conference in Montreal (Aviram and Eshet-Alkalai, 2006) which concluded that to be truly holistic, the framework required a thinking skill relating to students' ability to perform in advanced digital environments.

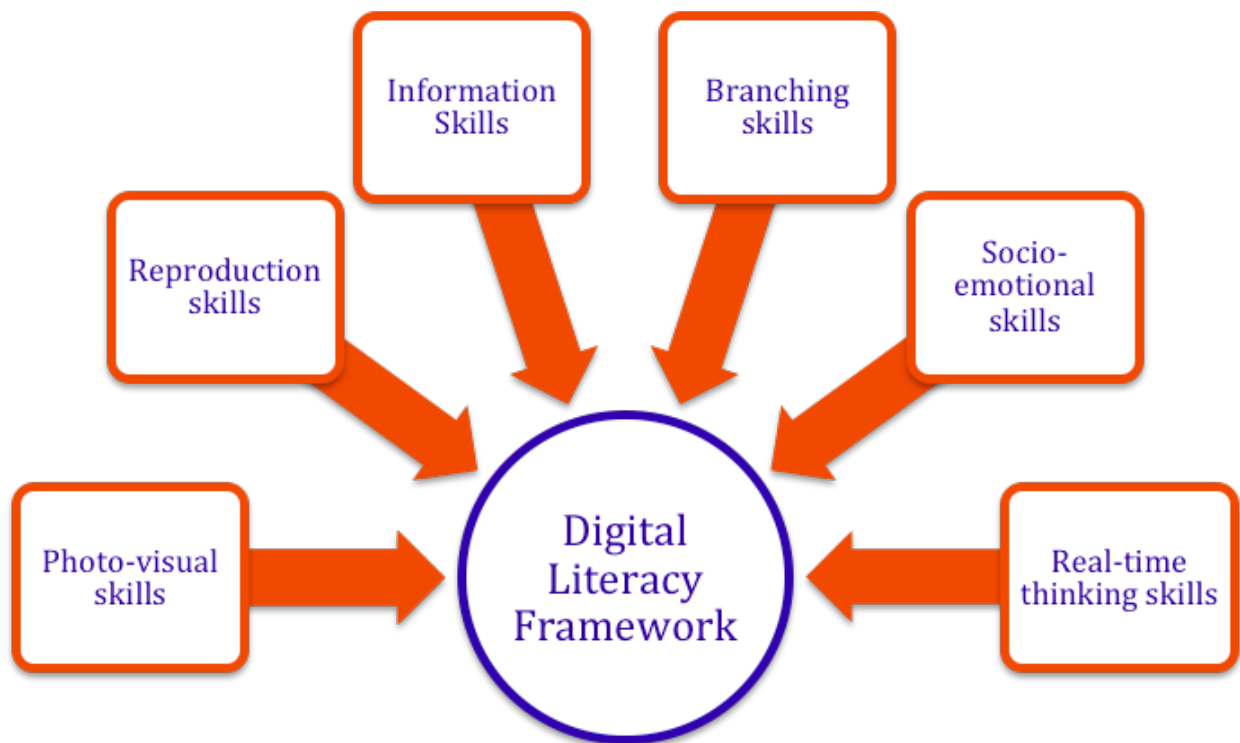


Fig. 4.5. Eshet-Alkalai's holistic conceptual model for digital literacy (Eshet-Alkalai, 2004, 2012)

i. Photo-visual skills

Traditional forms of writing use arbitrary symbols to represent letters, which requires a high level of cognitive engagement to decipher. Within digital environments the prominent use of graphic user interfaces has initiated a move back towards almost ancient forms of pictorial alphabets, which require less cognitively to interpret and understand (Eshet-Alkalai, 2004). The modern graphic user interface ‘employs natural visual communication with the user’ that enables the user to ‘read intuitively and freely and to understand the instructions and messages represented visually’ (Eshet- Alkalai, 2004, p95). Being able to ‘read’ this particularly visual form of communication is what Eshet-Alkalai (2004, 2012) calls the photo-visual skill. People with good photo visual skills often have good visual memories, ‘strong intuitive-associative thinking’ (Eshet-Alkalai, 2004, p95) and an ability to easily interpret and understand messages communicated visually (Eshet-Alkalai, 2004, 2012). In a 2004 study it was found that young people had superior photo-visual skills than their older counterparts (Eshet-Alkalai and Hamburger, 2004). However, in similar studies carried out in 2007 it appeared that the skills gap between the demographics was narrowing (Eshet-Alkalai and Chajut, 2009, 2010), giving credence to the hypothesis that exposure has a greater influence on digital literacy than age (Tapscott, 1998; Oblinger & Oblinger, 2005; Akçayir, Dündar & Akçayir, 2015).

ii. Reproduction skills

The digital age has brought with it much greater access to audio, visual and text content. This ease of access presents scholars and artists in particular with an unprecedented opportunity to be inspired by and use this content to synthesise and create new knowledge, art and written

works (Eshet-Alkalai, 2008). The ability to create new and innovative work from existing content is what Eshet-Alkalai calls *reproduction skills*. He defines this skill as ‘the ability to create new meanings or new interpretations by combining pre-existing, independent shreds of information in any form of media (text, graphic or sound)’ (Eshet- Alkalai, 2012, p269). This raises a number of ethical and philosophical questions about the line between creativity, innovation and plagiarism, including the question of how much change is necessary for a piece of work to be considered original? (Eshet-Alkalai, 2004, 2012). People with high levels of reproduction skills are believed to have an excellent multi-dimensional and synthetic thinking which allows them to create new meaningful, original interpretations from existing material (Eshet-Alkalai, 2004, 2012). Research conducted in 2004 found that older participants had greater reproduction skills than younger research participants (Eshet-Alkalai and Hamburger, 2004). Further studies carried out in 2008 revealed that this skills gap had increased (Eshet-Alkalai and Chajut, 2009, 2010).

iii. Information skills

Eshet-Alkalai (2004) originally referred to this skill as *information literacy*, the change in terminology to *information digital thinking skills* and subsequently to simply *information skills* indicates a desire on his behalf to differentiate somewhat from information literacy as described in more detail in section 3.2.2, although they share many characteristics. Eshet-Alkalai (2004) calls these information skills ‘the art of scepticism’. Although disinformation or ‘fake news’ is not a new phenomenon, the scale and speed with which it can spread *is* new (McDougall et al, 2019). In a world with practically unlimited access to information that can be easily edited, changed or manipulated with an intention to mislead or deceive

(Buckingham, 2019) it is vital for the consumers of on and offline content to be able to evaluate the accuracy and credibility of information. To function effectively in digital environments people need to be able to identify 'subjective, biased or false information' (Eshet-Alkalai, 2008, p3219). The need for information skills existed long before the dawn of the digital age, however, the digital age has expedited the need for these particular skills. They 'help identify false, irrelevant or biased information and avoid its penetration into the learner's cognition' (Eshet-Alkalai, 2012, p271). A person with information skills is a critical thinker, they are sceptical and do not take information at face value without considering its authenticity (Eshet-Alkalai, 2004, 2012). Indeed, McDougall et al (2019) state that the ability to read digital media with a 'sceptical resilience' is the most important element of digital literacy. In the research study carried out in 2004 it was found that adults had much higher levels of information skills than the younger participants (Eshet-Alkalai and Hamburger, 2004). By 2008 studies indicated that the gap between the generations had widened with the younger participants' information skills deteriorating considerably (Eshet-Alkalai and Chajut, 2009, 2010).

iv. Branching skills

In the past information has been accessed in a mainly linear fashion; data searches in universities, libraries and early computer systems organised their information in a predominantly linear way (Eshet-Alaklai, 2004). The modern hyper-media environment on the other hand entails the user searching for information in an entirely non-linear way, users have freedom to navigate the web in any given 'direction'. This new approach necessitates the development of what Eshet-Alkalai (2004) calls *branching skills* or *hypermedia skills*.

That is the ability to ‘navigate in a branching, non-linear way through knowledge domains... and to construct knowledge from independent shreds of information that are accessed in a non-orderly and non-linear way’ (Eshet-Alkalai, 2008). This endeavour has been made more difficult in recent years with the prolific embedding of hyperlinks in many webpages and digital books, for example, Wikipedia (Eshet-Alkalai, 2012). People with good branching skills often display high levels of spatial-multidimensional awareness and an ability to remain oriented in hyperspace. Eshet-Alkalai and Hamburger’s (2004) study found that young people had much higher branching skills than the older participants but in the intervening years between that and the later studies with Chajut the gap had closed as to be almost negligible, with the branching skills of the older group improving considerably (Eshet- Alkalai and Chajut, 2009, 2010).

v. Socio-emotional skills

The fifth skill in Eshet-Alkalai’s framework is *socio-emotional skills*. These skills are relatively new given the recent proliferation of digital environments in which people can easily communicate, collaborate and share information which ‘involves the sociological and emotional aspects of working in cyberspace’ (Eshet-Alkalai, 2012, p271). Users who have high socio-emotional skills are willing and able to share data and knowledge online, have good evaluation and abstract thinking skills and can collaboratively construct knowledge. Moreover, the socio-emotionally skilled person is mature, critical and analytical (Eshet-Alkalai, 2004, 2012). Unlike the other skills in the framework, before becoming socio-emotionally skilled the user should have attained a reasonable level of information, branching and photo-visual skills. A person with a high level of socio-emotional skills has a

good understanding of the unwritten rules of cyberspace and an ability to share not only knowledge but their emotions online without falling victim to common Internet traps such as hoaxes or malicious viruses (Eshet-Alkalai, 2012). Given its complexity and relative ‘newness’, there is little empirical evidence measuring the abilities of different age groups to carry out tasks that require a high standard of socio-emotional skills.

vi. Real-time thinking skills

The sixth skill is *real-time thinking skill*. Real-time thinking while not a new skill has, according to Eshet-Alkalai, become critical to survival in this digital age ‘of fast computers, multimedia environments and devices that can process and present information in real time and at high speed’ (2008, p3220). Such environments expose users to a high-speed bombardment of stimuli such as sound, text and visuals in ‘random temporal and spatial distribution’ (Eshet-Alkalai, 2008, p3220). When operating in these high-speed, multimedia environments users must be able to split their attention, to react instantaneously to the stimuli on the monitor, to multitask, to quickly change their perspective or angle of view and to respond to real-time feedback (Eshet-Alkalai, 2008). Most importantly, they need to be able to ‘effectively synchronise the chaotic multi-media stimuli into one coherent body of knowledge’ (Eshet-Alkalai, 2012, p272). While empirical studies have found that training simulations for real-time activities such as flying an aircraft, driving a car or playing a video game significantly improved real-time thinking skills, little work has been done on the pedagogic impact of real-time thinking and learning in environments such as digital games (Eshet-Alkalai, 2012).

5. Conclusion

There is a definite complexity to digital literacy, and its associated literacies. The term is ambiguous and seems to be ever changing and evolving. As Martin (2006) states, there is not ‘one literacy to rule them all’ as different contexts require the technology user to enable different skills. From my review of the literature, I was drawn to Eshet-Alkalai’s (2004, 2012) six-skill, holistic digital literacy framework as it aligned with my own understanding of digital literacy . Digital literacy and new literacies are indeed deictic (Leu et al, 2007) and with that in mind Eshet- Alkalai’s digital literacy model, which focuses on the softer skills associated with information retrieval and usage as well as the sociological and emotional elements of interacting in digital environments was chosen as the most suitable framework in which to ground this action research study. Of course, disparities exist in people’s access to digital devices and in their ability to use it, that is their digital literacy. The following chapter presents a review of the literature around digital inequality, its implications and how it might be addressed in schools.

Chapter 5

Digital Inequality

1. Introduction

This section will explore the concept of digital inequality. It will begin with an overview of what the digital divide is and how this notion evolved into *digital inequality*. Then the three levels of digital inequality will be discussed in more detail. The impact of digital inequality on vulnerable students will be explored before considering the impact of the Covid-19 pandemic on said students and on digital inequality in general. Finally, ways in which digital inequality might be addressed are discussed.

2. What is Digital Inequality?

At a basic level the digital divide refers to the ‘gap between the haves and have nots in an increasingly technologically driven society’ (Accenture, 2020, p7) or the stratification in access to the Internet and other technologies (Ragnedda and Muschert, 2012). Aydin (2021) describes the digital divide in simple terms as the difference between those who use the internet and computers and those who do not. However, the digital divide is a complex phenomenon (van Dijk, 2012, 2020) and the OECD suggests that the disparities created by the digital divide ‘may threaten social and national cohesion’ (OECD, 2015, p124) as the division impedes full participation in work and the political sphere for those on the ‘wrong’ side of the divide. As the discussion around the digital divide evolved the term *digital inequality* came to be used as it reflected a more nuanced understanding of the spectrum of inequality associated with information and communication technologies (ICT) (DiMaggio and Hargittai, 2001; Ragnedda and Muschert, 2012; Harris, Straker and Pollock, 2017).

Hargittai (2008, p937) explains that this refined approach ‘considers different aspects of the divide, focusing on details such as quality of equipment, autonomy of use, the presence of social support networks, experience and user skills and differences in types of use’. In line with this shift, the Organisation for Economic Cooperation and Development (OECD) (2015, p124) has a broad definition of digital inequality that refers to differences in ‘the material, cultural and cognitive resources required to make good use of ICT’.

It is widely agreed that there is a positive relationship between digital inequality and other forms of inequality (Wilkin, 2017). Digital inequalities combine with ‘other offline axes of inequality’ (Robinson et al, 2015, p570) such as race, gender, class and socio-economic status to reinforce existing inequalities in an online setting. Adopting a Weberian approach, Ragnedda and Muschert (2012, p3) posit that those in a position to use new ICTs to develop new digital skills enhance their opportunities in ‘social, political or economic spheres’ and that this leads to the creation of a ‘digital literati’. Consequently, there is greater stratification in both online and offline settings, generating new forms of exclusion, marginalisation and poverty (Wessels, 2012). Digital inequality exacerbates other inequalities as not everyone derives the same benefits from engaging with ICTs in terms of employment, knowledge, culture, politics, civic participation, social networking, etc. (OECD, 2015; van Dijk, 2020). Digital inequality tends to advantage the already privileged while further marginalising the disadvantaged (Hargittai, 2008) and in this respect digital inequality is *relative* rather than *absolute* (van Dijk, 2020).

Both parental and one's own levels of education are strongly associated on a person's place on the spectrum of digital inequality (Hargittai, 2008; Regnedda and Muschert, 2012; Wessels, 2012; van Dijk, 2012, Aydin, 2021) as is one's socioeconomic status (Robinson, 2015). However, van Dijk (2005, 2012) argues that discussing digital inequality in terms of demographics misses a key component of the conversation, that is *motivation*. He suggests that in terms of access to and use of digital technologies there are certainly the 'haves and have nots' there are also the 'want and want nots'. He proposes a theory of digital inequality that looks like this:

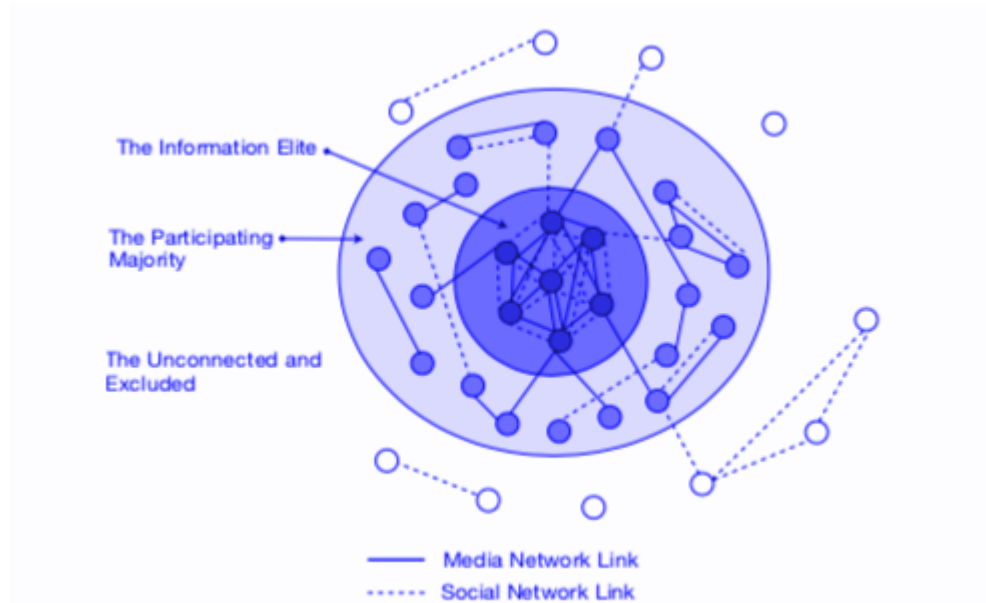


Fig. 5.1. Potential tripartite structure of the network society (van Dijk, 2012, p49)

This model (Fig. 5.1.) is based on the ideas of a network society, that is the one that is 'based on a combined infrastructure of social and media networks (vanDijk, 2012, p48) and shows a tripartite structure that includes three broad groups; The Information Elite, The Participating Majority and The Unconnected and Excluded. Van Dijk's (2012) theory suggests that the information elite, about 15% of the population, are highly educated, have a high socio-

economic status, are highly motivated to use digital technologies and have ‘dense and overlapping’ social and media networks.

The majority of the population (50-60%) are represented in the second concentric circle as the Participating Majority. Here people have less dense social and media networks and although they use the internet, they have less skills in this regard and the use is mainly for entertainment purposes.

Outside the concentric circles are the unconnected members of the population. Even in developed and well connected countries they represent about 25% of the population. This Unconnected and Excluded portion of the population include ‘the lowest social classes, the unemployed, elderly people, ethnic minorities and a large group of migrants’ (van Dijk, 2012, p49).

3. First , Second and Third Level Digital Divides

3.1. First Level Digital Divide

The first level digital divide refers to disparity in physical access to digital devices and the Internet (Robinson et al, 2015; OECD, 2015; van Dijk, 2020). In developing countries this gap can still be sizable but in more developed countries has narrowed considerably as most people have access to some digital device and even a public wifi connection (OECD, 2015; van Dijk, 2020). PISA data shows that in the majority of participating countries 90% of (even disadvantaged) students had a computer at home, although the number of computers and quality and functionality of the device was dependent on socio-economic status, as was

internet access (OECD, 2015). Recent data from the Central Statistics Office (CSO) found that 92% of Irish households had Internet access and 81% of households reported using the internet everyday or almost every day (CSO, 2020).

Schools play an important role in ensuring access to ICT and ICT resources in disadvantaged schools are generally found to be as good as those in advantaged schools (OECD, 2015; PISA, 2016). Digital inclusion schemes, where students are given ICT devices, have attempted to narrow the digital divide by closing the gap in access. However, these schemes often fall short of expectations as the problem of digital inequality is a far more complex issue than one of simply physical access (Wilkin, Davies, Enyon, 2017).

3.2. Second Level Digital Divide

When physical access barriers to ICT are removed there still exists inequalities in how people use the internet and the benefit derived from this use. This structural divide is referred to as *the second level digital divide* or *the usage gap* (van Dijk, 2020; OECD, 2015). The second level digital divide pertains to differences in people's online skills. Hargittai (2002, p1) defines this as 'the ability to efficiently and effectively find information on the web'. She contends that there are vast differences in people's abilities to find content online and that providing someone with a device, thus closing the first level gap, does not ensure that their needs will be met as they may not have the digital skills to use the device effectively in a way that will be of most benefit to them. The *usage gap* describes a disparity in digital literacy, digital skills and usage (van Dijk, 2020; Marcus- Quinn and McGarr, 2013; Kyrgiou and Tsiplakide., 2012) or the differences in people's ability to take full advantage of ICT (OECD,

2015). Van Dijk (2020) referring to his 2012 *Tripartite structure of a Network Society* (see fig 5.1) suggests that there has been a marked shift from inequities in motivation and access to inequities in usage. Robinson et al (2015, p570) state that digital inequalities related to skills and efficacy affect a much greater proportion of the population than first level divides and as such the ‘forms of disadvantage themselves mutate’ creating yet new forms of disadvantage (Rangnedda and Muschert, 2012). While this second level divide or usage gap exists across a variety of demographics (age, race, gender, location, etc.) for the purposes of this discussion I will focus on socio-economic disparities among students.

Research shows that students of lower socio-economic status spend more time online than their more advantaged peers (van Dijk, 2020, 2012; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; Kyrgiou and Tsiplakide., 2012); up to 15 minutes more a day according to OECD (2015) data. However, there are marked differences in *how* students spend their time online depending on their socioeconomic group. Disadvantaged young people predominantly spend time online engaged in online chatting and gaming, social networking, trading products, downloading or listening to music, consuming multimedia content and chat room activities (van Dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; Kyrgiou and Tsiplakide, 2012). They are less likely to read the news online or obtain practical information about goods and services (PISA, 2016; Kyrgiou and Tsiplakide., 2012).

While some research indicates that there is little difference in the use of ICT for entertainment purposes across the socio-economic strata, more advantaged young people do

appear to use the internet for more sophisticated purposes and in more beneficial ways (OECD, 2015; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012). As well as entertainment, students from higher socio-economic backgrounds use ICT for finding information, educational purposes, work or career enhancing activities, downloading software, submitting forms online, video calls, reading online newspapers, participating in discussion forums, finding practical information, reading and/or contributing to blogs or wikis, communicating via email, online submission of forms and content creation (van Dijk, 2020, 2012; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; Kyrgiou and Tsiplakide, 2012, Hargittai, 2008). Harris, Straker and Pollock (2017) also found there was a higher frequency of using computer learning programmes among more advantaged students. Table 5.1 provides a summary of the variance in use across the socio-economic divide and gives a clear visual representation that, although advantaged students spend less time online and using ICTs, they engage in a wider range of uses which may be as a result of having superior digital literacy skills such as navigation (branching skills) and critical thinking (information skills) (van Dijk, 2020; PISA , 2016; Eshet- Alkali, 2004)

Low Socio-economic Status	High Socio-economic Status
<ul style="list-style-type: none"> ● More time spent online ● Chatting ● Gaming ● Social Networking ● Trading products ● Downloading music ● Consuming multimedia content 	<ul style="list-style-type: none"> ● Less time spent online ● Chatting ● Gaming ● Social Networking ● Trading products ● Downloading music ● Consuming multimedia content ● Finding practical information about goods and services ● Work/ Career enhancing activities ● Contributing to discussion forums ● Reading/ contributing to blogs and wikis ● Online submission of forms ● Reading online books ● Video calls ● Reading the news ● Computer learning programmes

Table 5.1- A summary of uses if ICT according to socio-economic status (van Dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012, Hargittai, 2008)

3.2.1. Mobile Access

It would seem pertinent at this stage to address the issue of access via mobile device. The explosive proliferation of smartphones in the last decade has narrowed the ‘first level’ access gap. Smartphones represent a cost effective way to gain access to the Internet and this is of particular benefit to disadvantaged groups such as minorities and those in low socio-economic and low education demographics (Correa, Pavez and Contrerasa, 2020).

Napoli and Obar (2014) address the technical capacities of mobile devices in comparison to PCs; Mobile devices have less functionality in terms of memory, storage and speed. They cannot store or process as much data as a computer. In terms of how information is displayed, mobile phones are much smaller and can display only limited information. They argue that mobile versions of web pages often offer streamlined versions of the PC based

website, thus offering comparatively limited information to mobile users. With regard to content creation, Napoli and Obar (2014, p328) found that ‘users’ ability to create and disseminate content, applications and software online.... ultimately cast the mobile device as more of an information retrieval device and less of an information creation and dissemination device than the PC’. Additionally, they question users’ depth of engagement with PCs in comparison to mobiles and posit that mobile use is generally ‘extractive’ and therefore more shallow than PC use.

This disparity in technical capabilities leads to a corresponding disparity in the uses of smartphones versus PCs. Smartphones are seen as devices used for leisure activities such as accessing social media and quickly finding information. PCs are viewed as being used for more ‘serious’, capital enhancing activities such as work related activities, news retrieval, commercial transactions, e-government and content creation (Correa, Pavezb and Contrerasa, 2020). People have a greater opportunity to enhance their digital skills when using a PC rather than, or as well as, a mobile device and in this way a usage gap can develop between those who use mobile only and those who also use PCs (Napoli and Obar, 2014; Correa, Pavezb and Contrerasa, 2020). Napoli and Obar conclude that

‘While mobile Internet access may address the basic issue of getting individuals who previously did not have any form of Internet access online, the differences between mobile and PC-based forms of Internet access can reinforce, and perhaps even exacerbate, inequities in digital skill sets, online participation, and content creation. Consequently, mobile-only Internet users become, in many ways, second-class citizens online’. (Napoli and Obar, 2014, p330)

3.3. Third Level Digital Divide

In recent years a third level of digital inequality has come into focus. The third level digital divide refers to inequities in the tangible outcomes derived from Internet and ICT use (Van Dijk, 2020; Van Dursen and Helsper, 2015). The literature contends that, as with the other levels of digital inequality, those with lower levels of education and in lower socio-economic groups do not derive the same level of benefit from ICT use in their *offline* lives as those who are more advantaged (Aydin, 2021; Van Dijk, 2020; Yates and Lockley, 2018; PISA, 2016; Van Dursen and Helsper, 2015; Hargittai and Walejko, 2008; Hargittai, 2008). Moreover, they are more likely to be adversely impacted by the negative effects of technology and Internet use (cybercrime, hacking, hate speech, disinformation) than their more advantaged counterparts (Van Dijk, 2020).

Van Dursen and Helsper (2015) use Van Dijk's (2005) five-fold categorisation for activity fields (economic, social, political, institutional and educational) to conceptualise offline outcomes for ICT users and the same categories will be used here to briefly explore the third level divide.

- Economic

The digital practices of those in higher socio-economic groups translates into better economic outcomes offline. In today's digital economy, workplaces favour workers with high levels of digital literacy. Those who are socio-economically disadvantaged (and therefore more likely

to be digitally disadvantaged) may face barriers entering the white collar workforce and accessing better paid jobs (Robinson et al, 2015).

In terms of the economic benefits as a consumer, the more advantaged in society have been found to be able to take greater advantage of technology to avail of online deals (clothes, holidays, consumer durables, etc.) (Accenture, 2020; Robinson et al, 2015; van Dursen and Helsper, 2015) and can access and benefit from the ‘peer-to-peer’ economy more readily (Robinson et al , 2015).

- *Social*

Hargittai and Micheli (2019) claim that people can take a more active role in society via digital means in order to bring about changes in society. However, such participation is unevenly distributed across socio-economic demographics with ‘internet skills functioning as a crucial correlate of who participates’ (Hargittai and Micheli, 2019, p112).

People can use the Internet and associated ICTs to expand their social networks (Hargittai, 2008) and to increase and diversify their social contacts (van Dursen and Helsper, 2015).

Those with greater digital skills can capitalise on social media and online dating platforms to find new friends or romantic partners (van Dursen and Helsper, 2015). The creation of these online ‘durable networks’ (Bourdieu, 1986, p262) generates social capital which can translate into offline benefits (i.e. greater community interactions, increased chance of finding new friends/ romantic partners, making career related connections, etc.). ICT users in lower socio-economic groups use a more limited range of social media platforms and are less likely

to use ‘platforms associated with professional contexts’ (Yeats and Lockley, 2018, p1301) therefore limiting their capacity to create social (and cultural) capital (Bourdieu, 1986).

- *Political*

People with larger social networks tend to engage more in politics (van Dursen and Helsper, 2015). This holds true when applied to digital social networks, with people with greater and more diverse online social networks being more politically active in both formal and informal settings. Van Dursen and Helsper (2015) found that political engagement online was directly related to access to educational resources (an indicator of socio-economic status).

- *Institutional*

With many government services , particularly in developed countries, moving online, a person’s ability to interact with and derive benefit from these services increasingly depends on their level of digital skills. Van Dursen and Helsper (2015) argue that digitally advantaged people have a much easier time engaging with government services and state institutions (tax services, public health information and so on) than the digitally disadvantaged.

- *Educational*

The internet provides a wealth of formal and informal learning opportunities. Van Dursen and Helsper (2015) state that it is unclear whether some groups have better educational outcomes because of their Internet/ ICT use. Although their research found a correlation

between those with higher levels of education and those who derived most offline educational benefits from their use of ICTs and the Internet.

In line with the general population, the offline benefits for students of using digital technologies differs across socio-economic groups. Disadvantaged students may be unaware of ‘how technology can offer opportunities to learn about the world, practise new skills, develop a career plan or participate in online communications’ (PISA, 2016, p2). Moreover, they may not have the knowledge or skills to turn online opportunities into offline opportunities (Hargittai, 2008; PISA, 2016). Finally, van Dursen and Helsper (2015) state that it is important not to assume that the outcomes of ICT use are achieved automatically from use. They claim that the internet has the most to offer those in higher socio-economic groups and that ICT usage can in fact amplify existing offline inequalities.

4. The Digital Divide and COVID-19

Those in lower socio-economic categories were more likely to be adversely affected by COVID-19 (van Dijk, 2020; Robinson et al, 2020; Beaunoyer et al, 2020). People in low socio-economic groups have a greater chance of living in crowded accommodation, having less secure jobs and poorer working conditions and are more likely to have health conditions that could potentially worsen the effects of COVID-19 (van Dijk, 2020). Van Dijk (2020) contends that due to the virus, people have increased information needs and communication needs. People might consult websites or apps to inform themselves about the risks and preventive measures surrounding COVID-19. If this information can be effectively sought and understood the chances of being infected are minimised. Similarly communication needs

can be met digitally and are a source of information, support and companionship during the crisis. Those with greater access (first level divide) and skills to utilise technology (second level divide) to meet these information and communication needs are better equipped to find and critically evaluate reliable information about the virus. He concludes that ‘those who need COVID-19 information and communication the most (the elderly and the poor) are using it less. So, digital inequality makes the pandemic worse’ (van Dijk, 2020, p8).

Conversely, it would seem that the pandemic makes digital inequality worse (McCoy et al, 2020; Holmes and Burgess, 2020; Tammi, 2020; Pensiero et al, 2020; Beaunoyer et al, 2020; Robinson et al, 2020) and that disadvantaged young people have been disproportionately affected by the pandemic in terms of digital inequality, with their education being particularly impacted. As vast swathes of schooling were delivered online from March 2020 into 2021 the initial impact of the school closures presented itself as a first level divide with students in lower socio-economic groups having less access to ICT resources to conduct their online schooling, perhaps having to share devices with others in the home (Bayrakdar, 2020; Bol, 2020; McKinney, 2020; Pensiero et al, 2020). The likelihood of having internet access at home increases with income (Holmes and Burgess, 2020) and broadband access is an expense that lower income families may eschew, especially given the rising levels of unemployment since the beginning of the pandemic (Drane et al, 2020; Holmes and Burgess, 2020; McKinney, 2020). As with digital inequality more generally, lower income households and students are more likely to access their online schooling via mobile devices which have slower download speeds (Drane et al, 2020) and are generally seen to be ‘inadequate for learning but ‘better than nothing’’ (McCoy et al, 2020, p32). In Ireland, the Economic and

Social Research Institute (ESRI) found that 57.6% of DEIS schools believed that the provision of online learning was impacted by this first level digital divide in access (McCoy et al, 2020).

The second level digital divide has also been exacerbated by the Coronavirus pandemic. The literature agrees that young people of all demographics use ICT for mainly entertainment and communication, although young people in higher socio-economic groups are more likely to use technology for school/ learning/ career development purposes (van dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012, Hargittai, 2008). Disadvantaged young people are less likely to have the skills needed to engage meaningfully in online learning (Drane et al, 2020; Holmes and Burgess, 2020). Perhaps more relevant have been parents' digital skills which have been influential over the course of the pandemic. Parents, many of whom were charged with 'home-schooling' their children, may or may not have had the necessary levels of digital literacy to fully support their children's learning. Again, this is influenced by a person's socio-economic position, with parents in underprivileged households less likely to have the requisite digital or cognitive skills or level of education to fully facilitate at-home, online learning (Bayrakdar, 2020; Bol, 2020; Holmes and Burgess, 2020; McCoy, 2020).

A skills gap in terms of schools and teachers has also been highlighted during the COVID-19 crisis. Bayrakdar (2020, p24) states that 'schools' online teaching provisions explain the largest part of the variation in children's home learning', a finding echoed by McKinney

(2020). Schools' preparedness for switching to online learning varied even within developed countries (Robinson et al, 2020) and some schools were more equipped to provide online classes than others (McKinney 2020; Pensiero et al, 2020). Pensiero et al (2020) found that UK secondary students from advantaged socio-economic groups engaged in almost double the hours of online learning than their disadvantaged counterparts and that private schools provided more online tuition for students. Teachers' levels of digital literacy also impacted student learning during the pandemic, as some did not have the level of digital skills required to provide suitable online instruction for students (McKinney, 2020), although the ESRI found that 80% of teaching staff felt that they had adapted well to distance learning and that there was little variance in levels of adaptation between teachers in DEIS and non-DEIS schools (McCoy et al, 2020). However, Burke and Dempsey's (2020) research found that teachers believed more training in ICT was necessary and suggested that the Department of Education and Skills (DES) implement training to compound the distance learning expertise developed by teachers during the COVID-19 pandemic.

The school closures of 2020/21 have, no doubt, had an impact on digital inequality, with disadvantaged children losing more ground to their more advantaged peers, trying to engage in online learning at home with limited technological resources, skills and support (Holmes and Burgess, 2020). Digital inequalities that already existed have been exacerbated by the pandemic and the unequal distribution of digital resources and skills (McCoy et al, 2020; Holmes and Burgess, 2020; Robinson et al, 2020; Tammi, 2020; Pensiero et al, 2020; Beaunoyer et al, 2020). Digitally disadvantaged students, who were unable to engage fully with their learning during the COVID-19 school closures faced lasting negative impacts on

their educational outcomes in line with the ‘summer learning loss’ phenomenon (Alexander et al, 2016, Bol 2020; Robinson et al, 2020). In worst case scenarios, vulnerable young people, with an already perilous relationship with education, missed a significant amount of tuition due to digital inequalities and were at risk of complete disengagement and not returning to school (Drane et al 2020; Tammi, 2020).

5. Addressing the Digital Divide

As the digital divide came to be realised as an issue of inequality in society, the initial attempts to close the gap centred on providing access to digital devices via digital inclusion schemes (Wilkin et al, 2017). However, it became evident that the problem of the digital divide went beyond access. Wilkin et al (2017) contend that simply providing access to digital devices, though necessary, was not enough to address digital inequalities. Van Dijk also posits that digital divide policy with a focus on physical access only is not enough. He argues that ‘improving digital skills, better internet opportunities and benefits and building awareness of positive attitudes’ towards digital technologies and the Internet are vital to addressing digital inequality (van Dijk, 2020, p1). Hargittai (2002) likens providing physical access and without providing skills training to giving someone a book without teaching them how to read.

As noted by van Dijk and Hargittai an important aspect of addressing digital inequality involves providing learning opportunities for young people to develop their digital skills. Accenture’s (2020) “Bridging the Gap’ report highlighted the importance of an educational focus on the ‘soft skills’ of technology use such as critical thinking (information skills),

communication and collaboration (socio-emotional skills) or higher level cognition (photovisual skills, branching skills) (Eshet-Alkalai, 2002) in order to develop the digital literacy skills vital for the 21st century workplace and for the exploitation of technology more generally (Kyrgiou & Tsiplakide, 2012). In order to provide more meaningful digital learning opportunities to young people, teachers need to have quality continuous professional development (CPD) in the area of digital literacy, access to new technologies and training on how to use them (Aydin et al, 2021; DES, 2020; Rowsell et al, 2017). Moreover, teachers need to be confident enough in their own skills to allow their students some autonomy when using digital technologies in class. Marcus-Quinn and McGarr (2013) found that students in schools with a higher socio-economic demographic were more likely to be given autonomy when carrying out learning tasks online resulting in greater engagement and a further development of the students' digital literacy. Conversely, they suggest that a teacher having excessive control of a students' digital learning experience can lead to a less satisfactory learning experience causing disengagement and a widening of the digital divide. Marcus-Quinn and McGarr (2013, p284) also highlight the need to create 'meaningful activities and resources that foster important digital literacies among students' and for the development of 'curriculum relevant ICT materials' for teachers in order to support this endeavour.

Ultimately though, a narrowing of the digital divide will not be achieved without addressing wider social inequalities. It is incumbent upon governments and decision makers to enact policies (Aydin, 2021) that are designed 'to close the digital divide need to be multidimensional (technological, educational, social and persuasive)' and will have to also aim to reduce social inequalities as the two are inextricably linked (van Dijk, 2020, p1).

6. Conclusion

Following on from Chapter Four's discussion surrounding digital literacy, this chapter presented a review of the literature around the topic of digital inequality, which has implications for a person's level of digital literacy. Digital inequality is more nuanced than the commonly used term *digital divide* would suggest. The disparities created by digital inequality can impede a person's full participation in work and the political sphere for those who are negatively impacted by it. Digital inequality is often discussed in terms of first, second and third level divides. While the first level divide (disparities in access to digital devices) is all but closed in developed countries, the second level divide (disparities in digital skills or the *usage gap*) and the third level divide (disparities in the outcomes of ICT use) remain pertinent issues. The Covid-19 pandemic exacerbated digital inequalities and from an educational perspective, digitally disadvantaged students fared worse during pandemic-related school closures than their more advantaged counterparts by being unable to engage fully with their remote school work.

Digital inequality is linked to wider social inequality and will need the implementation of appropriate government policy to be fully addressed. However, in schools, steps can be taken to try and narrow the digital divides. Young people need to be provided with opportunities to improve their *soft skills* of ICT use. In order to provide those opportunities teachers must have access to continuous professional development (CPD) in the area of digital literacy, they should also have access to new technologies and training on how to use it. This type of CPD could enable teachers to have more confidence in their own skills when using

technology in class. Finally, teachers need access to meaningful, curriculum relevant material and resources that cultivate students' digital literacy skills.

That digital inequality exists would indicate that not all young people are naturally adept at using ICT or are *digital natives*. Remaining within the *explore* and *understand* phases of the Educational Entrepreneurial Approach to Action Research, the following chapter considers the digital native argument, factors that impact young people's digital literacy and the Irish government's education policies designed to improve young people's digital literacy.

Chapter 6

Digital Natives- Born or Made?

1. Introduction

This chapter is a continuation of the explore and understand phases of the Educational Entrepreneurial Approach (EEA) to Action Research. It seeks firstly to evaluate the digital native argument. The literature surrounding the concept is explored to gain a deeper understanding of the nuances of the idea of the digital native. Subsequently, the factors that impact a young person's actual technology use are examined. The Irish government's plan for improving the digital literacy of young Irish people is then outlined with reference to educational policy and curricula. Finally, the chapter explores on a micro level, the digital natives in my own work place. The results of a survey conducted with Junior Cycle students to ascertain their use of digital devices and the Internet are presented and analysed.

2. Digital Natives

2.1. The Digital Native Argument

In the late nineties/ early two thousands a perceived problem came to the fore of discourse around innovative education. Teachers of the day were simply not able to meet the needs of their students born after 1980. This problem was thus, students born after 1980 were what Prensky (2001) termed 'digital natives' and their older and less tech-savvy teachers were 'digital immigrants'. These digital natives (or net-gen, homo-zappiens, i-gen, z-gen, etc.) had been so exposed to digital tools since their early, formative years that it had a profound effect on the way they learned and processed information. Digital natives liked to receive

information fast, liked to parallel process and multitask, and were used to “instantaneity” (Prensky, 2001). Furthermore, this new generation expressed themselves differently, with their communication and literacy skills expanding beyond words to audio, video and graphics. The digital natives were always connected, prolific communicators and preferred to work collaboratively in teams given their inclusive nature (Palfrey and Gasser, 2008; Oblinger and Oblinger, 2005). Prensky (2001) even asserts that their brains are physically different to the generations that went before them. While not going quite that far, Oblinger and Oblinger (2005) suggest that the ‘net-gen’ handle information differently given their exposure to computers from an early age. They purport to have a greater ability to read visual images, improved visual-spatial skills, a preference for learning through inductive discovery, faster response time and an ability to quickly change their attention from one task to another. They go on to purport that The Net Gen were more visually literate and collaborative than previous generations and, given their immersion in the digital world, preferring experiential learning and constructing their own knowledge. Such was the chasm between the digital natives and their digital immigrant teachers that Prensky (2001) suggested that the greatest educational problem at the time was that these digital immigrant teachers spoke an out-dated, pre-digital language and as a result were struggling to teach their digital native students.

However, in recent years such ideas about a generation of inherently tech-savvy young people have come to be widely contested. Schulmeister (2015) does not hold back when he states that Tapscott’s and Prensky’s call for a new type of education for the digital natives shows a “deficit of knowledge about modern education and learning theories” (p97). Indeed, he states emphatically, “The Net Generation does not exist. The digital natives are either a

myth or a rather small minority” (Schulmeister, 2015, p99). Such criticism is echoed across the literature. One of the initial concerns with the notion of a ‘Digital Native’ is the lack of empirical evidence that supports the notion (Judd, 2018; Schulmeister, 2015; Akçayir, Dündar & Akçayir, 2015; Bullen and Morgan, 2011, Hargittai. 2010; Selwyn, 2008; Bennet & Maton, 2010; Bennett, Maton & Kervin, 2008). Much of the writing that espouses the digital native/net gen idea has an ‘evidence base’ that “is rooted in informal observation and anecdote” (Selwyn, 2009, p371). Furthermore digital native literature is generally speculative, appearing in “non-scholarly” literature and sometimes funded by private business (Bullen and Morgan, 2011).

It is certainly worth considering *why* the digital native narrative has been so pervasive and enduring given its lack of empirical support. Bennett, Maton & Kervin (2008) propose that there has been something of an academic ‘moral panic’ around the digital natives discourse, in that the level of concern for the digital native students and their impeded education far outweighs any sound evidence that supports the concern. This moral panic is compounded by sensationalist rhetoric, a perceived seismic change in societal (in this case, educational) norms and a notable discord between generations (i.e. digital natives vs digital immigrants). Additionally, the discussion around the digital native generation has been impacted by a ‘certainty- complacency spiral’ in which the “complacent, uncritical acceptance” of the idea “encourages further certainty” and leads to yet more “uncritical reproduction of the terms digital native or Net Generation giving both a credence they do not deserve” (Bennett & Maton, 2010, p328).

2.2. Young People's Actual Technology Use

Defining an entire generation as tech experts based solely on the years in which they were born does not hold up under scrutiny. Akçayir, Dündar & Akçayir (2015) cite a number of studies that refute the notion of a digital native and point to a lack of technological skills on the part of the so-called 'net gen'. Palfrey and Gasser (2013) believe that the concept of a 'net *generation*' is an overstatement. The literature in opposition to Prensky and his peers' digital natives takes the view that rather than a generation with homogenous technical skills, the technological abilities of this generation are much more of a spectrum ranging from 'resistors, cautious users, specific or limited users to integrators' (Bullen and Morgan, 2011, p64). There is little evidence to suggest that all of the Net Gen have the same level of ability or even use technology in the same way (Selwyn, 2009; Bennett and Maton, 2010; Schulmeister, 2015).

Young people's use of technology may be far more "passive, solitary, sporadic and unspectacular" (Selwyn, 2009, p374) than one would expect. The main activities young people engage in online are instant messaging, information retrieval and passive consumption of media (Gulatee and Coombes, 2018; Schulmeister, 2015; Maragaryan, Littlejohn & Vojt, 2011; Selwyn, 2009). Within the Irish context, the EU Kids Online (2011) survey's findings were in line with this assertion, with the most popular online activities for Irish 9-16 year olds being watching video clips, playing games, using the Internet for school work and visiting a social media profile (O'Neill, Grehan & Ólafsson, 2011). With much less frequency young people are using technology in innovative and creative ways, creating their own content or using technology effectively to support their own learning (Schulmeister

2015; Kennedy & Fox, 2013; Ng, 2012; O Neill, Grehan & Ólafsson, 2011; Bennett & Maton, 2010; Selwyn, 2009).

2.3. The Impact of the Digital Native Argument on Education and Learning

While Prensky (2001) claimed that educators “need to invent Digital Native methodologies for all subjects, all levels, using our students to guide us” (p6), more recent, empirical literature suggests that the Net Gen’s understanding of how technology can be used to support their learning is limited (Maragaryan, Littlejohn & Vojt, 2011) and even students who are digitally literate may not be so when it comes to supporting their own learning (Kennedy & Fox, 2013). As with most aspects of education, there are variations in students’ engagement with, and adoption of, technology for learning. Educating this non-homogenous group of students poses nuanced challenges for the teacher/educator in incorporating “technology-enhanced learning activities and environments” (Judd, 2018, p114). At odds with calls for new teaching methods to cater for the Net Generation is research that indicates students expect traditional teaching methods (Maragaryan, Littlejohn & Vojt, 2011, Oblinger & Oblinger, 2005). Bullen and Morgan (2011) found in discussion with students that none “challenged the current academic paradigm” (p64).

Interestingly, it appears that young people tend towards a separation of everyday technology use and educational technology use but there is no need to assume that this separation causes frustration or educational disengagement among young people (Bullen & Morgan, 2011; Bennett, Maton & Kervin, 2008). While Prensky, Tapscott and their peers called for an immediate revision of the way digital natives were taught, those critical of the digital native/Net Gen hypothesis felt that these calls for the seamless combination of everyday and

educational technology use devalued education, knowledge and teachers. Bennett and Maton (2010) argue convincingly that formal education complements and supports informal learning, not just in the realm of technology but in all aspects of young people's lives. They posit that rather than overhaul the education system "a more promising approach is to consider formal education contexts and everyday contexts as being different, comprising different purposes and outcomes without necessarily privileging one over the other" (p325)

So, if technology is not to be seamlessly incorporated into education, how should the education of young people be approached in an age where technology is ubiquitous? Oblinger and Oblinger (2005) suggest that rather than assume more technology is better, technology that enables certain learning activities may be a preferred option. In order to do this the students that we *actually* have, as opposed to a supposed Net Generation, must be a central consideration of instructional or curriculum design (Bullen and Morgan, 2011). As Schulmeister (2015) contends, young people's critical and social intelligence has been wholly 'romanticised' in the digital native discussion and as such, focusing on teaching and supporting digital, media, critical and information literacies to support learning (Bullen and Morgan, 2011) as well as developing students' "creative abilities with regard to new media" (Selwyn, 2009) should be a "basic educational entitlement" (Buckingham, 2007, cited in Selwyn, 2009).

2.4. What Factors Impact Digital Skills/ Digital Literacy?

The digital native argument stated that all those born after a certain time (circa 1980) had grown up so immersed in technology that it had had a profound effect on all aspects of their

life, not least how they learn. However, more recent literature contests this notion arguing that a myriad of other factors apart from age have a greater impact on a young person's digital skill set and how they interact with technology. A person's exposure to technology has a greater impact on their digital skills than birth year (Tapscott, 1998; Oblinger & Oblinger, 2005; Eshet-Alkalai and Chajut, 2009, 2010; Akçayir, Dündar & Akçayir, 2015). People who are heavy users of IT are more likely to display the characteristics of digital natives than those who are sporadic or irregular IT users (Oblinger and Oblinger, 2005) and experience using technology is an important factor in developing digital skills. Akçayir, Dündar & Akçayir, (2015) claim that young people can develop these skills by multi-tasking (e.g. sending texts and doing homework while chatting online), although Bennett and Maton (2008) suggest that this type of multi-tasking may be counterproductive leading to a lack of concentration and cognitive overload.

Exposure to technology is dependent on a number of factors such as race, socio-economic status, geography, education and parental input. One might assume that gender is a factor but in developed countries the gender gap as far, as technology use is concerned, is all but closed (Gulatee & Coombes, 2018; Akçayir, Dündar & Akçayir, 2015; Hargittai, 2002, 2010).

Although, while there may be no significant difference in the amount of technology/Internet exposure between males and females there are potential differences in types of uses between the genders (Akçayir, Dündar & Akçayir, 2015). In terms of race, the literature tends to focus on America but certainly, Hispanic and African-American young people have less technology access than white young people (Oblinger and Oblinger, 2005; Hargittai, 2010) thus limiting their exposure.

Studies also indicate that a person's academic achievement has an impact on their status as a 'digital native'. Having a university education significantly improves a person's digital skills; the further a person progresses through the education system the more technology they are expected to use and therefore the greater their digital abilities are (Varela-Candamio, Novo-Corti, and Barreiro-Gen 2014, cited in Akçayir, Dündar & Akçayir, 2015; Van Dijk, 2013). However, it is not just the young person's level of education that has an effect on their level of digital literacy but also that of their parents. Hargittai (2011) found that those from families with 'at least one parent holding a graduate degree exhibit statistically significantly higher level know-how about the Web than others' (p104). Parents have further impact on students' digital know-how when *how* technology is used in the home is taken into account. Young people may observe their parents using technology for work or pleasure, influencing their own attitudes towards technology use. Additionally, their access to a computer or device and Internet access will also be heavily influenced by their parents' beliefs about the use of technology (e.g. Does it have a positive or detrimental effect? Is the device likely to be broken? etc.) (Bennett & Maton, 2010, Bennett, Marton and Kervin, 2008). Naturally, 'domestic affluence' is a factor in influencing a young person's technological abilities with those from more affluent families having greater access (Bennett & Maton, 2008) and thus greater exposure.

Geography is likely to influence a person's technological ability, with *where* a person is raised having a greater impact on their digital skills than *when* they were born. With only a fraction of the world's population even having access to digital technologies, Akçayir, Dündar & Akçayir, 2015 consider these tech savvy youth to be a *population* and not a

generation. They go on to argue that more developed countries have a greater population of ‘digital native’ students, with variances existing even within the same country or region.

Schulmeister (2015) outlines a compelling argument in which a young person’s developmental stage has a greater impact on their digital abilities than their age or generation, stating that “an essential argument against the assumption that there exists a Net Generation is that children change habits, interests and values. A developmental perspective is not part of the repertoire of the digital natives metaphor” (p87). He contends that the young people’s use of technology is in line with what is already known about children’s development stages; that is, it is centred on socialisation, starts with play and ends with communication. Taking university students as an example, Schulmeister (2015) maintains that their online activities are no different to activities engaged in by their parents’ generation, that is primarily communicating with friends and ‘passing time’ consuming media such as TV, movies and music. Simply, the activities are the same for this generation but the conduit (i.e. a computer/ phone/ tablet) is different.

The major interests for which the media are used, are not the media themselves or their content, but the aim to assist the identity development by communicating with peers and to cultivate friendships. Information, entertainment and play, in groups or alone, are a useful tool for social negotiations, for acquiring rules and norms and for the cognitive and emotional coping with tasks and problems. (Schulmeister, 2015, p91).

Bennett, Maton and Kervin’s (2008) earlier study presented similar findings on the importance of developmental stages in the digital native debate. As children go through the

stages of infancy, early and middle childhood, adolescence and young adulthood their abilities to “scan information more quickly, apply strategies to transform it more rapidly, hold more information within memory and move between tasks more easily” (p780) improve significantly and must be taken into account in any discussion around the Net Generation and their abilities with information and communication technologies (ICTs).

Even as Prensky (2012) himself makes a move away from the term digital native to a wider concept of ‘digital wisdom’ it appears that, as educators, we need to rethink the strong assumptions around the digital native/ Net Gen idea. Young people cannot be presumed to be inherently tech savvy based solely on their age. A multitude of factors including exposure to technology, geography, race, level of education, familial affluence, parental attitudes and developmental stage all have a role to play in technological abilities of young people. This, of course, speaks to the wider problem of digital inequality in which young people’s access to digital technologies are ‘patterned strongly along lines of socio-economic status and social class, geography and many other entrenched social fault lines’ (Selywn, 2005, p372) as discussed in more detail in chapter 5.

3. The Irish Government’s Plan for Improving Digital Literacy

Under the auspices of the Department of Education and Skills (DES) the Irish Government released two key documents in the 2010s which outlined a plan to imbue Irish students with digital literacy skills. These documents, the Digital Strategy for Schools (DSS) 2015- 2020 and the Digital Learning Framework (DLF) do not assume that young people are already ‘digital natives’ but rather seek to improve students’ digital literacy skills through a variety of

approaches as discussed in the following sections. It should be noted that in April 2022 the Department of Education (DE) released a second Digital Strategy for Schools (DSS) to 2027. However, this chapter refers only to the 2015-2020 DSS as it aligns with the timeframe in which much of this research was carried out.

3.1. The Digital Strategy for Schools 2015-2020

Since the late 1990s the Irish government has sought to integrate ICT into teaching and learning through its ICT in Schools programme which focuses primarily on the provision of ICT infrastructure and access to broadband connectivity, continuous professional development (CPD) for teachers in the area of ICT and integrating ICT into the curriculum supported by digital content and resources (DES, 2019a). The Department of Education and Skills' (2015) Digital Strategy for Schools 2015-2020: Enhancing Teaching Learning and Assessment is the overarching strategy to achieve these ends. Underpinned by principles involving a constructivist pedagogy, enhancing ICT in teaching, learning and assessment, the embedding of ICT in teacher CPD and education policy and the ethical and responsible use of ICT the strategy seeks to develop 'an education system that provides all learners with the knowledge and skills they need to participate fully in society and the economy, one that enables learners how to learn (DES, 2015a, p22). This assertion is in line with plans previously outlined in 2009's Smart Schools = Smart Economy which sought to 'have an education system that equipped young people with the critical skills to play an active role in the 21st century's economy' (DES, 2015a, p8). It is interesting to note that nowhere in the government literature is there a mention of 'digital natives' or any alternative monikers. Rather the DES outlines through the Digital Strategy for Schools (DSS) and Digital Learning

Framework for Schools (DLF) its desire to develop both the explicit and discrete digital skills needed by young people today, many recognisable as characteristics of a ‘digital native’.

The Department’s vision for ICT integration in Irish schools is to realise the potential of digital technologies to enhance teaching, learning, and assessment so that Ireland’s young people become engaged thinkers, active learners, knowledge constructors, and global citizens to participate fully in society and the economy.

(DES, 2015a, p5)

The DSS outlines a plan for enhancing the ICT skills of young people and education staff using the 4 themed approach:

- Teaching, learning and assessment using ICT
- Teacher professional learning
- Leadership, research and policy
- ICT infrastructure

3.1.1. Teaching Learning and Assessment Using ICT

Theme 1, Teaching, learning and assessment using ICT, uses the UNESCO (2011) ICT Competency Framework for Teachers (ICTCFT) as its foundational document which has been localised for the Irish education system in order to provide clarity for teachers when integrating ICT into their teaching. The UNESCO framework acknowledges a need to adapt to changes in society that are driven by recent technological advances. The ICTCFT cites a need for societies to have a reflective, creative, problem-solving workforce that generates knowledge, to enable citizens to be knowledgeable, resourceful and lead fulfilling lives, to allow citizens to participate fully in society and to promote cross-cultural awareness and peaceful conflict resolution and posits that teachers are well placed to help students develop

these skills through using ICT. The framework adopts three approaches to ‘connect education policy with economic development’ (UNESCO, 2019, p7) as outlined in figure 6.1.

<u>Technology Literacy</u>	<u>Knowledge Deepening</u>	<u>Knowledge Creation</u>
Increasing the extent to which new technology is used by students, citizens and the workforce by incorporating technology skills into the school curriculum. [SEP]	Increasing the ability of students, citizens and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems [SEP]	Increasing the ability of students, citizens, and the workforce to innovate, produce new knowledge, and benefit from this new knowledge [SEP]

Fig.6.1. *Three Approaches of UNESCO ICT Competency Framework for Teachers (UNESCO, 2019, p7)*

The framework then cross-references the three approaches with the six aspects of a teacher’s work to create the 18 modules of the framework (Fig. 2). The extent to which a country adopts these modules depends on the level of ICT integration already achieved by said country.

	Technology Literacy	Knowledge Deepening	Knowledge Creation
Understanding ICT in Education	Policy Awareness	Policy Understanding	Policy Innovation
Curriculum and Assessment	Basic Knowledge	Knowledge Application	Knowledge Society Skills
Pedagogy	Integrate Technology	Complex Problem Solving	Self Management
ICT	Basic Tools	Complex Tools	Pervasive Tools
Organisation and Administration	Standard Classroom	Collaborative Groups	Learning Organisations
Teacher Professional Learning	Digital Literacy	Manage and Guide	Teacher as a Model Learner

Table 6.1. UNESCO ICT Competency Framework for Teachers (UNESCO, 2019, p9)

This first theme seeks meaningful ways of embedding ICT in teaching, learning and assessment with a focus on the *how* and the *why*. The strategy advocates the use of constructivist teaching approaches in order to encourage student engagement, active involvement of the students in their own learning, an on-going exchange of ideas *between* students and decision-making *by* students (DES, 2015a).

The strategy ‘strongly supports the embedding of digital learning objectives within future education policy and curriculum initiatives’ (DES, 2015, p23) highlighting the vital importance of long-term planning when it comes to integrating ICT into teaching, learning and assessment. In a whole-school sense this planning was supported by the National Centre for Technology in Education handbook *Planning and Implementing e-Learning in Your School* (NCTE, 2009) and more recently by the School Self Evaluation (SSE) process. This planning process should be supported by the creation of high quality, relevant content for use

in the classroom by teachers themselves or through engagement with publishers of digital content. The provision of access to [Scoilnet](#) and its associated websites provides access to Open Educational Resources and the creation of sharing of resources between schools is encouraged.

The DSS emphasises the importance of ICT for the promotion of inclusivity across the educational system. It suggests that students with disabilities, special educational needs (SEN), from disadvantaged backgrounds and those with cultural or language differences can participate more fully in their education aided by ICT. With particular reference to students at risk of educational disadvantage, the strategy states that ‘ICT can enable students to learn in new and exciting ways, encourage their engagement and make communication easier... can allow students at risk of early school leaving to connect with learning in new ways, resulting in improved motivation, attendance and application’ (DES, 2015a, p25).

3.1.2. Teacher Professional Learning

The second theme of the Digital Strategy for Schools is Teacher Professional Learning. The strategy intends to embed ICT training across the continuum of teacher education; from initial teacher training to inservice CPD. It draws on Koehler & Mishra’s (2006) Technological Pedagogical and Content Framework (TPCK) to provide a guideline on how to integrate ICT practices effectively into teaching (Fig.6.2). TPCK describes 3 types of knowledge teachers need to integrate ICT into practice: Technological Knowledge, Knowledge of the Curriculum and Pedagogical Knowledge of the subject. The three types of knowledge are important in themselves but how they interact / overlap is also important as

when ‘teachers effectively integrate these areas of knowledge, they can embed ICT effectively into their practice’ (DES, 2015a, p30). The authors themselves concede that teaching expertise is dependent on ‘flexible access to highly organised systems of knowledge... including knowledge of student thinking and learning and knowledge of subject matter’ (Mishra and Koehler, 2016, p1020)

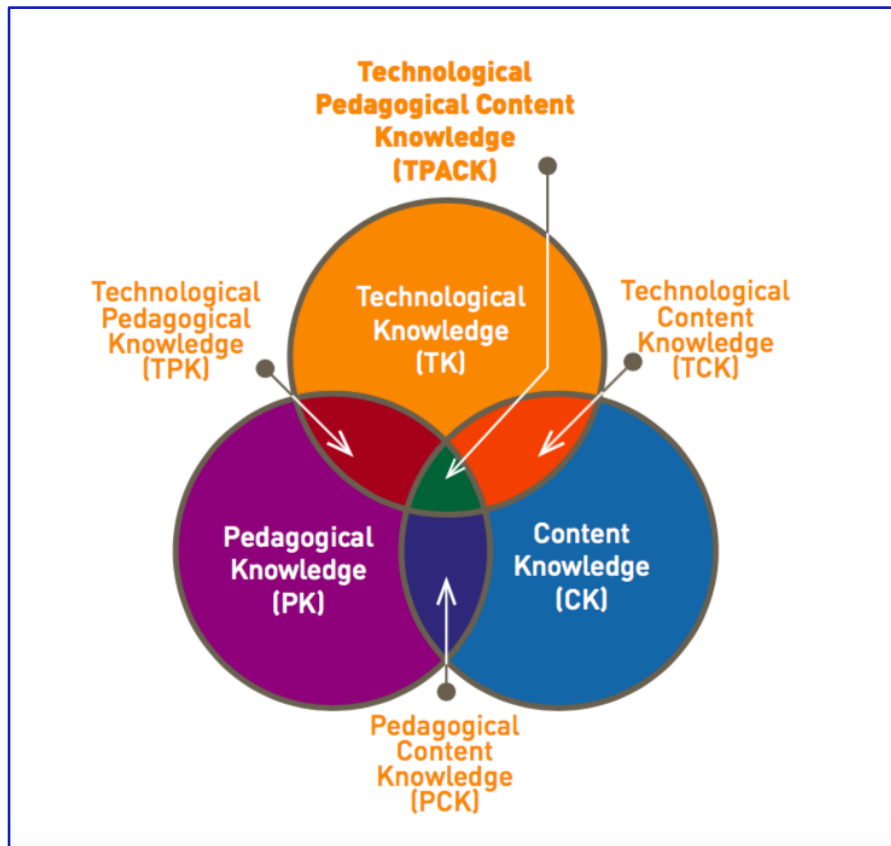


Fig 6.2. *Technological Pedagogical Content Knowledge (TPCK) Framework (Mishra and Koehler, 2006)*

The DSS strongly recommends that *all* teachers have the appropriate knowledge and skills to integrate ICT effectively in the classroom while conceding that not all teachers have the same level of know-how in this area. To this end, the DSS suggests a type of teacher CPD that is differentiated to the needs and levels of ability of a cross section of teachers. The strategy calls for a variety of formats for CPD: whole school, subject dept, in-school CPD, out of

school CPD, online and blended courses. Importantly, the strategy emphasises the need for any teacher learning to be rooted in classroom practice and promote active student learning. It is important for CPD around ICT integration to be delivered using and/or based on a school's own resources; this is cited in the strategy and points to an interesting form of differentiation, as not all schools have the same equipment available to either staff or students.

The strategy seeks to 'promote innovative practice' through a number of channels. Firstly, through teacher Communities of Practice where teachers can share, discuss and disseminate good practice in person or via online means. This sharing of practice is supported by Teaching Council initiatives such as FÉILTE, Driochhead and Molfeasa. The Digital Schools of Distinction initiative 'recognises excellence in the use of ICT at primary level' (Digital Schools of Distinction, 2020) and aims to support engagement in post-primary. The Schools Digital Champion initiative encourages student participation in digital projects. The [FÍS Film Project](#) and [FÍS Book Club](#) provide an opportunity to showcase good practice.

3.1.3. Leadership, Research and Policy

As with any new initiative, the management and leadership of its roll out, implementation and evaluation is important and this is reflected in the third theme of the DSS. The strategy's theme of Leadership, Research and Policy is very much focused on support, guidance and provision of resources and trying to ensure that ICT is 'embedded at all stages of the continuum of teacher education' (DES, 2015a, p37).

The DSS expresses a need for the close monitoring of its implementation and cites inspectorate reports and SSE as sources of evaluation data. The strategy indicates an intention to collect data following 2016/17 school year for a progress report but this is not available as yet.

Significantly, the DSS highlights the need for more teacher-led research in the area of using digital technology in teaching, learning and assessment and asserts the importance of experimentation in integrating ICT into teaching, learning and assessment. In line with the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014) teachers should be encouraged to engage in reflective practice, to plan and implement different approaches to using ICT in the classroom, to monitor their effects, to see what works and what doesn't and to adapt as appropriate, with the objective of 'encouraging a culture of innovation' (DES, 2015a, p39).

3.1.4. Infrastructure

The strategy outlines plans, in conjunction with the Department of Communications, Energy and Natural Resources (DCENR), to provide 100 Mbit/sec broadband to all post-primary schools in Ireland as well as 'a need to invest in digital devices in schools' (DES, 2015a, p42). The strategy states that teachers have good access to devices but that students are not so well resourced and suggests that this lack of resources leads to a more didactic, rather than constructivist, style of teaching. However, this may over simplify the matter as research shows that more tech equipment does not necessarily lead to better teaching/learning (Wilkin, 2017). To this end the DES aims to increase the use of cloud computing, to assist

schools with technical support services and to ‘ensure clear and concise advice is available to schools in relation to procurement’ (DES, 2015a, p45).

3.2. The Digital Learning Framework for Post-Primary Schools

The DSS was reinforced in 2017 by the publication of the [Digital Learning Framework \(DLF\) for Schools](#). This framework is modelled on the department’s school self evaluation (SSE) framework *Looking at Our School 2106: A Quality Framework for Post-Primary Schools*, in that it states clear standards or ‘behaviours and attributes characteristic of practices in an effective, well-functioning school’ (DES, 2016, p8) and for each standard a statement of practice is given at two levels- effective practice and highly effective practice. The DLF seeks to provide a reference for effective and highly effective practice with regard to embedding digital technologies in teaching, learning, assessment and ‘across all aspects of school activity’ (DES, 2017, p3). Expected long-term outcomes from implementation of the framework reflect those of the DSS including a more constructivist approach to teaching and learning, high levels of pupil engagement, a whole school approach to embedding ICT in the classroom, differentiation in teaching and learning and student centred teaching leading to students becoming ‘engaged thinkers, active learners, and knowledge constructors’ (DES, 2017, p4). Evaluations of the DLF carried out by the Educational Research Centre (Ferrick, Cosgrove and Moran, 2021; Cosgrove, Duggan, Shiel & Leahy, 2018) indicate that implementation of the framework could certainly lead to these objectives being met in schools.

The DSS 2015-2020 and the framework provided by the DLF to implement the strategy is certainly comprehensive in its approach to embedding digital technology seamlessly into teaching, learning and assessment in Irish schools. That the Irish Government recognises the importance of imbuing its young people with digital literacy skills is encouraging, however, the implementation of the strategy at school level will very much depend on the resources available to schools, teachers and students. Drawing on Rosenberg's (2001) approach to implementing eLearning changes, school leaders will have to identify and support champions or digital team leaders (DTL) (DE, 2022) to clearly communicate aims of the strategy and its benefits teachers and students and create a culture that supports the implementation of the DSS.

3.3. The Junior Cycle and Digital Literacy

3.3.1. The Framework for Junior Cycle 2015

The Framework for Junior Cycle 2015 'advances the vision for Junior Cycle reform that was outlined in the Framework for Junior Cycle 2012' (DES, 2015b, p6). While the embedding of digital technologies in the classroom and the development of students' digital skills is clearly not the primary focus of the Junior Cycle framework it is certainly a concern. The [eight principles for Junior Cycle Education](#) can be linked to the vision set out in the Digital Strategy for Schools, as outlined in Table 6.2.

	Links to Digital Strategy for Schools (DES, 2015a)
Learning to Learn	The DSS promotes a constructivist pedagogical approach when integrating ICT into the curriculum. It advocates the active involvement of the learner in the learning process (p21).
Choice and Flexibility	The integration of ICT across the Junior Cycle’s curricula is central to the DSS. This allows students and teachers the opportunity to work with digital tools in a variety of contexts and subjects.
Quality	Structures are provided to provide oversight and guidance in the implementation of the policy. Appropriate links are made with other school policies to support implementation, including with SSE, external inspection and research (p36).
Creativity and Innovation	The DSS encourages the use of ICT for creative and innovative teaching and learning practices. The use of ICT also offers opportunities for new approaches to assessment and encourages critical and creative thinking (p24).
Engagement and Participation	The use of ICT should allow students to be actively engaged in their own learning to take ownership of their learning. Students should be able to use technology to achieve personal learning goals (p13).
Continuity and Development	Students’ experience at JC should lay the foundation for their digital learning at Senior Cycle, and indeed into further education.
Inclusive education	The DSS recognises the potential for ICT to support learners with special educational needs or with English as an additional language. It also highlights the potential for ICT, if embedded appropriately, to engage students who are at risk of educational disadvantage (p25).
Wellbeing	The use of ICT should open up new forms of teaching and learning, allowing students to experience joy, satisfaction, passion and success in their education. Students should be able to use ICT critically and ethically (p13).

Table 6.2. *Linking the Framework for Junior Cycle (DES, 2015b) to the Digital Strategy for Schools (DES, 2015a)*

The [twenty-four statements of learning](#), which detail expected student learning at JC, are more explicit in their links to the DSS and the framework's vision for the use of ICT in teaching, learning and assessment at Junior Cycle. The twenty-fourth statement 'The student uses technology and digital media tools to learn, communicate, work and think collaboratively and creatively in a responsible and ethical matter' (DES, 2015b, p12) is a good summation of the general learning objective for students with explicit regard to digital technologies. However, many of the other statements of learning incorporate features and skills that are desirable in a digitally literate student with students required to be able to 'interpret a wide range of texts', to 'communicate using a variety of means', to be 'an active [digital] citizen with rights and responsibilities', to use 'appropriate technologies in meeting a design challenge', to be 'innovative and has entrepreneurial skills' and to 'take an idea from conception to realisation' (DES, 2015b, p12).

Each of the [eight key skill descriptors](#) mentions digital technologies in some respect, emphasising the importance of the development of students' skills in this area.

The key skills are 'required for successful learning across the curriculum and for learning beyond school' (DES, 2015b, p13). Furthermore they are deemed necessary for learners to help them 'develop the knowledge, skills and attitudes and to face the many challenges in today's world' (NCCA, 2019). The skills mention the following elements with regard to digital technology:

- **Managing Myself:** Using digital technology to manage myself and my learning
- **Staying Well:** Being responsible, safe and ethical in using digital technology
- **Communicating:** Using digital technology to communicate

- **Being Creative:** Stimulating Creativity using digital technology
- **Working With Others:** Working with others through digital technology
- **Managing Information and Thinking:** Using digital technology to access manage and share content
- **Being Literate:** Exploring and creating a variety of texts, including multimodal texts
- **Being Numerate:** Using digital technology to develop numeracy skills and understanding.

The inclusion of these digital elements in each of the skills signifies the government's acknowledgement of the centrality of technology in the lives of young people and its responsibility to help cater for this new reality.

3.3.2. The Junior Cycle English Specification

The Junior Cycle English specification makes no specific reference to digital literacy, as its three core strands are Oral Language, Reading and Writing. The specification rationale states that 'learning about language in texts, including digital texts, is important to social development and as part of this process students develop the competence and confidence needed to meet the demands of school, employment, further education and life' (NCCA, 2018a, p4). Here again it is clear that even within subject specifications there is an onus on preparing young people to be digitally adept in order to participate fully in the economy and modern society more generally (DES, 2015a; DES, 2009). The thirty-nine learning outcomes (LO) set out in the specification leave much scope for the use of digital technologies and the development of students' digital skills within the parameters of the English classroom. The L.O.s call for creativity, collaboration, critical analysis, research and the appreciation of

‘different literary, digital and visual genres’ (NCCA, 2018a, p13). However, an evaluation of the enactment of the Junior Cycle English specification carried out in 2018 found that teachers and students expressed frustration that the lack of access to digital technologies in school restricted their ability to ‘realise the digital possibilities of the new Junior Cycle’ (NCCA, 2018b, p50).

3.3.3. The Junior Cycle Digital Media Literacy Specification

The National Council for Curriculum and Assessment (NCCA) has developed ten short courses (that is courses of 100 hours over three years) for Junior Cycle, the specifications for which are available on the [NCCA website](#). Some of the short courses are subjects already a requirement in schools, e.g. Social, Personal and Health Education and Physical Education. However, other courses have been developed that are reflective of a changing society e.g. Coding, Forensic Science, Chinese Language and Culture and Digital Media Literacy.

The DML specification recognises that ‘making and sharing media has become an increasingly important feature of how young people communicate and engage with each other and with the wider world’ (NCCA, 2016, p4) and identifies a need for students to be able to develop their digital literacy skills, including being able to critically assess information found online, being creative, collaborative and effective communicators who are discerning online (NCCA, 2016). Indeed, the DML specification states its overall aim ‘to extend and refine students’ ability to use digital technology, communication tools and the Internet creatively, critically and safely, in support of their development, learning and

capacity to participate effectively in social and community life' (NCCA, 2016, p5). The achievement of this aim is recognised through the delivery of four strands:

- a) **My Digital World-** How and why we use digital technologies, Internet safety, ethical Internet use, copyright issues
- b) **Following My Interests Online-** Digital imagery, digital texts and their purposes, how similar information is presented in different formats
- c) **Checking the facts-** Bias and influence online, the influence of digital media
- d) **Publishing Myself-** Online rights and risks, citing/referencing, standards for sharing information online

Each of the four strands has seven expected learning outcomes (LO) encompassing a variety of aspects including communication, rights and responsibilities, ethical behaviour online, Internet safety, accessing and 'reading' digital texts, gathering information and evaluating its reliability, the influence of digital media, privacy and online publishing. The wide variety of topics covered in the DML short course is indicative that the government and the DES does not assume the digital native status of today's young people and recognises that the skills associated with the notion of digital native are not inherent and need to be taught to young people if they are to participate appropriately online.

4. Exploring young people's ICT Use in my own work setting

Given the growing body of research that refutes the digital native argument and the government's concerted effort to improve the digital skills of today's young people I thought it pertinent to get an overview of the digital literacy of the students in my own school and

conducted a [survey](#) to garner this information, the findings of which will be discussed in this section.

The London School of Economics (LSE) has developed the multinational research network, EU Kids Online, in an effort to ‘enhance knowledge of European children's online opportunities, risks and safety’ (LSE, 2019). In 2010 the EU Kids Online project surveyed 25,142 children aged 9-16 and one of their parents in 25 European countries. It can be noted that in 2020 another survey with 19 EU countries was carried out but this did not include Ireland. The survey investigated online risks but also produced reports on areas such as bullying, disadvantage, social networking and digital skills (LSE, 2019). I used their [interviewer administered] [survey](#) as a basis for the questions asked of the students in my school as this allowed for comparisons between results. The survey was anonymous, was administered using Google Forms and accessed by respondents in the school computer room. To counteract any potential literacy issues I read the questions aloud to the students. As noted in my reflection journal of November 2017, I only selected questions directly related to my own research.

I went through the questions and chose the topics that I thought were the most relevant to my research, leaving out the sections that covered issues such as access to inappropriate content, etc. as I believed it was not related to my study and perhaps carried a higher degree of ‘risk’ than outlined in my REC application.

Reflection Journal, November 2017

The survey sample was chosen randomly and consisted of 78 students in Junior Cycle whose classes were available to come to the school’s computer room at the allocated times.

Respondents' ages ranged from 13- 16 years old. 54% of respondents were female and 46% male.

4.1. Student access to digital technologies

All respondents had access to a device and the Internet (100%). The vast majority of students (75%) primarily accessed the Internet using a mobile phone, although tablet PCs (31%) and laptops (31%) were an important secondary means of access. 98.7% of respondents had access to Wi-Fi in their home. Answers varied as to when students first accessed the Internet but this may be due to guess-work or misremembering with most students stating that they first accessed the Internet at seven or eight years old (30.8%).

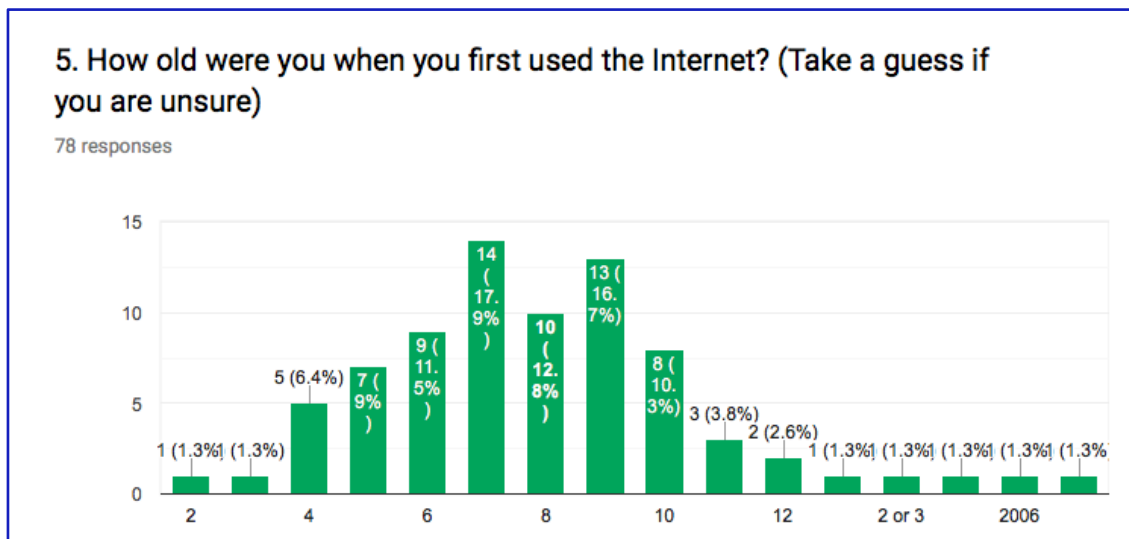


Fig 6.3. Students age when first accessing the Internet

In terms of *where* students accessed the Internet and used digital technologies many (89.7%) respondents used their devices in the privacy of their own room or another private room at home. A significant number of students used the Internet in a family room at home (65.4%) or when out with friends (50%). A minority of students (20.5%) indicated that they accessed the Internet at school which may speak to a lack of digital technologies in the school.

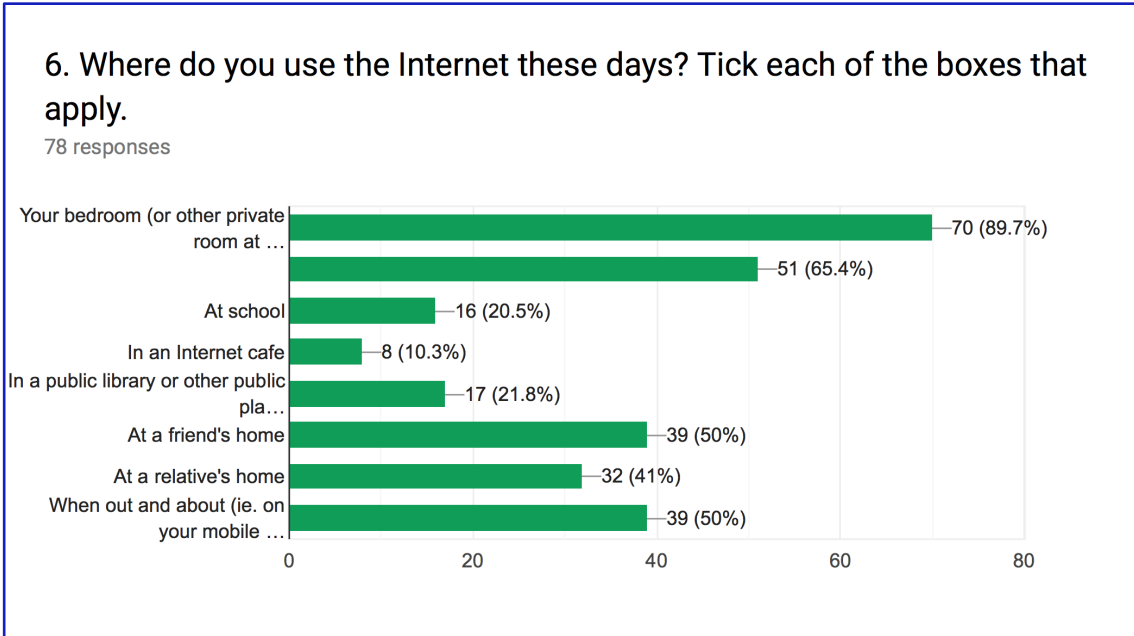


Fig 6.4. Where students are most likely to use the Internet

A vast majority of respondents indicated that they spent a significant amount of time on both school and weekend days on the Internet. 56.5% of students said that they spent four or more hours on the Internet on a school day, with 74.4% of students saying that they spent four or more hours online on their devices at the weekend.

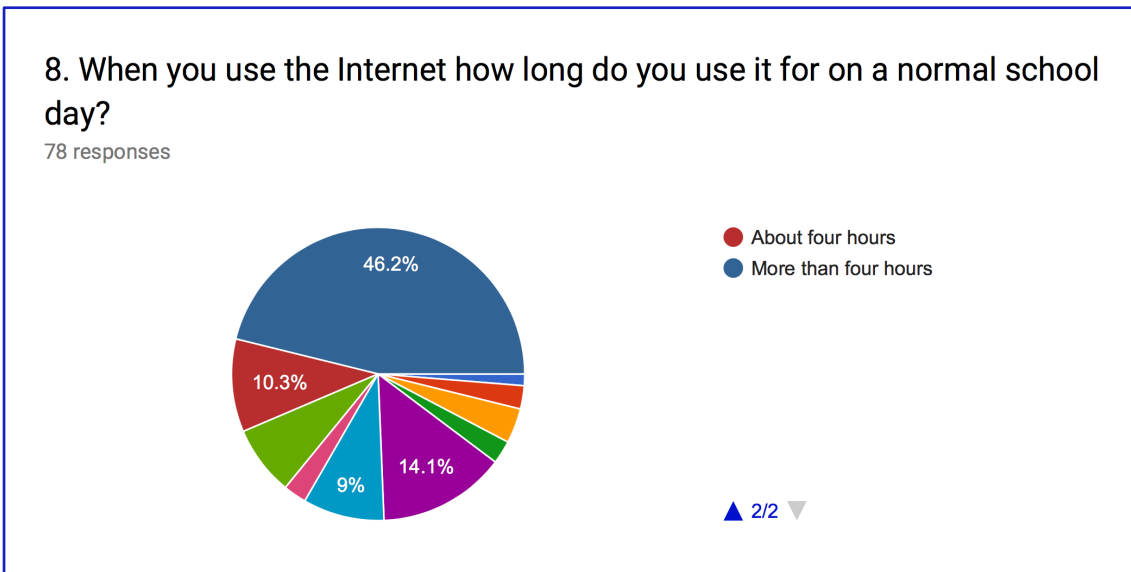


Fig 6.5. School Day Internet Use

9. When you use the Internet how long do you use it for on a normal non-school day? (e.g. The weekend or midterm break)

78 responses

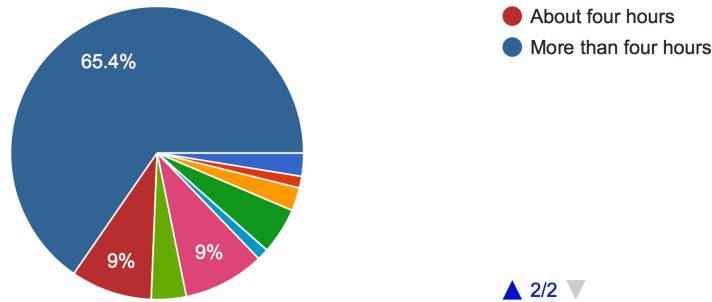


Fig 6.6: Non-School Day Internet Use

This level of use of the Internet and digital devices appears contrary to the literature that states that exposure to ICTs improves a person's chances of having 'digital native' characteristics (Gulatee & Coombes, 2018; Akçayır, Dündar & Akçayır, 2015; Hargittai, 2010; Oblinger and Oblinger, 2005). However, it is necessary to examine further *what* activities young people are engaged in online to see if they are aligned with the characteristics associated with digital natives. Respondents to this survey were given a list of things people commonly do on the Internet and asked how often they had done each particular activity in the past month.

4.2. Student use of digital technologies

The responses indicated that students used the Internet and their devices primarily for *instant messaging* (96%, everyday or once or twice a week) and *watching clips on YouTube* (94%, everyday or once or twice a week). *Visiting a social networking site* was also a popular

activity with 77% of respondents stating that they did this either everyday or once or twice a week. These three activities (instant messaging, watching videos on YouTube and social networking) were far and away the most popular online activities, with activities such as **downloading music** (63%, everyday or once or twice a week), **posting photos, videos or music to share with others** (62%, everyday or once or twice a week), **school-work** (49%, everyday or once or twice a week) and **playing games online with others** (58%, everyday or once or twice a week) all proving to be moderately popular pursuits.

Some activities were considerably less popular with students; only 29% of students **sent or received email** everyday or once or twice a week, less than a quarter of students **visited a chat room** regularly (22%, everyday or once or twice a week) and 26% (everyday or once or twice a week) of students creating an online character or avatar. Least popular of all was **writing a blog post** (8%, everyday or once or twice a week). Interestingly, only 23% of students indicated that they **made their own videos and posted them online**. This seems contrary to the 74% of students who said they primarily used Snapchat or Instagram as their preferred social networking site.

13. Below is a list of social media sites. Which one do you use most often?
You can only choose one answer.

78 responses

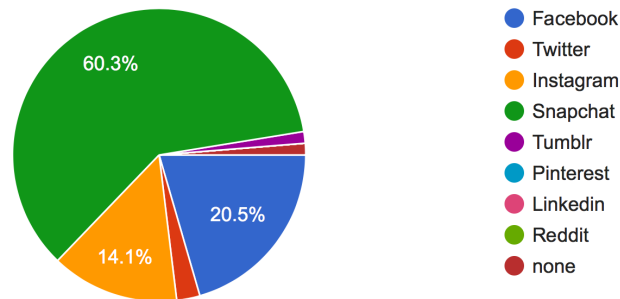


Fig 6.7. Students' preferred social media sites

Instagram and Snapchat are free photo and video sharing apps available on IOS, Android and Windows phones. Using either of these apps users can upload photos and videos and share them with their followers or a selected group of friends. Users can also view, comment on and, on the Instagram platform, 'like' the photos and videos of their friends and users they follow. Additionally, both apps allow users to add filters, stickers and artwork to their photographs and videos as well as 'draw' on their creations using their finger (Instagram, 2019; Snapchat, 2019).



Fig 6.8. Snapchat picture with an old woman filter, stickers, and drawing

Central to the use of both Instagram and Snapchat is the *creation* of videos and the publishing of them online. That 74% of students use Snapchat or Instagram while only 23% of students purport to making and sharing videos online shows that students consider this basic, unedited content for ‘immediate distribution to friends online’ (Fernández-de-Arroyabe-Olaortua, Lazkano-Arrillaga, & Eguskiza-Sesumaga, 2018, p66) as distinctive to the less immediate, more structured and edited content found on platforms such as YouTube. Fernández-de-Arroyabe-Olaortua, Lazkano-Arrillaga, & Eguskiza-Sesumaga (2018) found that while students have access to the tools and skills necessary to create higher quality content, very few teens have the ‘critical capacity’ produce such audio-visual work. The findings of this small-scale survey imply that students themselves do not see this minimalist recording and sharing of video as *creative* in a traditional sense.

Finally, students were asked about their perceived competencies when using the Internet. Students appeared confident in their abilities to use digital tools and navigate online, with a majority of students positively self-reporting their ability to *compare different websites to decide if information is true* (55%), *bookmark a website* (56.4%), *block unwanted adverts or junk mail* (71.3%), *change privacy settings on a social network profile* (74.4%), *block messages from someone you don't want to hear from* (83.3%) and to *find information on how to safely use the Internet* (53.3%). A minority of students were confident in their ability to *use movie editing software (like Movie Maker or iMovie) to make and edit movies* (48.7%) or to *upload a video to YouTube* (47.4%), in line with the previous finding that students did not perceive themselves as having the skills and ability to be creators of content. However, it is worth keeping in mind Porat, Blau and Barak's (2018) finding that while young people might display high confidence in their digital skills, they have a tendency to 'significantly overestimate their actual competencies' (p23).

4.3. Discussion

Although the survey took place in a DEIS school in a disadvantaged area, students overwhelmingly had access to the Internet at home via Wi-Fi or data on their phone. Students are unable to access the school's Wi-Fi on their own devices. These findings are inline with PISA's (2016) study which found that disadvantaged students in developed countries often have the same access to the Internet as their more advantaged counterparts. However, it is 'what students do with computers' (PISA, 2016, p1) that relates to socio-economic status and the results of this small scale survey indicated a second level digital divide (Hargittai 2002, OECD, 2016). Disadvantaged students were likely to spend more time online and use the

Internet for and computers for ‘shallower’ pursuits such as messaging and playing video games as opposed to finding information or reading the news online. The findings support PISA’s findings in this regard, with students mainly engaging in messaging and consumption of media online. As discussed in greater detail in chapter 5, disadvantaged students, although they may have equal access to the Internet, do not derive the same benefit from it. They may not be aware of the opportunities that technology can bring or have the requisite skills to access these opportunities (Aydin, 2021; Van Dijk, 2020; PISA, 2016; Van Dursen and Helsper, 2015; Hargittai and Walejko, 2008; Hargittai, 2008).

5. Conclusion

As part of the *explore* and *understand* phase of the EEA, this chapter detailed my journey to a greater understanding of the digital literacy levels of young people. Firstly, the literature surrounding digital natives was explored, ultimately leading to a rebuttal of the general concept of a ‘digital native’ and an understanding that young people’s ICT use is far more “passive, solitary, sporadic and unspectacular” (Selwyn, 2009, p374) than one might expect. Factors that are more likely to impact a young person’s level of digital literacy include their level of exposure to technology, socio-economic status, geography, level of educational attainment and developmental stage.

The Irish Government’s commitment to improving the digital literacy of Irish students was made apparent with the release of a number of comprehensive documents aimed at integrating digital tools and skills into the classroom; the Digital Strategy for Schools (DSS),

the Digital Learning Framework (DLF) for post-primary and the Junior Cycle Framework. These documents outline a broad vision of integrating ICT into all aspects of school to develop both the explicit and discrete digital skills needed by young people today. Of particular interest to this study was the Digital Strategy for Schools' use of Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPCK) Framework to provide all teachers with the appropriate knowledge and skills to integrate technology effectively into the classroom through a variety of CPD formats (whole school, face-to-face, subject department, online and blended learning courses).

The results of a survey carried out with my own students on their use of digital devices and the Internet were presented and analysed. The results did not reveal a first level digital divide but were consistent with descriptors of a second level digital divide. Students' use of digital devices and the Internet were in line with what was found in the literature; that students' use ICTs for 'shallower' pursuits and are less likely to use it for finding information or educational purposes. Moreover, students tended to consume rather than create content online.

This exploration of the literature around the digital native, the Irish Government's approach to improving the digital literacy of young people and the digital skills and access to ICTs of my own students led to an improved understanding of how young people use digital technology and the factors that influence their levels of digital literacy. The next chapter details how, in line with Irish government policy, I attempted to 'get my own home in order'

(McNiff, 1992) by integrating digital tools into class activities as part of an Erasmus+ project.

Act III

Complication

A situation that intensifies the conflict



Chapter 7

Putting My Own Home in Order

“I do not initially aim to enquire into other people’s situations to suggest to them how they might do things differently. I look first at myself, at putting my own home in order and then I feel I am justified in communicating to others how I carried out my own process of self-improvement so that they may adopt and adapt my idea if they wish” -McNiff, 1992, p.3

1. Introduction

As explored in Chapter Six, the literature indicates that young people, supposed ‘digital natives’, do not use technology as intuitively and beneficially as we might assume. Studies show that young people, particularly those of lower socioeconomic status (SES), use information and communication technologies (ICTs) for consuming rather than creating content and for activities such as messaging or playing computer games (van Dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012, Hargittai, 2008). Central to Irish government policy to improve young people’s digital skills, as detailed in the Digital Strategy for Schools (DSS), the Digital Learning Framework (DLF), and the Junior Cycle Framework, is to support schools and teachers to integrate technology into subject curricula.

This chapter aligns with the *explore* and *understand* phase of the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014). It serves as a ‘meta’ action research cycle of planning, acting, observing and reflecting within my own teaching practice as I attempted to ‘put my own home in order’ (McNiff, 1994) in terms of integrating technology in the classroom. As the coordinator of an Erasmus+ project entitled ‘A Peace of Europe’, I

worked with a group of students on a number of information and communication technology (ICT) based tasks which afforded the students and myself opportunities to integrate digital tools into our class activities and improve our digital literacy.

This chapter presents a narrative of my experience of working with students and teachers from five different European countries to make a [PowToon](#) animation during a *mobility* (a trip to one of the Erasmus+ project partner countries) to Wales and my subsequent efforts to create a PowToon animation with my own students in Dublin. The chapter also describes the process of working with students to make a video presentation about two Nobel Peace Prize winners in collaboration with their Danish Erasmus+ counterparts. These activities were prescribed elements of the Peace of Europe Project.

Within this chapter a number of teaching methods are mentioned, such as tablemats, brainstorming, storyboarding and using digital tools such as PowToon, Padlet, Skype and screencasting software. Some of these approaches were dictated by the Peace of Europe Project, such as, creating a PowToon animation and using Skype to collaborate with the Erasmus+ partner countries. Other approaches, for example, brainstorming, tablemats, storyboarding, Padlet and pair/ group work were teaching strategies I used regularly in my own classes and found to be effective and engaging. The Junior Cycle Implementation Service (JCIS) also advocates the use of these classroom strategies and promotes them on the [Junior Cycle for Teachers \(JCT\) website](#). A brief summary of the teaching and learning strategies used can be found in table 7.1. Short descriptions of the digital tools used in these activities can be found in the Glossary of Terms on page 21.

This exploration of the use of digital tools in class led to a burgeoning understanding of how they can be used with students to develop digital literacy. The knowledge and understanding garnered from the implementation of these in-class activities was foundational in the development of the curriculum and accompanying teacher CPD course that are central to this research inquiry.

Teaching/ Learning Strategy	Brief Description
Brainstorming	<p>Teacher presents a topic or question to students who then provide ideas and feedback within an allotted time frame. Students are given the opportunity to tap into previous knowledge and make connections with the topic at hand.</p> <p>JCIS Brainstorming</p>
Tablemats	<p>Teacher gives students a topic or question. Students work in groups of 4 around an A3 sheet of paper. The table mat contains an individual section for each group member to write what they know on the topic. Students then combine their individual knowledge in a group section at the centre of the tablemat and feedback their group consensus to the class.</p> <p>JCIS Tablemats</p>
Storyboards	<p>Storyboards are typically a series of boxes or frames that visually represent scenes from a story or film script. The frame is often accompanied by a short written description (Christiano, 2011; Varvel and Lindman, 2005). ‘Storyboards allow students to make use of different strategies such as previewing, visualising, illustrating, using background knowledge, summarising, sequence understanding, identifying main ideas and details and identifying important information’ (Naar, 2013).</p>
Padlet	<p>Padlet is an online application that acts as a blank notice board on which users can post a wide variety of content and files (for example, images, documents, videos, music, and files from Photoshop and Illustrator. The Padlet link can be shared with others and can be populated collaboratively from anywhere in the world.</p> <p>JCIS Padlet</p>

Table 7.1. Teaching methods mentioned in Chapter 6

2. Erasmus+

Erasmus+ is a European Union funded programme focused on education, training, youth and sport. According to the Erasmus+ Programme Guide (2015) the issues of early school leaving, youth unemployment and social marginalisation are prevalent in today's European society and "well performing educational and training systems and youth policies can help tackle these challenges by providing people with the skills required by the labour market and the economy" (European Commission, 2105, p9). Erasmus+ seeks to support such 'educational and training systems' to tap into the potential of Europe's human talent and social capital in formal, informal and non-formal educational spheres.

Erasmus+ aims to promote the European Union (EU) values of respect for human dignity, freedom, democracy, equality, law, human rights, pluralism, tolerance and solidarity. The programme also aims to promote equity and inclusion for those in society who do not have the same educational opportunities as their peers due to a number of inhibiting factors including disability, educational difficulties, economic, social or geographical obstacles, cultural differences or health problems. In meeting its aims and objectives Erasmus+ includes a strong international dimension and supports the mobility of young people and those who work with them (European Commission, 2015). The Erasmus+ programme has three Key Actions:

Key Action 1: Mobility of individuals

Key Action 2: Cooperation for innovation and exchange of good practices

Key Action 3: Support for policy reform

This chapter focuses on some of the activities undertaken as part of an Erasmus+ Comenius Key Action 2 (KA2) project which seeks to “develop initiatives addressing education, training and youth...promote innovation and exchange experience and know-how” (European Commission, 2015, p15) between different educational organisations.

While the European Commission is responsible for the overall running of the programme Erasmus+ is mainly implemented by the national agencies. The Irish national agency is Léargas, a non-profit organisation established in 1986 ‘to support international exchange and collaboration in the youth sector’ (Léargas, 2016).

2.1. A Peace of Europe

A Peace of Europe (PoE) is a KA2, Cooperation for innovation and exchange of good practices, project involving 6 partner schools from Ireland, Denmark, Wales, France, Spain and Cyprus. The project was conceived in 2013 and an application made to Erasmus+ in 2014 to initiate the project. The EU’s 2012 winning of the Nobel Peace Prize inspired the PoE project. The project’s application form (2014) recognised that Europe was, quite recently, a continent marred by war but had transformed to one of peace (a statement that sadly no longer holds true due to the recent invasion of Ukraine). It goes on to propose that in this peace time it is essential to instil in future generations of Europeans an “understanding, tolerance and appreciation of each other to maintain and strengthen our peaceful existence” (PoE, 2014).

Through a number of collaborative activities, as well as short-term exchanges of groups of pupils (partner meetings or mobilities), the project sought to bring into focus, over a three-year period, the following areas; peace of mind, the story of peace, peace in our time and peace in the future. The activities were designed to “strengthen the academic and cultural knowledge of the participants involved” (PoE, 2014) and address three main areas:

- Intercultural dialogue and literacy
- ICT strategies
- Awareness of being an EU citizen

ICT, new technologies and digital competencies were cited as some of the most relevant topics involved in the project. This was reflected in the activities themselves, many of which had a digital focus. Additionally, the proposed means of communication for participants were digitally based, namely, Google Mail, Google Drive and Google Hangouts (free online video conferencing software). PoE recognised the importance of trying out new ways of communicating and teaching and sharing good practice in this regard with our partner schools. The importance of student involvement and participation was also highlighted with a stated desire to develop “academic skills to enhance confidence and expand their [students’] career prospects in a European job market” (PoE, 2014).

2.2. Digital Activities in Year Two of the ‘Peace of Europe’ Project

Throughout the three years of the Peace of Europe Project there were many ICT based activities including making Wordles (digital word clouds), using Prezi, making online timelines, creating music videos, e-books and movies. This chapter focuses on two of the activities carried out in year two of the project and how they promoted an improvement in

standards of students' digital literacy. They are laid out in the application form (PoE, 2014) as follows but were open to some interpretation and underwent some organic changes during the partner meetings, online communications and subsequent carrying out of the activities.

- **“Reasons for war”**. Jan.-March 2016. Each country focuses on one or more wars from the timeline. They gather information about why the war began and they create a stop motion film about the war and its reasons. Movies are shown on the website.
- **"Nobel Peace prize”**. April-May 2016. All schools choose two Nobel prize winners to present on a PowerPoint which is shared on our website and presented to all countries.

2.2.1. Reasons for War- Movie Making Activity

2.2.1.1. Preparation

During year one of the project students were tasked with making a timeline of war and peace in their country's history using whatever digital tools they wished. My group of students opted to use the online timeline creator, tiki-toki.com, and worked with a history teacher in school to chart Ireland's history of conflict.



Fig 7.1. Using tiki-toki.com to create an interactive timeline
<http://www.tiki-toki.com/timeline/entry/514469/War-and-Peace-in-Ireland/>

Based on this timeline, students had to choose one significant conflict and create a stop motion movie based on this event explaining its causes and its outcomes. The movies created by all six partner countries would then be disseminated via the [PoE website](#). Given the significance of the centenary celebrations of the 1916 Rising Ireland chose to base our movie on the events of this important rebellion.

At the partner meeting in France (May 2015) I was charged with organising the workshops to teach students how to make a stop motion movie at our next partner meeting in Wales (October 2015). Leading up to the trip I researched various stop motion movie making applications and websites. There seemed to be some straightforward options, such as [monkeyjam.org](#) and Stop Motion Animator and although I was aware that making a basic stop motion movie wasn't going to be too difficult I had a number of concerns regarding the upcoming stop motion workshops at the Wales partner meeting, as outlined in my reflection journal on October 2015. My concerns centred on using the allotted time in the most efficient way possible and using as little extra equipment as possible. I was concerned that:

- The workshops were timetabled for an hour at a time over four days. I felt that this would be too staggered for the students to ever have a chance to get into the 'flow' of movie making.
- I was unfamiliar with the ICT facilities in the Welsh school and did not know if they were of a high standard, what operating systems or programmes they ran or what might be blocked by the school or Local Education Authority (LEA) firewall.

- Stop motion would require, not just computers, but cameras, wires, SD card readers, props, backgrounds and so on. Additionally, administrator permissions might be needed to download stop motion applications or software.

Having had previous experiences of these mobilities I knew that getting 30-40 children together from 6 different countries caused its own logistical problems and that adding extra elements into the mix would undoubtedly lead to time delays and under-utilise the 4 allocated hours.

(Reflection Journal, October 2016).

- Only the Irish and Welsh students had English as a first language. The Danes and Cypriots spoke English wonderfully but it was again their second (or third or fourth) language, the Spanish students spoke English reasonably well and the French students spoke very little English. I felt that an approach to movie making that was simple, straightforward and very visual was necessary to overcome the multi-lingual aspect of the project.
- Stop motion is time consuming. Each frame involves a photo so even a few seconds of film could take many photos. Knowing that each hour would be reduced to 45- 50 minutes by the time students got to the computer rooms, logged in, found their work, shut down computers and then tidied up, I felt that our 4 hours could be more efficiently spent.

I emailed my European colleagues and outlined my concerns. I suggested that as an alternative to stop motion we might use the online animation software, PowToon, to make the movies instead.

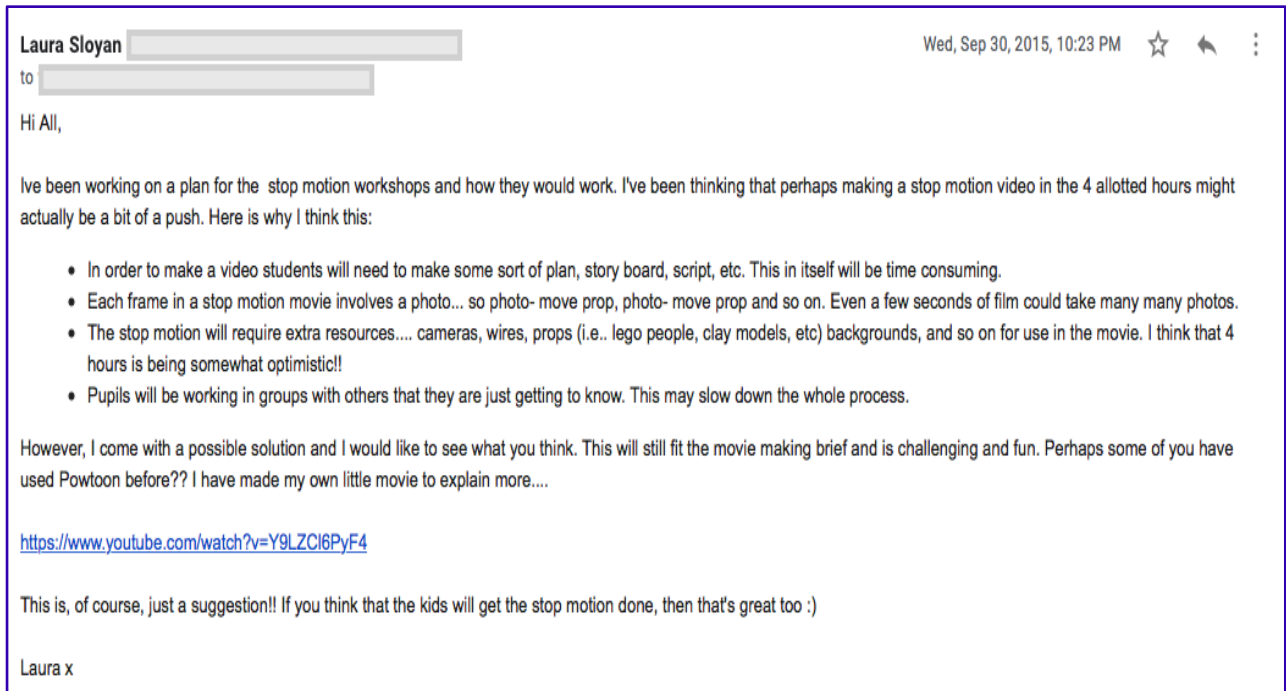


Fig.7.2. Personal Correspondence, September 2015

I made a short PowToon video to explain my rationale for moving away from the stop motion idea.



Video 7.1. Alternative to Stop Motion
<https://www.youtube.com/watch?v=Y9LZCl6PyF4>

The project co-ordinator replied, agreeing that an online activity such as PowToon may be a more efficient use of time while still retaining the movie making aspect of the task as outlined in the project application.

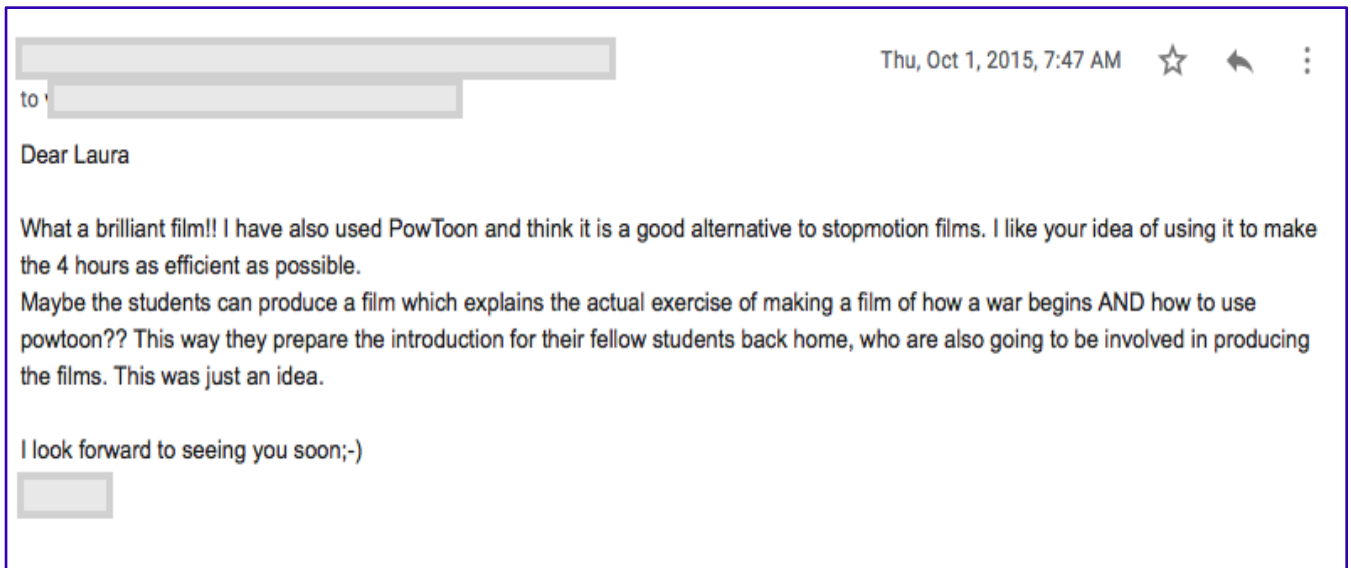


Fig.7.3. Personal Correspondence, October 2015

2.2.1.2. PowToon Workshops in Wales

In co-ordinating the PowToon workshops in Wales I sought to gain an understanding of the level of competence of the students in using online software such as PowToon. I also wanted an insight into how the project might run back in my own school and how I would transfer the lessons learned in Wales to my own practice.

The workshops were divided into 4 hour-long sessions. I loosely planned the workshops to try and ensure students knew:

- That the objective of the workshops was to learn how to use PowToon and create their own short films
- That their overall objective for the film making project was to make a short, animated movie about a conflict in their country's history when they returned to their own schools
- How to use the main facets of PowToon

I began by describing the task ahead of the students and went on to explain the basic tools available in PowToon; backgrounds, characters, flipping, timing and adding text. I then showed students how to set up their own free account, which most did with minimum fuss.

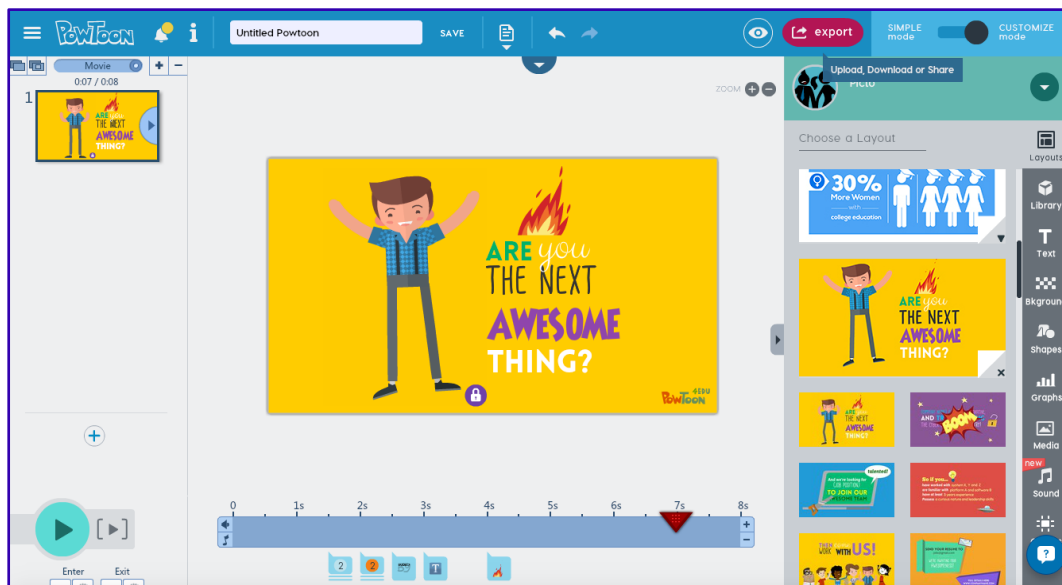


Fig 7.4. PowToon interface (www.powtoon.com)

The delays that I had anticipated when planning the movie making workshops were not unfounded and I felt justified in my suggestion to amend the activity to make the most of the time we had together.

I wasn't really surprised at how little was done in that first hour. I know from years of dealing with teenagers, class time limits and school ICT equipment that you rarely get as much done as anticipated. We had just about logged on, set up our accounts and played around a bit with the program when it was time for lunch.

(Reflection Journal, October 2016)



Fig 7.5. Students learning to use PowToon during the workshops

Only the Danish co-ordinator and myself had previous experience of using the program and most of the teachers were at the same stage as the students. However, reflecting on this later I considered this to be beneficial.

Everyone seemed to be working together to discover what they could achieve with the program and most of the students and teachers seemed to be enjoying the process.

Reflection Journal, October 2015



Fig 7.6. Teachers and students working together to learn how to use PowToon

The third and fourth workshops took place a couple of days later. The students were in different computer rooms and this, coupled with a disparity of browsers across the devices led to some disruption. All students were put into one room to work on their movies on laptops, so much time had been lost and at this point I felt that the 3 hours of workshops had reaped little reward.



Fig 7.7. Crowded classroom of students using laptops to work on their movies

The fourth hour of workshops proved to be more productive. I stopped the students from working briefly and outlined a few other features of PowToon; adding music, voiceover, arranging items on the screen, adding transitions and timing the entrance and exit of objects and characters.

While the PowToon workshops were not as productive as I had hoped, coordinating them certainly gave me a deeper understanding of what was required to make a successful short PowToon movie with my own students back at home. I became aware of many of the possible pitfalls involved in such an activity. I had developed a deeper understanding of my preferred approach to such activities and my reactions to the difficulties that arose during the workshops.

2.3. Creating Digital Artefacts with my own Students

This section describes the process that my students and I undertook to create a short PowToon animation movie on the 1916 Rising, an important event in Irish history, and two

video presentations on Nobel Peace Prize winners. The creation of these two digital artefacts were assigned Peace of Europe activities. Throughout this process I attempted to integrate my learning from my experience of leading the PowToon workshops with the Erasmus+ students in Wales. The creation process involved the use of a number of different teaching methods which were chosen to encourage students to be *creators* of multimedia artefacts in opposition to the literature which found that young people of lower socioeconomic status (SES) tended to consume rather than create content online. I believed that through the process of making digital artefacts with students I could explore, and come to a better understanding of, how I might improve their digital literacy skills through the various stages of the creative process. Further explanation of the teaching approaches and digital tools used can be found in table 7.1 and the Glossary of Terms on page 21.

I chose to work with a non-exam Religious Education (RE) class as I thought the peace theme of the project was apt for the subject and we had three RE classes a week in which to work on the movie. Additionally, I felt it prudent to choose a non-exam class while the students and I navigated the use of these digital technologies in class.

I decided to do this activity with my 5th year RE class as they are a lovely group of kids and I have them 3 times a week for non-exam religion so it allows me quite a lot of time to get the assignment finished.

Reflection Journal, November 2015

Rather than have each student produce their own individual PowToon movie or video presentation the tasks were approached as whole-class, collaborative with the aim of producing one PowToon movie and two video presentations.

2.3.1. Task 1: Creating a Short PowToon Animation Movie

From the outset, I wanted my students to have a sense of ownership and autonomy over this film (Marcus-Quinn and McGarr, 2013). I discussed with them which conflict they wished to portray in their film and the unanimous decision was the 1916 Rising. We discussed whether we would approach making the movie in an individual or collaborative fashion and concluded that it would be a collaborative whole class production.

It was essential that before beginning the movie that we researched the topic at hand. I approached the research as a collaborative task in an effort to see how the students worked together in a group. We began by watching a [YouTube video](#) on the 1916 Rising. This was short and to the point and seemed to hold their attention. I then put the students into groups and gave each group a ‘table mat’ and a handout with information from two different websites ([Website 1](#), [Website 2](#)). In my reflection journal in November 2015 I outlined my reasons for giving students the information directly rather than source it themselves on the Internet.

Firstly, we didn't have access to enough computers for the whole class to work on. Secondly, I often find that students can be overwhelmed by the sheer volume of information on the Internet about any given topic. I felt that by giving them specific information as a starting point it would give them something to focus on at a later date.

[Reflection Journal, November 2015](#)

The table mat activity required students to read through their information handout and write down what they felt were the most pertinent points in their own corner of the mat. After giving them an unspecified amount of time to fill in their own corner, I then timed them using [Online Stopwatch](#) as they discussed their findings and came to a consensus on what

were the main points about the 1916 Rising that should be included in the movie. They noted their consensus in the middle box on their ‘table mat’.

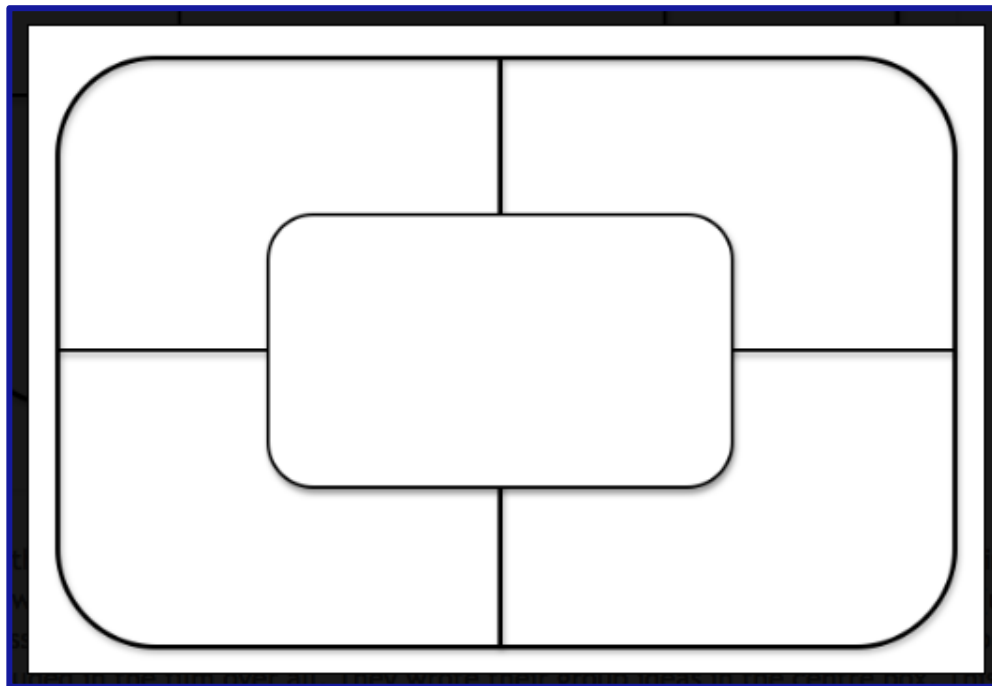


Fig 7.8. ‘Table Mat’ for collaborative work/research

Overall I was happy with the outcome of their group task, as I recorded in a reflection journal.

Students were able to fish out the basic information and come to an agreement about what were the most important pieces of information to be included. Naturally, some groups worked harder than others but I think that is to be expected and in general I was pleased with the level of collaboration that took place during the activity.

Reflection Journal, November 2015

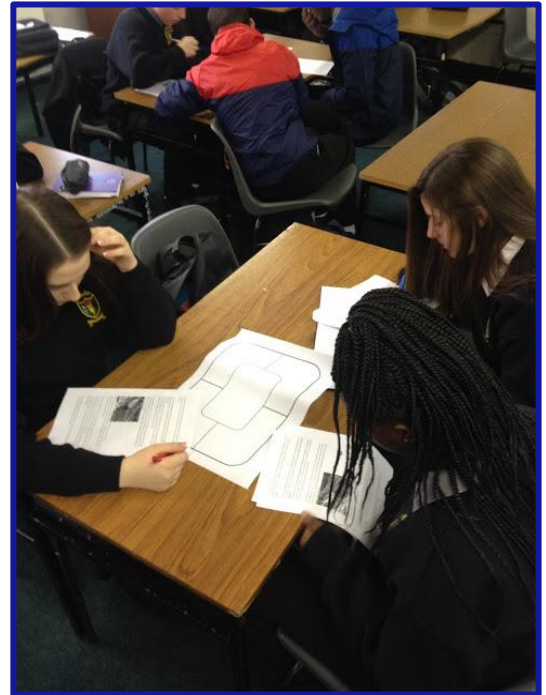
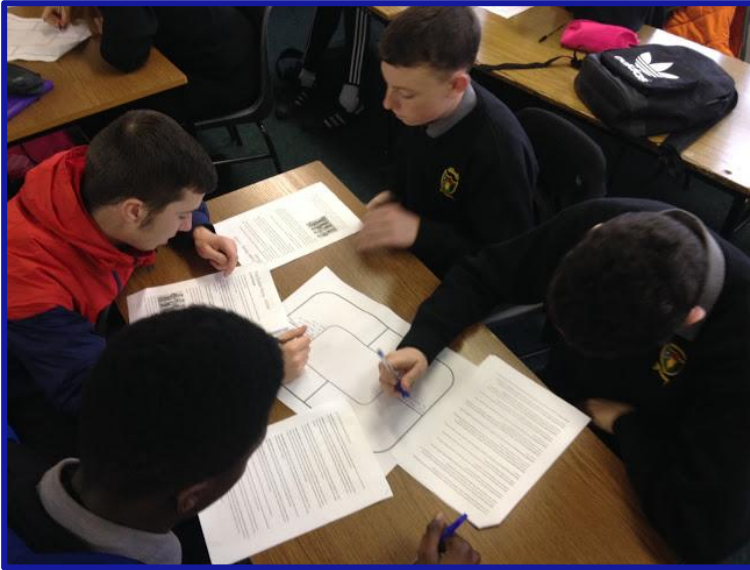


Fig 7.9. Students working collaboratively on their tablemat research

Once students had completed their group activity each group fed back to the class and I recorded their answers on a table mat projected onto the whiteboard. This was the same activity but on a larger scale and it brought us to a whole-class agreement as to what should be included in the movie.

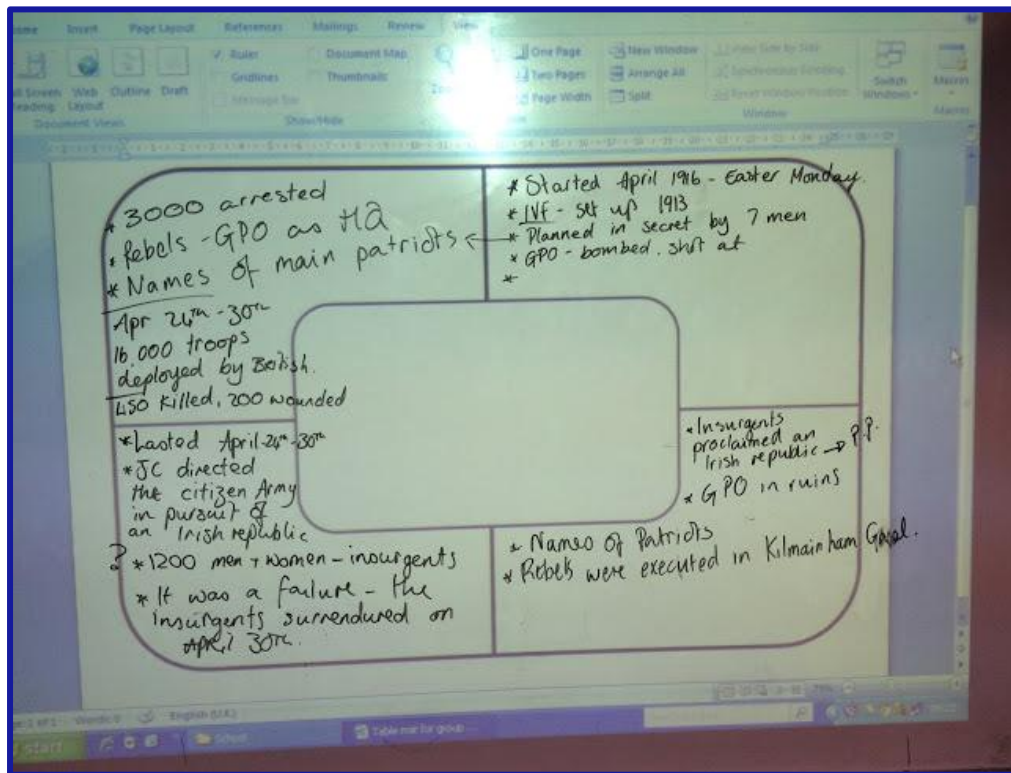


Fig 7.10. Coming to a whole class consensus on the key points to include in the movie using a table mat approach

Following on from this initial exploration into collaborative work I considered the students' capabilities in terms of engaging with the project. I had some concerns regarding their enthusiasm and motivation to connect with the project.

As I explained the project to the students I appeared to be met with a wall of apathy. The class are a very nice bunch, but they are quiet and reserved and I was not managing to instil in them the relevant excitement that they need to undertake such a project.

Reflection Journal, November 2015

I needed to evaluate the role that I could play in encouraging enthusiasm for, and engagement with, the activity.

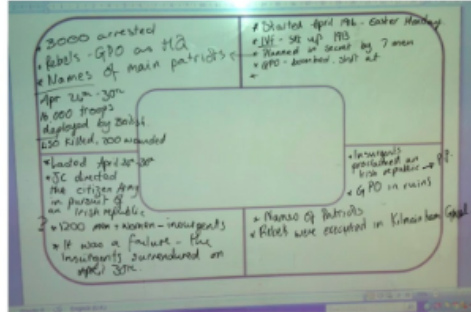
I have realised that this is not an ideal world and it will involve some effort on my part to draw students into the project and to engage with it on a personal level ...persistence and preparation might be the key here. ... If I am super-prepared, modelling commitment and engagement with the activity students will hopefully follow suit. Keeping students involved until they start to see progress and something tangible will also help them to take ownership of the film as something they can be proud of.

Reflection Journal, November 2015

In order to model the preparedness, commitment, persistence and engagement referred to in a November 2015 reflection journal I mapped out the project by drawing up a plan based on the previous class' collaborative work. The plan included 15 steps for the completion of the movie and I shared the document with my students so that they could offer suggestions or opinions if they wished. I also hoped that consulting with them on every aspect of the process might give them a greater sense of ownership over the activity and breed greater enthusiasm on their part.

Overall objective: To create a 3-5 minute animated movie that will inform viewers of the causes and events of the 1916 Rising.

1. Collective Research- Table mat activity:



2. Topics for further paired research - Students to find between 7-10

bullet points about each topic

- a) 7 leaders of the 1916 Rising [Darrell and Nathan M.]
- b) IVF [Tobi and Dean]
- c) Reasons for choosing Easter Week 1916 [Evis and Barbara]
- d) Proclamation of Independence [Jake and Graham]
- e) Events of the Rising- base, what happened, where it spread to, etc [Erica and Paula]
- f) Physical effects on Dublin
- g) The British Response [Rebecca and Kira]
- h) People killed and injured [Lauryn and Chantelle]
- i) Arrest and execution of the leaders [Jacob and Nathan]
- j) Change in Irish people's attitudes to the Rising

Fig 7.11. Plan for movie making process ([link to word document](#))

The planned outline clarified the process for me and reminded me of smaller steps that could easily be forgotten. The planned structure also seemed to garner some enthusiasm from the students.

Today in class we made it as far as point 6. I was really surprised at how some of the students really engaged with the brain-storming activity. I can't say this for the whole class but I'm really hoping that the enthusiasm of some will soon spread to others... There was actually a bit of a sense of excitement in the class from a number of pupils as they came up with ideas.

Reflection Journal, November 2015

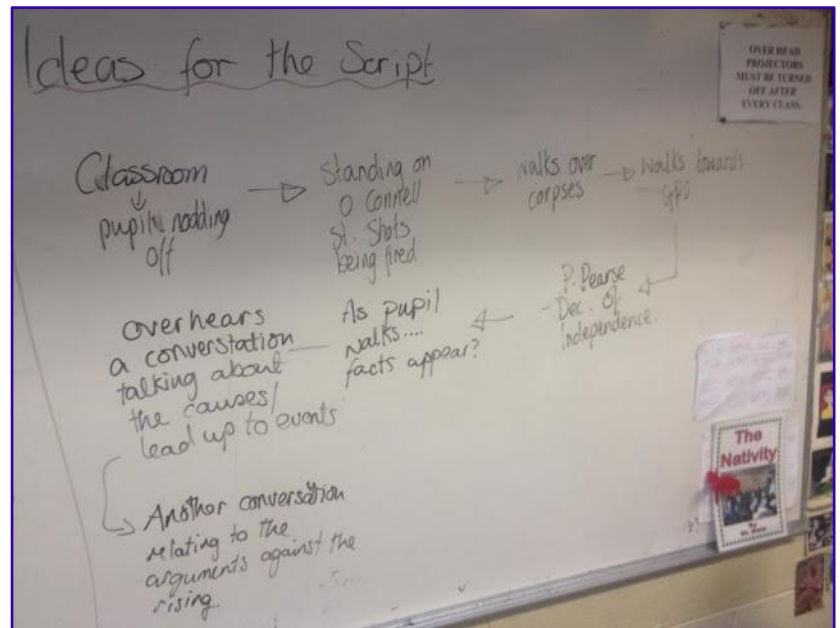
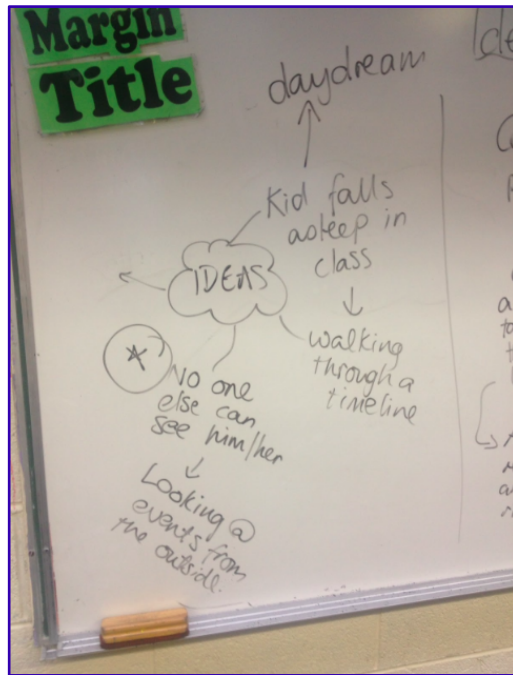


Fig 7.12.. Pupils' ideas for the concept of the 1916 movie

I let pupils lead the way with regard to ideas for the movie. We discussed the limitations of using online software, such as PowToon, in terms of characters, costumes, relevant props and so on but, as I noted in a reflection journal, the students themselves already started coming up with solutions to these problems.

- *No one will be able to see the main character so they'll be able to walk around in front of backgrounds we find on the internet.*
- *The main character will overhear conversations that will let them know what's going on.*

[Reflection Journal, November 2015](#)

Having decided on our story concept we brainstormed the various roles involved in making an animated movie and students volunteered themselves for different jobs. I reflected on their choice of roles later that day in my learning journal.

Looking at the list I was delighted to see that the students I would have chosen for each job volunteered themselves for that very one! J is confident and has a fabulous voice, D and N are the computer whizzes in the class, R is our resident writer.... It worked out so well!! I'm hoping that the fact that students have chosen their own jobs will reinforce their ownership of the project and help sustain their engagement.

Reflection journal, November 2015

Researchers (additional research, fact checking, etc.)
Scriptwriters
Music (finding, downloading and adding appropriate background music)
Voice overs (recording Voiceovers)
Sound Effects
Photographers
Story-boarders
Animators (PowToon)
Videographers (If necessary)

Fig 7.13.. Student roles in movie making process

This process of planning and preparing led me to a greater understanding of my own nature in the classroom. My tendency was to micro manage all aspects of this project to ensure a quality end product. However, I found myself in agreement with Hague and Payton (2010) who insist that students should be supported and facilitated in their digital literacy activities in order to be able to learn from their mistakes and improve the quality of their own outputs.

So what if the end result isn't as beautiful or as polished as it should be? The main reason for doing this activity is to improve the students' digital skills, to let them create their own digital narrative, to explore a conflict in their shared history, to develop new skills (digital or otherwise), to enhance existing skills and to collaborate in order to create something that they're really proud of. I need to be mindful of as my role of facilitator and guide rather

than the old-fashioned teacher dictating how the students can work for me to create my vision. This is their project and the vision and the end project has to be theirs as well.

Reflection Journal, November 2015

Once the preparatory work for the movie had been completed and we had a solid idea in hand the students got started on their allocated roles. The two girls who had volunteered to write the script were competent and diligent students who took the task in hand themselves and completed the script independently in their own time. When the script was finished I reviewed it with them and used the script template on Microsoft Word to [type it up](#) for them so it looked authentic and professional.

With the script finalised, I worked with two more students on story-boarding the movie. We discussed different camera shots and I drew diagrams for them to give them an understanding of how they might make each scene look varied and different. They seemed to take this advice on board. Though neither student was particularly arty they did a good job on the storyboard. The drawings weren't good and it was done in biro but the students certainly put some thought into each shot and their work was easy to follow for the students who did the PowToon animations. I considered the boys' contribution in my reflection journal.

It's interesting that two boys who profess to have no particular interest in art would take on this job and make a pretty good attempt at it. I like that it allowed them to perhaps be a little creative in a way that they might not normally be. I think that the fact that they volunteered for their role helped them to take ownership of it.

Reflection Journal, February 2016

Having the script and the storyboard completed I began work with the two students doing the PowToon animations. I spoke to them about continuity and trying to make it look like a movie rather than a PowerPoint presentation. I discussed with the students what characters they would use and how they could keep the backgrounds consistent. They decided that the movie would have black and white backgrounds in every scene, the main character was black as the student who volunteered to do the voice over is black and he is in the opening 'live action' scenes as himself. The leaders of the 1916 rising were the free-to-use silhouette 'picto' characters. These decisions allowed for continuity throughout the film. I had known that the two animators were both enthusiastic ICT users but I was still very impressed with the ease with which they took to using the software.

Today only one of the animators was in school but again I was impressed with his level of skill with the programme from playing around with it in class. Like the other students he is eager to do a good job and appears to be taking his role as 'animator' seriously.

Reflection Journal, February 2016

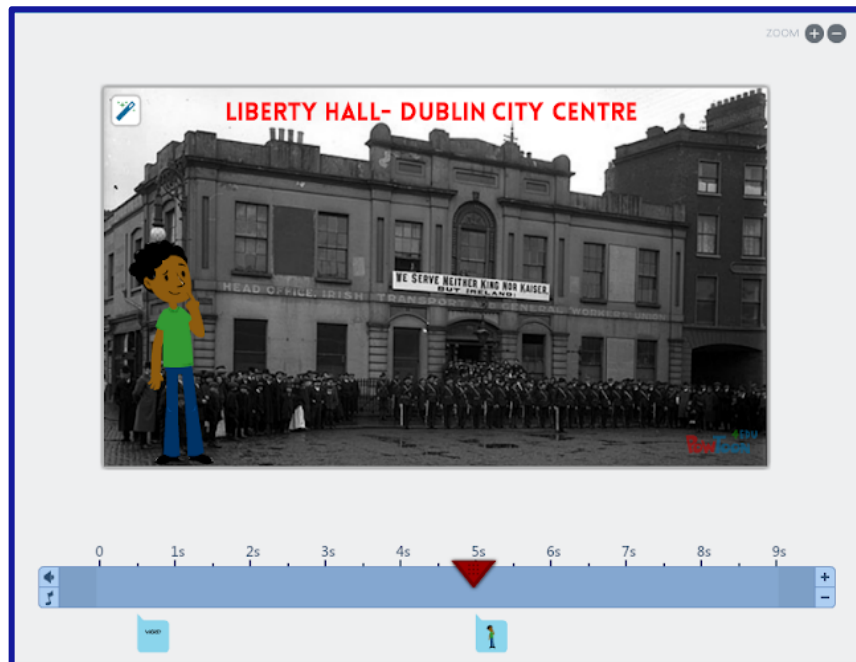


Fig 7.14. 'J' outside Liberty Hall in Dublin

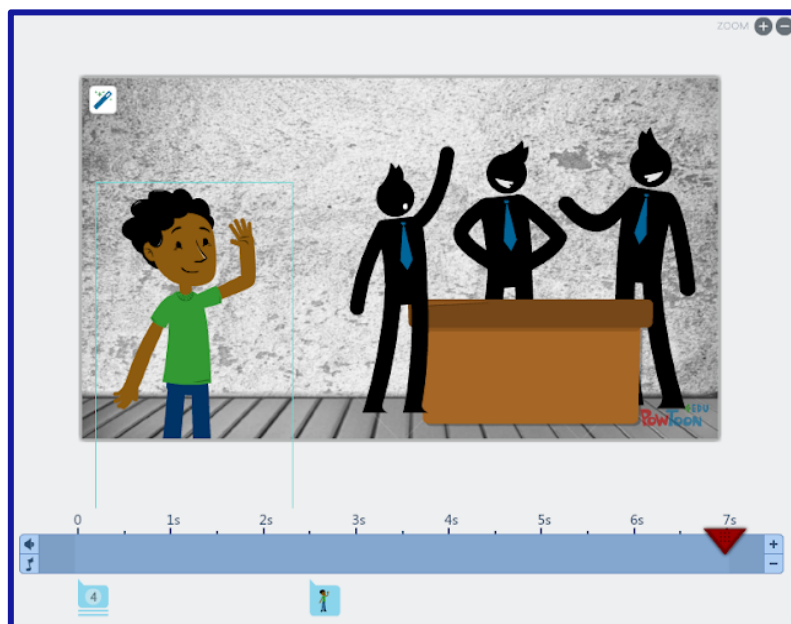


Fig 7.15. 1916 leaders represented using free-to-use 'picto' characters

At this point in the video creation I started to have some serious concerns about my approach. I had envisioned the students working in parallel with each other; instead I found that I was trying to give my class other, unrelated work to do while I worked one-on-one with whatever pair of students was carrying out the particular task of the moment.

Allocating different jobs to everyone in the class seemed like a great idea at the time... the most straightforward way of making the movie. However, now I wonder, was it the most efficient way of going about this? I have considered whether it is actually an inefficient system or am I just taking too long getting it finished as I am too controlling? While I openly say that I want to facilitate the students I have a desire to have the work completed to a very high standard and have a finished product that they will be really proud to have been a part of.

Reflection Journal, February 2016

In addition to this disjointed approach to the division of tasks, I had failed to take into account the day-to-day interruptions that are a standard part of school life. In January my class was taken over by a student teacher, meaning that the three classes a week I had

counted on to complete the movie, was now reduced to one class a week. In order to finish the film I had to take students out of their timetabled classes for an afternoon, hoping that this would allow them to experience a state of ‘flow’ (Csíkszentmihályi, 1997). This also gave me an opportunity to allow students who were sourcing free mp3 sound effects (<https://freesound.org/>) and music to access the limited school ICT equipment and complete their tasks in a time frame longer than the 40-minute classes allowed. However, this approach of attempting to complete the project outside the normal class structure was not ideal and did not feel like I was ‘putting my own home in order’ (McNiff, 1993). How indeed could I assume to tell others how to carry out such a project in their classes when this approach was not working with my own students within the allotted class time? A problem I considered in my reflection journal.

Students cannot be taken out of class for prolonged periods, they cannot keep missing the same classes and it places some extra work on the class teacher to give up free time to complete tasks. ... it's just not the type of thing that I could put in a CPD course. No teacher would find a course that necessitates giving up many free classes to facilitate students doing digital based projects useful or worthwhile. The idea is that the course provides ideas and guidance on WHAT digital literacy is and HOW it can be effectively integrated into class. Taking students out to work with them separately is not integrating digital literacy into the English classroom.

Reflection Journal, May 2016

The penultimate step in the making of the PowToon animation was to record the voiceovers (VO) of the characters. I had no problems getting students to volunteer for this role. Again, due to time constraints imposed by the student teacher taking two-thirds of my classes, I was forced to book the library for a morning to ensure a quiet place to record. The VOs were recorded directly onto my own personal computer using the free Mac software, Garageband;

this was simply because the relevant hardware (e.g. microphones and functional laptops with audio recording software) were not available within the school.

On the day we had a few 'table reads' and this helped the students to relax and get into their parts. As they are teenagers a few of them were a little self conscious and didn't put as much expression in their voices as necessary, but we tried each part a number of times and they ended up giving each other feedback and critiquing each other which was nice to see.

Reflection Journal, May 2016

Each student recorded their portion of the script separately, rather than as one long read. This meant that during the editing process individual VOs could be slotted into the animation at the appropriate points. Although I recorded all students separately I saved all the VOs as one Garageband file and this caused further problems later on as I noted in my reflection journal.

I had to save all the different sections of the voiceovers (VO) as separate mp3 files so they could be dropped in as necessary in iMovie. This was not a difficult job but it was time consuming and fiddly. In hindsight I should have recorded all sections as a separate file in Garageband. This would have made it more straightforward to export each file, rather than cutting short pieces out of the overall VO, saving it under a different name and then exporting that as it's own mp4 file.

[Reflection Journal, May 2016](#)

The quality of the audio recordings was far from perfect but this was indicative of the minimal resources we had available to us at the time of recording and myself and the students were happy with the results.

Having had my students create or find all the content needed for the movie (animations, sound effect files, music files, pictures, etc.) I made the decision to edit it together myself.

My experience of creating the movie so far had shown me that accessing ICT resources in the school was often difficult and that teaching students to complete any digital task that was

new to them (e.g. PowToon, downloading and saving mp3 files and photographs, audio recording) required a great deal of time and support for the students. Realising that I would need to download a free movie editing software onto the school computers and then teach students the finer details of using said software I concluded that the best option was to put the pieces together myself, reasoning that the students had done the bulk of the work already and that it would not be a time consuming task to complete.

I completely underestimated the amount of time that it would take to edit the movie and put all the pieces together. I sat down to work thinking it would take an hour or two at most but in reality it took hours!

Reflection Journal, May 2016

I had a number of steps to take before I could even start the editing process and this revealed some important learning for me. Firstly, I had to check the PowToon animation against the script and storyboard. As I carried out this now obvious step, I realised that I had denied my students a valuable learning experience.

This threw up some anomalies and required inserting scenes and making sure every aspect of the movie, as planned, was there. I should have gotten the boys to do this in class. Having the scriptwriters, story boarders and animators sit down and cross check their work could have been a valuable reflective learning experience for the students. Alternatively I could have brought the finished animation back to the class and we could have critiqued it... allowing the students to get some positive feedback on their work too.

Reflection Journal, May 2016

Next, the movie itself needed to be exported as an mp4 from PowToon so it could be imported into iMovie for further editing. This should have been straight forward but I realised that I needed to ensure that each 'scene' was long enough to fit the VO. PowToon scenes are 10 seconds long by default and so I had to check each scene and make sure it was

around the same length as its corresponding VO. Finally, as previously mentioned, I had to separate all the students' VO audio files.

I edited the video using the iMovie software on my Mac, which was a very enjoyable process.

I sat down to spend an hour editing the movie and I was still there 3 hours later, totally engaged in the process, intent on getting all aspects of it as perfect as possible (given the fairly basic software). I was absolutely in a state of 'flow', totally involved in the challenging, but doable, task.

Reflection Journal, May 2016

‘When a person likes what he does and is motivated to do it, focusing the mind becomes effortless even when the objective difficulties are great’ (Csikszentmihalyi, 1997). Again, I felt that by trying to control this aspect of the film making process had I denied my students this 'flow' experience and a valuable opportunity to exercise their photo-visual and reproduction skills.



Video 7.2. First draft of PowToon 1916 Rising Movie
[\(Click here to view video\)](#)

With the editing of the video complete, the class watched the first draft and gave feedback. The students were not happy with the introduction live action scene as the sound was bad and the ‘teacher’ was reading directly from a sheet and did not appear comfortable or speak clearly. We decided to reshoot the scene in a room with better lighting. Unfortunately our ‘teacher’ was unable to join us for the reshoot but another confident student stood in. Having seen what was wrong in the previous clip the class were better prepared and knew what was expected of them. Our student cameraman had learned from his previous attempt and was also more confident in his role.



Fig 7.16. *Screenshots from reshoot of ‘live action’ scene*

Re-editing this section of the movie only took a few minutes and I was able to present the new version to the students in the following class. They were much happier with the final iteration of the video.



Video 7.3. Final draft of PowToon 1916 Rising Movie
([Click here to view movie](#))

2.3.2. Task 2: Researching and Making a Presentation on Nobel Prize

Winners

In addition to the main task of making the 1916 Rising PowToon animation, the students also had to research two Nobel Peace Prize (NPP) winners; Nelson Mandela and Theodore Roosevelt. This task required a number of digital literacy skills and facilitating students in this seemingly simple activity presented a deep learning experience and brought me to a greater understanding of the digital literacy levels of many of my students.

Collaboration

In this task students collaborated with each other and with their Danish peers to make presentations about NPP winners. In consultation with the Danish teacher/ facilitator we decided to use [Padlet](#) to allow both Danish and Irish students to collaborate asynchronously on their research task and arranged a skype call for students via [email](#).

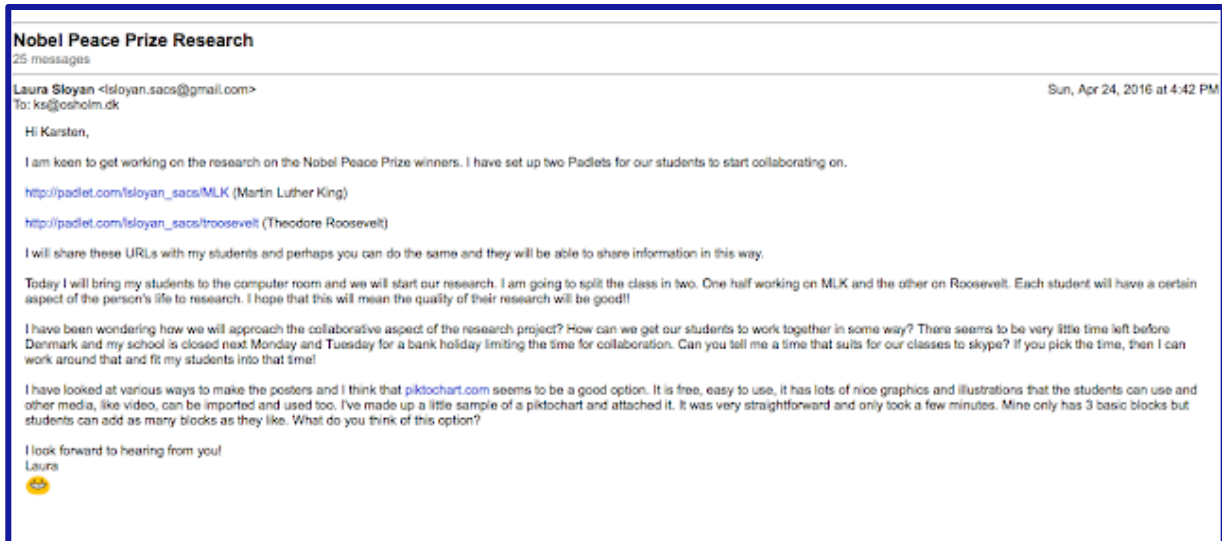


Fig 7.17: Email correspondence with Danish colleague
([Click here to enlarge email chain](#))

Collaborating via skype proved difficult to schedule and was marred by a lack of equipment and technical hitches. I had to download Skype and install drivers for the webcams, which was not a particularly difficult job but may have been out of the comfort zone of another teacher with less confidence using digital tools in class. While setting up the technical element of the activity I had not considered the human element and this, to my surprise, is where I ran into difficulties.

Prior to Skyping the Danes I divided the class into two and tried to get two volunteers to be the designated spokesperson for their group. This proved difficult!! ... No one wanted to be a spokesperson. In the end I managed to get two extremely reluctant volunteers but was concerned that they would not get involved on the day.

Reflection Journal, September 2016

On the morning of the Skype call the computer did not to work.

I literally nearly had a heart attack... I was sweating and my students were finding my panic highly amusing but they were helpful all the same!!! Eventually, through a bit of persistence on both the Irish and Danish students' part (they hung up, recalled each other, reset microphones and speaker settings, etc) we got started.

Reflection Journal, September 2016

I was concerned that the students wouldn't speak to their Danish counterparts. However, two of the seemingly quietest girls in the class volunteered and did a fantastic job as spokespeople.

I was really proud of them and couldn't believe how one girl in particular who rarely speaks in class sat into the chair and told the Danish students it was a pleasure to speak with them. Once they started (and they realised the Danish kids were good looking and nervous too) others joined in.

Reflection Journal, September 2016

After a few minutes students in both countries were talking freely and swapping snapchat names as well as dividing out jobs for the joint research task. Watching students overcome their fears and technical difficulties and collaborating with students over one thousand kilometres away highlighted the benefits of using ICT to bridge geographical and digital divides.

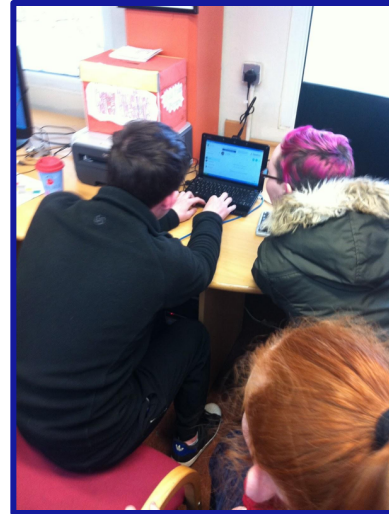


Fig 7.18. Students Skyping with their Danish Counterparts


Conducting Internet Research

While this research task was more straightforward than the PowToon animation task, it required a number of digital literacy skills; photo-visual skills, reproduction skills, branching skills, information skills and socio-emotional skills (Eshet-Alkalai, 2004, 2012). My experience with the PowToon activity had taught me that I could not take students' digital literacy for granted and that they would need clear guidance for this seemingly simple task. I set about creating a distinct number of steps for the students to follow to avoid pitfalls I had encountered when carrying out research tasks with students in the past.

In any research task I have set for students they have gone straight for Wikipedia and copied and pasted chunks of information from there, with little consideration for whether the information is relevant or irrelevant!

Reflection Journal, May 2016

With this in mind I made research templates for different facets of the NPP winners' lives. Additionally, I set up a 'Padlet' for both of the NPP winners and included a link to the Padlet in the footer of each template.



Nobel Peace Prize Winners Research-Nelson Mandela- Education

Basic Information:

Date of birth: _____

Place of birth: _____

Occupation: _____

Year Nobel Peace Prize (NPP) was awarded: _____

Reason for award in one sentence: _____

Education

- > Where did he go to school?
- > Was he a successful student?
- > Where did he go to university and what did he study?
- > What level of education did he achieve?
- > Anything else that you think is important or relevant about Nelson Mandela's education.

Click on this link to add information to the Nelson Mandela 'Padlet' wall
http://padlet.com/lsloyan_sacs?nelsonmandela

*Fig 7.19. Sample Internet Research Template- Nelson Mandela-Education
 (Click here to view all research templates)*

By using the template I hoped to assist students in using their information skills, to only include information that was actually related to their topic and to do it in a language that was accessible to themselves and the Danish students. In the interest of developing their socio-emotional skills I wanted students to be aware of the importance of referencing their work acknowledging sources. To facilitate students in their research I made a short screencast video, using [monosnap](#), which briefly explained how to research their assigned NPP winner and why they should reference their sources.

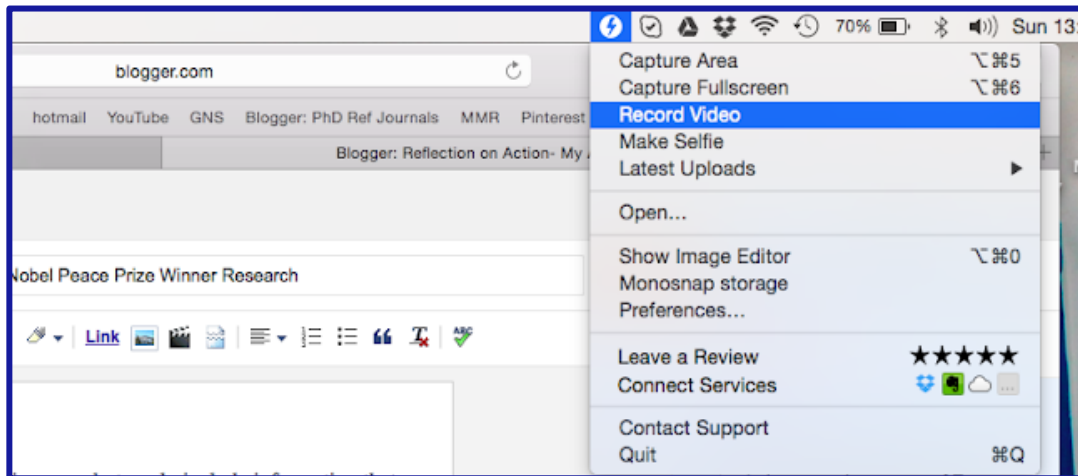
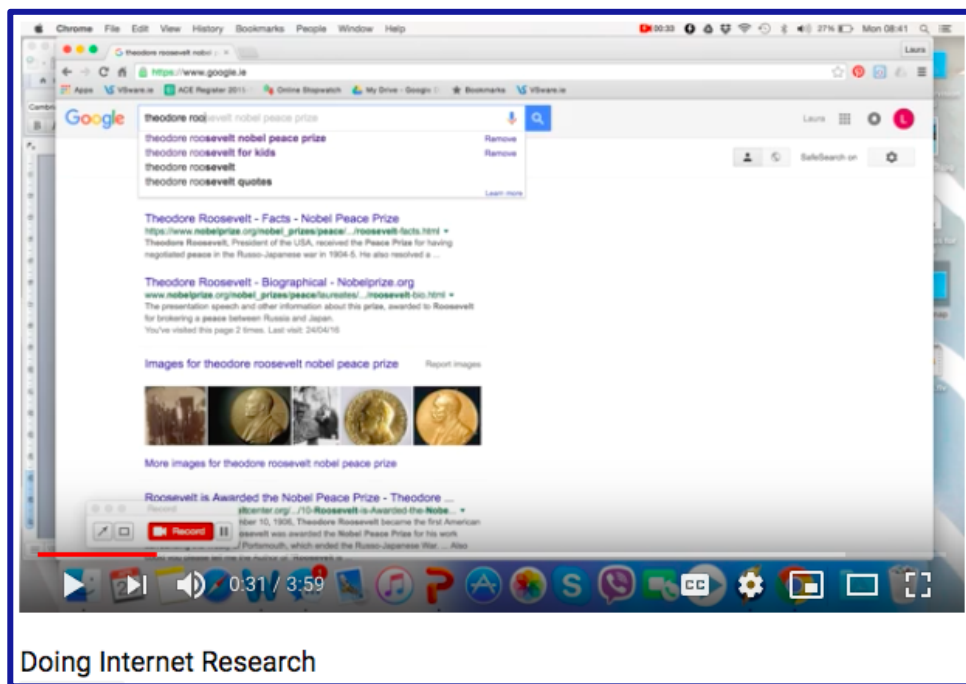


Fig 7.20. Using the Monosnap application



Video 7.4. Conducting Internet Research- Instructional Screencast
 ([Click here to view video](#))

To share the files with my students I saved all the information on the master folder on the school's network. I included an [introduction PowerPoint](#) and the screencast video for their information. However, I considered whether I was doing too much for the students.

I wondered was it too much? Was I spoon-feeding the students? I think that in the grand scheme of things, when approaching a research task for the first time students do need a lot of guidance. Doing a task like this in class would never again require the same level of preparation because students would have practised the skills (research, critical analysis, referencing, etc) beforehand and would, hopefully, be working more independently.

Reflection Journal, May 2016

On occasion the school's old and outdated equipment hampered the research task noted in a reflection journal this was 'more trouble than it was worth'.

I used another computer room with dodgy wifi and inadequate computers and it was genuinely more trouble than it was worth. It was stressful dealing with a group of 20-odd students all telling you that the internet wouldn't work or they couldn't access the network where I had stored all the relevant documents or their computer wouldn't load. I think that had I not had the access to the decent computer room it would have been much more difficult to complete the task.

Reflection Journal, September 2016

The students did a good job of their research but it took more classes than I anticipated given the amount of support they had received. I believed that this was indicative of low levels of digital literacy within the class.

It is easy to type 'Nelson Mandela' into Google but it is far more difficult to read and critically evaluate the information that you find on Mandela. Locating and recognising reliable sources of information on the internet, finding information aimed at your own levels of understanding and being able to navigate results to find the precise info that you need are skills that, it seemed to me, many of these bright, capable students did not have.

Reflection Journal, September 2016

Regardless, the students worked well with their Danish peers and shared the information they had gathered on the specified 'padlets'.

Fig 7.21. Student collaborative Padlets- [Nelson Mandela Padlet](#) and [Theodore Roosevelt Padlet](#)

In order to make the final presentations I instructed each student to make two PowerPoint slides on their assigned topic. They were to only include a picture on the slide itself and put their written information into the notes section. This written information would serve as a script when it came to recording the video presentations. Once completed students saved their work to a shared folder on the school network or emailed it directly to me. When I had all the slides I collated them into two separate PowerPoint Presentations on [Nelson Mandela](#) and [Theodore Roosevelt](#).

I thought that I gave enough direction to the students with regard to their slides but on reflection perhaps a word count/ minimum standard should have been enforced as the quality varied!! This meant that I had a little editing/tidying up to do and although this wasn't a big deal, it was time consuming.

Reflection Journal, September 2016

Making Video Presentations

To make a video presentation from the PowerPoints the students had collaboratively created I decided to make a screencast of the presentation with the students reading the voice over (VO) script that was included in the notes section of the presentation. The Monosnap screen recording tool seemed like the best option as students could simply click through the

presentation and the voice recorder would record the VO. Two students volunteered to do the VO and I showed them how to use Monosnap and allowed them to work independently to complete the task. However, this approach was not successful.

I (perhaps naively) assumed that if I gave them the computer and told them how to work Monosnap (click icon, click record, play slideshow and read the necessary text for each slide) they would be able to go off and do it on their own... or at least without me standing over them. I was wrong in this assumption. The girls were unsure how to do it and unconfident in their abilities and knowledge. For me, this simply compounded my belief that our 'digital natives' are not as digitally literate as they are thought to be. Here I had two bright, capable girls who were confounded by what I thought was really a simple enough task.

Reflection Journal, September 2016

I arranged a time to sit with the girls and assist them in the recording. They clicked through the PowerPoints reading the relevant text, which was recorded by the computer's in-built mic. In terms of editing the presentations I imported the Monosnap movies into iMovie, cut out any mistakes or falters, inserted royalty-free background music (<https://www.bensound.com/>) and exported the end result as an mp4.



Videos 7.5 & 7.6. [Theodore Roosevelt](#) and [Nelson Mandela](#) video presentations

2.4. Presenting and Sharing PowToon Animation and Video Presentations

Presenting a creative work involves a level of vulnerability and risk as people attach a sense of self worth to how their product is received (Brown, 2012). The students' work was shared with the wider public in a number of ways; it was shared on YouTube and linked through the school's Facebook page, which garnered 230 views. A 'premiere' was also held in class and the principal and vice principal were invited for the first showing of the video which elicited an emotional response from both. A link to the video was sent to all staff via the school virtual learning environment (VLE), Moodle, and staff were asked to show it to their tutor group during the weekly tutor time in an effort to ensure the entire school population saw the movie.

[Social Forum](#) » [Forums](#) » [Announcements Forum \(All staff subscribed\)](#) » [TUTORIAL ON MONDAY- St. Ciara's 1916 movie](#)

TUTORIAL ON MONDAY- St. Ciara's 1916 movie
by [L. Sloyan](#) - Thursday, 19 May 2016, 12:55 PM

Here is a link to the short animated film St. Ciara's made about the 1916 Rising.

https://youtu.be/_zoUBNMExho

This was an ongoing project throughout the year, they researched it, wrote it, animated it and filmed it themselves. It was made as part of our Peace of Europe project and will be shown in Denmark during the week.

Could you please show it in tutorial on Monday and explain to your tutor group that it was made as part of the Peace of Europe project and the students who are travelling to Denmark will be presenting it to teach our European neighbours a little about Irish history!

Thanks

[Reply](#)

[See this post in context](#)

Fig. 7.22. Email asking tutors to show 1916 movie to tutor groups

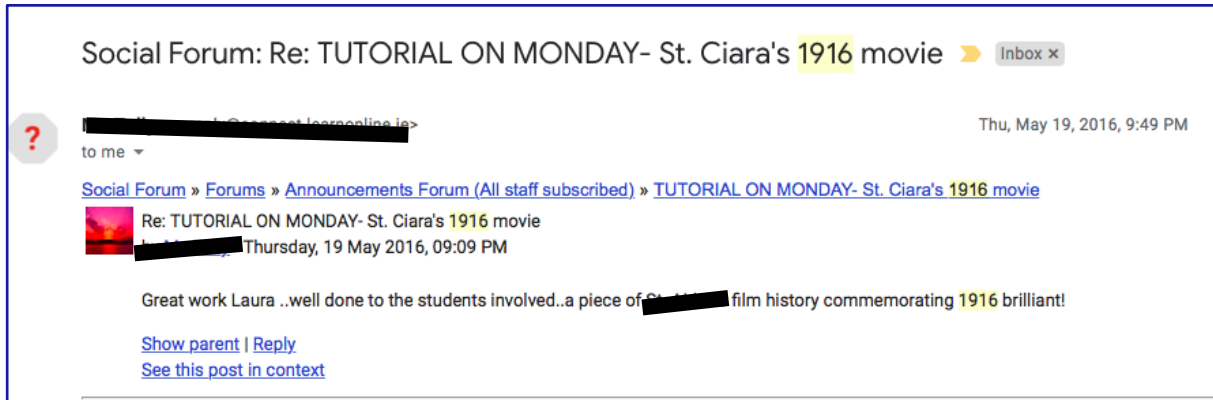


Fig. 7.23. Sample reply from colleague praising students' work

The students' work was also entered into a film competition run by the Junior Certificate Schools Programme (JCSP) libraries. The JAFAs (JCSP Libraries Academy Film Awards) were held in October 2016 in the Lighthouse Cinema and the students took home two prizes for Best Animated Short and Best Delivery for the student who played the teacher role.



Fig. 7.24: Students at the Lighthouse Cinema in Dublin with their Jafa award

Finally, five students were chosen to join an Erasmus+ trip to Denmark. During the trip they met the students they had collaborated with on the NPP winner activity and presented their work to movie and presentations to their peers from all over Europe.



Fig. 7.25. Students presenting their work in Denmark at the partner meetings

3. Transformation

The process of working with the students to make both the 1916 Rising Video and the Nobel Peace Prize winners presentations was a transformative process for my students, me personally and this PhD study.

3.1. Student Transformation

On a basic level the students learned many new skills while carrying out these activities, enhancing their levels of digital literacy. The students engaged their photo-visual, reproduction, information, branching and socio-emotional skills (Eshet-Alkalai, 2004, 2012) by performing a variety of tasks they had not undertaken before to create their digital artefacts. These tasks included script writing, storyboarding, finding and downloading sound effect mp3s and royalty free music, filming a live action scene, creating an animation using online software, acting, collaborative research using Padlet and Skype and creating a screencast. The application of the students' digital skills are evident in both the PowToon

movie which can be accessed [here](#) and the video presentations which can be accessed here ([Nelson Mandela](#) and [Theodore Roosevelt](#)).

In presenting and sharing their work, the students experienced success in a number of ways; winning their JAF A award, praise from the principal, vice principal and some of their other teachers and sharing their work with their European peers in an equitable way where the DEIS status of the school was of no consequence. The movie and presentations were prepared and delivered on an even playing field with the work of students' from schools of a higher socio-economic status. Positive academic experiences have a huge impact on the self-esteem of students (Filozof et al, 1998) and it is my hope that the self esteem of my students was in some way enhanced through their experience working on these activities and their collaborative work with their Danish counterparts.

3.2. Personal Transformation

Prior to carrying out the Erasmus+ Peace of Europe tasks I had had a growing awareness that the digital literacy skills of the young people I taught were not those of so-called 'digital natives'. This awareness was borne out of my many attempts to embed digital skills into my classes with little success.

Students were using laptops to research ... someone they found interesting. First we used the collaborative tool 'Padlet' to brainstorm ideas. ...The basic task of correctly typing in the URL into the correct box became a serious issue. About a third of the class couldn't do it! It was taken down wrong, typed into Google rather than the URL bar, etc. The activity, intended as a brief starter task, took up most of the class.

Reflection Journal, September 2015

However, these extensive pieces of work with a bright, ‘top-stream’ group of slightly older students led me to a much greater understanding of the actual digital literacy skills that many of the students possessed. Evidence of the second level digital divide (Hargittai, 2002) was apparent with many students seemingly unable to use ICT in sophisticated and educationally beneficial ways (OECD, 2015; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012).

Observing the students working on the creative video making task and the more basic research task led me to conclude that my approach to conducting these activities, which assumed a certain level of knowledge of the part of the students, was inappropriate to their level of digital literacy. The students needed considerably more support and guidance than I had planned for.

Additionally, I realised that I had been unable to relinquish a certain amount of control when carrying out these digital activities with my students in class. Despite my best intentions, I had an idea of how I wanted things to look, or a standard of ‘perfection’ that I felt needed to be attained. Even while carrying out the tasks with students I had a growing awareness that my desire to control the students’ work and their ultimate output was not conducive to their learning.

I resisted urges to get too involved and take over. I wanted it to be theirs and for them to feel ownership of it. This was difficult at times as I think the natural inclination of many teachers is to direct students to their own vision rather than the vision of the students.

Reflection journal, May 2016

Although I tried to remain cognisant of this desire to take over, my experience of editing the PowToon movie clearly indicated that I had not been successful. While I was engaged in the *flow* (Csikszentmihályi, 1996) of this process I was aware that I had denied my students of

this same enjoyable experience and denied them their voice. I considered how I might approach a similar task differently in the future, taking a more facilitative role.

I could set up an extra-curricular 'digital club'. In this club I could teach basic filming, editing, etc and then ideally that would lead to having a core of students in the school with these basic abilities that could help others in class when doing digital activities... By introducing these skills to even a small number of students initially I would hope to open them up to experiencing 'flow' in the same way that I did while editing their movie, while also allowing a greater sense of ownership on projects/activities such as our 1916 Rising movie.

Reflection journal, May 2016

My approach to the task also changed. Initially, I thought that a whole class approach was wisest, I can now see that this was my unwillingness to give students full autonomy over their own work in action. It would have been fairer and more educationally beneficial to let the students work individually or in small groups to create their own movies from start to finish.

Perhaps it would have been better to let students work in pairs or on their own. This would have generated more movies and would have allowed every student to be involved at every stage of production. On reflection this may have been a better way to approach the project.

Reflection journal, May 2016

This process of 'getting my own home in order' with regard to using digital tools in the classroom provided a foundation as I approached the next stage of my Educational Entrepreneurial Approach (EEA) action research and began to *create* a curriculum, based on my experiences of carrying out the PowToon and research activities with my students.

3.3. Insights Gleaned from PoE Work and Subsequent Research

Transformation

Prior to carrying out the Erasmus+ digital activities in my own classes the focus of my EEA research was the creation of an online continued professional development (CPD) course for teachers in the area of digital literacy. The emphasis was very much on the teachers and enhancing their levels of digital literacy, which could then be transferred to students.

Following the completion of the Erasmus+ activities there was a shift in focus towards both the students *and* teachers. The experience of carrying out the digital activities in class afforded me the opportunity to carry out an EEA action research cycle in which I *explored* the practicalities of engaging in digital activities in class and came to a much deeper *understanding* of how such activities can be carried out effectively. Through consultation with my supervisor, Dr. Crotty, (Reflection Journal, August 2017) I decided to use this newfound understanding to *create* a curriculum, for use in Junior Cycle English classes, that drew on my experience of carrying out the PoE tasks. The curriculum would integrate digital literacy skills while meeting Junior Cycle learning outcomes. Support material for teachers would be in the form of an online digital literacy CPD course through which I could share my experience with teachers.

This chapter detailed my attempt to ‘get my own home in order’ before seeking to share my experiences of delivering digital literacy focused classes to post-primary students with the wider teaching community through the creation of an online continuous professional development (CPD) artefact. Certainly, the Erasmus+ Peace of Europe (PoE) project provided ample opportunity to facilitate students in activities that enhanced their digital

literacy skills. However, the experience also allowed me to further develop my own digital literacy skills.

I felt that the PoE activities, making a short animation on the 1916 Rising and creating video presentations on Nobel Peace Prize winners, fit neatly within Eshet-Alkalai's Digital Literacy Framework (2004, 2012). These experiences in the 'swampy lowlands' (Schön, 1995) of the reflective practitioner had given me an insight into what was required of students and teachers when engaging in digitally based activities. Through my observation of the students at work on the various computer based tasks it was clear that the young people who we automatically assume are 'digital natives' (Prensky, 2001) often lack the requisite skills to carry out creative, digital work that supports their learning independently (Schulmeister 2015; Kennedy & Fox, 2013; Ng, 2012; O Neill, Grehan & Ólafsson, 2011; Bennett & Maton, 2010; Selwyn, 2009).

The girls were unsure how to do it [record a simple voice over using [monosnap](#) and unconfident in their abilities and knowledge. For me, this simply compounded my belief that our 'digital natives' are not as digitally literate as they are thought to be. Here I had two bright, capable girls who were confounded by what I thought was really a simple enough task.

Reflection Journal, September 2016

*When I did this [Internet] research task with my own classes it took ages... they were a top class and in 5th year at the time and, due to what I would consider low levels of **branching** and **information** literacy (Eshet, 2004), some students still required a fair bit of support and the activity took some time.*

Reflection Journal, August 2017

My learning from the PoE activities seemed both timely and pertinent, as my research question had been narrowing to focus on the provision of online continuous professional development (CPD) for teachers in the specific area of digital literacy.

I am trying to narrow my research focus, trying to pinpoint my exact area of research. Considering how to best approach my action, or in Crotty's terminology the 'create' stage, of my cycle of research I have been considering who exactly my research is aimed at. There is no doubt that ultimately I want to be able to provide, in some small way, online CPD for Irish post primary teachers. I also want this to be in the area of literacy with a particular emphasis on digital literacy for students.

Reflection Journal, September 2015

Reflecting on my own practice and digital activities I had carried out in my Junior Cycle English classes I began to come to an understanding that the digital literacy of students and teachers was inextricably linked and that while I sought to create a CPD artefact for teachers, students would be the intended ultimate beneficiaries.

How can teachers promote digital literacy if they themselves are not digitally literate or are not keeping up with current trends in the world of IT in education? I have started to think that any CPD course, whether formal or informal, would have to focus on enhancing the digital literacy of teachers before that could be then transferred to students.

Reflection Journal, September 2015

The idea of incorporating my experience of facilitating students in carrying out the PoE activities that required high levels of digital literacy began to crystalise. I had been actively trying to 'get my own home in order' (McNiff, 2002) by trialling digital activities in my classes. There was a body of knowledge in the 'experience, trial and error, intuition and muddling through' (Schön, 1995, p28) that characterised the execution of the PoE tasks for both myself and my students and I understood that this knowledge could be made explicit for the benefit of my own practice and that of others. Throughout the process I had been

regularly recording my thoughts in an online reflective journal, allowing me to critically analyse the work that was done in class, to identify what worked well with the students and what approaches needed restructuring (Schön, 1995).

Doing the project as a group extended the time frame of the project and made it somewhat disjointed... I was faced with the dilemma of what to do with the rest of the class while one or two students are working on a specific area...Perhaps it would have been better to let students work in pairs or on their own. This would have generated more movies and would have allowed every student to be involved at every stage of production.

Reflection Journal, May 2016

The students did a good job of their research but it took more classes than I anticipated given the amount of scaffolding they had received in terms of websites, worksheets, demonstrations, etc... they certainly seemed to pick up the basics fairly quickly. I didn't see too many of the students on wikipedia and they seemed to be following the basic instructions laid out in the 'How to do Internet Research' screencast video I had made.

Reflection Journal, September 2016

During this period of reflection I met a number of times with my supervisor, Dr. Yvonne Crotty. We discussed how I could utilise the experiences and knowledge garnered from the implementation of the PoE activities in class to create a CPD artefact. My initial intention had been to create an online digital literacy CPD course using [Articulate Storyline](#) course authoring software, and while I still hoped to do this, my discussions with Dr. Crotty led me to conclude that the most straightforward and practical way I could share my learning with other teachers was to design a digital literacy curriculum for use at Junior Cycle. The curriculum would incorporate and refine my own experiences of the PoE digital activities and take teachers, step-by-step, through the process of facilitating students to create short animated movies using the online animation software, [PowToon](#). This approach offered a solution to my contention that teacher and student digital literacy was linked and that any

artefact I made would seek to address both teacher and student levels of digital literacy (Marcus-Quinn and McGarr, 2013). Through further consultation with Dr. Crotty, I decided to design a curriculum in a Portable Document Format (PDF) with multimedia CPD components hyperlinked throughout. This format would allow the curriculum to be multi-faceted, in that it would:

- Offer a practical curriculum for teachers that provided step by step instructions for teachers in how to carry out digital learning activities in class
- Provide asynchronous CPD for teachers in the area of digital literacy
- Address students' digital literacy skills if implemented in class

However, I was cognisant that a teacher's primary responsibility is to teach their specialist subject and that any approach to imparting digital literacy skills, whether to students or teachers, would have to be embedded within a relevant subject specification, an approach prescribed by the Digital Strategy for schools (DES, 2015).

I truly believe that my students need to be digitally literate to function in the society they're growing up in and I do feel it's part of my duty as their teacher to help them achieve a certain level of digital literacy. However, I cannot take away from my principal duty, which is to teach them English, to engage with and enjoy a variety of literature genres and to help them pass their junior or senior cycle exams. A conundrum for many teachers today is how to equip students with the digital skills while still staying faithful to our subject's curriculum when it seems that our 'digital native' students are not necessarily 'digitally literate'.

Reflection Journal, September 2015

Thus, I determined that the curriculum would be designed to sit within the [Junior Cycle English specification](#).

4. Conclusion

This chapter outlined my experience of conducting two digital activities with a class; Creating an animated movie using the online animation software, PowToon and researching and creating a presentation on two Nobel Peace Prize winners. The activities were carried out as part of an Erasmus+ project entitled '[A Peace of Europe](#)'. Students' engagement with the activities indicated a lower level of digital literacy that one might expect from the so-called 'digital native' generation but their use of ICT was in line with the literature that indicates that young people in general, and particularly young people from areas of socio-economic disadvantage, do not use ICT to enhance learning or for creative purposes as much as one would assume (van dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012, Hargittai, 2008).

As their teacher, my own input into the creation of their digital artefacts was too great as, on reflection, I was unable to relinquish an adequate amount of control. However, students did improve their digital literacy skills during the duration of the project and experienced success in presenting their work in Denmark and winning an award at a schools' film competition (JAFAs). Conducting the digital activities in class allowed me to explore my practice in this regard and come to a greater understanding of how to successfully carry such endeavours within my own practice. As a result of this teaching experience there was a shift in the direction of my research with a greater emphasis now being put on enhancing the digital literacy of students as well as teachers through the development of an English curriculum

with integrated digital literacy skills to support and complement the pre-planned online CPD course.

Act IV

Climax

The turning point at which the conflict begins to resolve itself



Chapter 8

Curriculum Creation- Design

1. Introduction

This chapter marks the beginning of the *create* stage of this educational entrepreneurial approach (EEA) to action research inquiry (Crotty, 2014). In the following three chapters, eight, nine and ten, I explain how I created a curriculum for Junior Cycle (JC) English and its associated resources such as worksheets, instructional videos for teachers and a foundational online, asynchronous continuous professional development (CPD) course. The three *create* chapters of Act IV focus on the content, design, layout and structure of the digital resources created as part of this EEA inquiry.

In presenting this detailed explanation of how I created a curriculum and its associated resources I have accepted Dadds and Hart's contention that 'no methodology is set in stone' and 'professional intention should be informing research processes, not pre-set ideas about methods or technique' (Dadds and Hart, 2001, p169). My 'professional intention' to create a curriculum for teachers that embeds digital literacy skills into JC English and accompanying CPD material led me to undertake an 'individually tailored and innovative approach' to presenting my research which is appropriate to my inquiry (Dadds and Hart, 2001, p158). This approach enabled 'new, valid understandings to develop' that empowered me to improve my practice (Dadds and Hart, 2001, p169). Dadds and Hart encourage practitioner-researchers to 'recognise their own personal and professional strengths and to draw upon them wisely in reporting their research' (Dadds and Hart, 2001, p158). During the *explore*

stage of the EEA (see Chapter Two) I identified one of my key strengths as *creativity* and acknowledged that I have a particular interest in creating digital multi-media artefacts. In the following presentation of my creative process I have sought to draw out the rich media used to create an online curriculum and its associated digital resources as a means of creating a pluralistic, diverse representation of the process (Lomax and Parker, 1996) that ‘matched the needs and demands’ (Dadds and Hart, 2001, p158) of this EEA action research inquiry.

The creation of an innovative curriculum and/ or digital artefact to improve one’s practice is the third stage, *create*, of the educational entrepreneurial approach (EEA) to action research (Crotty, 2014) and this chapter describes the process of creating an innovative digital literacy curriculum for use in the Junior Cycle English Classroom. The curriculum is based on my own experiences of using digital tools to make a short animated movie using the online software, PowToon, and video presentations on Nobel Peace Prize winners with my students as part of an Erasmus+ project. Here, I lay out the creative process, detailing the origin of the curriculum, the various elements that make up the resource and the design components of the curriculum document. The ultimate goal of the creative process was to design a curriculum that integrated digital literacy skills into the Junior Cycle (JC) English specification and to support teachers in delivering the curriculum by incorporating professional development elements throughout.

Creativity is a central tenet of the educational entrepreneurial approach (EEA) to action research and problem solving, innovation and change is central to creativity (Robinson, 2014; Crotty, 2012, 2014; Moran, 2010; Sternberg & Lubart, 1999; Csíkszentmihályi, 1996).

Having identified that students often have lower than expected levels of digital literacy, despite the common misconception of the ‘digital native’ (Schulmeister 2015; Bullen and Morgan, 2011; Selwyn, 2009), I sought to address this issue by creating a curriculum for Junior Cycle (JC) English teachers that could enhance teacher digital literacy levels as well as improve student digital literacy while meeting the JC English learning objectives. In this way, I hoped to take my own learning from the Erasmus+ Peace of Europe (PoE) activities (as described in chapter seven) and create a resource that could be disseminated to the wider teaching community with the aspirational goal of improving students’ levels digital literacy and instigating a shift in the digital culture of a given classroom or school.

The process of designing all facets of the curriculum afforded me the opportunity to further develop my own digital literacy skills, instigating a feedback loop in which the skills I was developing were fed back into the curriculum itself as I gained a greater understanding of what it means to be digitally literate.

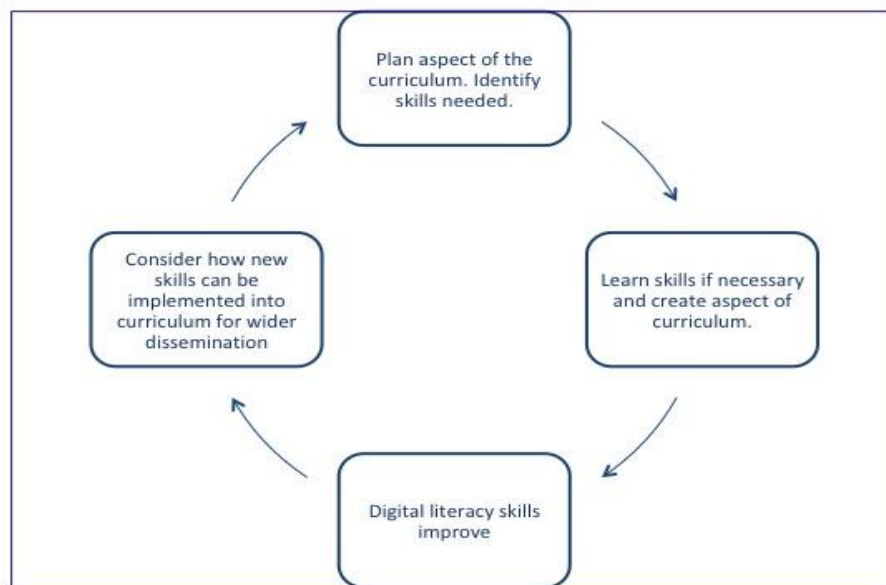


Fig 8.1. Feedback loop: How an improvement in my own digital literacy skills fed back into the creation of the curriculum.

2. Designing a Digital Literacy Curriculum for use in the English Classroom

2.1. The Look and Layout of the Curriculum

In this section I will outline the process of designing the look and layout of the curriculum document and lesson templates. Just as traditional literacy can develop and expand over a lifetime (OECD, 2016; Vensky, 1990), I believe so too can digital literacy. Developing the aesthetic of the curriculum allowed me to improve my own digital literacy and so I will describe the process within the parameters of Eshet-Alkalai's (2004, 2012) Six-Skill Digital Literacy Framework.

2.1.1. Photo-Visual Skills

In deciding on the overall appearance of the curriculum I sought to represent the digital literacy theme through the visual aspects of the document; namely the fonts, colour scheme and graphics. I used the collaborative web platform [Padlet](#) to collate pictures, text and other file formats that I found appealing, making a digital 'mood board' that helped to clarify my design choices. I found this to be a helpful exercise as I was able to see the ideas come together on the screen and could judge them without having to try out a number of different lesson plan variations.

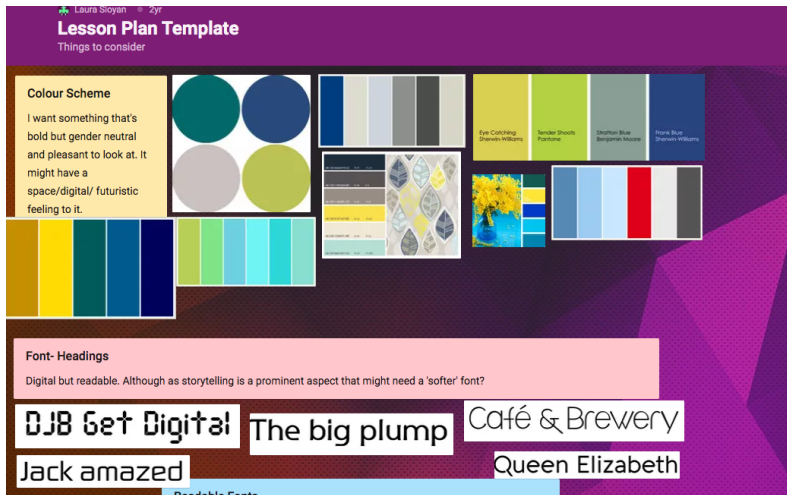


Fig 8.2. Sample of Padlet featuring potential curriculum design elements



Fig 8.3.. Padlet Screenshot with Font Options

I chose the serif font, *Frederika the Great*, as the title font and paired it with the sans serif font *Calibri* for the main body text in the belief that these would appeal to both a younger and older audience, making the resource more accessible to all.

Frederika the Great

Calibri

Fig 8.4.. Title and body text choices

I wanted to include some graphic elements in both the lesson plans and the accompanying resources. I thought that a recurring graphic or character would tie the lessons and activities of the curriculum together and give a sense of continuity for both teachers and students. Searching online brought up a number of options as I looked for a character or icon that would have a childlike appeal but still reflect the subject matter of the curriculum.

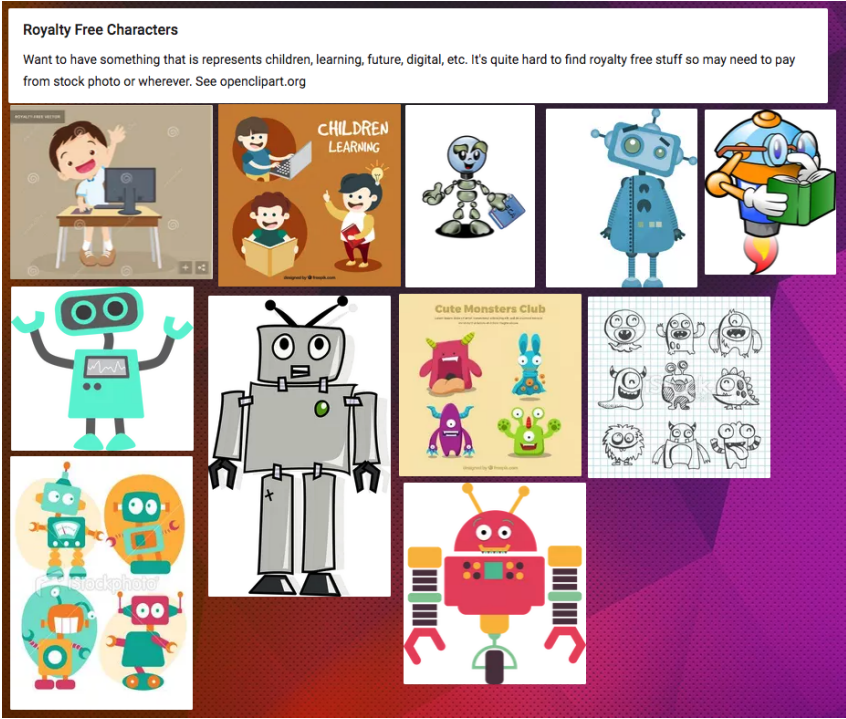


Fig 8.5. Screenshot of character/ icon inspiration from Padlet

On the website pixabay.com I found a collection of child-friendly robot characters that seemed appropriate for the overall theme of the curriculum.

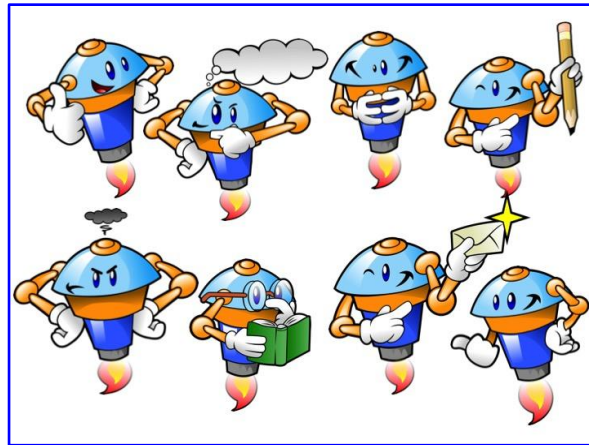


Fig 8.6.. Collection of robot characters from pixababy.com

The selection of this particular set of characters led me to choose an overall colour scheme for the curriculum document, as recorded in my reflection journal.

In terms of picking a colour scheme I liked the little robot characters ... and created a colour palette based on the bright, student friendly colours that they had. My thinking is that these characters and the colours will be the link across the whole platform of online CPD course and accompanying curriculum, hopefully adding to the cohesion between both.

Reflection Journal, September 2017

Using Adobe colour wheel I was able to upload a picture of the robot character and extract a number of potential colour schemes, settling on the one shown in figure 8.7.

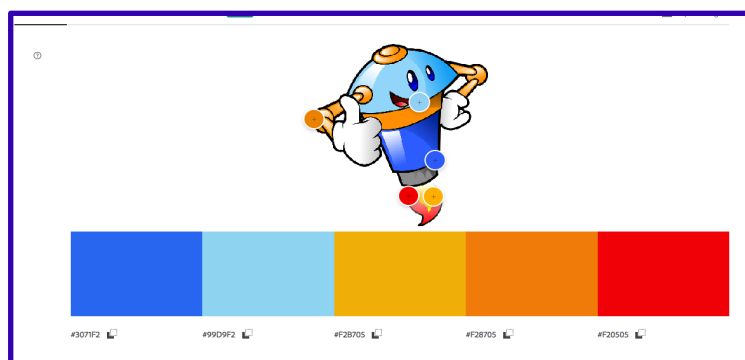


Fig 8.7. Sample colour scheme generated by Adobe Colour Wheel

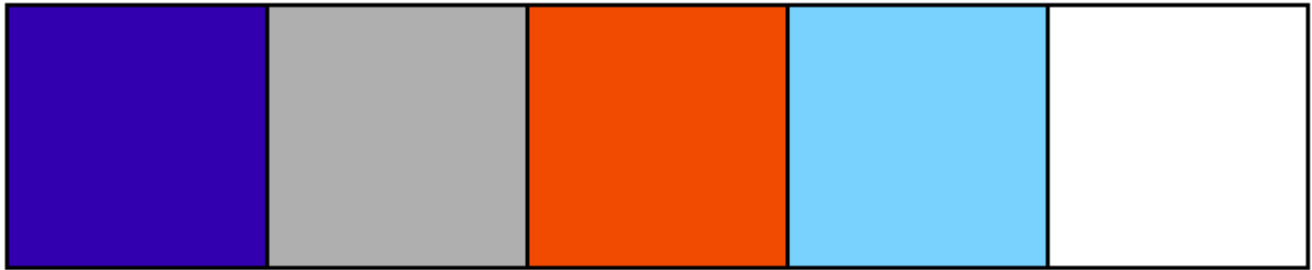


Fig 8.8.. *Final Colour Scheme.*

2.1.2. Reproduction Skills

As noted throughout my reflection journals, I was concerned about my lack of graphic design skills and found this aspect of curriculum creation somewhat frustrating when trying to decide on the visual elements of the document and the layout of the individual lesson plans and resources. Drawing inspiration from the Internet’s wealth of audio, text, and visual content as inspiration I was able to ‘combine these pre-existing, independent shreds of information’ (Eshet-Alkalai, 2012, p269) to create something new and innovative in my curriculum document layout.

Having decided on the basic visual elements such as colour, font and graphics. I set about trying to combine them into an attractive and functional layout using Microsoft Word.

As I started to design the lesson plan template I quickly realised that perhaps graphic design was not my forte! The fonts and colours that I had chosen (for reasons like 'they looked digital' or 'futuristic') did not look ok once they were down on paper.

Reflection Journal, September 2017

I made a number of different iterations of the lesson plan template, none of which looked particularly professional.

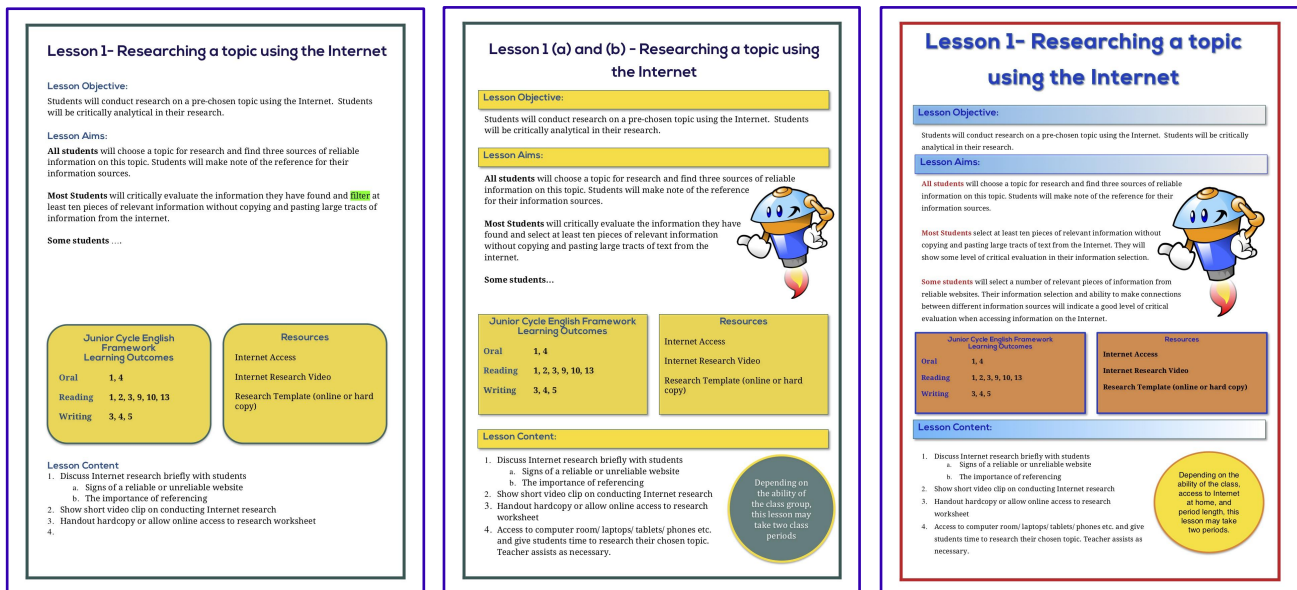


Fig 8.9.. Iteration 1, 2 and 4 of the lesson plan layout

Using my reproduction skills, I sought inspiration from other sources to try and upgrade the look of the curriculum layout. I used the infographic making website piktochart.com to draw up an alternative layout and this formed the basis for the next iterations of the layout.

I looked back on some posters/ leaflets/ information booklets I had made on the online infographic maker, Piktochart. I thought this previous work I had done looked far more professional. The fonts were nicer, the colour schemes more complementary, and the little graphic text boxes were far nicer than anything Microsoft Word had to offer.

Reflection Journal, September 2017

Returning to Microsoft Word, I adopted the techniques gleaned from using Piktochart to design the layout. I layered boxes and colour making the outline look more professional and easier to read. I experimented with different colour options, sticking primarily with the colour scheme based on the robot characters as planned.

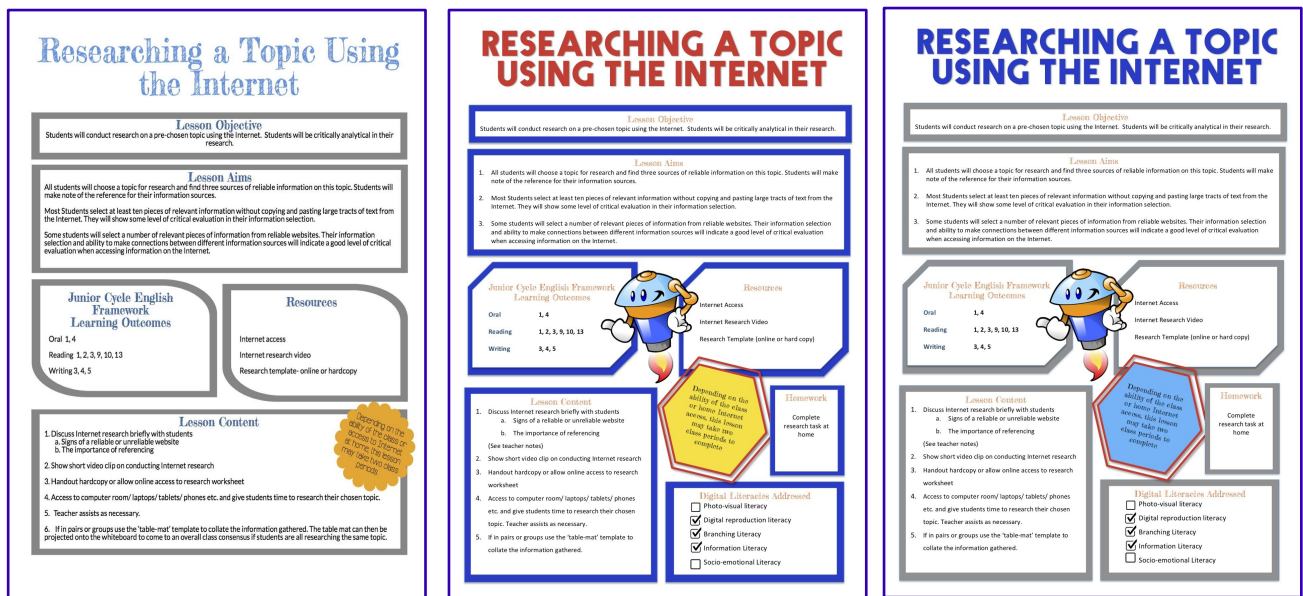


Fig 8.10. Iteration 5, 7 and 8 of the lesson plan layout

Using Piktochart for inspiration allowed me to improve my curriculum layout but it still needed some further improvement. I began looking at alternative design software as Microsoft Word did not have the capabilities to easily arrange elements on the page. As I looked into alternatives [Adobe InDesign](#) seemed to be the leading software for page layout design.

I started looking at Adobe InDesign with the hope that it would allow me to make my worksheets, etc. look a little more professional. This piece of software seemed relatively straightforward and certainly looked like it would make it easier to line up the different elements of my resources, use a variety of fonts and so on.

Reflection Journal, January 2019

Again, my lack of graphic design expertise was frustrating my efforts to create a professional looking resource and so I sought design inspiration from the work of others, setting up a [Pinterest board](#) to collate the ideas I now hoped to bring to fruition using InDesign.

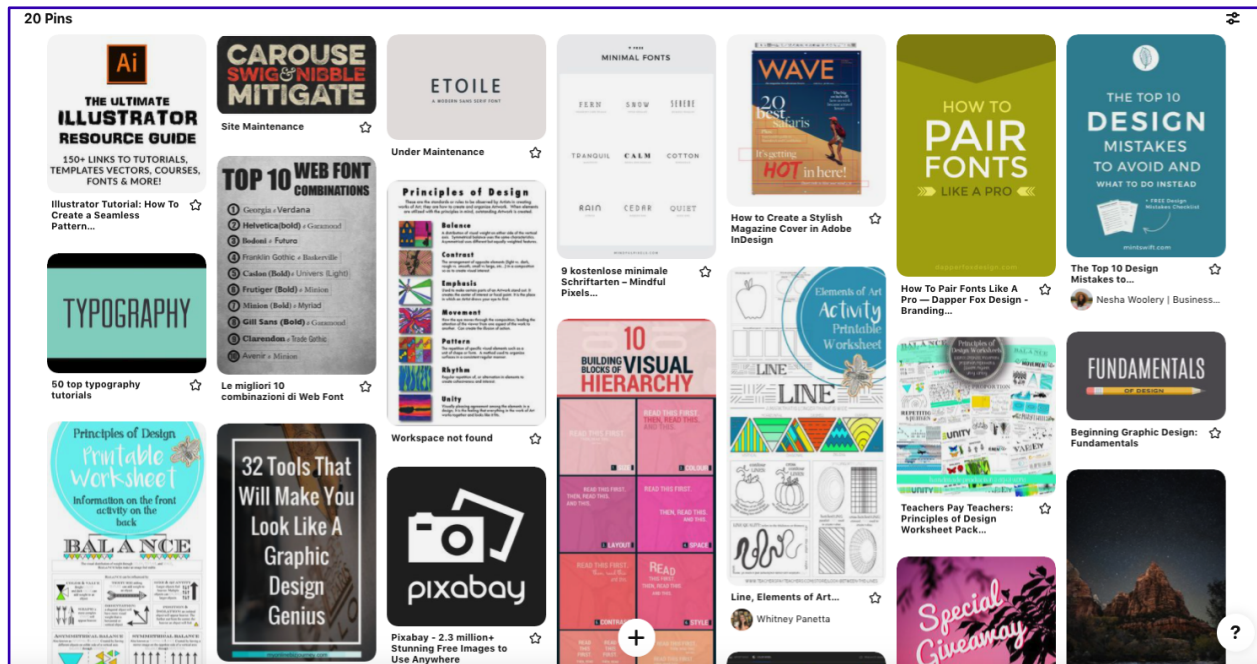


Fig 8.11. [Pinterest board](#) with audio, visual and text graphic design inspiration

I used the [online tutorials](#) on the Adobe webpage to teach myself how to use InDesign (Adobe, 2022) and found this to be a useful endeavour in terms of improving my own skills but also gaining an insight into carrying out independent, asynchronous, online learning.

I used online videos and tutorials to try and teach myself how to use the InDesign software. This was a really useful tool and quite an eye opener in terms of engaging in online learning myself.

Reflection Journal, January 2019

The final version of my curriculum layout was created using Adobe InDesign, inspired by a wide range of online content (fonts, pictures, graphics, magazine layouts), software applications (Adobe Colour Wheel, Pikochart, Pinterest, Microsoft Word and Adobe Indesign) and online tutorials. I was pleased with the result and think it exemplifies the improvements a person can make to their levels of digital literacy, at any age, with practice and exposure to digital and online resources (Tapscott, 1998; Oblinger & Oblinger, 2005; Akçayir, Dundar and Akçayir, 2015).

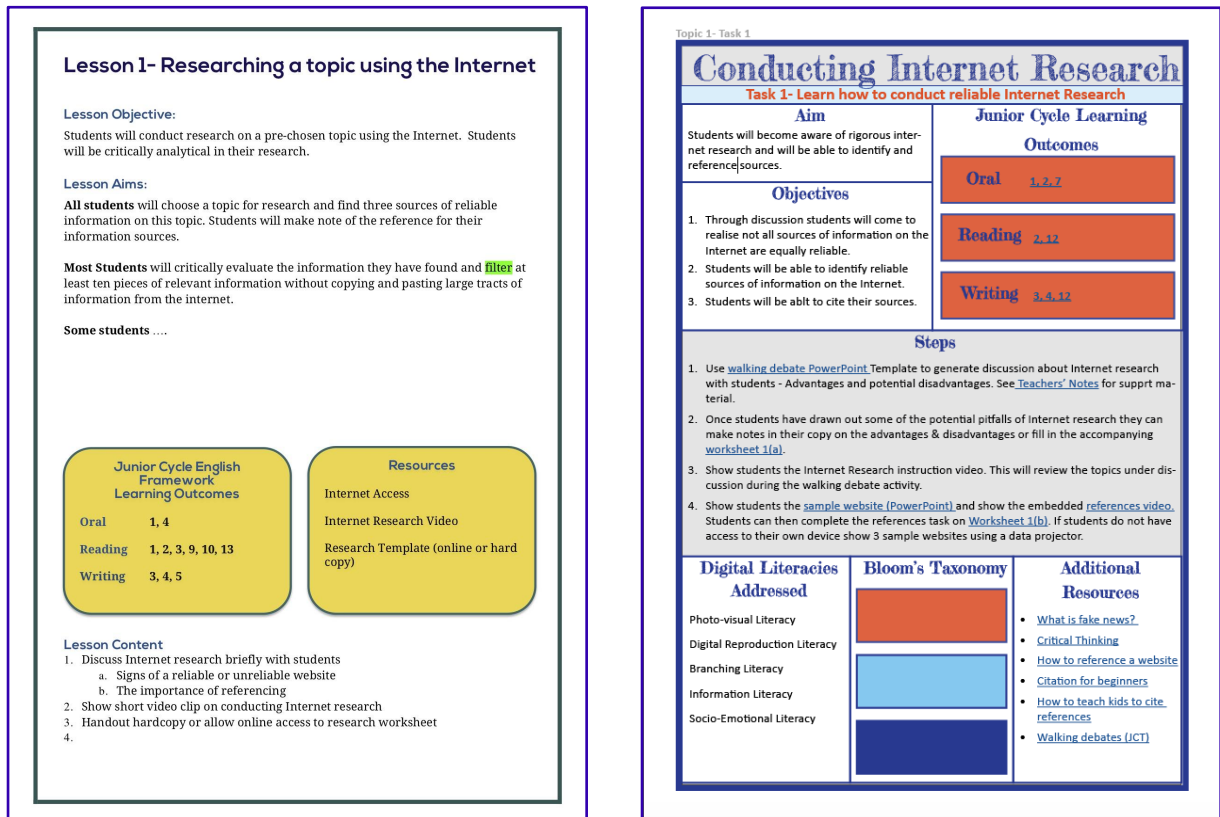


Fig 8.12. First iteration versus final iteration of task plan layout

2.1.3. Branching Skills

Designing the lesson plan and resource template required what Eshet-Alkalai (2004, 2012) refers to as branching skills. That is, the ability to stay oriented in hyperspace where

information is presented in a non-linear fashion. As described, the design process drew guidance and inspiration from a myriad of online resources for curriculum design which was at times overwhelming.

There is so much available on YouTube that it can be quite overwhelming.

Reflection Journal, January 2019

Given the wealth of online resources for any conceivable project it was vital that I be able to navigate through them in order to ‘to construct knowledge from independent shreds of information that are accessed in such a non-orderly and non-linear way’ (Eshet-Alkalai, 2008, p3221). I used websites such as Padlet and Pinterest to help organise and keep track of relevant and useful content (the Padlet can be accessed [here](#) and the Pinterest board can be accessed [here](#)).

2.1.4. Socio-emotional Skills

Deciding on the visual aspects of the curriculum enhanced my socio-emotional digital literacy skills. I had to consider the collaborative nature of developing a curriculum and how I might use the work of others and share my own work while adhering to the unwritten rules of cyberspace or being caught out by Internet hoaxes or viruses (Eshet-Alkalai, 2012).

When using content from the Internet to create something new, one must consider the original content creator. While deciding on the fonts, colours, images and graphics I would use in the document I was cognisant of my obligation to adhere to copyright and to credit creators where necessary. As a result I sought out royalty free fonts from sites such as [dafont.com](#) or [1001freefonts.com](#). For graphics, [pixabay.com](#) had a number of options with creative commons licences and these could be utilised for free. The website [unsplash.com](#)

has a wealth of free-to-use, beautiful, high quality images and these were also used throughout the document.

I found a fab website called unsplash that has free hi-resolution photos and this has been a bit of a lifesaver. However, I have been sure to credit the photographers where necessary as a karmic gesture of goodwill and thanks for their generosity.

Reflection Journal, January 2019

The experience of sourcing high quality, free-to-use media online led to a direct improvement in my own socio-emotional skills. Whereas I previously might not have been considerate of the ownership of content online, I grew to appreciate the work that people shared on the Internet and gained a greater understanding of the need to credit it (Gacs et al., 2020; Intellectual Property Office of Ireland, 2019). This learning fed directly back into elements of the curriculum that will be discussed in the next section.

Even basics like PowerPoints are taking time in terms of finding copyright free content and so on. These are things that I never would have thought of as a class teacher but if I am making something now with the intention of disseminating it I must practise what I preach and abide by copyright rules.

Reflection Journal, January 2019

The design process, as outlined above inline with Eshet- Alkali's six-skill digital literacy framework provided a valuable learning opportunity in terms of my own digital literacy skills and in turn, this learning was incorporated when deciding on and designing the structure of, and elements included in, the curriculum.

2.2. Structure of, and Elements Included in, Curriculum

Teacher professional learning in the Digital Strategy for Schools (DSS) (DES, 2015) is built upon Mishra and Koehler's (2006) Technological, Pedagogical and Content Knowledge (TPCK) framework (discussed in more detail in ch 10). When considering the structure of the curriculum and the elements to be included in each of the topic/ lesson plans the TPCK framework served as a useful blueprint. The TPCK 'model of technology integration in teaching and learning argues that developing good content requires a thoughtful interweaving of all three key sources of knowledge: technology, pedagogy and content' (Mishra and Koehler, 2006, p1029) and that is what I aimed to do when when deciding on the components of the digital literacy curriculum. My goal was to create a curriculum that had the potential to improve student and teacher levels of digital literacy while while adhering to the learning outcomes of the JC English specification, in this way the curriculum (content- English) would integrate digital literacy (technology) elements as a means of transferring the subject matter (pedagogy) in new and innovative ways.

In deciding on the necessary components of the curriculum and its individual lesson/ task plans I sought to counteract the apprehension that some teachers might feel about incorporating new technologies into their teaching by providing detailed guidance.

Furthermore, I hoped to avoid the conception that the digital literacy or technology aspect was a separate module, rather that it was seamlessly integrated into the curriculum (DES, 2015) to the point where the subject matter was primary but that students and teachers would both learn new skills through the carrying out of the activities. The teacher learning/ CPD elements of the curriculum, with reference to the TPCK framework, are discussed in greater detail in chapter ten.

Following is a discussion of the elements that were chosen to be included in the curriculum lesson/ task plans and the overall structure of the curriculum.

2.2.1. Curriculum Structure

When deciding on how the curriculum should be structured I returned to the digital animation movie my students made as part of the Erasmus+ PoE project and considered the steps involved. I broke the steps down into ten separate lessons as shown in figure 8.14.

Digital Storytelling using online animation tool, PowToon.

<p>Introduction</p> <ul style="list-style-type: none"> • Basic information about digital literacy and digital storytelling. • Identify separate elements of digital literacy (to be linked throughout lesson plans). • Aims, objectives and learning outcomes for curriculum. 	<p>Lesson 1 (a) & (b)</p> <p>Internet research</p> <p>Collaborative Story-writing</p>
<p>Lesson 2</p> <p>Script Writing</p> <ul style="list-style-type: none"> -Writing Dialogues/ Voice overs -Layout samples -Drafting and editing -Using a marking/ editing rubric 	<p>Lesson 3</p> <p>Storyboarding</p> <ul style="list-style-type: none"> - Templates and samples -Types of shots -Dialogue boxes -Online options
<p>Lesson 4</p> <p>Practicing and recording voiceovers (Performance)</p> <ul style="list-style-type: none"> -Practice aloud with peers -Practice making audio recordings using audacity or similar -Make notes for improvement (self assessment) -Recording with and without background music 	<p>Lesson 5</p> <p>Learning to use Powtoon</p> <ul style="list-style-type: none"> -Set up account -Sign in -Explore free options
<p>Lesson 6</p> <p>Using Powtoon- Objects and backgrounds</p> <ul style="list-style-type: none"> -Choosing a background -Adding a personalised background -Adding objects to the scene 	<p>Lesson 7</p> <p>Using Powtoon- Characters and Transitions</p> <ul style="list-style-type: none"> -Choosing free characters -Positioning characters -Animating characters using timing bar -Transitioning between slides and scenes
<p>Lesson 8</p> <p>Using Powtoon- Adding sound</p> <ul style="list-style-type: none"> -Adding sound effects -Finding and saving sound effects from internet -adding music files -recording voiceovers 	<p>Lesson 9</p> <p>Using Powtoon- 'spare' class</p> <ul style="list-style-type: none"> -finish and perfect work -share with friends and teachers -note suggestions and make improvements
<p>Lesson 10</p> <p>"Premieres!"</p> <ul style="list-style-type: none"> -Sharing work, -peer assessment -group validation 	<p>Notes</p>

Fig 8.14. Initial planned structure of digital literacy curriculum ([Click to enlarge](#))

Reflecting at the time, I began to consider the more nuanced elements of carrying out a movie making task with students in an English class and how it related to the broader JC English curriculum.

*As I was drawing up learning outcomes, objectives and activities related to script writing I found myself veering into the oral language territory. While the ultimate aim of writing a script is to have it eventually read aloud I realised, in hindsight, that I was moving away from the actual topic of creative **writing** and impinging on topic 4 (Presentation and performance- oral language) which is an important element in itself.*

Reflection Journal, July 2017

It became clear that by having such a limited number of lessons, based on very broad topics (as illustrated in figure 8.14.) I was missing opportunities to meet the learning outcomes of the JC English specification. Whereas the initial lesson breakdown was focused on the end result (the production of a short animated movie using online software) the process of getting there afforded many learning opportunities for both students and teachers and said learning opportunities could be better integrated by breaking the curriculum down into smaller modules or tasks.

The point of this curriculum ... is to be a step-by-step guide for teachers and if I try to cover too much in one topic/lesson it could easily become overwhelming for any teacher who is new to the area of eLearning and digital literacy. In terms of making it more palatable for myself, creating, and anyone else consuming, the course, it must be broken down into bite size pieces. The ultimate aim is to have students tell a story 'digitally' using online animation software but the journey there is just as important.

Reflection Journal, July 2017

This 'bitesize' or segmented approach would give teachers the opportunity to improve their technological knowledge (TK) if necessary and offered greater opportunity to integrate content (CK) and pedagogical knowledge (PK) in line with the TPCK framework (Mishra and Koehler, 2006).

Areas of learning are not just the mechanics of using PowToon but of critical thinking, creative writing, oral language, storyboarding, media and film studies, digital literacy, research skills, self expressions, active listening, communication skills, etc. With this in mind, I started to think that the smaller the chunks that the curriculum could be broken down into the better, for me, teachers and students.

Reflection Journal, July 2017

In a discussion with my supervisor, Dr. Crotty, she encouraged me to think of the curriculum in terms of *topics* rather than *lessons*. That is, rather than breaking the curriculum down into a number of lesson plans with a rigid time frame, the curriculum would be structured as a series of five topics, each of which would contain three to four tasks or activities that would be completed within a timeframe suitable to the teachers' classes level of ability. This approach was appealing as it allowed for more flexibility for myself, as the creator of the curriculum and for teachers who would potentially deliver it. Additionally, a topic-based approach, further segmented into individual activities, generated greater opportunities for the interweaving of technological, content and pedagogical knowledge (TPCK).

I considered how I might make this breakdown work in the context of lesson plans. This was something that Yvonne [Dr. Crotty] and I had spoken about before and at that time she suggested that I work around 'topics' rather than 'lessons'; taking this a step further I've been thinking that the curriculum be written in terms of a series of tasks. This wouldn't require any major changes to the layout of the plan and it would give teachers the opportunity to use the curriculum as a sort of 'pick n mix' allowing teachers to adapt as necessary in terms of time, student ability, class period length, homework policy and access to equipment.

Reflection Journal, July 2017

The notion of time management was influential when deciding on the curriculum structure. I was keenly aware that the length of time taken for my students to complete their 1916 Rising animated movie was much longer than anticipated. My understanding of the class time

required to complete such an activity was foremost in my mind as I shifted my thinking from *lessons to topics*.

The first issue I came across was time management. Teaching in a DEIS school, there are many students with special educational needs (SEN). This can slow down any process when trying to teach a lesson. Depending on the class (top, middle or learning support) students can need massive amounts of support to complete a task and meaning that a task can take longer than would be expected. This left me with a couple of considerations:

- *Is 40 minutes enough to complete this task?*
- *If it is to be completed for homework, what is access to the Internet like in students' homes?*
- *Would students be able to work independently at home on this task?*
- *If a teacher decided to stretch this class over 2 classes instead would that be deemed too many classes?*

Reflection Journal, August 2016

Again, the topic-based approach offered flexibility in that each topic could essentially stand alone and be built upon over the three years of Junior Cycle. Teachers would not have to complete the whole curriculum at once and could choose the topics to address in a given year or term. Further dividing each topic into activities would provide opportunities for carrying out classroom based assessments (CBA) in line with the National Council for Curriculum and Assessment (NCCA) guidelines (NCCA, 2019).

The 'pick n mix' approach would help with the time aspect of the curriculum. As an English teacher I am aware of the time constraints in delivering the curriculum especially given the focus on exam preparation. However, an approach where teachers can use various activities as building blocks to a substantial final piece of work could appeal to teachers in that it marries creativity with solid links to the English Framework and assessment.

The curriculum... allows teachers to have easy access to some creative and fun learning activities for their classes while adhering to the JC framework and meeting the JC learning outcomes. So far, the curriculum could account for a number of assessment pieces required for

the students' portfolio of work (assessed in the in-school SLAR) or the CBAs.

Reflection Journal, July 2017

And so, the structure of the curriculum began to become more detailed with a greater focus on five individual topics:

- Internet Research
- Script Writing
- Storyboarding
- Presentation and Performance
- Making a Short Animated Film Using Online Software ([PowToon](#))

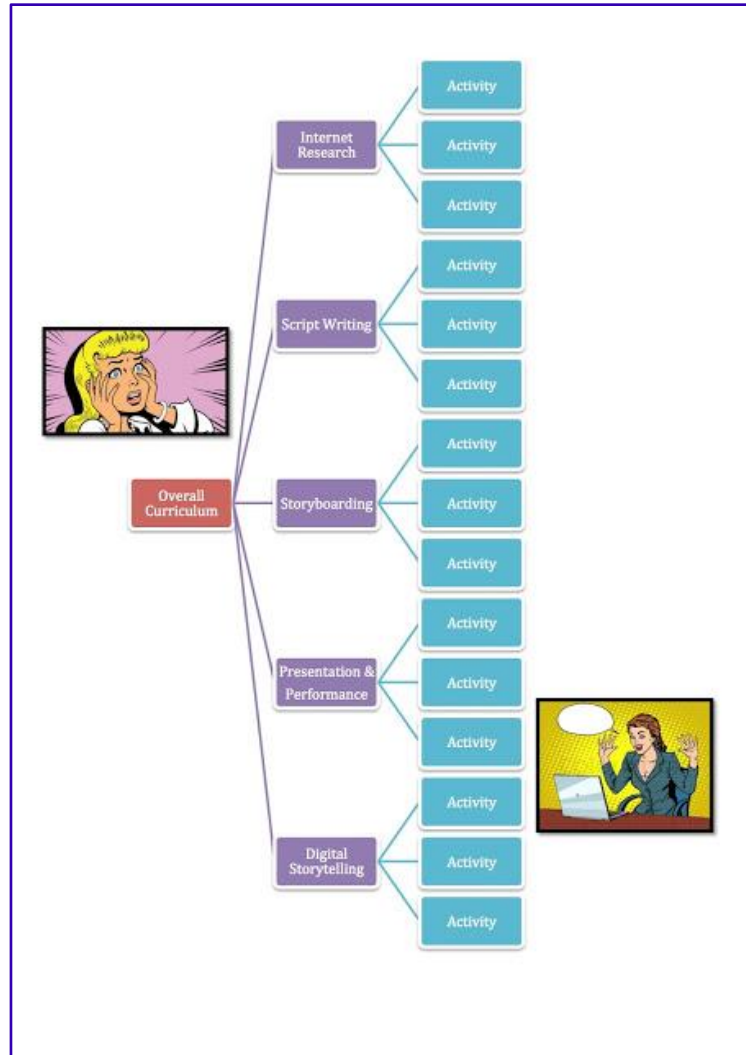


Fig 8.15. *Planned Structure of Curriculum- Reflection Journal, July 2017*

As shown in Figure X, each topic was subdivided into a number of different tasks and these will be discussed in more detail in the following sections.

2.2.2. Elements of the individual task plans

Concurrent with deciding on a structure for the curriculum, the structure of each of the individual activity plans (hereupon referred to as *task plans*) was developed. The elements that made up the task plan template are shown in figure 8.16 and will subsequently be discussed individually in more detail.

- Aim
- Objectives
- Junior Cycle Learning Outcomes
- Steps
- Digital Literacies Addressed
- Bloom's Taxonomy
- Additional Resources

Topic 1- Task 2

Conducting Internet Research		
Task 2- Research a topic of interest using the Internet		
<p>Aim</p> <p>Students will conduct research on a prechosen topic using the Internet. Students will be critically analytical in their research.</p>	<p>Junior Cycle Learning Outcomes</p>	
<p>Objectives</p> <ol style="list-style-type: none"> 1. Students will gather information on a chosen topic from at least 3 reliable Internet sources. 2. Students will be able to reference their sources. 3. Students will work individually or in pairs to collate their research. 	<p>Oral 1, 2</p>	
	<p>Reading 1, 2, 3, 9, 10</p>	
	<p>Writing 1, 2, 4, 5</p>	
<p>Steps</p> <ol style="list-style-type: none"> 1. If necessary show the Internet Research instruction video to recap. 2. Using worksheet 2 students choose a topic to research. Teacher guidance will be necessary here. Do students have free reign to choose or will there be some teacher direction? For example, a historical person or event, a pop-cultural person or event, an author, poet or playwright that they have been studying in class. 3. Allow students to access the Internet. Encourage them to explore a number of different websites to research their topic but to be critical and only record information from sites that appear reliable. Teacher facilitates as necessary. 4. The research notes template can be shared with students online or given as a hardcopy onto which students write their findings. Copying and pasting should be discouraged as students are trying to deepen their understanding of their chosen research topic. 		
<p>Digital Literacies Addressed</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Photo-visual Literacy <input type="checkbox"/> Reproduction Literacy <input checked="" type="checkbox"/> Branching Literacy <input checked="" type="checkbox"/> Information Literacy <input type="checkbox"/> Socio-Emotional Literacy <input type="checkbox"/> Real-time Thinking Literacy 	<p>Bloom's Taxonomy</p> <p>Understand</p> <p>Apply</p> <p>Evaluate</p>	<p>Additional Resources</p> <ul style="list-style-type: none"> • History.com • Biography.com • National Geographic • National Geographic for kids • Famous literary figures • Encyclopaedia Britannica

Fig 8.16. Elements included in task plan (Topic 1, Task 1)

2.2.2.1. Aims, Objectives and Bloom's Taxonomy

There is one aim per task plan. It describes the desired overall student achievement on completion of the task. The learning objectives are 'explicit formulations of the ways in which students are expected to be changed by the educative process. That is, the ways in which they will change their feelings, their thoughts and their actions" (Bloom, 1956, p26). Each task plan has 2-3 objectives and they act as stepping stones to achieve the desired aim. The revised version of Bloom's Taxonomy (Anderson et al, 2001) was incorporated into the curriculum as it is applicable to a post-primary setting and has an emphasis on planning

curriculum, instruction and assessment (as opposed to the original taxonomy’s emphasis on assessment). Anderson et al’s (2001) [taxonomy table](#) provided a useful tool to categorise the learning objectives and ensure that a wide variety of knowledge categories and cognitive processes were being addressed throughout the curriculum. The cognitive processes of each task are noted on the plan as an easy reference for teachers.

2.2.2.2. Junior Cycle Learning Outcomes

In each task plan there is a link to the [JC English learning outcomes](#); that is the ‘statements [that] describe the knowledge, understanding, skills and values that students should be able to demonstrate after a period of learning’ (NCCA, 2021, para 1). The direct hyperlinks to the learning outcomes ensure that teachers can see clear connections between the digital literacy curriculum and the JC English specification, between the technological and content knowledge (TCK).

I have found that focusing on the JC [learning outcomes](#) has also been helpful as they provide a solid outcome to be ideally reached. In writing up the topics I referred to the learning outcomes to try and anchor the activities in the three strands of oral language, reading and writing where applicable.

Reflection Journal, July 2018

The DSS (DES, 2015) highlights the need for teachers to integrate information and communication technologies (ICTs) in the classroom and emphasising the links between a digitally driven task and the intended learning outcomes could help alleviate any teacher concerns that digital activities involve teaching a separate entity of ‘technology’ rather than another pedagogical approach to addressing the content.

2.2.2.3. Step-by-Step Instructions

A key feature of any task or lesson plan is instructions for the teacher on how to carry out the activities. Each of the curriculum task plans has step-by-step procedures for teachers to follow in order to carry out the given task, enhancing and supporting the development of technological pedagogical knowledge (TPK). The instructions contain hyperlinks where necessary to relevant resources or further instruction or guidance for teachers.

2.2.2.4. Digital Literacies Addressed

From the outset of the curriculum creation process, Eshet-Alaklai's six-skill digital literacy framework (described in Chapter Four) was used to anchor my own understanding of digital literacy to the curriculum. The framework skills were explicitly included in the task plans with the intention of making that connection for teachers and students.

This framework [Eshet-Alaklai's Digital Literacy Framework] is one that I can work with in designing my online course and in-school curriculum. It gives teachers a concrete idea of what it might mean for themselves and their students to be digitally literate. Indeed, it gives me a better, more definite idea of what it means to be digitally literate. I envisage having these elements as the foundations of the course so that I, or the teacher, can identify what aspects are being addressed in each element of the course. It would also keep me on track in terms of digital literacy ensuring that the content stays relevant and does not go off on a tangent.

Reflection Journal, July 2017

2.2.2.5. Additional Resources

Each task plan contains a list of additional resources. As teachers and students all have different levels of technological knowledge (TK) and digital literacy, the inclusion of additional resources served as a form of differentiation for both students and teachers.

Providing extra resources for teachers and students acknowledges that digital literacy exists on a spectrum (Bullen and Morgan, 2011).

3. Conclusion

Chapter 8 describes design of a digital literacy curriculum for use in Junior Cycle English. The structure of the curriculum is presented and discussed along with the elements that are included in each of the task (lesson) plans. The curriculum was created as part of the *create* phase of this action research inquiry using Crotty's (2014) Educational Entrepreneurial Approach (EEA). The curriculum itself is based on my experiences of carrying out activities with my students using digital tools to create a short, animated film as part of an Erasmus+ project entitled A Peace of Europe.

When designing the look and layout of the curriculum I drew inspiration from graphic design resources on the Internet, which I collated using the online applications, Padlet and Pinterest. In order to teach myself some basic graphic design skills I engaged in online learning through courses such as Canva's 'Basic Graphic Design' and Adobe's extensive InDesign tutorials. The creative process is presented in terms of its positive impact on my own digital skills, with specific reference to my *photo-visual, information, branching* and *socio-emotional* digital skills (Eshet-Alkalai, 2004, 2012).

Through consultation with my PhD supervisor I came to structure the curriculum as a series of topics that a teacher can address as they see fit over the course of the three-year Junior Cycle, rather than lesson plans with rigid timeframes. I believe that this approach gives scope

for greater teacher autonomy and differentiation depending on class ability. Each topic consists of three to four tasks that align with Junior Cycle English Learning Outcomes (NCCA, 2018). While making a PowToon animation as part of the Peace of Europe Erasmus+ project, I facilitated my students in a number of key tasks that built up to the creation of a short PowToon animation; Internet research, writing a short film script, storyboarding the film, recording an audio voice over and finally, combining all the previous work to make the PowToon documentary on the 1916 Rising. These key tasks became the basis for the structure of the curriculum topics; internet research, script writing, storyboarding, presentation and performance and making an animated documentary. Within the topics there are three to four task plans, each plan has the same layout and contains the same elements; Aim, Objectives, Junior Cycle Learning Outcomes, Step-by-Step instructions, Digital Literacies Addressed, Revised Bloom's Taxonomy and Additional Resources. The following chapter explains the process of creating the curriculum's tasks, activities and resources that fit within the structure that has been described.

Chapter 9

Curriculum Creation- Content

1. Introduction

While the previous chapter described the creation of the curriculum in terms of its design, layout and structure, this chapter describes the process of creating and developing its content, that is, the task/ lesson plans and associated resources. The discussion of this stage of the curriculum creation will be approached thematically in line with the literature that informed the creative process:

- The curriculum as a means to integrate digital skills (Eshet-Alkalai, 2004, 2012) into the Junior Cycle English classroom
- The curriculum as a means to address digital inequality
- The Curriculum as continuous professional development (CPD) for teachers

This chapter will firstly address how the curriculum can be used to embed digital literacy skills into Junior Cycle English, with each of the five topics being discussed in turn. How the curriculum attempts to impact digital inequality is then discussed with reference to the provision of opportunities for students to develop their digital literacy skills, student motivation and engagement and student autonomy. The curriculum as CPD will be discussed in greater detail in chapter 10.

Within this chapter, reference is made to a number of teaching methods. These methods were chosen based on approaches that I have found to be effective over the years in my experience as a classroom teacher. Additionally, my experience facilitating students in making a short PowToon film documentary and video presentations as part of the Peace of Europe Erasmus+

project was influential in the choice of teaching methods. In choosing the teaching and learning approaches used in the curriculum, I took my ‘practice knowledge- generated in, for and through a situation of action’ (Schon, 1995, p31) and made it explicit for inclusion in the curriculum. A number of digital/online applications are also incorporated into the curriculum, further explanation of these applications can be found in the glossary of terms on page 21.

2. The curriculum as a means to integrate digital skills into the Junior Cycle English classroom

The integration of digital technologies into all aspects of teaching, learning and assessment was a key priority of the Department of Education and Skills’ (2015) Digital Strategy for Schools (DSS) 2015-2020. The DSS 2015-2020 advocated for all future curricula to have clear statements that focus on the development of digital learning skills. Moreover, future curricula should use ICT as a resource to achieve learning outcomes and all subject curricula specifications should support the in-depth study of ICT. In delivering curricula, teachers should take a facilitative role in supporting students to create and innovate using digital technologies. The more recent Digital Strategy for Schools to 2027 (DES, 2021) reinforces the contention that ICT and digital skills be integrated across post-primary school curricula with ‘*Supporting the embedding of digital technologies in Teaching, Learning and Assessment*’ as the first of three ‘pillars’ that support the strategy. The DSS to 2027 recognises that ‘the use of learner -centred digital technologies in teaching, learning and assessment is the responsibility of all teachers and school leaders and is underpinned by the necessary confidence and competence to lead effective digital learning in the classroom and across the wider school community’ (DES, 2021, p22). It is with this mindset, that all

teachers are teachers of digital literacy, that I approached the creation of a curriculum that integrated digital literacy skills into my own teaching subject, English.

As explained in Chapter Eight, the curriculum is structured as 5 topics with three to four tasks within each topic. The following discussion presents the topics and tasks of the curriculum individually, describing the process of developing each task and its corresponding resources. The integration of digital literacy skills will be addressed within the parameters of Eshet-Alkalai's (2004, 2012) six-skill digital literacy framework.

2.1. Topic 1- Conducting Internet Research

The first topic in the curriculum is *Conducting Internet Research*. It comprises of three tasks:

- Consider how to conduct reliable Internet research
- Research a topic of interest using the Internet
- Collating Internet research

In my experiences with the Peace of Europe (PoE) project and the creation of the 1916 Rising movie, I had not allowed students autonomy when carrying out the research elements of the activity and instead had printed out information and distributed it to the students, denying them the chance to improve a number of digital literacy skills (Marcus-Quinn and McGarr, 2013).

I gave each student a printout from 2 different websites detailing the lead up to, and events of, the 1916 rising (http://www.1916rising.com/pic_timeline.html & <http://www.easter1916.net>). I chose to give students the information directly for a couple of reasons; firstly, we didn't have access to enough computers for the whole class to work on. Secondly, I often find that students can be overwhelmed by the sheer volume of information on the internet about any given topic.

Reflection Journal, November 2015

In a later activity, making movie presentations about a Nobel Peace Prize winner, students were given much more autonomy when carrying out their Internet research, finding the relevant information themselves and filling in a worksheet that helped them collate their research. This was a more effective approach and I noted that the students picked up the relevant skills quickly and were able to garner information on their chosen prize winner from reliable sources.

The students did a good job of their research but it took more classes than I anticipated given the amount of assistance they had received in terms of websites, worksheets, demonstrations, etc. I think that this is indicative of the low levels of digital literacy. It is ... difficult to read and critically evaluate the information that you find on Mandela. Locating and recognising reliable sources of information on the internet, finding information aimed at your own levels of understanding and being able to navigate results to find the precise info that you need are skills that, it seemed to me, many of these bright, capable students did not have. Although, to be totally fair to them they certainly seemed to pick up the basics fairly quickly.

Reflection Journal, September 2016

With this in mind, I sought to create three interrelated tasks that guided students to conduct *reliable* Internet research and develop their *photo-visual, information, branching* and *socio-emotional* skills (Eshet-Alkalai, 2004, 2012).

Task 1.1. *Consider how to conduct reliable Internet research*

This task involves a class discussion, using a walking debate, to encourage students to think about their own level of knowledge when it comes to conducting research and finding reliable sources of information on the Internet. While this task is not digital-based it allows students to engage their information skills, exercise their ability to think critically and independently (Adler, 1999) and consider how to construct strategies to gather information and to do so effectively (SCONUL, 2011).

Task 1.2. Research a topic of interest using the Internet

This task builds on the information skills introduced in Task 1.1. Students are required to research a topic of interest using the Internet and are encouraged to be critical when choosing websites to record information from. Photo-visual skills are used as students navigate the graphic interfaces of the web and branching skills are required to remain orientated as they move through the various websites. As plagiarism is the most common form of *academic dishonesty* (Blau and Eshet-Alkalai, 2017) students are required to cite their sources, ensuring that their research is carried out ethically, in line with many definitions of digital literacy (Webwise, 2017; NCCA, 2016; Eshet-Alkalai, 2012; Ng, 2012; Bawden 2008).

Task 1.3. Collating Internet Research

The third task of this topic requires students to collate their researched information. This task can be completed individually or using a ‘table mat’ group or pair approach as carried out with some success in my own classes.

Students firstly wrote in their own corner of the mat, jotting down what they felt were the most pertinent points from the handouts... they discussed ... and came to a consensus as to what should be included over all. They wrote their group ideas in the centre box. This actually worked out quite well; students were able to fish out the basic information and come to an agreement about what were the most important pieces of information to be included.... I was pleased with the level of collaboration that took place during the activity.

Reflection Journal, November 2015

Students then use the pre-prepared worksheets to organise their information thematically or chronologically. The collaborative nature of the task aligns with the JC key skill of ‘working

with others through digital technology'. Again, students' information skills are engaged as they evaluate and organise their information.

2.2. Topic 2- Writing a Documentary Script

The second topic in the curriculum is *Writing a Documentary Script* and it is comprised of four overlapping tasks:

- What are the key features of a documentary?
- Examining different documentaries
- Writing a documentary script
- Self-assessing, editing and redrafting a documentary script

The ultimate intention of the curriculum is for students to create an animated documentary using online software. With this in mind I considered it prudent to include teaching/ learning elements about documentaries to give students some foundational context before beginning the process of creating their own short documentary. The curriculum is designed to be a long-term piece of work, to be carried out, if so wished, over the course of the three years of Junior Cycle. I reflected on the importance of creating links over the lifespan of the project in relation to Topic Two.

[The] curriculum could be run over 1st & 2nd / 2nd & 3rd year... I believe that this could be helpful in encouraging students to see the links between their work over the 3 years and help develop an understanding of the continuity of the JC English course.

Reflection Journal, July 2018

This is primarily a JC English curriculum and the use of documentaries is encouraged within Junior Cycle. The prescribed materials for JC (DES, 2018) require the study of a film and two (out of fifteen) of the prescribed films are documentaries (James Marsh's *Man on Wire* and Ken Wardrop's *His and Hers*). Additionally, 'teachers have the freedom to choose

specific examples’ of non-literary texts to study (DES, 2018, p5) of which short visual or audio documentaries would be wholly appropriate. This is highlighted by Junior Cycle for Teachers (JCT) partnership with Radió Telefís Éireann’s (RTE) ‘Documentary on One’ in which resources and worksheets have been developed for a selection of radio documentaries ‘to enable both students and teachers to analyse, discuss and utilise these radio documentaries to engage with the Learning Outcomes in the English Specification’ (RTE, 2015, para 2).

Keeping in mind the JC English specification and learning outcomes, three interconnected tasks were devised to give students some context regarding documentaries before facilitating them in writing their own short documentary script. The tasks integrate *photo-visual, information, branching* and *reproduction skills*.

Task 2.4. *What are the key features of a documentary?*

The first task requires students to consider what they already know about documentaries and to build on that knowledge. Their base knowledge is ascertained through a table mat task that can be completed individually or in pairs/ groups. The language of documentaries is then taught by the teacher via presentation and either a glossary worksheet (non-digital) or via a [Quizlet flash card activity](#) (digital). Language is one of the essential components of media literacy and learning the key terms associated with documentaries allows students to understand the ‘codes and conventions’ of this medium (Aufderheide, 1992; Buckingham, 2015), often consumed digitally. Moreover, students have the opportunity to utilise their photo-visual and information skills while completing the Quizlet activities.

Task 2.5. *Examining different documentaries*

As the changing definitions of literacy include elements of multiliteracy and new literacies (DES, 2011; NCCA, 2009; New London Group, 1996) tasks that require students to ‘read’ multimedia messages (Koltay, 2011) are included in the curriculum, in this case short documentaries. This task requires students to evaluate three short documentaries; [Lions 101](#) (National Geographic, 2017) , [Trevally](#) (BBC, 2017) and [Slime Girl](#) (60 Second Documentaries, 2017). These three short documentaries are not prescribed JC English texts but the JC English specification gives teachers the freedom to choose relevant texts (DES, 2018).

Worksheets are provided for students to help focus their attention and assist them in accessing, analysing and evaluating the messages and features contained within the documentaries (Leaning, 2017), utilising their information and photo-visual skills and meeting relevant JC English learning outcomes. Within the Additional Resources section are links to the JCT/RTE documentaries and the [60 Second Documentaries YouTube channel](#) so teachers can cater to the interests of their own classes.

Task 2.6. *Writing a documentary script*

Task 2.6 builds on the research carried out in Topic One (Conducting Internet Research). Students are required to write a documentary script based on their new knowledge of documentaries and the research done in the previous topic. Although this is ostensibly a task that requires more traditional literacy skills, it is cognisant of Bawden’s (2008) assertion that a vital aspect of digital literacy is knowing when to use non-digital sources of information.

Using their research from Task 1.3 and drawing inspiration from hardcopy scripts of *Trevally* (BBC, 2017) and *Slime Girl* (60 Second Documentaries, 2017) students create new and innovative documentary scripts. In this way they are exercising their reproduction skills, indicating an ‘ability to create new meanings... by combining pre-existing, independent shreds of information’ (Eshet-Alkalai, 2012, p269) into another medium, i.e. documentary.

Task 2.7. *Self-assessing, editing and redrafting a documentary script*

Task 2.7 requires students to assess their own documentary script and edit and redraft it based on their own assessment. The self-assessment is carried out using a rubric, that is a ‘a scoring tool that lists the criteria for a piece of work and articulates the gradations of quality for each criterion, from excellent to poor’ (Andrade, 1997, p1). Rubrics are used across the curriculum for assessment but as the first instance of their use is in Task 2.7 the reasons for using them as an assessment tool will be discussed in some detail that also pertains to Task 3.10, Task 4.13 and Task 5.16.

When considering how assessment would be addressed within the curriculum I reflected on my own English teaching practice and a successful teaching/learning experience I had when using assessment rubrics for a creative writing project with my students.

They wrote their stories and, even though they were a class of bright students, the work lacked originality. When they were finished [the stories] I gave them a marking rubric that I had created ... Using the criteria laid out in the rubric students gave themselves a mark and I was surprised to find that they were pretty spot on with their grading. This was a bit of a revelation for me; I was impressed at the self awareness, it pointed to something larger, that perhaps they just hadn't been made aware of the success criteria before whereas with the rubric they could clearly see a well organised story looks like X, good use of language looks like Y, etc.

Reflection Journal, February 2019

I found that my students were not only accurately able to assess their work but, using the rubric, were also able to make considerable improvements to their creative writing.

When I had checked students' work and marks that they had given themselves, I asked them to redraft their story based on their own evaluation of their work. The difference in the quality of the work that came back was quite astounding. All students went up at least a grade and there was a marked improvement in the quality of their work. I was delighted and considered the exercise one of the most successful I had done in my time as an English teacher, in line with Moss' (1998) assertion that 'a valid assessment is one that contributes to student learning'.

Reflection Journal, February 2019

The Junior Cycle Framework (DES, 2015) strongly advocates for students' self-assessment of, and reflection on, their work. Rubrics provide a simple and accessible way to present success/ failure criteria to students (Andrade, 2007, 2009). As part of their Junior Cycle English course, students must compile a collection of their texts and present two of them for summative assessment at a subject learning and assessment review (SLAR) meeting (NCCA, 2022). I created a rubric based on the JC criteria for the SLAR of students' collection of texts. The SLAR assessment descriptors are as follows:

- Creativity
- Command of Genre
- Writing competence

- Original idea
- Vocabulary choices
- Work shaped for intended audience

I considered a rubric that incorporated all of these descriptors as headings but felt that along with 4 or 5 marking options for each strata, it would be too complex a rubric for students.

The rubric is very much based on JC English assessment criteria while still being accessible to students. It is made up of the following 5 criteria:

1. Content
2. Originality
3. Vocab/ Language
4. Organisation & Layout
5. Suited to intended audience

These 5 criteria amalgamate the six SLAR criteria for the collection of texts assessment.

‘Writing competence’ is not included in this instance as script writing is a creative endeavour and I believe it is more important for students to focus on their content and expression rather than their spelling and grammar. Figure 9.2 shows the final iteration of the assessment rubric.

It should be noted that the rubric does not assign marks for each gradation, paying heed to Andrade’s (1997, 2008) suggestion that the point of a rubric is to improve students’ work and that encouraging students to *grade* rather than *assess* their own work may compromise their honest self-appraisal. In that respect it, and the other rubrics in the curriculum, are *self-assessment rubrics* rather than *marking rubrics*, allowing for self- assessment (informal

judgements about attainment) or self-evaluation (judgements that are used for grading) as teachers see fit (Ross, 2006).

Self Assessment Rubric				
Circle the box that most appropriately describes each element of your script				
Content	Originality	Vocabulary & Language	Organisation/Layout	Suited to Intended Audience
The content of the script is <i>excellent</i> . All the information contained is relevant. All of the content has been researched from reliable sources.	The script is <i>very original</i> . The reader will <i>certainly learn a lot</i> from the script. The script is <i>very interesting</i> and <i>grabs the reader's attention</i> from the beginning and holds it.	The script contains a lot of <i>interesting</i> and <i>imaginative</i> vocabulary. The vocabulary is <i>perfectly suited</i> to the topic of the documentary script.	The script is <i>very well organised</i> . The information is in an order that makes <i>perfect sense</i> to the reader. The script makes note of <i>all necessary</i> sound effects, background music and other <i>features of a documentary</i> .	It is <i>very clear</i> who the <i>audience</i> of the script should be. The words, language, content, sounds, etc. are <i>perfectly suited</i> to the target audience.
The content of the script is <i>very good</i> . Most of the information contained is relevant. Most of the content has been researched from reliable sources.	The script is <i>original</i> . The reader will <i>learn some things</i> from the script. The script is <i>interesting</i> and <i>grabs the reader's attention</i> from the beginning and holds it.	The script contains <i>some interesting</i> and <i>imaginative</i> vocabulary. The vocabulary is <i>usually suited</i> to the topic of the documentary script.	The script is generally <i>well organised</i> . The information is in an order that <i>makes sense</i> to the reader. The script makes note of <i>most of the necessary</i> sound effects, background music and other <i>features of a documentary</i> .	It is <i>clear</i> who the <i>audience</i> of the script should be. The words, language, content, sounds, etc. are <i>usually suited</i> to the target audience.
The content of the script is <i>ok</i> . Some of the information contained is relevant. Some of the content has been researched from reliable sources.	The script is <i>sort of original</i> . The reader will <i>learn a couple of things</i> from the script. The script is <i>sometimes interesting</i> and <i>some parts of the script grab the reader's attention</i> .	The script contains a <i>small amount of interesting</i> and <i>imaginative</i> vocabulary. The vocabulary is <i>sometimes suited</i> to the topic of the documentary script.	The script is <i>sort of well organised</i> . The information is in an order that <i>sometimes makes sense</i> to the reader. The script makes note of <i>a couple of necessary</i> sound effects, background music and other <i>features of a documentary</i> .	It is <i>sometimes clear</i> who the <i>audience</i> of the script should be. The words, language, content, sounds, etc. are <i>sort of suited</i> to the target audience.
The content of the script is <i>poor</i> . Very little of the information contained is relevant. Very little/no of the content has been researched from reliable sources.	The script is <i>unoriginal</i> . The reader will <i>learn very little</i> from the script. The script is <i>rarely interesting</i> and <i>does not grab the reader's attention</i> .	The script contains <i>no interesting</i> and <i>imaginative</i> vocabulary. The vocabulary is <i>not suited</i> to the topic of the documentary script.	The script is a bit <i>disorganised</i> . The information is <i>not in an order that makes sense</i> to the reader. The script <i>doesn't note any of the necessary</i> sound effects, background music and other <i>features of a documentary</i> .	It is <i>not clear</i> who the <i>audience</i> of the script should be. The words, language, content, sounds, etc. are <i>not suited</i> to the target audience.

Fig.9.1. Self-assessment marking rubric for script writing task (click to enlarge)

Although Task 2.7 does not explicitly address any digital literacy skills, it helps to lay the foundation for the development of information, reproduction and socio-emotional skills in subsequent tasks as well as continuing to address elements of media literacy such as ‘being aware of copyright issues’, ‘being critical of the quality and accuracy of media’ and ‘using media to create and disseminate information and content’ (European Commission, 2007, 04).

2.3. Topic 3- Storyboarding

The third topic in the curriculum addresses storyboarding. It comprises of three tasks:

- Make a camera shot reference guide
- Analyse and create a storyboard
- Create a documentary storyboard

A storyboard is a ‘series of illustrations or frames used to visualise scenes of a script’ (Cristiano, 2012, p4) that are used as reference during the making of a film. Storyboarding is included as a topic in the curriculum for a number of reasons; the importance of pre-production planning (scripting and storyboarding) to the smooth execution of the movie making process had come to my attention as early as the PowToon workshops carried out as part of the Erasmus+ mobility activities (see chapter 7).

There was little or no emphasis on planning or storyboarding a movie for the students... and as a result students never got to plan their workshop movies and weren't able to learn how to storyboard or the benefits of storyboarding. I feel that this is an essential aspect of the process and will collaboratively storyboard the 1916 movie with my students before touching a computer!

Reflection Journal, October 2015

Storyboarding allows students to quickly draw how their film should look, to fine tune their ideas and helps to avoid mistakes when it comes to making their films (Christiano, 2012).

The use of storyboards sits well within the JC English specification, which promotes engagement with a variety of multimodal texts to ‘stimulate, engage, inspire and challenge’ students (NCCA, 2018a, p10). Indeed, the expected [Junior Cycle English Learning Outcomes](#) require students to be able to read and write for a variety of purposes and competently in a range of forms (NCCA, 2018a) and storyboards ‘allow students to make use of different strategies such as previewing, visualising, illustrating, using background knowledge,

summarising, sequence understanding, identifying main ideas and details and identifying important information' (Naar, 2013, p154) of a text.

Within the context of the curriculum, storyboards allow for creativity on the part of students. The chance to explore a topic or text in different formats and/or produce their own work in alternative creative formats can bring about a deep and personal understanding for the students, providing an opportunity for a positive learning experience (Moran, 2010). Whether approached through digital (using storyboarding software) or non-digital (using pen and paper) means, the use of storyboards as a teaching/learning tool within the curriculum tasks allows for the development of *photo-visual, reproduction, branching* and *socio-emotional* skills.

Task 3.8. *Make a camera shot reference guide*

Task 3.8 requires students to learn to recognise a variety of camera shots and to understand their purpose. This task is a preparatory task for the eventual making of a short animation. However, as a stand alone task it aligns with the use of multimodal texts and the inclusion of film studies in the JC English specification.

Through examining and analysing different types of camera shots, students engage their photo-visual skills. The creation of a reference guide to camera shots, either through taking their own photos or drawing the equivalent, students use their photo-visual and reproduction skills. Students must also consider the socio-emotional aspects of taking photos and uploading as part of the task. They have to consider what is appropriate and have an

awareness of the permissions they have to take and use photos of other people, taking into account general data protection regulations (GDPR) and issues such as consent/ assent.

The additional resources section of the task plan contains a [Kahoot quiz](#) which requires students' real-time thinking skills as they respond to the stimuli on screen (the quiz questions and the coloured coded answers) in real time (Eshet-Alkalai, 2012).

Task 3.9. *Analysing and creating storyboards*

Task 3.9 involves students analysing three pre-prepared storyboards before making their own storyboard digitally using [storyboardthat.com](#) or drawing their own storyboard using a template. The analysis and creation of the storyboards brings to bear the many contemporary definitions of literacy that include the ability to read, understand and critically analyse multimodal forms of representation (DES 2011; Kennedy, 2012; NCCA 2009, 2011; UNESCO, 2004).

In analysing the storyboards students use their information skills as they analyse the information presented to them in the physical storyboards or digitally via a data projector.

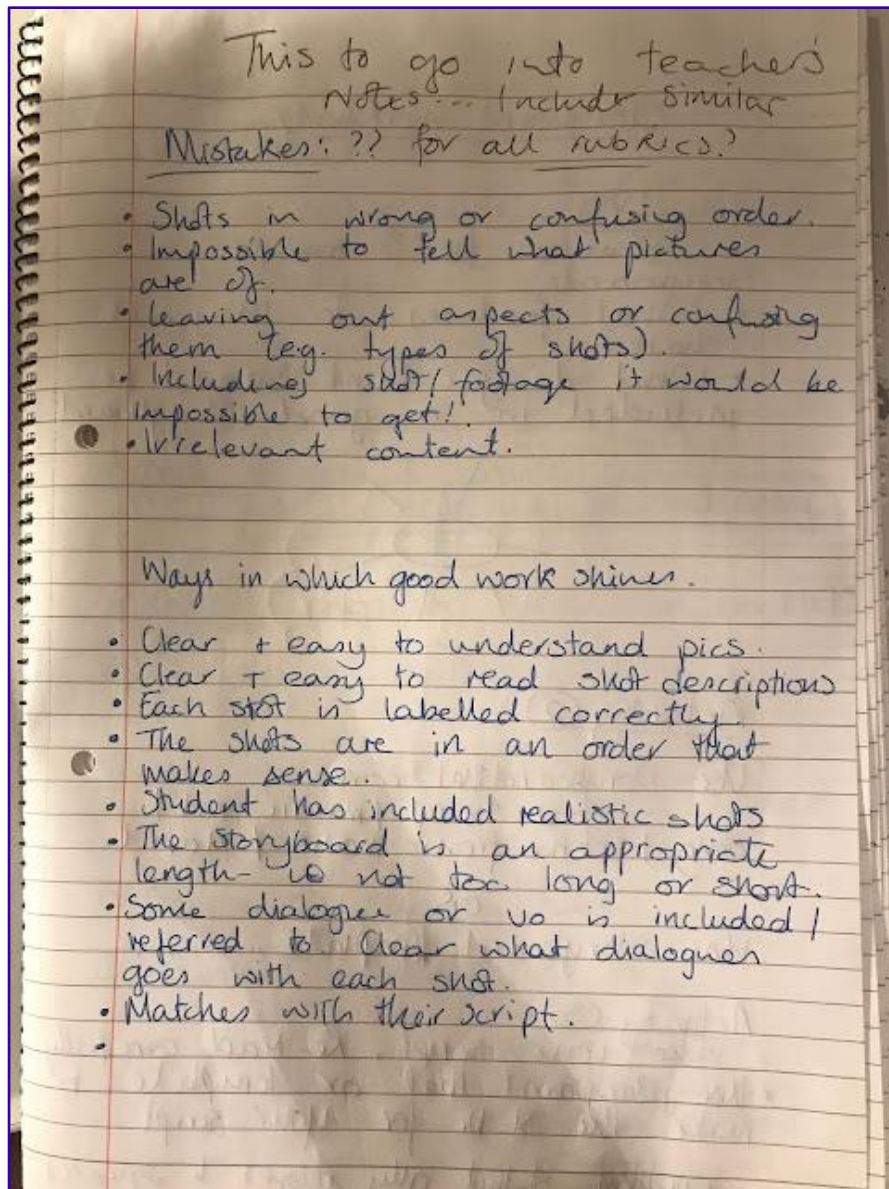
Using [storyboardthat.com](#) to create their own storyboards (based on a scene from a book, movie, TV show of their choosing) students are applying photo-visual skills as they navigate the website. Reproduction skills are used as they take digital content (a movie, music video, ebook, poem) found online and use it to create a new representation of it. When citing other creators and giving credit to original sources students are engaging their socio-emotional

skills in adhering to the ‘unwritten rules of cyberspace’ (Eshet-Alkalai, 2012) and the written rules of copyright law (IPOI, 2019).

Task 3.10. *Create a documentary storyboard*

The third task of the Storyboarding topic sees students make a storyboard for the short documentary script they wrote, self-assessed and redrafted in tasks 2.6 and 2.7. The task consolidates the knowledge and skills garnered in the previous two tasks as students create a storyboard visualisation of their script and consider how they might frame their ‘shots’, what order they should go in and the transitions that could separate them. As with task 3.9 students must use their photo-visual skills if using the storyboardthat.com website and their reproduction skills as they take individual elements (internet research, script, shot reference guide, sample storyboards) and create something new and innovative. Whether using a digital or non-digital approach to storyboarding, students’ reproduction and socio-emotional skills are activated through this task.

Self-assessment rubrics are then used to assess students’ work and pinpoint areas for improvement. When creating the rubric I considered the most likely mistakes in a storyboard and what a really good storyboard would look like. As shown in figure 9.3.



*Fig. 9.2.. Initial considerations on storyboard self-assessment rubric
Reflection Journal, February 2019*

Despite noting the possible mistakes, the language of the rubric is positive, highlighting successes rather than perceived failures. Unlike the assessment rubric for the script writing task, I omitted the vocabulary and language criterion as it did not seem pertinent to storyboarding. Thus, the rubric ended up being a 4x4 grid, as shown in figure 9.3.

Self Assessment Rubric

Circle the box that most appropriately describes each element of your storyboard

<u>Content</u>	<u>Originality</u>	<u>Organisation/Layout</u>	<u>Suited to Intended Audience</u>
The pictures are very clear. It is easy to tell what they are of. All the relevant elements of a storyboard are included- picture, VO, shot type, a description of the shot.	The story / documentary is very original and interesting. The ideas in the storyboard are well thought out and clearly developed. It is obvious what is being communicated in the storyboard.	All of the shots are in an order that makes sense. It is very clear what dialogue/ VO goes with each shot. The shots are labelled correctly (LS, ELS, MS, CU, etc.). The storyboard is an appropriate length- not too long or too short.	It is very clear who the audience of the storyboard should be. The words, language, content, sounds, etc. are perfectly suited to the target audience.
The pictures are clear. It is easy to tell what they are of. Nearly all the relevant elements of a storyboard are included-e.g. picture, VO, shot type, a description of the shot.	The story / documentary is original and interesting. The ideas in the storyboard are generally well thought out. It is clear, most of the time, what is being communicated in the storyboard	Most of the shots are in an order that makes sense. It is very clear what dialogue/ VO goes with each shot. Most of the shots are labelled correctly (LS, ELS, MS, CU, etc.). The storyboard is an appropriate length- not too long or too short.	It is clear who the audience of the storyboard should be. The words, language, content, sounds, etc. are usually suited to the target audience.
The pictures are sometimes difficult to understand. Only some of the relevant elements of a storyboard are included- e.g. picture, VO, shot type, a description of the shot.	The story / documentary is original and interesting. The ideas in the storyboard are sometimes confusing. It is not always clear what is being communicated in the storyboard.	The shots are mostly in an order that makes sense. It is not always clear what dialogue/ VO goes with each shot. The shots not all labelled correctly (LS, CU, etc.). The storyboard is either too long or too short.	It is a sometimes clear who the audience of the storyboard should be. The words, language, content, sounds, etc. are sort of suited to the target audience.
The pictures are very unclear. It is very difficult to tell what they are of. Only one or two the relevant elements of a storyboard are included- e.g. picture, VO, shot type, a description of the shot.	The story / documentary is unoriginal and not very interesting. The ideas in the storyboard are sometimes confusing. It is not clear what is being communicated in the storyboard.	All of the shots are in an order that makes sense. It is not clear what dialogue/ VO goes with each shot. The shots are not labelled correctly (LS, ELS, MS, CU, etc.). The storyboard is either too long or too short.	It is not clear who the audience of the storyboard should be. The words, language, content, sounds, etc. are not suited to the target audience.

Topic 3- Task 10- Self Assessment Rubric

Fig 9.3. Storyboard Self-Assessment Rubric ([click to enlarge](#))

2.4. Topic 4- Presentation and Performance

The fourth topic of the curriculum is *Presentation and Performance*. This topic consists of three tasks:

- Identifying the features of an effective oral presentation
- Make an audio recording of an oral presentation
- Make an audio recording of documentary script

Performance is a central facet of the EEA and as with the EEA the opportunity for students to perform an oral presentation in front of their peers allows students to give and receive honest and constructive feedback that allows them to improve their work (Crotty, 2014; Crotty and

Kilboy, 2015). As daunting as performing in front of others can be, if facilitated by the teacher with compassion and sensitivity, it can induce creativity (Zhou, 1998).

Oral language is one pillar of the tripartite structure of the JC English specification (Oral language, reading and writing). The specification includes [thirteen learning outcomes](#) related to oral language, incorporating:

- Communicating as a listener and speaker
- Exploring and using language
- Understanding the context and structure of language

(NCCA, 2018, p13)

The tasks involved in Topic 4 relate to eleven of the oral language learning outcomes. The tasks require students to communicate with others through speaking and listening (NCCA, 2009) and provide an opportunity to understand and critically evaluate their own communication skills and the communication skills of others (DES 2011).

Topic 4 directly correlates with the assessment of oral language in JC English. The oral language CBA calls for students to be

given an opportunity to choose a topic or issue that is of interest or importance to them and to carry out an exploration over time. The development of basic research skills will be central here, e.g. searching for information, reading and note-making, organising material, using key questions to give shape to ideas, developing a point of view, preparing a presentation.

NCCA, 2018, p18

Students then deliver an oral presentation in one of the following formats: presentation, performance, interview or response to stimuli. The understanding of the formats is open to

interpretation by teachers and students (NCCA, 2019). Through the carrying out of this topic, specifically in conjunction with Topic 1 (Internet Research), teachers and students can complete the oral language CBA with a variety of recordings for moderation at the SLAR process.

Finally, the tasks are designed to enable students to be digitally creative and develop their *information, socio-emotional* and *reproduction* skills.

Task 4.11. *Identifying the features of an effective oral presentation*

This task requires students to consider the features of an effective oral presentation through watching, analysing and evaluating a variety of speeches, such as those compiled by the JCT in this [YouTube playlist](#). Students must identify common attributes of successful and memorable speeches and work together using the oral evaluation strategy, [Diamond 9](#), to categorise those attributes from most important to least important. Students then apply this understanding of how to deliver a good speech or oral presentation by practising with an extract from a novel, play or poem and invite feedback from a partner or from the class in general. The use of digital video requires students to read and evaluate multimodal messages (Koltay, 2011) and engage photo-visual and information skills.

Task 4.12. *Make an audio recording of an oral presentation*

This task entails students learning how to download free audio recording software and use it to record and edit an oral presentation. Students use a number of digital literacy skills when executing this task. Photo-visual skills are used, first to download the open source [Audacity](#)

software and then to use it to make a recording, familiarising themselves with the primarily graphic interface of the software, as shown in figure 9.5. Socio-emotional skills are needed as students find and download software. Downloading files from the Internet can potentially lead to malware and other malicious viruses. Students need to be vigilant that they are accessing safe files and that they have the relevant permissions to do so through open source software, creative commons licences, etc. Reproduction skills are activated through this task with students taking material that exists already (their chosen literary extract to perform) and creating a new digital interpretation of it.

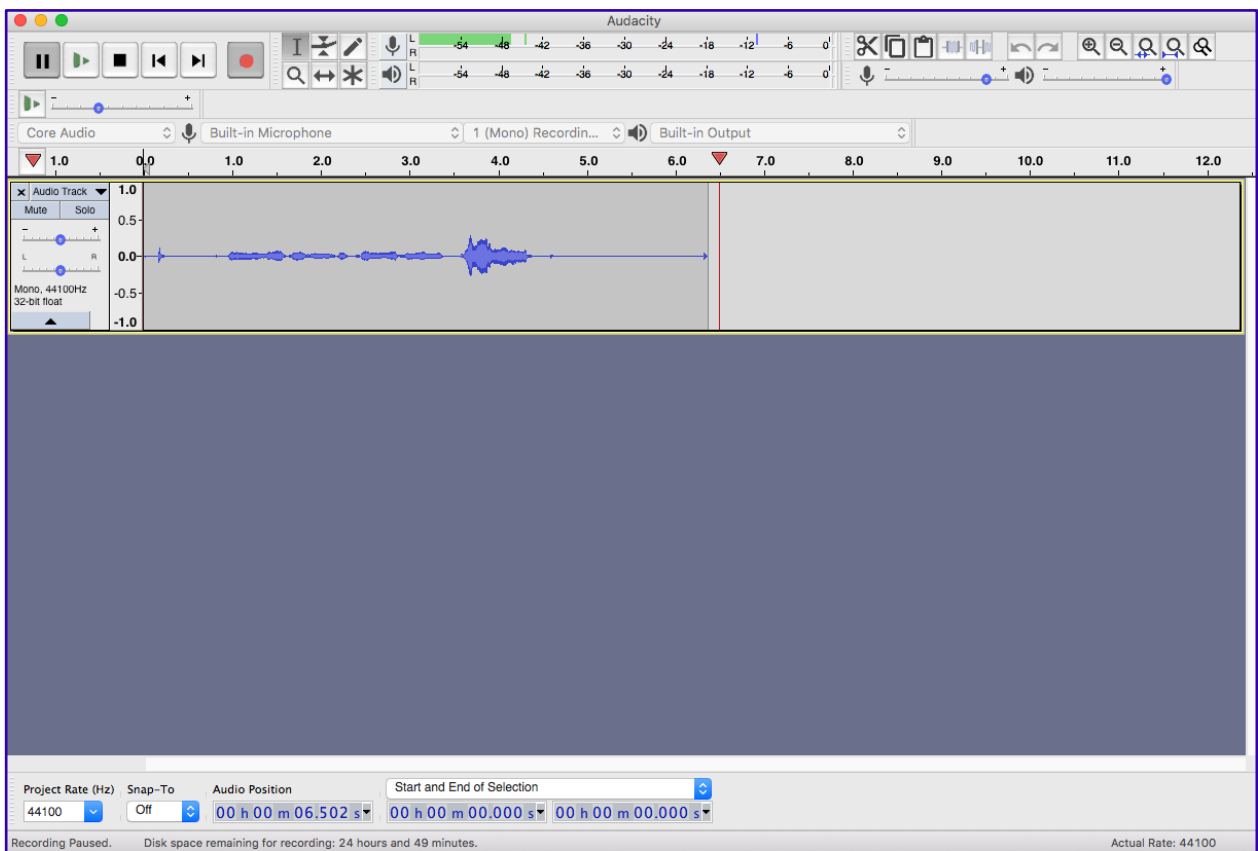


Fig. 9.4. Audacity- Graphic Interface

Task 4.13 *Make an audio recording of documentary script*

This task asks students to make use of the skills learned in the previous task to make and edit an audio recording of the documentary script they wrote in Task 2.6. The task also lays the foundation for the final topic by producing an audio recording of the script that will be used as a voiceover (VO) in the making of a short animated documentary. The task requires the explicit application of digital literacy skills and unlike many of the other tasks it does not offer an analogue alternative as making an audio recording and encouraging the development of digital skills in this instance relies on digital technology. Students again use photo-visual skills as they navigate Audacity's (or similar) graphic interface to record and then edit their script/VO. Students also employ reproduction skills as they integrate the content and knowledge garnered from previous topics to create something new and innovative.

Again, a self-assessment rubric is used to allow students to analyse and evaluate their own work and to edit and make changes to it as they see fit. The criteria for the rubric is based on the *Features of Quality for Oral Communication* as outlined in JC English Assessment Guidelines for the Oral Language CBA (NCCA, 2019, p16). The rubric consists of 5 criteria with 4 gradations of quality for each criterion, as shown in Figure 9.5.

Self Assessment Rubric

Circle the box that most appropriately describes each element of your oral presentation recording

Communication	Material	Purpose	Engagement with Audience	Technical
Voice is very clear and all words are pronounced perfectly. The speaker is very confident in what they are saying and this is clear from their tone of voice. The tone of voice changes and perfectly matches what is being said.	The material included in the presentation is extremely interesting. It is very obvious that the speaker knows the material inside out and can speak about it in a very confident way.	The purpose of the oral presentation (to entertain, to inform, to be humorous, etc) is completely obvious. The speaker uses vocabulary, tone, pitch and a speed perfectly suited to the purpose of the oral presentation.	The oral presentation is so interesting and well presented that the audience/listener is completely engaged for the entire speech/ talk. The speaker holds the audience's attention without fail.	The recording is of an excellent quality. The editing of the speech is excellent. Background music has been used appropriately and at a perfect volume. If sound effects are included they are used appropriately and with purpose.
Voice is clear and most of the words are pronounced perfectly. The speaker is confident in what they are saying and this is generally clear from their tone of voice. Nearly all of the time the tone of voice changes and perfectly matches what is being said.	The material included in the presentation is interesting. It is generally clear that the speaker knows the material well and can speak about it in a confident way.	The purpose of the oral presentation (to entertain, to inform, to be humorous, etc) is obvious. The speaker uses vocabulary, tone, pitch and a speed generally suited to the purpose of the oral presentation.	The oral presentation is interesting and well presented so the audience/listener is usually engaged for the most of the speech/ talk. The speaker holds the audience's attention most of the time.	The recording is of a good quality. The editing of the speech is good in most parts. Background music has been used appropriately and the volume is generally ok. If sound effects are included they are used appropriately and most of the time with purpose.
Voice is clear and some words are pronounced perfectly. The speaker is not completely confident in what they are saying and this is clear from their tone of voice. The speaker only sometimes changes their tone of voice.	The material included in the presentation is sort of interesting. It is sometimes clear that the speaker knows the material. The speaker is not always confident in what they are saying.	The purpose of the oral presentation (to entertain, to inform, to be humorous, etc) is not always clear. The speaker uses vocabulary, tone, pitch and a speed only sometimes suited to the purpose of the oral presentation.	The oral presentation is occasionally interesting and well presented so the audience/ listener is sometimes engaged during the speech/ talk. The speaker holds the audience's attention only some of the time.	The recording is of an ok quality. The editing of the speech has some mistakes. Background music has been used appropriately but is too loud or quiet in places. If sound effects are included they are not always appropriate for the content.
Voice is unclear and many words are pronounced incorrectly. The speaker is not confident in what they are saying and this is clear from their tone of voice. The speaker's voice is monotone (it doesn't change).	The material included in the presentation is not interesting. The speaker does not seem to be very familiar with the material. The speaker is not confident in what they are saying.	The purpose of the oral presentation (to entertain, to inform, to be humorous, etc) is unclear. The speaker uses vocabulary, tone, pitch and a speed only not really suited to the purpose of the oral presentation.	The oral presentation is uninteresting and as a result the audience/listener is not engaged during the speech/ talk. The speaker does not hold the audience's attention.	The recording is of a poor quality. The editing of the speech has some mistakes. Background music has been used but is too loud or quiet in places. If sound effects are included they are not appropriate for the content.

Topic 4 - Task 13 - Self Assessment Rubric

Fig.9.5. Audio recording self-assessment rubric ([click to enlarge](#))

2.5. Topic 5- Making an Animated Documentary

The fifth and final topic in the curriculum involves making a short animated documentary using the free version of the online software, [PowToon](#). Topic 5 is grounded in my experience of carrying out a video making task, using PowToon, as part of the Erasmus+ PoE project. This final topic is optional. If teachers finish the curriculum at topic 4 students will have produced a short documentary *podcast* and have engaged all six of the digital literacy skills outlined in Eshet-Alkalai's framework in doing so.

The animation making topic is the culmination of the work done in the preceding four topics. The short documentary is based on the Internet research carried out in Topic 1, was planned for the pre-production script writing and storyboarding activities of Topics 2 and 3 and incorporates the audio recording made in Topic 4 as a VO for the animation. In this way, the curriculum moves from an understanding of more traditional literacy to include overlapping modes of meaning including written, oral language and visual and audio representation (Cope and Kalantzis, 2009) with the anticipated outcome of developing students' media and digital literacy skills as the curriculum progresses from *reading* to *writing* multimedia messages. It should also be noted that the learning objectives of the three tasks require the more complex cognitive processes of the revised Bloom's Taxonomy (Apply, Analyse, Evaluate and Create).

Topic 5 is made up of three tasks

- Exploring PowToon software
- Timings and transitions
- Adding sound effects, voiceovers and self-assessment

Due to the nature of the tasks and their overarching outcome (the creation of the PowToon animated documentary), the tasks are approached differently to those in Topics 1-4. The tasks in Topic 5 have a greater emphasis on the more traditional concepts of technology or ICT literacy (Belshaw 2011; Martin and Grudzecki, 2006) in that they focus on the skills of using technology. As such, they needed to be approached differently. I reflected on the potential difficulties of designing this topic in a reflection journal I titled '*Awkward Topic 5*'.

[Topic 5] is all about PowToon and I think that kids will work at different paces to figure it out. Some will have it sorted in minutes and it will take others longer... The other 4 topics had straight forward enough competencies to achieve (ie. make an audio recording, write a script, evaluate a piece of information) but this one is really just- figure out how to use PowToon. Although there are many facets of it, lots of them would only take a minute to teach/figure out for most, especially with the video/audio/ written guidance of the CPD course/ Integrated videos.

Reflection Journal, October 2019

I was concerned about the differing levels of ability within a class in using the software. My experiences at the Erasmus+ mobility facilitating the PoE students to learn how to use PowToon and my experiences with my own classes at home indicated that students found the software easy to use and picked up the basics relatively quickly.

Thinking back to when we did the classes in Wales, we only had 3 sessions of about 2 hours and most of that was just faffing about trying to get the equipment to work... Once it was up and running the students (and teachers) really just ran with it themselves, working at their own pace to figure out how to add the different elements to the PowToon. There was some structure to the sessions though, as I demonstrated different facets of the software at the start of each session. I do recall being surprised at how little time this took and how quickly the students took to it. I suppose that the software itself is very intuitive and easy to use. Even when working with the two students on making the 1916 Rising movie they really just went at it themselves and called me if they were stuck or confused.

Reflection Journal, October 2019

In dealing with varying levels of student ability when working with PowToon software the Topic/Task structure of the curriculum becomes particularly germane; depending on the ability of a class or indeed the length of a class (one hour versus forty minutes, for example), a teacher may decide to carry out one or more topics in the class period. A social constructivist approach is appropriate here with teachers facilitating students to construct

their own knowledge and understanding of the software, making formative assessments throughout the class and proceeding appropriately.

However the three tasks are approached and within whatever timeframe, they are designed to cultivate students' *photo-visual*, *reproduction*, *branching* and *socio-emotional* skills. Given this topic's slightly greater emphasis on the use of the software from a practical viewpoint, the discussion of Topic 5 will be addressed with regard to the digital literacy skills addressed, rather than the individual tasks.

- ***Photo-visual Skills***

Tasks 5.14, 5.15 and 5.16 entail students becoming familiar with the basic features of PowToon. PowToon's video editing interface relies heavily on instructional graphics and symbols. Figure 9.7 shows a selection of the symbols used and they are explained in some detail in [this PowToon \(2020\) video](#). Both the main interface and the sub-menus contained within the main interface (Figures 9.6 & 9.7) 'employ natural visual communication with the user' allowing the users [students] to 'read intuitively and freely and to understand the instructions and messages represented visually' (Eshet-Alkalai, 2004, p95). This is illustrated by the ease in which students adapted to the software when used in the PoE and in my own classroom.

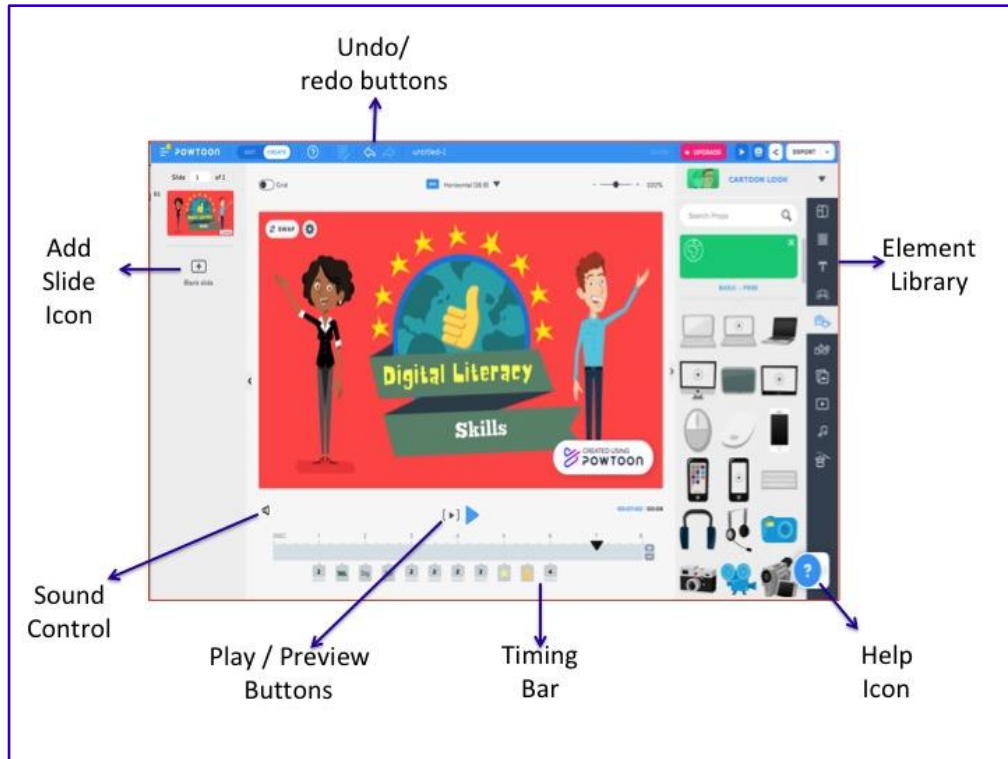


Fig. 9.6. PowToon's graphic interface



Fig 9.7.. Sub-menu with controls for individual elements of video

- ***Reproduction Skills***

The process of learning to use PowToon software and the ultimate creation of the animated documentary requires students' reproduction skills. To produce their short documentary, students must take 'pre-existing shreds of information in any form of media' (Eshet-Alkalai, 2012, p269) and incorporate it into something new and innovative. In this case, students will use the information gleaned from their Internet research and the media elements available within PowToon to create their own film. Additionally, PowToon allows users to upload media (pictures, sound effects, songs, movie clips, etc.) to be used in developing a presentation or animation. Students may choose this as an option which requires more complex reproduction skills.

- ***Socio-emotional Skills***

In using the work of others, as outlined with regard to reproduction skills, students must demonstrate an ability to communicate, collaborate and share information through the creation of their movie without plagiarising the work of others. Students must follow the 'rules of cyberspace' (Eshet-Alaklai, 2012) by crediting the work of others and/ or using royalty free material when producing their documentary. Through the digital creative process, students have an opportunity to demonstrate good evaluation and abstract thinking skills, the ability to collaboratively construct knowledge and to share it online (Eshet-Alkalai, 2004, 2012). Students must engage in self-reflection and self-evaluation as they assess their own work using an [assessment rubric](#) and consider whether they have indeed followed the 'rules of cyberspace' and have effectively communicated, collaborated and created using digital tools.

- ***Information Skills***

Information skills refer to the ability to evaluate the accuracy and credibility of information, what Eshet-Alkalai (2004) calls ‘the art of scepticism’. The creation of the documentary using PowToon affords students another opportunity to assess their research and consider it’s veracity before completing their creation. As opposed to reading digital media with ‘sceptical resilience’ (McDougall, 2019) this task asks students to *write* multimedia messages with sceptical resilience.

- ***Branching Skills***

By dint of carrying out the documentary creation process, students will navigate through the Internet and the PowToon software. Additionally, they will need to retrieve stored audio and other media files to add to their digital artefact. Navigating through information in this way is done in a non-linear manner. In this way, students will need to develop spatial-multidimensional awareness and an ability to stay oriented in hyperspace (Eshet-Alkalai and Hamburger, 2004) and be confident in their capacity to find their branching, non-linear way(Eshet-Alkalai, 2008) around the different systems.

My experiences of teaching in disadvantaged contexts led me to acknowledge that most young people had access, however limited, to some sort of digital device. My observation was supported by a questionnaire carried out with students which indicated that all respondents had access to a device and the Internet and there was no evidence of a significant first level digital divide in access. However, my observations, supported by the in-school

questionnaire, highlighted the disparities in *how* ICT was used (second level digital inequality) and exploited for real-life benefit (third level digital inequality). Conducting a review of the literature supported my contention that the young people I taught used ICT in a very restrictive way and rarely for educational or creative purposes (vanDijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; PISA, 2016; OECD, 2015; Marcus-Quinn and McGarr, 2013; Kyrgiou and Tsiplakide, 2012; Hargittai, 2008, 2002). I came to an understanding of the impact that ICT, when appropriately and effectively embedded into the curriculum, could have on young, disadvantaged people in promoting inclusivity in schools and addressing second and third level digital inequalities. If integrated successfully into teaching and learning, ICT use can ‘enable students to learn in new and exciting ways, encourage engagement and make communication easier’ allowing ‘students at risk of early school leaving to connect with learning in new ways, resulting in improved motivation, attendance and application’ (DES, 2015a, p25). The following discussion describes how, through developing and creating the English/ Digital Literacy curriculum, I endeavoured to address first, second and third level digital inequalities.

3. The Curriculum as Means to Address Digital Inequality

3.1. The First Level Digital Divide

While I acknowledge that the access gap is all but closed in my own work context, in that all students have access to a digital device, a gap in access still exists in terms of the quality of that access. The issue of quality of access became particularly obvious during the Covid-19 related school closures of 2020/2021.

We are now in the middle of another school closure and it is clear our DEIS students are particularly impacted. In the digital literacy survey I conducted ... 75% of students said that they used mobile as their primary means of getting on the Internet. I wished I'd asked now if it was their only way. Based on feedback from the last lockdown my feeling is that for many kids, it is. This limiting in access is in itself an inequity issue, and not just during Covid times... the use of mobiles for Internet access creates 'a second class citizen' online (Napoli, 2014; Corraera, 2020) as carrying out more practical or in-depth tasks beyond consuming media (think writing anything of length, filling out long forms, applying for jobs, etc) become so much more difficult on a phone. Even looking at Google Classroom and accessing the work there, is definitely doable on a phone, but would be so much easier on a laptop or desktop computer where you could have different tabs open and accessible, you could type lengthy answers with ease and so on.

Reflection Journal, January 2021

This difference in access was at the forefront of my mind when designing the curriculum tasks as I was cognisant that all schools may not have equal access to digital resources.

As I work on the curriculum I am mindful of the lack of IT resources in the school. I am trying to design activities for a digital literacy curriculum that may have to be delivered with little access to IT resources. As it stands I am trying to provide an option for schools that are well equipped IT-wise and not so well equipped. This is effectively doubling the workload but I don't really see a way around it. As a 'digital literacy' module it has to have some digital aspects. However, I must be cognisant that not all schools are well equipped. It's a bit of a catch 22 really. I am trying to keep in mind that skills that can be applied in a 'digital' sense can be taught outside the computer room with the hope that perhaps they can be applied appropriately in different, online circumstances.

Reflection Journal, December 2018

As the journal extract suggests, I sought to provide non-digital or phone based alternatives to some of the activities in the curriculum (Figure 9.8) with the goal of providing students with the transferable skills needed when it came to creating their PowToon animations in Topic 5.

Tasks with Non-Digital Alternatives

Task 2.1

Teacher introduces the key features of a documentary using and glossary worksheet 4(a *or* b) *or* online .

- a. PowerPoint and worksheet: Work through letting students guess the meaning of the feature before showing them the definition. Students then fill in differentiated glossary worksheets

Or

- b. Students use their device to access the flashcards and associated learning activities

Task 3.9

Once students are familiar with the layout and features of a storyboard they can use storyboardthat.com to create an storyboard of a scene from their favourite movie, TV show, novel, play, etc. **Alternatively**, if students do not have access to a device they can use the storyboard template-worksheet 9(b)- to draw a storyboard of same.

Fig. 9.8. Samples of two tasks with non-digital alternatives suggested

3.2. The Second and Third Level Digital Divide

Having observed the second level divide or *usage gap* in my teaching practice (both in day-to-day classes and in carrying out the Erasmus+ activities) there seemed to be clear discrepancies in how young people used the digital technologies. The review of the literature, supported by the in-school questionnaire, suggested that the students I worked with were using ICT predominantly for consuming multimedia content, messaging, gaming and social media (Gulatee and Coombes, 2018; Schulmeister, 2015; Maragaryan, Littlejohn & Vojt, 2011; Selwyn, 2009). When designing the activities for inclusion in the curriculum, I sought not to discourage students from engaging in these *fun* activities but to encourage participation in activities that support learning (Bullen and Morgan, 2011), develop their creative

capabilities when using digital media and impact the usage gap. The third level divide refers to the tangible outcomes derived from technology use (VanDijk, 2020; Van Dursen and Helsper, 2015) and it will be discussed here in conjunction with the second level digital inequalities as the two are inextricably linked.

3.2.1. Providing Opportunities to Develop Digital Literacy Skills

As outlined in detail in section 1.2 of this chapter, the activities were designed to integrate the six skills of Eshet- Alkali's (2004, 2012) Digital Literacy Framework. A summary of the activities and the digital literacy skills they address can be found in Table 9.1. The integration of digital literacy skills into the curriculum, thus providing students with opportunities to develop those skills is a vital step in addressing digital inequality (Hargittai, 2002; VanDijk, 2020). The curriculum tasks offer students the opportunity to engage in learning activities, carried out through digital means, to broaden their range of ICT use and encourage more sophisticated uses such as, finding, evaluating and synthesising information (Topic 1 and 2) and creating multimedia content (Topic 3, 4, 5)

<u>Topic / Task</u>	<u>Task</u>	<u>Digital Literacy Addressed</u>	<u>Topic / Task</u>	<u>Task</u>	<u>Digital Literacy Addressed</u>
1.1	Conducting reliable Internet Research	Information Branching Socio-Emotional	3.9	Analyse and Create a Storyboard	Photo-Visual Reproduction Real-Time Thinking Branching
1.2	Research a Topic of Interest using the Internet	Information Branching Photo-Visual	3.10	Create a documentary Storyboard	Reproduction Photo-visual
1.3	Collating Internet Research	Photo-Visual Branching Information Socio-Emotional	4.11	Features of an Effective Oral Presentation	Photo-Visual Socio-emotional
2.4	What Are the Key Features of a Documentary?	Photo-Visual Information	4.12	Making an Audio Recording of an Oral Presentation	Photo-Visual Reproduction Socio-Emotional
2.5	Examining Different Documentaries	Photo-visual Information Branching	4.13	Making an Audio recording of documentary script	Photo-Visual Reproduction
2.6	Writing a Documentary Script	Photo-Visual Information Branching Reproduction	5.14	Exploring PowToon animation software	Photovisual Reproduction Branching
2.7	Self-Assess Script/ Edit/ Redraft	Reproduction	5.15	Timings and Transitions	Photovisual Reproduction Branching

3.8	Make a Camera Shot Reference Guide	Photo-visual Reproduction Real-time thinking	5.16	Sound effects, Voiceovers and self assessing work	Photovisual Reproduction Branching
-----	------------------------------------	--	------	---	--

Table 9.1 *Digital literacy skills integrated into each task*

3.2.2. Motivation and Engagement

VanDijk (2012) points to the importance of motivation to use technology as an important feature of digital inequality, referring to technology users as the ‘wants and the want nots’. When designing the curriculum tasks I considered the motivation of both teachers and students to carry out the curriculum. In terms of teachers, the curriculum aims to remove as many barriers to implementing it in class as possible, including providing all associated resources and worksheets, linking the tasks directly to the JC English learning outcomes, providing digital and non digital alternatives to activities, providing links to relevant supplementary resources and hyperlinking to short ‘how-to’ videos that guide teachers and students in using software such as [Audacity](#) and [PowToon](#). The provision of meaningful and relevant ICT resources is essential in addressing digital inequalities (Marcus Quinn and McGarr, 2013).

With regard to students, the curriculum aims to guide them, step-by-step, through the process of creating a short, educational, animated documentary. In breaking down the process into small, manageable tasks, I sought to design a curriculum that could incrementally increase students’ abilities by offering opportunities to engage in holistic, creative, enjoyable, and practical student-centred learning experiences (Crotty, 2014) with the potential to positively impact their self-efficacy (Piperopolous, 2015). As a person’s sense of self-efficacy ‘determines how they think, feel, motivate themselves and behave’ (Bandura, 1982, p71) it is essential that students are given the chance to experience success in their use of ICT for educational purposes and become confident in their digital capabilities. If students engage ICT for a wide range of purposes the second level digital divide can be bridged and the

beneficial social, economic, political, institutional and educational outcomes of ICT use become more accessible (VanDijk, 2005; VanDursen and Helsper, 2015).

3.2.3. Student Autonomy

Students of lower socio-economic status are less likely to be given autonomy when carrying out learning activities using ICT in class (Marcus-Quinn and McGarr, 2013). This finding in the literature played out in my own practice when making the 1916 Rising animation as part of the Erasmus+ programme. As noted in my reflection journals, I exercised excessive control over how and what students researched on the Internet and micro-managed aspects of making the animation, denying students learning opportunities that would enhance their digital literacy and the experience of flow (Reflection Journals, 2016).

When afforded autonomy and ‘relevant, meaningful and competence-enhancing’ choices (Evans and Boucher, 2015, p90) with regard to classroom activities, students are supported in fostering engagement and intrinsic motivation to learn. In an effort to counteract teachers’ tendencies to limit student autonomy, especially in less affluent schools, the curriculum seeks to provide varying levels of choice and a number of activities that encourage independent student work. Examples of opportunities for students’ to autonomously guide their own learning are summarised in Table 9.2. Working through the curriculum students are facilitated to lead their own learning. Students can choose what they want to research and how they carry out and collate their research. They are given opportunities to engage in creative activities and express themselves through creative writing and making individual or collaborative digital artefacts. Students are encouraged to reflect on their own work and make

edits and amendments to improve it as they deem necessary. The curriculum aims to support teachers in allowing students greater autonomy in their learning to further enhance their digital literacy skills and in doing so narrowing the second and third level digital divides.

However, it must be acknowledged that digital inequality cannot be eradicated through its inclusion in school curricula alone. Digital inequality is a much broader, systemic issue and is inextricably linked to other social inequalities (van Dijk, 2020). For digital inequality to be addressed on a societal level it is incumbent upon governments to develop policies (Aydin, 2021) designed to close the digital divide and are ‘multidimensional (technological, educational, social) and persuasive’ (van Dijk, 2020, p1).

Task Number	Activity	Opportunities for Student Autonomy
1.1	Walking debate	Students express and explain their own opinion
1.2	Internet Research	Students choose and independently carry out research on their chosen topic
1.3	Internet Research	Students choose how to collate their research and evaluate its relevance
2.4	Key features of a documentary	Student led learning using Quizlet flashcards
2.6	Writing a documentary script	Students independently write their own script on a topic of their choosing and track their own progress
2.7	Self-assess and edit script	Students independently assess and evaluate their own work and edit as they see fit
3.8	Making a camera shot guide	Students have creative control over the content and layout of their guide
3.9	Making a storyboard	Students can choose the scene they wish to storyboard and have creative control over the look of their storyboard
3.10	Making a storyboard based on own script	Working with their own script, students have creative control over their own storyboard. Students have the opportunity to independently assess, evaluate and edit their work
4.11	Diamond 9 activity	Students consider, evaluate and discuss the features of a good oral presentation
4.11	Oral Presentation	Students give an oral presentation and give and receive feedback
4.12	Recording an oral presentation	Students work independently to master the recording software and record an oral presentation
4.13	Recording a voiceover from script	Students build on their previous work, independently recording and editing a voiceover from their script (Topic 2).
5.14	Exploring PowToon Software	Student-led exploration of the online PowToon animation software
5.15	PowToon: Timings and Transitions	Student-led exploration of the online PowToon animation software. Students use a checklist to monitor their own progress.
5.16	Creating an animation using PowToon	Students build on their previous work to create a short animated documentary. Students self- assess their own work and amend as necessary.

Table 9.2. *Opportunities for students to work autonomously*

4. Conclusion

This chapter described the process of creating the content of a curriculum for Junior Cycle English with embedded digital literacy skills ('the curriculum'). The Digital Strategy for Schools (DSS) 2015-2020 (and the more recent DSS to 2027) strongly advocates for the embedding of digital skills across all post-primary school curricula. This chapter analysed each of the five topics of the curriculum (Internet research, script writing, storyboarding, presentation and performance and making short animated documentaries) and the tasks contained within each topic, describing how digital literacy skills (in line with Eshet-Alkalai's (2004, 2012) Six Skill Digital Literacy Framework) were embedded into the curriculum to meet Junior Cycle *oral, reading* and *writing* learning outcomes.

In creating the curriculum I sought to address digital inequality. In terms of the first level divide (disparities in access to digital devices) I was cognisant that not all schools have the same access to ICTs and so, where possible, I included non-digital alternatives to many of the digitally based activities. With regard to the second level digital divide (disparities in levels of digital skills) each topic, and tasks within the topic, provides opportunities to develop one or more digital literacy skill, (as outlined in Table 9.1) and to develop student confidence in their digital abilities. In a further attempt to address digital inequality, the curriculum considers the motivation of teachers to deliver the curriculum. It attempts to remove as many barriers as possible to engaging with the curriculum by providing meaningful and relevant resources (Marcus-Quinn and McGarr, 2013), for example, providing all worksheets, resources, links to JC English learning outcomes and 'how to' instructional videos for the more technical aspects of the curriculum.

The curriculum attempts to encourage student motivation to engage with the curriculum content by guiding them in incremental steps to create something innovative and tangible- a short animated documentary on a topic of their own choosing. Allowing students to have a level of autonomy over their own work was central to the development of the curriculum, particularly as students in less affluent schools have been found to have less autonomy over their work and this can be detrimental to their motivation and engagement with their school work (Evans and Boucher, 2015; Marcus-Quinn and McGarr, 2013).

Central to this Educational Entrepreneurial Approach to Action Research (Crotty, 2014) inquiry was a desire to somewhat remove barriers for teachers in accessing continuous professional development (CPD) in the area of digital literacy. The curriculum itself acts as a form of CPD for teachers in this area and this is discussed in detail in the following chapter.

Chapter 10

Creating the CPD Elements of the Curriculum

1. Introduction

This chapter describes how continuous professional development (CPD) for teachers was incorporated into the Junior Cycle (JC) English curriculum with integrated digital literacy skills (hereafter referred to as *the curriculum*) that was created as part of this action research inquiry. The chapter will firstly discuss Mishra and Kohler's (2006) technological, pedagogical and content knowledge (TPCK) framework with specific reference to how the different types of knowledge teachers need to integrate technology and digital literacy into their teaching are addressed in the curriculum. A key CPD element of the curriculum is a foundational, asynchronous, online CPD course that supports the implementation of the curriculum in the classroom. The course covers digital literacy, digital inequality, digital natives and Bloom's Taxonomy and its creation will be described with particular reference to the reasoning for its inclusion, the design process and creation of some of the individual course content elements. Finally, the role of feedback from my colleagues in the creative process will be discussed along with my efforts to bring the course and curriculum in line with my values.

2. Technological, Pedagogical and Content Knowledge (TPCK)

Teacher professional learning in the Digital Strategy for Schools (DSS) (DES, 2015) is built upon Mishra and Koehler's (2006) Technological, Pedagogical and Content Knowledge (TPCK) framework. When considering the structure of the curriculum and the elements

included in each of the task plans, the TPCK framework served as a useful blueprint. The TPCK ‘model of technology integration in teaching and learning argues that developing good content requires a thoughtful interweaving of all three key sources of knowledge: technology, pedagogy and content’ (Mishra and Koehler, 2006, p1029) and that is what I aimed to do when when deciding on the components of the digital literacy curriculum. My goal was to create a curriculum that had the potential to improve student and teacher levels of digital literacy while adhering to the learning outcomes of the JC English specification, in this way the curriculum (content- Junior Cycle English) would integrate digital literacy (technology) elements as a means of transferring the subject matter (pedagogy) in new and innovative ways.

In deciding on the topics and tasks of the curriculum I sought to support teachers’ technological knowledge (TK) and technological pedagogical knowledge (TPK) by providing detailed guidance on how to carry out each task, with particular emphasis on how to carry out the more technical activities such as using storyboardthat.com, making digital audio recordings using a software like Audacity or using PowToon. Furthermore, I hoped to avoid the conception that the digital literacy or technology aspect was a separate module, rather that it was integrated into the curriculum (DES, 2015) to the point where the subject matter was primary but that students and teachers would both learn new skills through the carrying out of the activities.

Teacher learning is central to the curriculum and so, I will first discuss the curriculum design in light of the TPCK framework. During the curriculum process I considered how the TPCK model related to my work, posing the following questions in a reflection journal:

Things that I considered while looking at this TPCK model were:

- *How does this link to my curriculum and the supporting CPD course?*
- *Are all the aspects (individual and intersections) covered in the curriculum?*
- *Where do the different topics/ themes/ tasks fit on the venn diagram?*
- *Can I assign each element to a spot on the diagram? Do I need to?*

Reflection journal, May 2019

Given TPCK's importance to the DSS, I believed that it was necessary to address the initial questions I had about the framework and how the curriculum pertained to the types of knowledge contained within it. Figure 10.1 offers an overview of TPCK in the curriculum, although it must be acknowledged that 'separating the three components (content, pedagogy and technology)... is an analytic act and one that is difficult to tease out in practice' (Mishra and Koehler, 2006, p1029), that is to say, the diagram is not exhaustive.

When creating the curriculum I sought to create one that could not only embed digital literacy skills into the Junior Cycle English course but also to provide support and guidance for teachers in how to do this. Like our students, many teachers' technological abilities exist on a spectrum ranging from 'resistors, cautious users, specific or limited users to integrators' (Bullen and Morgan, 2011, p64). The ancillary resource materials for teachers included with the curriculum are designed to support teachers at all levels of ability. The types of teacher learning supported through the curriculum will now be discussed within the TPCK framework.

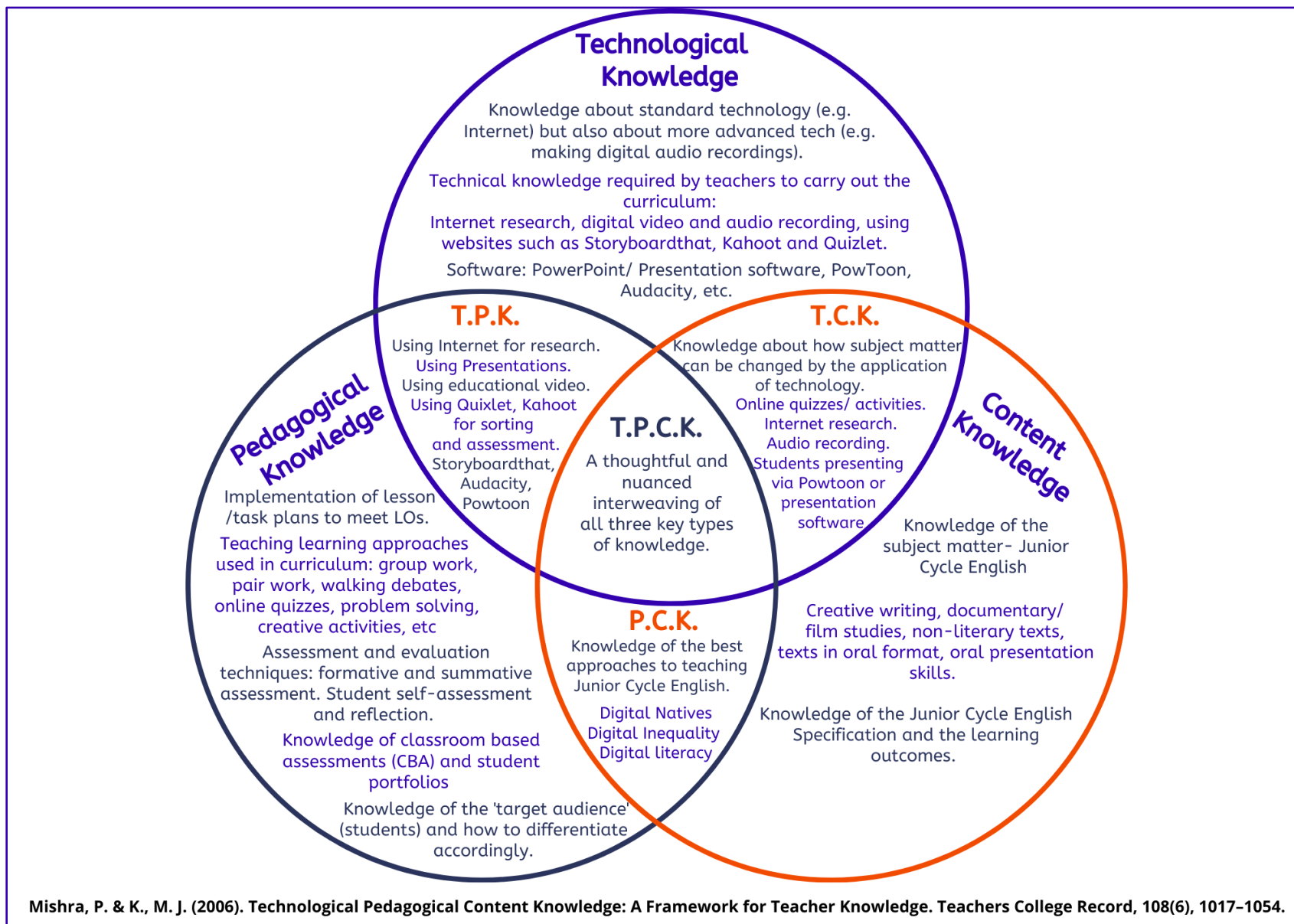


Fig. 10.1. *Technological, Pedagogical and Content Knowledge Framework as applied to the curriculum*

2.1. Content Knowledge

The curriculum assumes a good level of content knowledge (Shulman, 1986), that is, knowledge of the JC English specification and the topics and texts therein. The curriculum incorporates a number of topics covered in the English specification including creative writing, film studies, the study and creation of non-literary and digital texts, texts in oral format and oral presentation skills. Each task plan contains links to the intended JC English learning outcomes and teachers are facilitated in meeting these outcomes through the provision of resources such as exemplars, writing frames, worksheets, presentations, online quizzes and step-by-step instructions for each task.

2.2. Pedagogical Knowledge

Again, the curriculum assumes a good level of pedagogical knowledge. However, resources are provided for teachers to support a variety of teaching, learning and assessment methods. These include a taxonomy table to clarify student learning objectives, instructional videos, resources to carry out assessment for learning (AFL) activities such as Diamond 9, walking debates and pair and group activities and self assessment rubrics.

2.3. Technological Knowledge

Technological knowledge refers to the knowledge about basic technology such as a whiteboard and marker but also about more advanced technology such as the Internet and digital video. The curriculum seeks to support teachers in developing this more advanced technological knowledge. Each technological aspect of the curriculum (Internet research, online storyboarding, using audio recording software and making PowToon animations) has

a series of *‘how to’* videos that contain instructions on how to operate the relevant technologies.

2.4. Pedagogical Content Knowledge (PCK)

The TPCK model draws on Shulman’s (1986) concept of pedagogical content knowledge (PCK). Shulman defines PCK as ‘the ways of representing and formulating the subject that makes it accessible to others’ (Shulman, 1986, p9). It refers to the knowledge teachers have in terms of teaching a specific subject or specific content, what makes learning of specific subjects, in this case JC English, easy or difficult and how a subject or topic might be represented in a number of different ways (Shulman, 1986) . A certain level of PCK is again assumed in the curriculum, although a variety of English teaching strategies are included in the curriculum, as noted in section 2.2. PCK also includes knowledge of what the students bring to the learning situation (Shulman, 1985; Mishra and Koehler, 2006) and with this in mind the curriculum is accompanied by an asynchronous, online course that provides contextual information on digital literacy, digital inequality, digital natives and the factors that affect young people’s levels of digital literacy.

2.5. Technological Content Knowledge (TCK)

Technological content knowledge (TCK) encompasses knowledge about how the application of technology affects the subject matter. The curriculum content is made up of standard topics from the JC English specification, however, the application of technology allows these topics to be represented in ‘new and more varied ways’ (Mishra and Koehler, 2006, p1028). For example, conducting research using the Internet, making digital audio recordings of oral

presentations, conducting summative assessment through online quizzes and ‘reading’, ‘writing’ and evaluating digital texts.

2.6. Technological Pedagogical Knowledge (TPK)

Technological pedagogical knowledge is knowledge about how technology can be used in various teaching and learning settings. TPK involves being aware of the different technologies that can be used in the classroom and having the ability to choose which are appropriate for a given task. The curriculum seeks to introduce a number of technological pedagogical possibilities to teachers who may not be used to implementing them in class. The curriculum was designed to support the development of TPK in providing examples of how technology can be used to facilitate learning where appropriate. Further support is provided in this regard with the provision of step-by-step instructions for each task and instructional videos for carrying out the more technology-based activities.

2.7. TPCK and Its Place in the Curriculum

TPCK, the ‘thoughtful interweaving of all three key sources of knowledge’ (Mishra and Koehler, 2006, p1029) is foundational to the second strand of the DSS, Teacher Professional Learning, and so is integral to the curriculum which ultimately aligns with the DSS objective of embedding digital literacy skills into teachers’ practice. The discussion that follows in this chapter addresses the types of teacher professional learning that can be accessed through the curriculum and the development of TPCK is central to that discussion.

3. Creating an Online CPD Course for Teachers to Support the Implementation of the Curriculum in Class

In order to assist teachers in the implementation of the curriculum , I created an online CPD course using [Articulate Storyline 360](#) course authoring software. The course consists of four modules: Digital Literacy, Digital Natives, Digital Inequality and Bloom’s Taxonomy (Revised). What follows is a discussion about the course creation process, the rationale behind its creation, the design and development of the course and the course content. The course can be accessed [here](#).

3.1. The Rationale for Creating an Online CPD Course for Teachers

When embarking on my research journey, one of my main aims was to explore how asynchronous online CPD could help circumnavigate the the barriers that teachers faced in accessing CPD, such as geography, time, family commitments and cost (TALIS, 2018, 2013, 2009; Teaching Council, 2015; Supovitz and Zeif, 2000). In consultation with my supervisor, Dr. Yvonne Crotty, I decided to create a curriculum based on the Erasmus+ ‘Peace of Europe’ (PoE) project activities I had carried out in my own classes. The curriculum would be in the form of an interactive portable document format (PDF). An interactive PDF is one that contains rich multimedia elements, such as, videos, hyperlinks, forms and GIFs. My plan was to embed instructional videos for teachers throughout the curriculum document. However, the seamless embedding of video content into a PDF was reliant on Adobe Flash Player and in 2017 it was announced that Adobe would stop supporting Flash Player in 2020 (Adobe, 2020). Earlier in my research journey I had considered the use of Articulate

Storyline, a course authoring software, to create a CPD artefact and with the discontinuation of Flash Player I returned to this original idea.

My intention was to make an interactive PDF that would include instructional videos for teachers where necessary... but then flash stopped being supported and interactive PDFs sort of became obsolete so that was the end of that idea and I returned to the Articulate Storyline course idea with the notion of including all sorts of wonderful instructional videos for teachers.

Reflection journal, June 2021

I decided that the curriculum needed an accompanying CPD course for teachers that would provide foundational information on the concepts that underpin the curriculum; digital literacy, digital natives, digital inequality and Bloom's Taxonomy.

When considering my reasoning for the inclusion of the online course, I found myself returning to the question 'why?'. I was adamant that the CPD course needed to accompany the curriculum and believed that it would provide the 'why?' for any teacher who wished to implement the curriculum in their classes.

The course itself provides the 'why?' and the foundational concepts for a teacher who wants to imbed digital literacy skills within their subject (in this case English... but it's universal really).

Reflection journal, July 2021

The course objectives (Figure 10.2.) outline what teachers can hope to achieve by carrying out the course and PCK is key to these objectives with a particular emphasis on gaining an understanding of what students might bring to the learning situation, in terms of their levels of digital literacy, the factors that influence students' digital skills and how they might be influenced by digital inequality.

OBJECTIVES

01 You will understand the term 'digital literacy' and be able to identify a six-skill Digital Literacy Framework.

02 You will know what a digital native is and be able to evaluate whether your students fall into that category.

03 You will consider what 'digital inequality' is and understand how it impacts young people in low socio-economic groups.

04 You will revise Bloom's taxonomy and identify the changes that have been made to it in recent years.

Fig 10.2. Screenshot of course objectives slide from the curriculum's accompanying CPD course

The CPD course also seeks to tap into teachers' intrinsic motivation to increase their knowledge about how to effectively integrate digital literacy into their teaching (TPCK) and to carry out the curriculum in their own classrooms. By completing the online course and developing their PCK teachers are made aware of opportunities for *growth* in their own knowledge and *achievement* in terms of improving their practice with regard to the integration of digital literacy into their practice, as well as offering opportunities to explore contemporary educational issues (McMillan et al, 2014; Powell et al, 2003). Complementary to the intrinsic motivators of *growth* and *achievement*, the CPD course offers contingent factors for extrinsic motivation (McMillan et al, 2014), that is, that the integration of digital literacy across the curricula is a key requirement of Junior Cycle as evidenced by the predominance of digital skills in the JC Key Skills and Statements of Learning (NCCA, 2019). The CPD course's delivery of foundational information on topics relating to digital

literacy aims to imbue in teachers a sense of high value to the implementation of the curriculum in their classes. Ultimately, the course exists to provide teachers with the knowledge and motivation necessary to carry out the curriculum in class. Teachers with high expectations of success and high perceptions of the value of the CPD are more likely to put their CPD learning into practice (Warner and Osman, 2020).

Central to the rationale behind the creation of the CPD course is the role that CPD for teachers plays in addressing digital inequality. The provision of meaningful digital learning opportunities for young people is a key response to the first, second and third level digital divides (van Dijk, 2020; Accenture, 2020; Kyrgiou & Tsipakide, 2012; Hargittai, 2002). However, it is vital that teachers are supported in the delivery of such digital learning activities with quality CPD. The CPD course, along with the accompanying instructional videos embedded in the curriculum, aims to increase teachers' TPACK by providing quality digital literacy CPD and practical training on how to use digital technology in education (Aydin et al, 2021; DES, 2020; Roswell et al, 2017).

In creating an online CPD course using Articulate Storyline software I sought to remove as many of the potential barriers that teachers face when accessing CPD, as was my intention from early on in my research journey.

I had to consider my reasons for undertaking this study... My reasons were definitely intrinsic in their nature... I saw a need for teachers in remote areas to be able to access professional development to improve their practice and I wanted to be able to work towards providing a solution to this problem, using what I had learned during my MSc.

Reflection journal, February 2015

Asynchronous online courses allow for a flexibility that face-to-face workshops or courses do not. In completing digital literacy CPD online, teachers are free from the geographical and time constraints that in-person training presents. Additionally, there is no conflict with work schedule as the course can be completed at any suitable time (TALIS, 2013, 2018) . By linking the CPD course and instructional videos directly to the curriculum I have tried to ensure that the CPD is appropriate and relevant to classroom practice, thus of *high value* to teachers and more likely be incorporated into practice (Warner and Osman, 2020; TALIS, 2013, 2018).

4. Creating an Online CPD Course for Teachers- Design

The CPD facets of the curriculum are two-fold; a foundational online CPD course and instructional videos that are embedded within the curriculum document. I will now discuss the creation of these multimedia CPD elements of the curriculum with a focus on the content and how it can support teachers in implementing the curriculum.

4.1. Choosing Course Authoring Software- Storyline 360

The design and creation of the course took place after the creation of the curriculum using [Articulate 360](#). Articulate 360 is a suite of apps and resources for creating e-learning courses. The suite consists of two authoring apps, Storyline 360 and Rise 360, as well as Replay 360, a screen capture app, and an extensive content library . When I began the process of creating the course using Storyline I used an older version of the software called Storyline 2. However, later on in the creative process I upgraded to the more recent version of the

Articulate Storyline software, Storyline 360, but I had some misgivings about its use. In June 2019 I presented my research at the [Media and Learning Conference](#) in Leuven, Belgium.

One of the attendees at the Educational Entrepreneurial Approach (EEA) to Action Research Symposium, a technology and education expert from Oxford University, questioned my use of such a prohibitively expensive piece of software, given that my primary educational value is equality. I considered this feedback and came to the conclusion that it was not entirely relevant as the end product would be freely available and accessible to all.

In relation to the feedback, I would say that perhaps this isn't necessarily relevant here. I have used InDesign and Articulate to make artefacts (curriculum and course) that I will share with others freely. Within the curriculum itself I have only suggested the use of free software that is accessible to everyone. I have also tried, insofar as possible, to cater for teachers and students who, like myself, have access to very little IT equipment. I had my own students in mind when designing the curriculum and do believe that I have kept my value of equality central to its design.

Reflection journal, June 2019

[Storyline 360](#) allows users to create online courses that automatically adapt for any type of device (for example phone, PC or tablet). Its interface is similar to Microsoft PowerPoint and so it feels familiar and intuitive to use (Figure 10.X). Like PowerPoint and other presentation software, Storyline courses consist of a series of slides within which a wide range of multimedia elements, including video, audio and graphics can be embedded. Storyline 360 offers great scope for interactivity, such as drag and drop, dials, sliders, markers and drop buttons, which are built using slide layers, triggers and states (see Figure 10.3.).

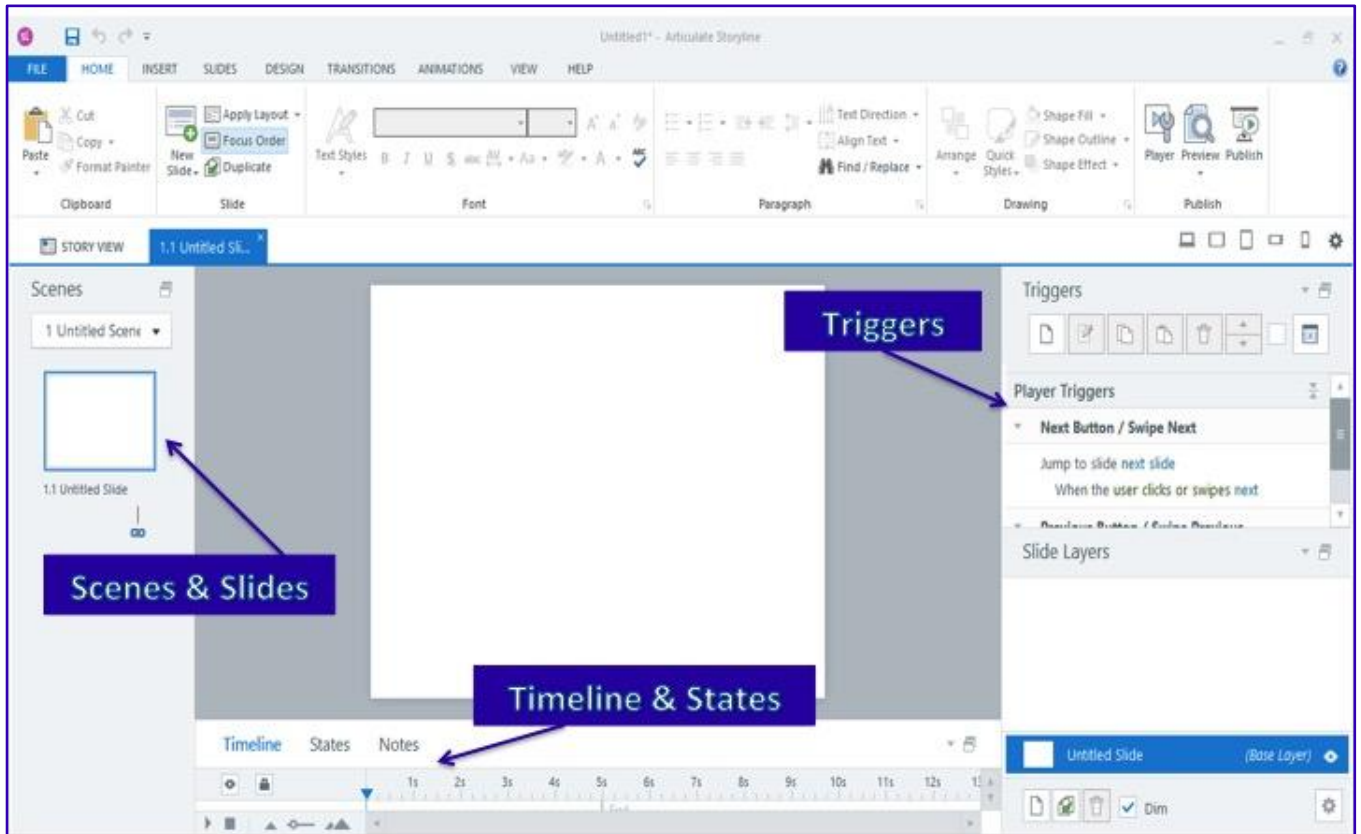


Fig. 10.3. Articulate Storyline Graphic Interface

4.2. Creating the Course Content- Informational PowToon Videos

Concurrent to the creation of the course platform using Storyline 360, I created the multimedia course content. I believed that informational, animated PowToon videos could support teachers in implementing the curriculum and help teachers develop the requisite TPACK to integrate digital literacy skills into their practice. The *multimedia principle* asserts ‘that people learn more deeply from words and pictures than from words alone’ (Mayer, 2014, p31) and video is an ideal medium to combine the two. The videos also correlated with the curriculum tasks, involving script writing, storyboarding, audio recording and the creation of PowToon videos.

I considered the information that I believed was relevant to impart to teachers. During the *explore* and *understand* stages of my EEA action research inquiry I reviewed the literature around the key concepts of digital literacy, digital natives and digital inequality. My learning from this review was foundational to the creation of the curriculum and as such I believed it was entirely relevant to any JC English teacher who wished to implement the curriculum in class. As outlined in section 3.1, I felt it necessary to provide teachers with reasons and the intrinsic motivation to carry out the curriculum in class and so I set out to create short videos to explain each of these key concepts.

4.2.1. Visuals

In line with the approach to making PowToon videos presented in the curriculum, I began by writing and editing a script for each of the videos using the script template included in the curriculum resources (Topic 2, Task 6). This served as an indispensable guide when creating the videos on PowToon.

<p>see that young people in lower socio-economic groups actually spend more time online than their more advantaged counterparts. The bigger difference lies in <i>how</i> that time is spent. You may want to pause this video now to take a look at the table.</p>	<p>Low -v- High SES table</p>
<p>Disadvantaged young people predominantly spend time online engaged in online chatting and gaming, social networking, downloading or listening to music, consuming multimedia content and chat room activities. Whereas, more advantaged young people do all those same activities but also engage in more complex activities like finding information about goods and services, reading the news, contributing to blogs and wikis and work or future career enhancing activities.</p>	<p>Game console Social network logos Music note & Headphones Youtube/ <u>tiktok</u> logos</p>
<p>The third level digital divide refers to inequities in the tangible outcomes derived from Internet and ICT use. Like other levels of digital inequality, those in lower socio-economic groups do not derive the same level of benefit from ICT use in their <i>offline</i> lives as those who are more advantaged. Young people with higher levels of digital skills can obtain better economic (career, online bargains, etc), social (taking an active role in society,</p>	<p>News site logo Blogger / wikipedia logo Linked in/ jobs.ie logo</p> <p>Economic- Business people/ money sign</p>

Fig. 10.4. An extract from the *Digital Inequality Script*

I created the visual aspects of each first, using PowToon and used the same colour scheme that had been used for the curriculum and its associated resources. This was to maintain a sense of cohesion between the two interconnected artefacts. Powtoon offers five main ‘looks’ when creating an animation (Figure 10.5.) and I chose the *Whiteboard* look with characters from the *Cartoon* theme.

The clean white background with the blue/ orange font and whiteboard style drawings- I think that's nice. It's 'school-y' without being too childlike.

Reflection journal, April 2021

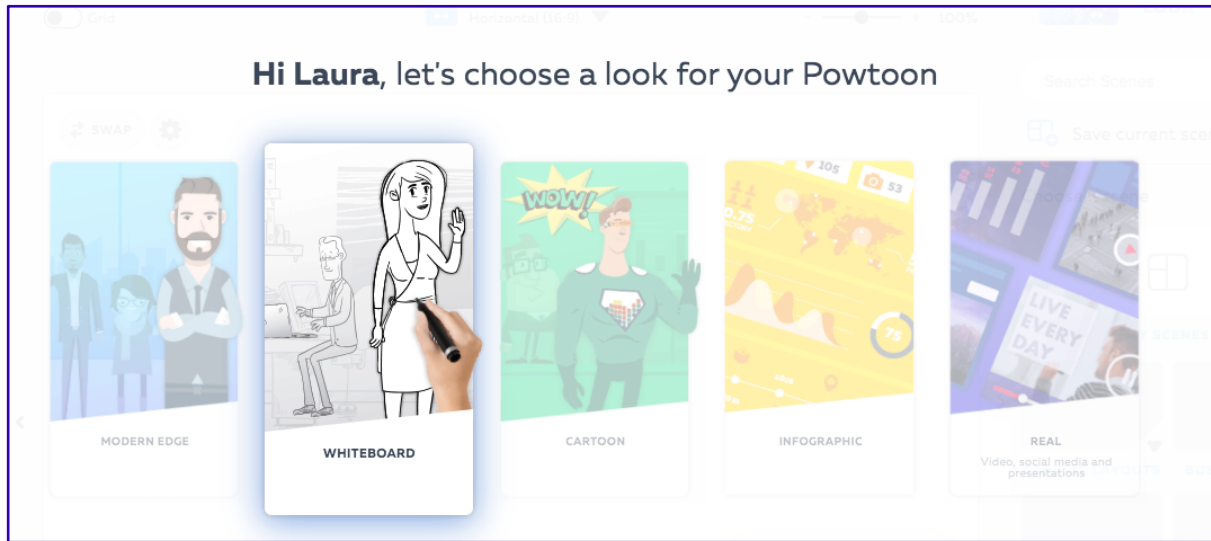


Fig. 10.5. PowToon 'looks' with Whiteboard

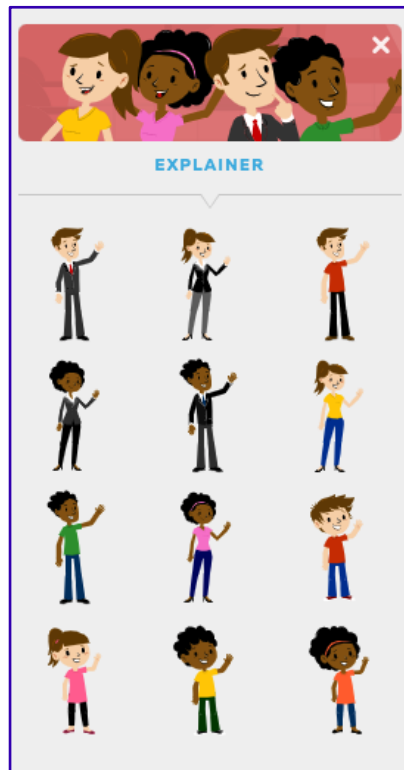


Fig. 10.6. Explainer characters from PowToon's Cartoon 'look'

4.2.2. Audio

I used [Adobe Audition](#) audio recording software to record the voiceovers (VO) for the videos using a [Blue Yeti Nano](#) microphone. I found that the combination of the high quality microphone and recording software that was more advanced than free packages such as [Garageband](#) made a difference to the quality of the VOs.

When looking for a solution to this problem online I came across the Adobe audio recording software, Adobe Audition. As I have access to the Adobe Creative Suite I installed it on my laptop. The sound quality using this software is much better... This is certainly the software I will use going forward. It seems a little more technical/ less straightforward than Audacity or Garageband but the sound quality is definitely more professional.

Reflection journal, November 2019

Audio recordings 10.1. highlight the difference in sound quality between using a headset microphone and Garageband (free audio recording software) and Adobe audition and a Blue Yeti Nano Microphone.



Audio Recording 10.1. Sample recordings using different hard and software (click hyperlinks to listen)

I was hesitant to record the voiceovers (VO). Committing to a recording seemed like a very final step that I was reluctant to take for the practical reason that it would make changes to the finished product more difficult. I was also apprehensive about sharing my work for fear

of harsh judgement (Crotty, 2014; Brown, 2012; Rolfe, 2010; Dewett, 2006). I noted the reasons for my hesitancy in my reflection journal.

There is something quite nerve-wracking about committing a voice over. I had been putting it off but the videos have to go into the Storyline course ASAP so they had to be completed. I think the hesitancy comes from having a completed product... that's it now, it's done and any changes that have to be made become more awkward.

Reflection journal, April 2021

If [the videos] are complete and in a course then that's another step closer to putting it out there and someone else actually watching it. I've realised that the potential for judgement and criticism is a major sticking point for me. I'm terrified of someone else looking at my work and thinking badly of it or thinking who am I to be telling other teachers about digital literacy and the like? If I show it to my colleagues and ask them to critique it, does it look like I'm trying to tell them how to do their job? These are all daft thoughts, I know, but a little scary all the same!

Reflection journal, April 2021

However, the element of risk is key to the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014) and despite my misgivings I recorded my VOs and imported them into the PowToon using the 'Add Voiceover' feature. I found with the first video that I created (*What is Digital Literacy?*) that the VO was very out of sync with the visuals, contrary to Mayer's multimedia learning principle of *temporal contiguity*; 'people learn better when corresponding narration and graphics are presented simultaneously' (Mayer, 2017, p406) as this reduces extraneous processing (see table 10.1). I considered the implications of this audio/visual incongruity and its potential impact on the learner.

I have recorded the VO and added it to the video, it was all over the place. There were massive gaps at the end, where more slides were needed and there were too many slides at the start of it, so the pacing is all over the place. It has really highlighted the importance of having an appropriate pace to the video elements. They can't be too slow as that's boring [for the learner] but they can't go along at too fast a clip as that is confusing and looks amateur.

Reflection journal, April 2021

However, as I created more videos and VOs I found this to be less of a problem. Increased exposure to PowToon and its intricacies meant that the speed with which I could create and edit a movie increased. This improvement in my own digital literacy skills (reproduction, photo-visual, socio-emotional) supports the assertion that person's exposure to technology has a significant impact on their digital skills (Tapscott, 1998; Oblinger & Oblinger, 2005; Eshet-Alkalai and Chajut, 2009, 2010; Akçayir, Dündar & Akçayir, 2015). Video 10.1 shows the first iteration of the 'What is Digital Literacy?' video with the audio and visual aspects aligned.

I don't have the same concerns about videos made more recently, I think the old adage 'practice makes progress' applies, having made videos for the Educational Studies Association of Ireland (ESAI) conference and other presentations I have a better idea of how much content is needed per point I am trying to make.

Reflection journal, April 2021



Video 10.1. *First iteration of the 'What is Digital Literacy?'* ([click to view](#))

4.3. Mayer's Cognitive Theory of Multimedia Learning

When creating videos, and other CPD materials to support teachers in implementing the curriculum, I applied Mayer's (2014) Cognitive Theory of Multimedia Learning. The theory is based on 'three basic assumptions about how the human mind works - namely that the human mind is a dual channel, limited capacity, active processing system' (Mayer, 2014, p37).

(i) Dual Channel Assumption

'The Dual channel assumption is that humans possess different channels for visually represented and auditorily represented information' (Mayer, 2014, p33). Stimuli presented to the eyes (for example video, graphics, written text) are processed through the visual channel

and stimuli presented to the ears (speaking or non-verbal noises) are processed through a separate auditory channel.

(ii) Limited Capacity Assumption

‘The limited capacity assumption is that humans are limited in the amount of information that can be processed in each channel at one time’ (Mayer, 2014, p35). When pictures or animations are presented humans can only hold a few images in working memory and when narration is presented a person will only hold a few words in working memory rather than the entire text verbatim. Cognitive capacity varies from person to person but the average memory span is generally limited to five to seven chunks of information (Mayer, 2014).

(iii) Active Processing Assumption

The active processing assumption ‘is that humans actively engage in cognitive processing in order to construct a coherent mental representation of their experiences’ (Mayer, 2014, p36). Humans are active processors of audio and visual information through cognitive processes such as ‘paying attention, organising incoming information and integrating information with other knowledge’ (Mayer, 2014, p36). These cognitive processes help humans make sense of the material.

Figure 10.7. shows a visual representation of Mayer’s Cognitive Theory of Multimedia Learning. Words and images are processed in separate channels and relevant material is selected, organised and integrated with existing knowledge (Mayer, 2014). The learning that

is constructed in the working memory can then be stored in the long-term memory (Mayer, 2017).

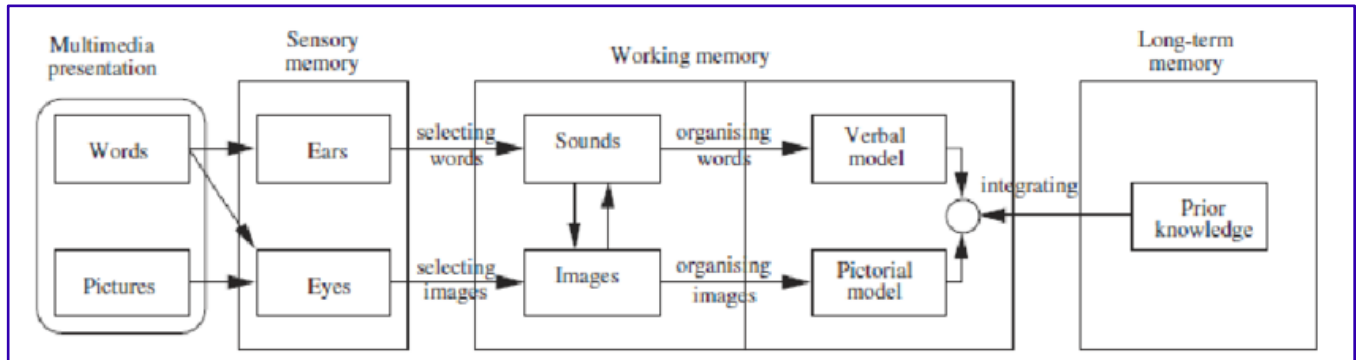


Fig. 10.7. *Cognitive Theory of Multimedia Learning (Mayer, 2014, p37)*

Mayer's 2017 paper, *Using Multimedia for Learning* reviews 11 researched-based principles for e-learning, some of the principles have boundary conditions (Mayer, 2017) but in creating the multimedia CPD artefacts (video, interactive graphics, etc) I applied the principles where appropriate. Table 10.1. summarises the principles and their application in the curriculum's CPD support materials.

3 Main Instructional Goals	Principle for MM learning	What the principle Says	Application of Principle
<i>Reducing Extraneous Processing</i>	Coherence	People learn better when extraneous material is excluded	Support material is relevant to the topic at hand. No extraneous but ‘interesting’ audio/ visuals are included.
	Signalling	People learn better when essential material is highlighted	Headings and vocal emphasis used to highlight important information.
	Redundancy	People learn better from graphics and narration than from graphics, narration and on-screen text	For the most part, the videos/ interactive graphics consist of graphics and narration only.
	Spatial Contiguity	People learn better when on-screen words are placed next to corresponding parts of the graphic	Where applicable, relevant text is placed next to the graphic (for example, Bloom’s Taxonomy graphic or influences on digital skills flashcard activity).
	Temporal Contiguity	People learn better when corresponding narration and graphics are presented simultaneously	The videos are timed so that the voiceover corresponds with the graphics/ animations on screen at any given time. Screencast videos were recorded with a ‘live’ voiceover.
<i>Managing Essential Processing</i>	Segmenting	People learn better when a multimedia lesson is presented in small user-paced segments	The original PowToon videos were 3-6 minutes long. They were segmented into smaller chunks of 45s-60s to manage essential processing.
	Pre-training	People learn better when they learn the key terms prior to receiving the multimedia lesson.	Glossary of key words is included in the resources section curriculum booklet.

	Modality	People learn better from a multimedia lesson when words are presented in spoken form	Although there is some text in the CPD videos, the words are generally in the spoken form.
<i>Fostering Generative Processing</i>	Personalisation	People learn better when words in a multimedia lesson are presented in conversational rather than formal style	The PowToon videos have a conversational style of voice over. The VOs for the screencast videos were recorded live and so have a casual, informal style.
	Voice	People learn better from a human voice than a machine like voice	My own voice was used for all VOs and audio recording.
	Embodiment	People learn better when an onscreen agent uses human-like gestures and movement	Animated human characters are used to present information throughout the videos (see Fig. 10.X.).

Table 10.1. *11 'researched based-principles for how to design computer-based multimedia instructional materials to promote academic learning' (Mayer, 2017, p403) as applied to the curriculum's CPD support material .*

The principle of segmenting content to manage essential processing came to the fore when I had completed four PowToon videos for inclusion in the CPD course material (Digital Literacy, Digital Literacy Six-Skill Framework, Digital Inequality and Digital Natives). The digital inequality video was just over five minutes long, which I initially thought was short enough to hold a viewer's attention.

When I'd made the video a few months ago I thought I was actually keeping it short, 5 minutes seemed like an appropriate amount of time- a length that would be manageable for the viewer. However, on review when looking at it with the VO inserted I felt it was too long. It wasn't holding my attention... and I made it!

Reflection journal, May 2021

In line with the instructional goal of *managing essential processing* (Mayer, 2017) I sought to segment the video into more manageable pieces. Table 10.2. shows how this video was divided into 5 shorter videos. The five videos are presented in sequence within the course structure (Figure 10.8.) and so while the content remained the same, it was delivered in more easily digestible segments.

Digital Inequality Video (5+ mins)	Digital Divide/ Digital Inequality (1.29)
	First level divide (0.46)
	Second level divide (1.45)
	Third level divide (0.41)
	Addressing Digital Inequality (1.05)

Table 10.2- *Digital inequality video segmented into five smaller chunks*

Having addressed the length of the Digital Inequality video I then had to reconsider the length of the Digital Literacy video, which was 3m16s long. I decided it didn't make sense to have such a discrepancy in video lengths across the course. Although this involved discarding some of the work I had already done in terms of re-recording VOs and then the fairly tedious work of reinserting and lining up the VOs with the visuals, I felt that it was a worthwhile endeavour if the overall result was going to be a greater learning outcome for course participants. The Digital Literacy video was then segmented into 4 shorter videos.

Digital Literacy Video (3+ mins)	Traditional Literacy and Media Literacy (1.10)
	Information Literacy (0.39)
	The Evolution of digital literacy (1.35)
	Digital Literacy Summary (0.28)

Table 10.3- Digital literacy video segmented into four smaller chunks

The digital literacy six-skill framework (Eshet-Alkalai, 2004, 2012) videos did not require any further segmenting as each skill had an individual video of approximately 40s long and was, as such, already segmented.

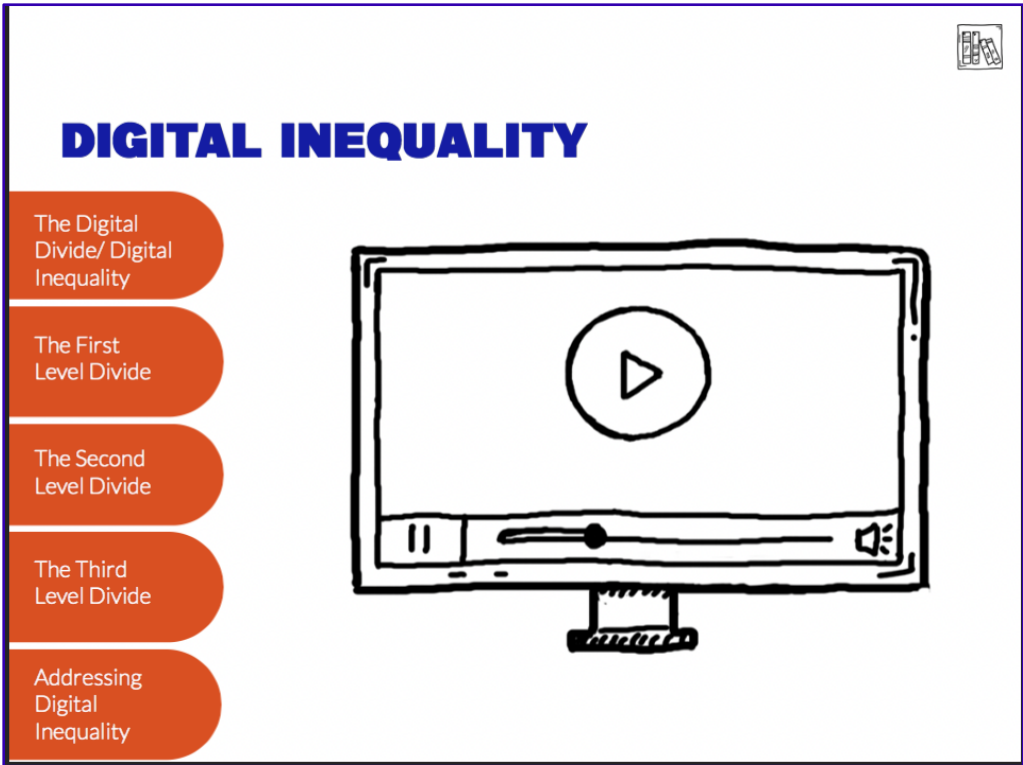


Fig. 10.8. Screenshot of Digital Inequality module of course with five sequential videos

5. Inserting Content into the Storyline Course Platform

5.1. Design

With the videos created I sought to insert them into the Storyline 360 course I had concurrently been working on. As with the creation of my curriculum booklet I found my lack of graphic design skills a frustrating barrier to creating the course I envisioned. My previous attempts at using Storyline 2 had not yielded the results I had hoped for and reflecting on these efforts (figure 10.9.) Visually, I believed they left a lot to be desired.

I'm finding the whole process [of creating a course using Storyline 360] frustrating and enjoyable in fairly equal measure. Given that the last time I attempted it I really spent quite a lot of time at it, it looked absolutely awful when I went back and looked at it.

Reflection journal, April 2021

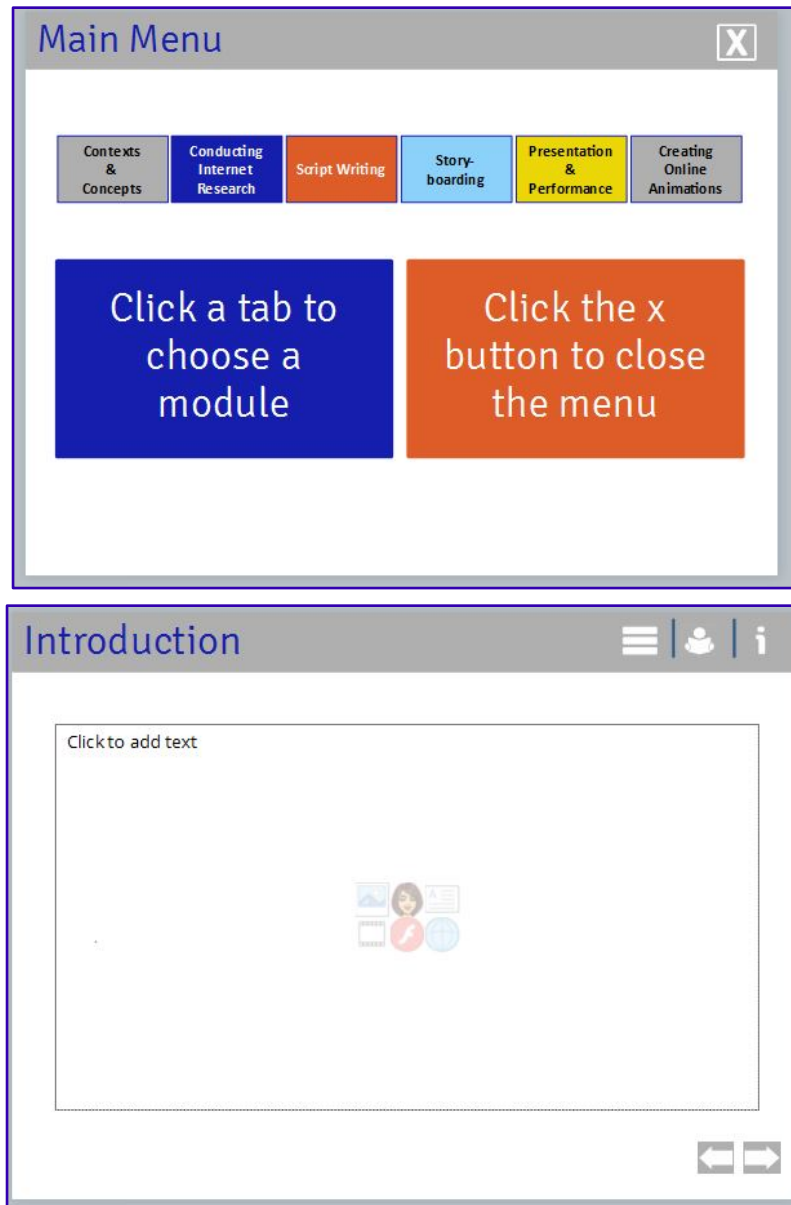


Fig. 10.9. *Screenshots of first iteration of my CPD course using Articulate Storyline 2*

As with the audio recording aspect of the videos I had a sense of apprehension at starting something new and only vaguely familiar. I noted my reluctance to start in earnest in a reflection journal (Crotty, 2014; Brown, 2012; Rolfe, 2010; Dewett, 2006).

I think I have gotten to the stage now where I must start [creating] the CPD course properly, and honestly, it is terrifying me. I am procrastinating to the nth degree and have ended up frozen. I know that I just need to do it and if it's 'wrong' or it looks bad then that's just all part of the process. That's the risk element of the EEA, that's where the 'observe' and 'reflect' [of the action research cycle] come into play and it's in those mistakes that hopefully I will find my creativity.

Reflection journal, April 2021

However, the creation of the PowToon videos had provided me with a template for the 'look' I wanted for the course; a white background with hand drawn elements and the same blue and orange colour scheme that had been used across all resources associated with the curriculum. I sought out simple ways to improve my design skills and use the work of others without breaching copyright. Firstly, I returned to Canva's free online [Graphic Design Basics](#) course, which provided helpful information on topics such as colours, fonts, visual space, alignment and contrast. Secondly, I paid for full access to Articulate 360 so I could use the premade templates and adjust them as necessary. After considering trying to learn how to use [Adobe Illustrator](#) so I could draw my own hand drawn style graphics I discovered the [Envato Elements](#) website where a monthly subscription fee gives the user unlimited access to millions of digital assets.

I came across a website called Envato Elements... It's wonderful! For €30 a month I can have unlimited downloads of the fonts, graphics, photos, videos, etc on the site. It's all licensed so no copyright issues and even better is that the work is already done for me so, while I'd still like to learn how to use Illustrator, it's not an urgent concern right now.

Reflection journal, April 2021

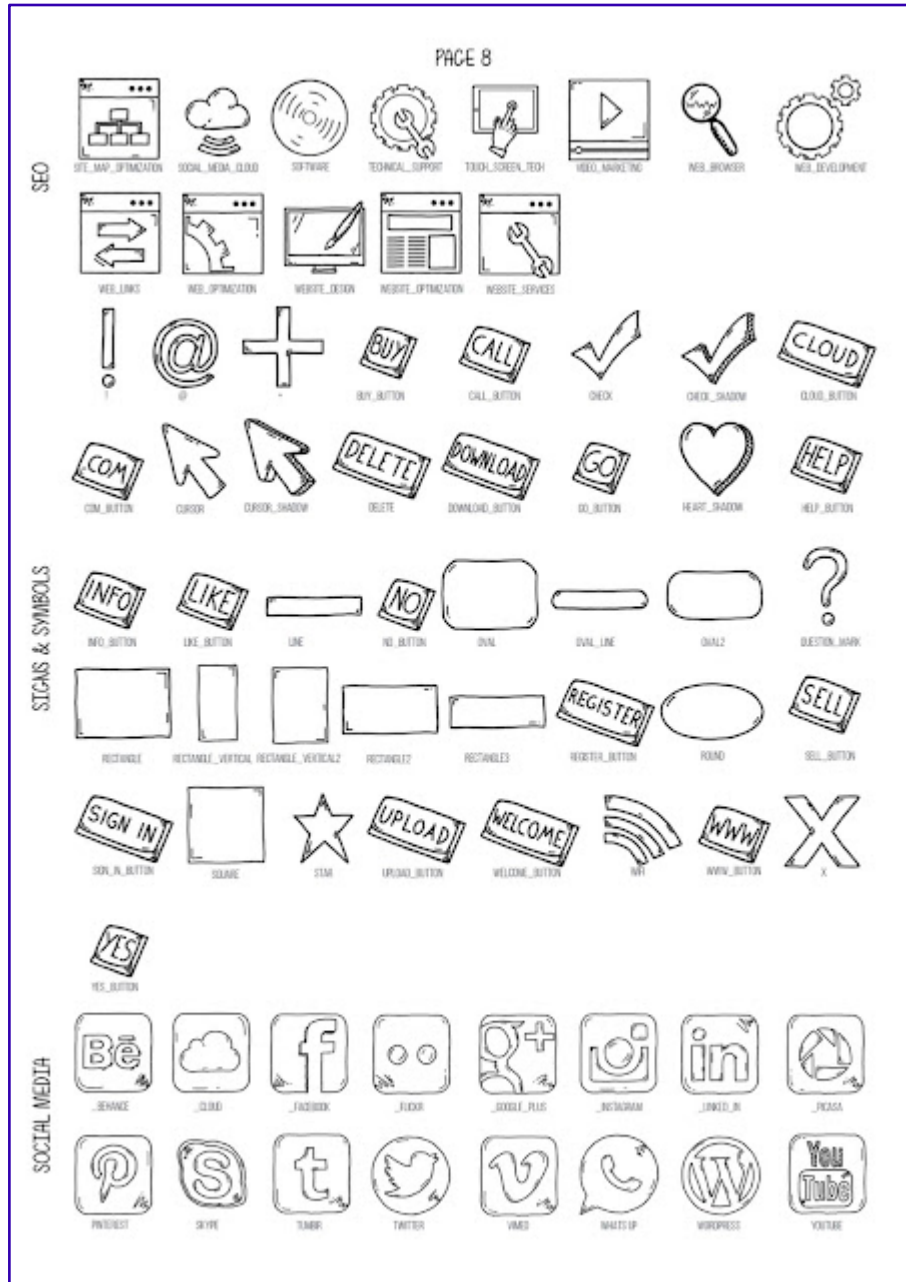


Fig. 10.10. Sample of graphics downloaded from Envato Elements

Finally, I sought informal feedback from my sister, a designer. While not a graphic designer, she is trained in this area and was happy to make suggestions and offer opinions, which I found invaluable.

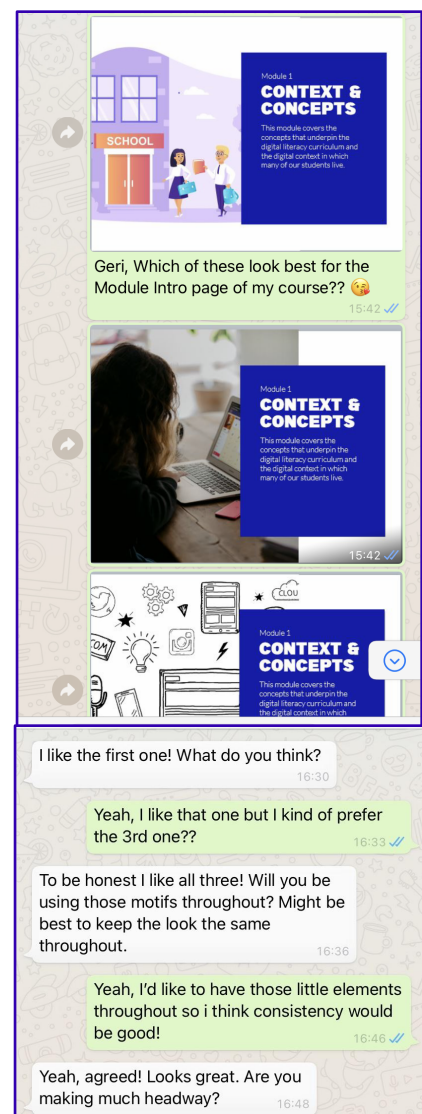
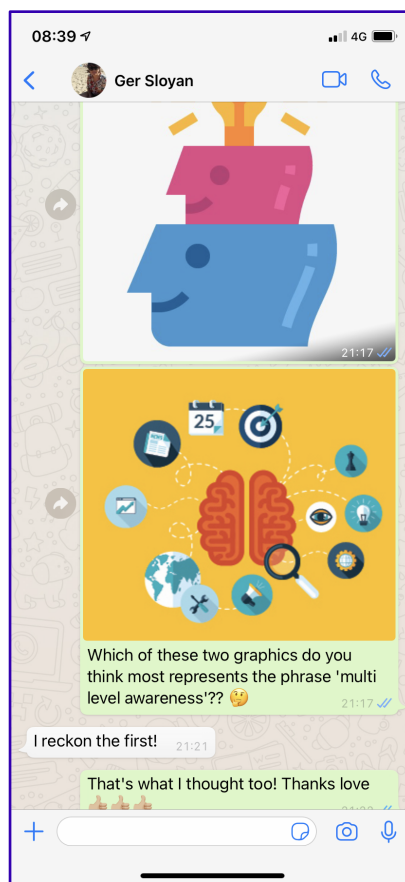


Fig. 10.11. Design feedback via WhatsApp

5.2. Structure

The structure of the online CPD course went through a number of iterations. At the outset, I envisioned a six module course, the first module being ‘Context and Concepts’ which would deliver information on digital literacy, digital inequality, digital natives and Bloom’s Taxonomy. The subsequent five modules would coincide with the five topics of the curriculum (Internet research, script writing, storyboarding, audio recording and creating

PowToon animations) and provide practical, ‘how to’ instructions for teachers on how to carry out the more technical aspects of the course. Planning this course proved to be difficult and as I tried to map the various topics and subtopics (Figure 10.12) I felt that I did not have the requisite skills to create such an in-depth and multi-levelled course.

I feel like I have planned this course over and over again but when I go to actually make it the ideas that I had, particularly in terms of navigation and slide layout, don't make practical sense.

Reflection journal, April 2021

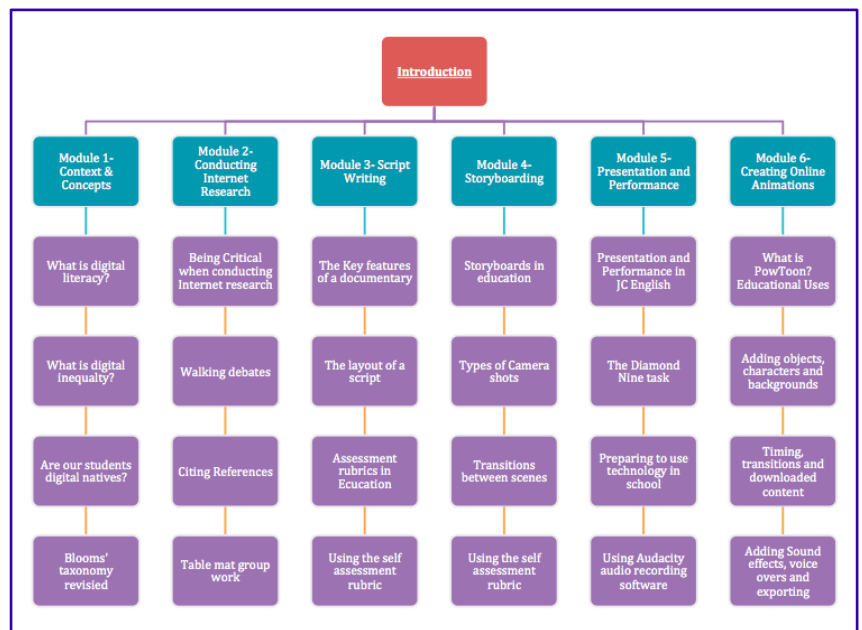
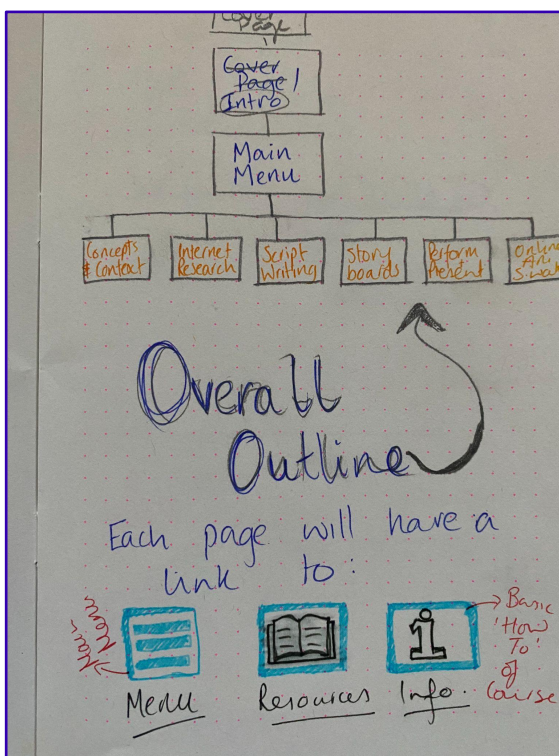


Fig. 10.12. Iterations of course plans and structure

Through the planning process I was forced to reflect on what was achievable for me to create with the skills I possess and the time available, in terms of fitting the course creation in around my full-time teaching position and young family. My reflection journals capture some of the frustration I felt as the course that I had envisioned failed to come to fruition.

I do think that I have ... a lot going on in general life, but even so, the amount of work that went into about 15 mins total of video seemed excessive.... It kept bringing to mind Marcus-Quinn and McGarr's (2012) findings that there is a lack of suitable/meaningful digital resources for teacher to use in class and they state that it in Ireland it's not commercially viable to produce such resources. I can see why. The time (full time), effort (lots!) and skills (instructional design, teaching skills, graphic design, ICT, etc) needed to make really high quality stuff is beyond most people and there probably isn't a big enough market for the end product.

Reflection journal, April 2021

I can see why there are not that many (asynchronous) online courses out there for teachers. It's technical and time consuming. It feels that in order to get a course made you must be a subject matter expert, a technical whiz and have an abundance of time on your hands. While I might feel confident enough in my expertise in terms of digital literacy, I am no whiz and really time is the main issue at the moment.

Reflection journal, May 2021

In consultation with Dr. Crotty, I made the decision to shorten the course from my intended extensive, six-module plan to a more manageable four- module model that was based on the initial 'Context and Concepts' module of the original outline (Figure 10.13.). My disappointment at this outcome is recorded in my reflection journal.

I have to admit, not quite defeat, but I have had to accept my own limitations in a way. Having started my PhD journey with a definite focus on the creation of an online CPD course for teachers, I somehow, along the way, veered off into the creation of a digital literacy curriculum. I have no regrets in that regard, as my main objective was to create something that teachers could learn about digital literacy from and subsequently pass that knowledge on to their students.

Reflection journal, June 2021

The reasoning behind the decision to shorten the course was detailed in my reflection journal (June 2021) and is summarised in the list below.

- Learning to use Storyline 360 was a steep learning curve. My increased insight into the software led me to the realisation that the course I envisioned would be far more extensive and challenging to create than I had initially thought. As the curriculum had already been created, another digital artefact of similar size would be surplus to requirement and an extremely time consuming undertaking.
- In discussion with Dr. Crotty, we considered the need for such an extensive course. Dr. Crotty felt that a long course was perhaps unnecessary and that the curriculum itself with an ancillary CPD course would be more appropriate. I was in agreement with her view.
- While I had started my PhD research with the intention of the CPD course being the main digital artefact of the study, the *explore, understand and create* stages of the EEA led to the curriculum evolving into the primary artefact.

Thus, the course emerged as a four-module, foundational support for teachers who might wish to implement the curriculum in their English classes, structured as shown in figure 10.13. The key components of each of the modules were the PowToon videos, whose creation was detailed in section 4.2. In this way the Storyline course operated as an interactive platform for the informational Powtoon videos and the non-video components such as flashcards (Slide 3.3: What Really Impacts Digital Literacy?) and an interactive graphic (Slide 5.4: Bloom's Taxonomy Revised).

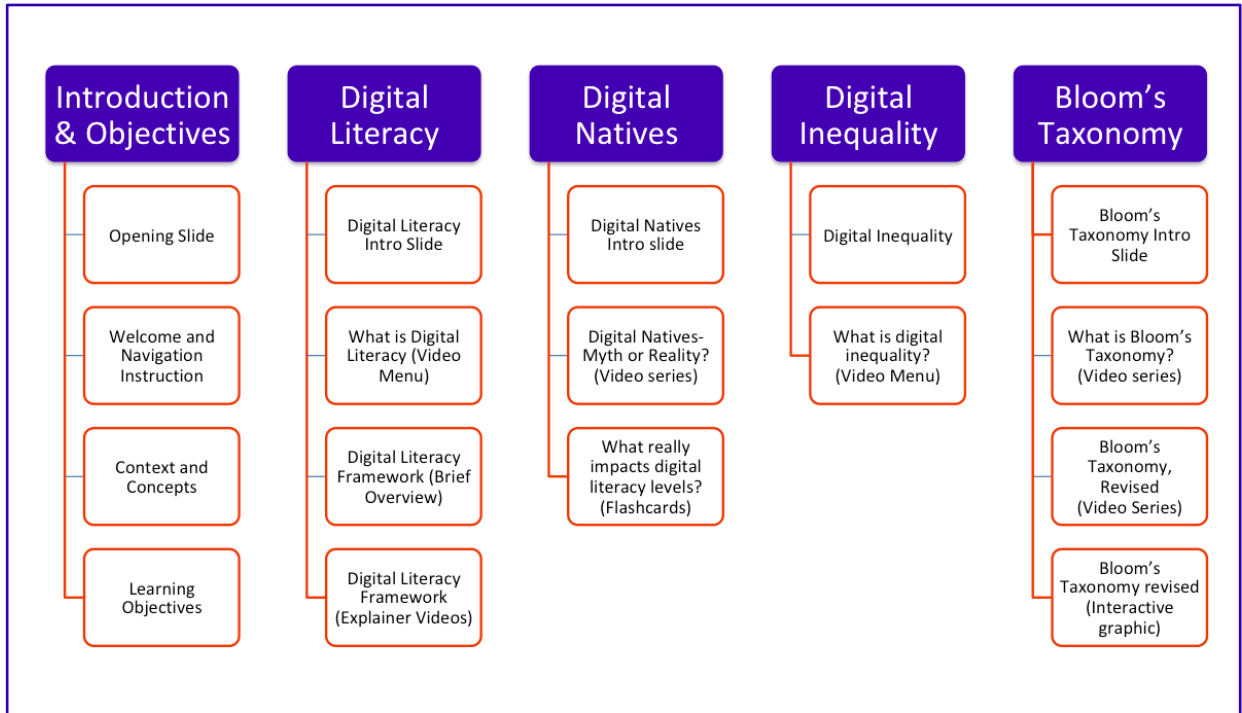


Fig. 10.13. *Final structure of online course*

6. Seeking Feedback from Colleagues

6.1. Curriculum

On completion of the first draft of the course I shared it, and the completed curriculum, with my colleagues via our work email. I created a website to host the curriculum, the CPD course, the plain language statement (PLS) and the informed consent form ([click here to view the website](#)) .

I found it difficult to obtain feedback from my colleagues and had to email a request for feedback many times to elicit a response. While a number of my colleagues approached me and said they would be happy to give feedback and showed great support and enthusiasm for my work, this did not translate into actual feedback. To me, this was not indicative of a lack

of genuine intention on their part but an indicator of the busyness of school-life and the tremendous pressure teachers are under to keep up with a never ending list of demands. Follow up conversations with my colleagues confirmed that this assessment was correct.

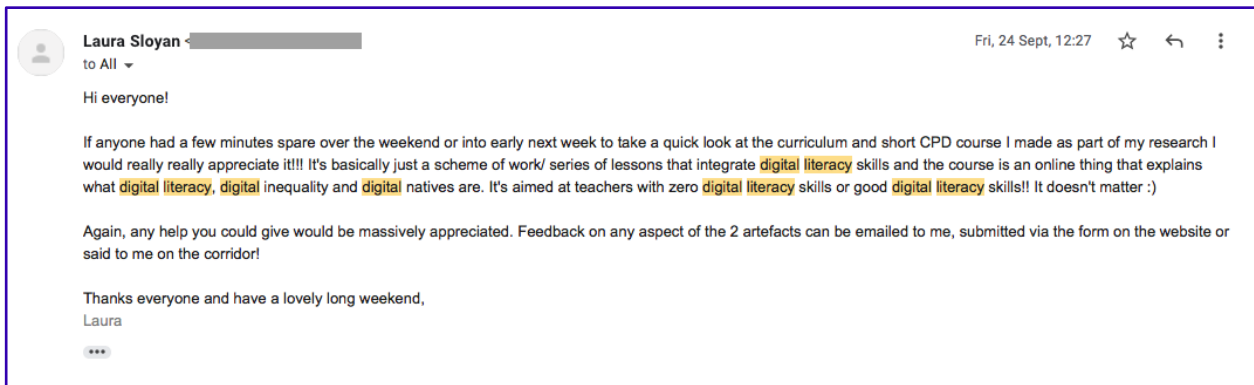
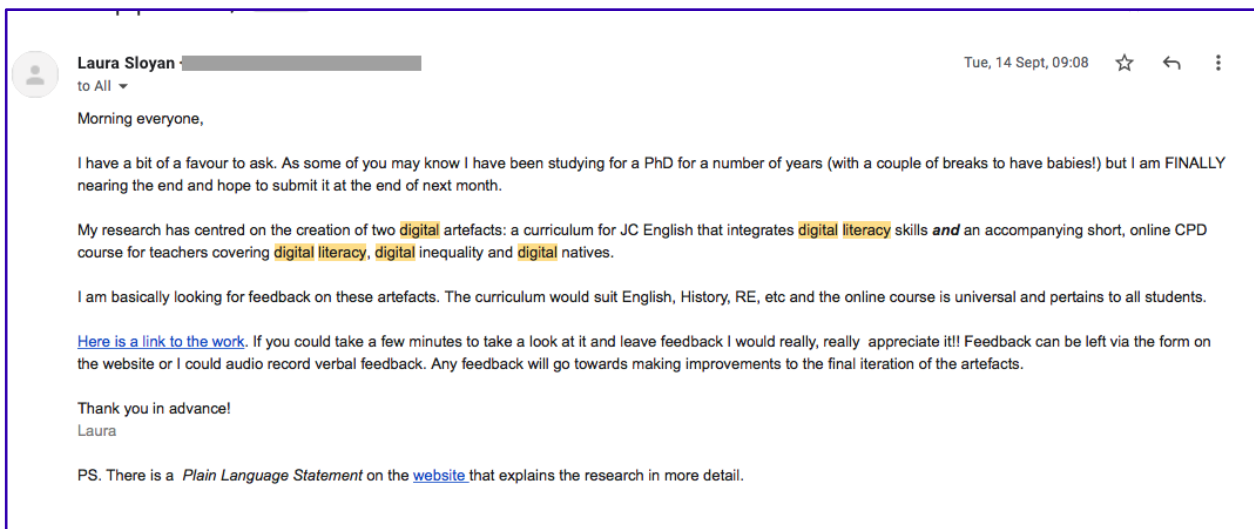
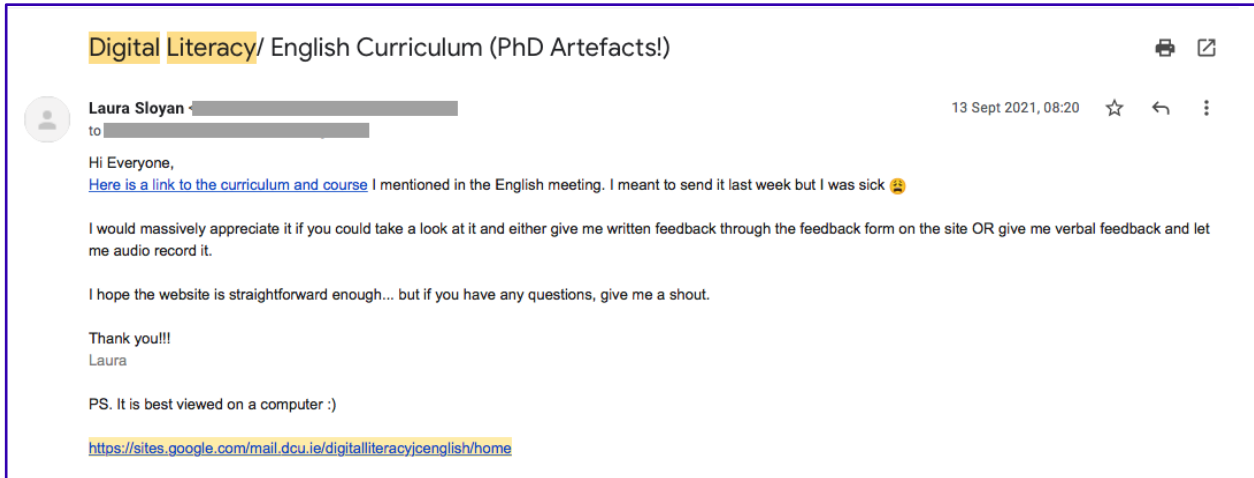


Fig 10.14. Emails to colleagues to elicit feedback on the curriculum and CPD course.

The feedback that I managed to garner was very positive. In particular, my colleagues in the English department felt that the curriculum would be of practical use in their classes.

It definitely links in with the English Junior Cycle, so I think it's practical in its use. It's very structured and the instructions are very clear... even for me (laughs) and I'm not very techie. I would feel that I could actually use that in class and would be reassured that I could do it because of the instructions and the little videos... they're really helpful.

Colleague 1, Audio Recorded Feedback, September 2021

It's very clearly laid out... and anyone if they were a little bit, like you know, hesitant to use technology, that's a great thing for them. It's definitely suitable. I'd love to use it now with my first years.

Colleague 2, Audio Recorded Feedback, Sept 2021

Both Colleague 1 and 2 agreed that the curriculum could be used across the Junior Cycle and even senior cycle curricula and was not necessarily limited to use in the English classroom.

I could see it being used in other subjects. I could use it in History or even with my Leaving Certs.

Colleague 1, Audio Recorded Feedback, Sept 2021

The written feedback I received was also positive with no changes to the curriculum suggested. One English department colleague noted the inclusive nature of the curriculum and its applicability to teachers and students across the spectrum of digital ability. This particular response supported my assertion that I had created an artefact that was accessible to all and was in line with my key educational value of equality.

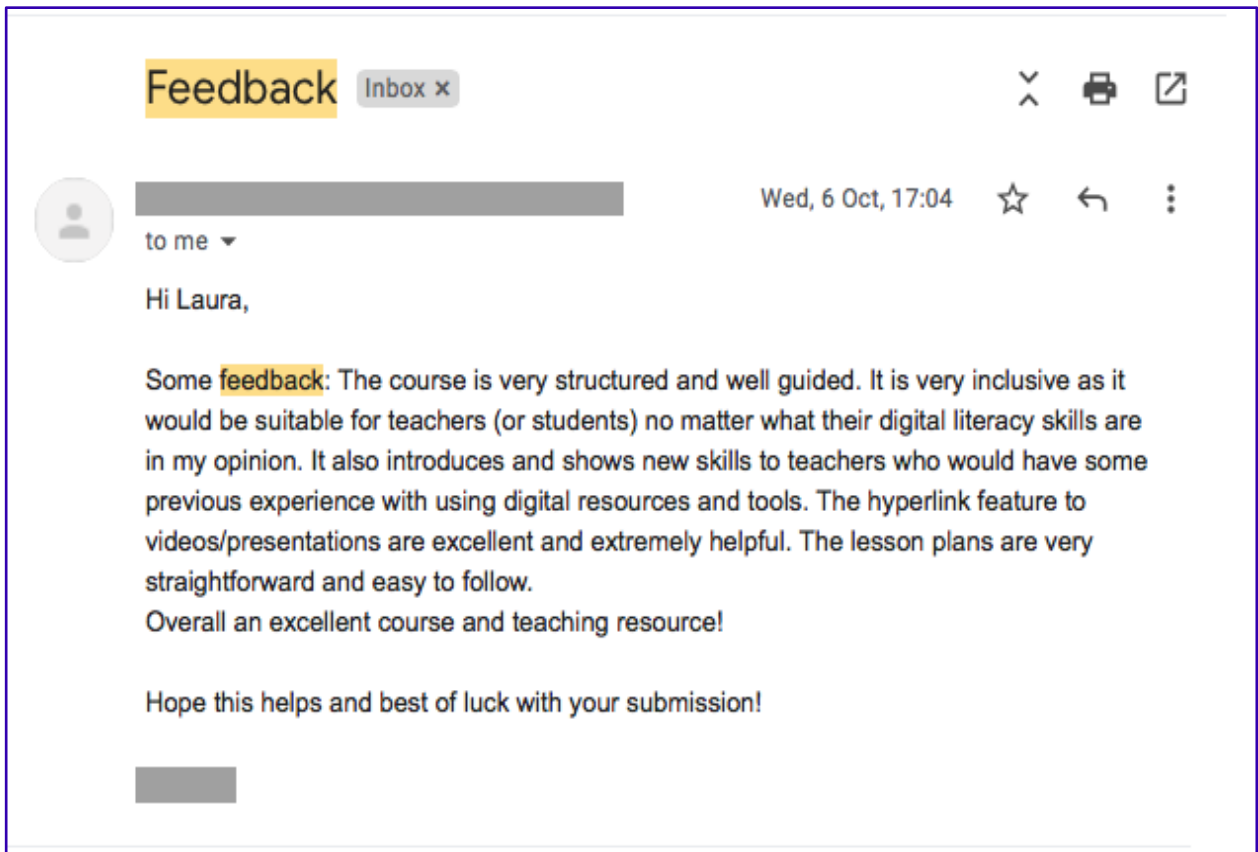


Fig 10.15. *Written feedback from English Department colleague on the curriculum*

6.2. Storyline 360 CPD Course

One colleague provided feedback on the Storyline 360 CPD element of the curriculum. While one piece of feedback was somewhat disappointing, his input was detailed and thoughtful (Figure 10.16). By his own admission this colleague is not particularly ‘tech savvy’ and so his feedback was particularly invaluable in terms of assessing the artefact’s accessibility.

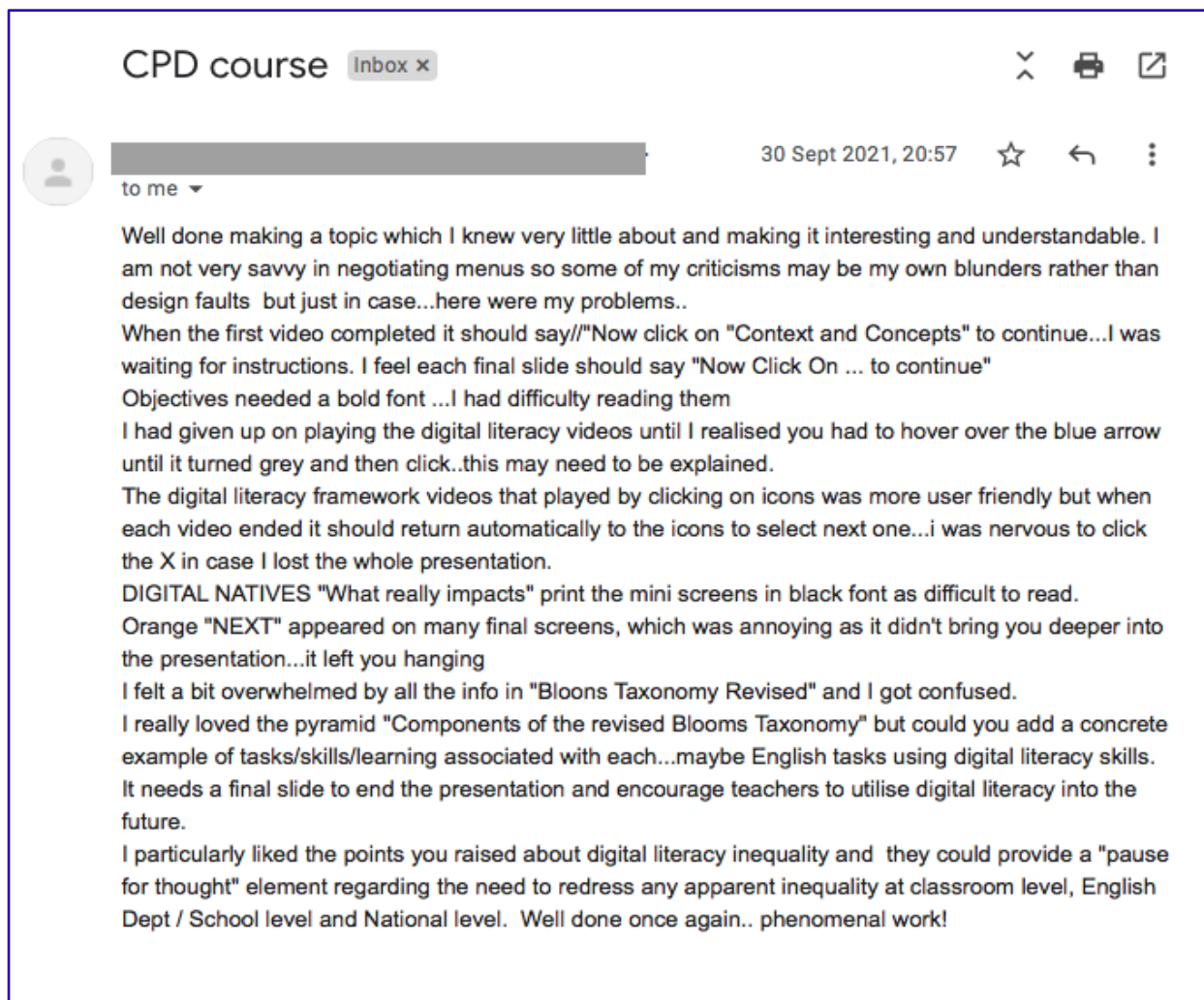


Fig 10.16 Written feedback from English Department colleague on the Storyline 360 CPD course

My colleague's feedback echoed the concerns I had had throughout the creation process about the ease with which a user could navigate through the course.

In terms of navigation, if there is already a sidebar menu from the skin, it seems like overkill. Also, there are too many modules and sections for this to work. If I have 6 modules and each module has 4-5 sections and each section has one of these cover pages as well as the side menu and the back and forward navigation the whole thing just becomes convoluted. I guess the point is that I need to pay attention to the limited capacity principle (Mayer, 2005) and avoid extraneous material. I wonder does this apply to navigation elements as well as content??... Either way, too many menus does not make for a clear and navigable course.

Reflection Journal, April 2021

After going through it [the CPD course] again myself having had a little distance from it for a couple of weeks I can see some changes I need to make to it to make the navigation more intuitive. I'll do a more comprehensive list but off the top of my head:

- *Get rid of the VO on the opening pages of each module. Instead have it written down at the end of the blurb OR have a little play button that the user presses as the automatic audio is somewhat intrusive.*
- *Resources button on the digital inequality section doesn't work.*
- *Digital literacy framework video page needs some sort of a marker at the end of each video to return to the main page.... it's not obvious what to do and I think the user could easily watch one video and then go on to the next slide rather than watch all 6 videos.*
- *Also, grey out the icon once the video has been watched on the DL framework page.*

Reflection journal, July 2021

I collated my colleague's feedback with my own observations and feedback received from Dr. Crotty. I addressed each of the issues in turn, as shown in Table 10.4. below.

Feedback	Addressed
Each final slide should say "click on XYZ" to continue.	An information icon (<i>i</i>) has been inserted into the final slide of each scene/topic instructing users how to move on to the next scene/topic.
Objectives should be in bold font	Rather than change the ' <i>Objectives</i> ' font to bold, it was changed from light grey to black making it easier to read.
Digital Literacy videos- Make play button more obvious/ intuitive to use	Removed 'Play' from each video and activated the 'Show Video Controls' option, giving the user more control over playing, pausing and volume of the video.
Digital literacy framework videos- Return to the main DL framework page at the end of each video	Slide now automatically returns to the DL Framework home screen when each video ends.
Orange 'Next' button appeared on many final screens. Annoying as there was nowhere else to go. Change to grey?	This issue has been rectified and all 'next' buttons on final slides are grey to indicate that they are the last slide.

Remake the welcome video with reasons for the user to do the course and suggestions as to how else the course could be used.	Welcome video remade with questions to encourage the user to consider the reasons to undertake the course and more clearly outlining the course content.
Get rid of the VO on the opening pages of each module. Instead have it written down at the end of the blurb OR have a little play button that the user presses as the automatic audio is somewhat intrusive.	VO removed from the opening slide of each module. Extra slide inserted after opening slide to host audio instructions. This has solved the problem of text and audio on the same slide.
The 'Resources' button on the Digital Inequality section doesn't work.	The 'Resources' button now links to the relevant slide.
Grey out the icon once the video has been watched on the DL framework page	Icon greyed out once a DL framework skill has been selected and watched.

Table 10.4. Table showing feedback and how it was addressed

Although limited, the feedback I received relating to both digital artefacts helped pinpoint areas for improvement while also substantiating my claim that the curriculum is inclusive in that it could be delivered by teachers with low levels of digital literacy and could bolster the digital literacy levels of students across the spectrum of ability.

7. Aligning My Work with My Values

On finishing the first complete iteration of my Storyline CPD course I had to consider my own satisfaction with it. By shortening the course I had made some considerable changes to my original vision and on reflection I felt that these changes, primarily leaving out the 'how to' instructional videos I had intended to include (see Fig. 10.12), left both artefacts misaligned with my values. I believed that the exclusion of simple step-by-step instructions for teachers and students on how to use the various softwares and websites included in the curriculum, rendered it inaccessible to a broad spectrum of users.

The main reason that I'm not happy with the finished product is that it doesn't feel aligned with my values. I hold equality as my main educational value and in this case the curriculum is not equally accessible to all teachers as many teachers may not have the requisite skills to implement the curriculum in their classrooms. My vision was to be able to walk teachers through the curriculum step-by-step, with short instructional videos to guide them when things got technical. Without those instructions the course just doesn't feel like it supports the curriculum in the way I want it to.

Reflection journal, June 2021

The Educational Entrepreneurial Approach (EEA) to action research is ‘value driven experiential learning’ (Crotty and Kilboy, 2015) and my desire to make an digital literacy resource that could be accessed in an equitable manner drove my decision to try and bring the curriculum into line with my values. Having become far more confident in my own digital skills over the course of my studies I sought to find an alternative way to provide support for teachers who may want to teach the curriculum and increase TK, TPK and TPCK insofar as possible.

My mind is continually on the possibility of making some VO screencasts using the very easy Articulate 360 Replay app. Having been on this steep learning curve for the last few months I know that I now have the skills to make this a reality as I finish up the process over the coming couple of months.

Reflection journal, June 2021

I made a list of the videos I would need to make to provide practical instructions for the more technical aspects of the curriculum (for example, using Storyboardthat.com, making digital audio recordings or using PowToon). This amounted to fifteen videos in total (Figure 10.17.). Over the course of this action research inquiry my digital skills had improved to an extent that I felt this wouldn't be too difficult an undertaking. I decided that rather than include the videos in the Storyline CPD course I would integrate them directly into the curriculum

document as hyperlinks within the relevant task plans. Video 10.2. shows a sample instructional video.

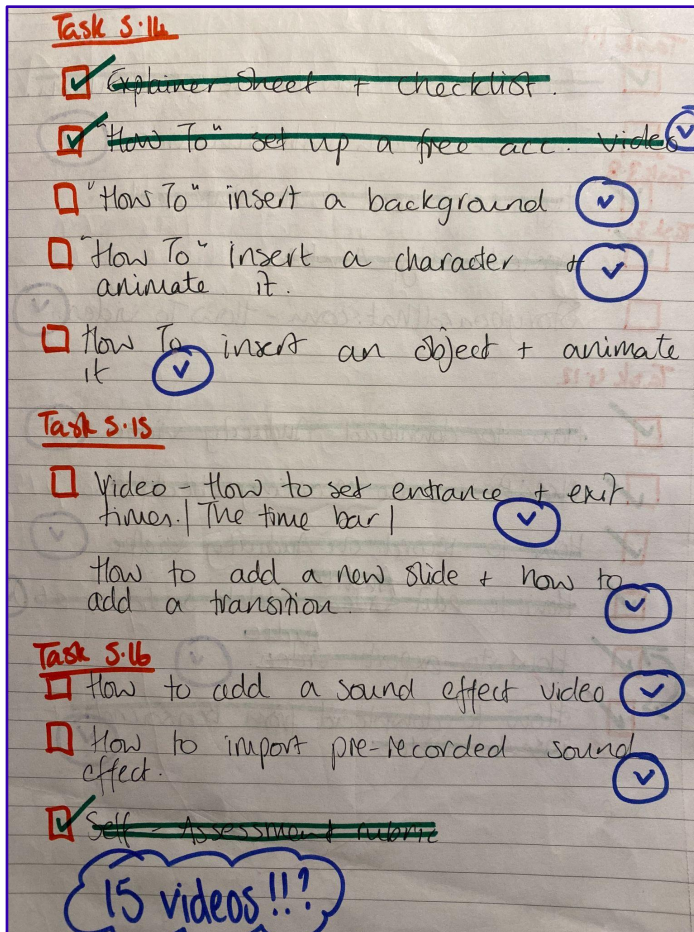
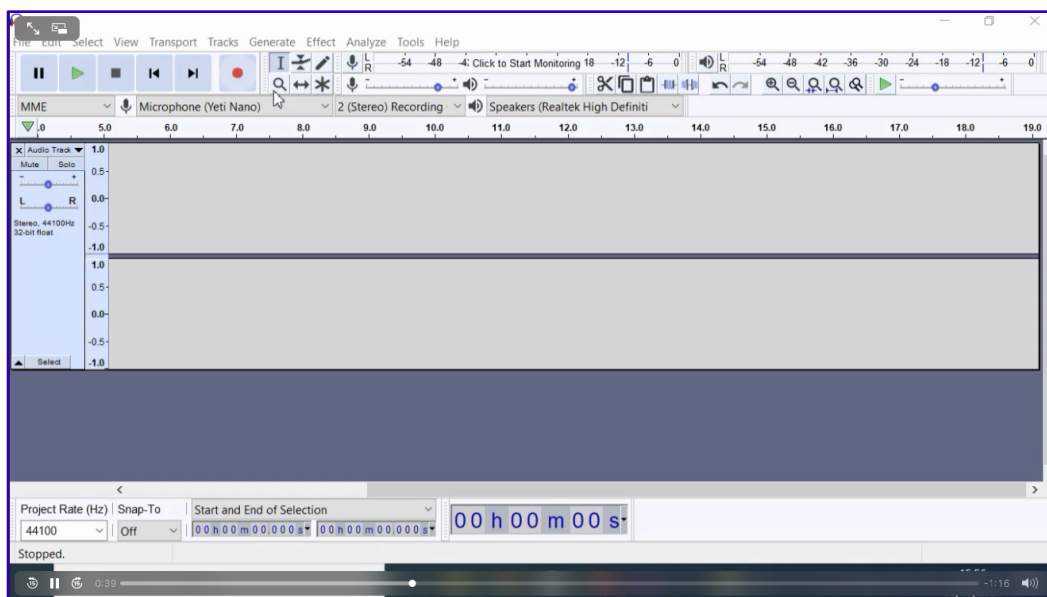


Fig. 10.17. Sample of list of potential instructional videos list



Video 10.2. Sample instructional video- 'How to record audio using Audacity' ([Click here to play](#))

With the instructional videos integrated into the curriculum in order to support both students and teachers in delivering the curriculum and improving their digital literacy skills I now felt that I had produced a digital artefact that truly reflected my educational values. In ‘marrying the head and the heart’ (Crotty, 2012) I had avoided becoming what Whitehead (1989) terms a ‘living contradiction’.

8. Conclusion

Removing barriers to, and providing teachers with, continuous professional development (CPD) opportunities on how to integrate digital literacy skills into the JC English curriculum was central to this action research inquiry. This chapter analysed the CPD elements of the curriculum and accompanying online course that were created in the *create* phase of this Educational Entrepreneurial Approach to Action Research inquiry (Crotty, 2014).

Mishra and Koehler’s (2009) technological pedagogical and content knowledge (TPCK) model provided a framework within which the CPD elements of the curriculum and associated resources could be discussed. The curriculum supported content knowledge (CK) by providing links to JC English learning outcomes and resources to support a variety of teaching, learning and assessment approaches. Technological knowledge (TK) was addressed with the inclusion of ‘how to’ instructional videos for relevant software and online applications. Pedagogical content knowledge (PCK) is concerned with what students bring to the classroom (Mishra and Koehler, 2009; Shulman, 1986) and so, an asynchronous, online course was created to accompany the curriculum. This course provides foundational and contextual information on digital literacy, digital inequality and digital natives.

Technological content knowledge (TCK) is concerned with how the application of technology allows subject matter to be presented in new and innovative ways and the curriculum seeks to offer teachers a way of doing just that. In terms of technological pedagogical knowledge (TPK) the curriculum introduces a number of technological pedagogical possibilities to teachers who may not be used to using them in class.

Technological pedagogical content knowledge is the thoughtful interweaving of all these sources of knowledge (Mishra and Koehler, 2009) and the curriculum affords teachers opportunities to improve their TPACK.

The chapter described the creation of an online CPD course for teachers using Articulate Storyline 360 course authoring software. The course provides an opportunity for teachers to improve their PCK and to be intrinsically motivated to engage in CPD by offering opportunities for growth and achievement in terms of giving context for teachers to want to embed digital literacy skills into their practice. The course also addresses digital inequality by providing quality, relevant CPD for teachers (Aydin et al, 2021; DES, 2020; Roswell et al, 2017).

The process of creating the CPD course was described. This process involved learning new skills and software and was guided by Mayer's (2017) 11 principles for how to design computer based multimedia instructional materials to promote academic learning. The course creation presented a steep learning curve as I familiarised myself with the Articulate software and the intricacies of the navigation aspect of an online course. Ultimately, on completion, the course was not what I had envisioned and although I was pleased with my own learning I

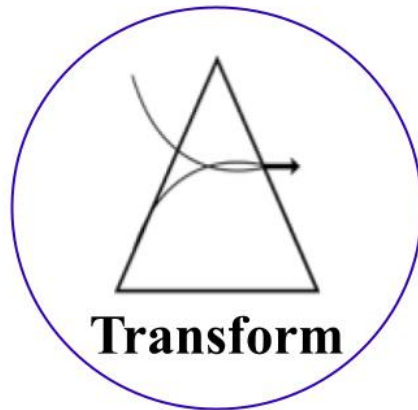
felt it was misaligned with my primary educational value of *equality*. I wanted to create a curriculum that could be delivered by any teacher regardless of their place on ‘the spectrum of users’ of ICT (Bullen and Morgan, 2011). I decided to create a series of ‘how to’ instructional screencast videos on how to use the various software and online applications used in the curriculum and embed them as hyperlinks into the curriculum document. This brought the curriculum and course back in line with my values. I then felt that the curriculum could be delivered by teachers regardless of their digital skills. This was reinforced by feedback from my English department colleagues via email (figure 10.15) and face-to-face ([access audio recording here](#)).

This chapter marked the final steps of the create phase of the EEA having completed the creation of a digital artefact to improve a perceived problem in my work practice. The following chapter draws together and presents the key findings from this research inquiry and concludes this research.

Act V

Denouement

Events after the climax



Chapter 11

Transformation

1. Introduction

The structure of this dissertation is analogous to that of the five-act dramatic structure commonly used in traditional theatre. This chapter marks the denouement or '*unknotting*' of all that has gone before. In its denouement, this action research inquiry is more akin to the realism of contemporary drama, in which neat conclusions are rarely drawn, than the definitive endings of Shakespearean drama. However, as with contemporary drama, key themes, observations and learnings can be identified and analysed.

This chapter will focus on the last of the four stages of the Educational Entrepreneurial Approach (EEA) to Action Research (Crotty, 2014); *transformation*. Transformation has been evident throughout the dissertation, and in this chapter I will explicitly address the transformations brought about by the research. Through 'reflection-on-action' (Schön, 1992) a number of themes emerged that corresponded with many of the important features of the EEA to action research; namely educational values, risk, collaboration, the creation of digital artefacts and the impact of the research on e-culture of my workplace. This chapter will be approached thematically with personal, professional and cultural transformation discussed in-line with the aforementioned themes.

2. My Primary Educational Value- Equality

From the outset of this research journey I have identified my primary educational value as *equality*. As described in chapter 2, equality emerged as my core educational value as a result

of my experiences teaching in a variety of disadvantaged contexts as well as the strong influence of my mother, who herself was a teacher in an area of socio-economic disadvantage. While equality has remained my primary educational value, over the course of this action research inquiry the nature of this value has shifted, becoming stronger and more pronounced.

This research began with a focus on apparent disparities in access to continuous professional development (CPD) for teachers, an observation that was supported by the experiences of my colleagues (see survey- chapter 3). I sought to create a digital artefact, with a focus on digital literacy, for teachers which somewhat closed that gap. During the creation of the digital literacy curriculum the multi-faceted nature of digital inequality became increasingly apparent to me and I had to adapt the curriculum to suit the DEIS context in which I work. The first and second level digital inequalities (Robinson et al, 2015; OECD, 2015; van Dijk, 2020; van Dijk, 2020; Marcus- Quinn and McGarr, 2013; Kyrgiou and Tsiplakide., 2012; Hargittai, 2002) that disadvantaged students face became central to the creation of the curriculum and the accompanying online CPD course.

It seems to me as though my focus has again shifted over the past year to incorporate inequality- educational, social, digital- in a more prominent way...The inequality I was writing about was the difficulty in teachers accessing CPD in certain areas, while now I wonder has my focus shifted?

Reflection Journal, January 2019

My role as Home School Community Liaison Coordinator (HSCL) gave an even greater insight into the social, educational and digital inequalities that existed for my students and this too impacted my educational values.

The inequality I was writing about [at the beginning of my research] was the difficulty in teachers accessing CPD in certain areas, while now I wonder has my focus shifted a bit? Since taking on the role of HSCL I have even more insight into the inequalities that exist for the students of my school. The job is absolutely an eye opener [to levels of educational, social and digital inequality]... The more I become aware of the systematic inequality that exists, the more I want to do my part, however tiny, to try and redress the balance.

Reflection Journal, January 2019

This job [HSCL] gave me such an insight into the lives of my students. Visiting their homes, being privy to confidential information at care-team, getting to know their parents, seeing the difficulties of getting parents to be involved in their child's education, knowing how hard life was for some of our students and their families... [This insight] made me consider what I could do to try and impact educational inequality in [my place of work]. Given that my research interest is Digital Literacy that lent itself to the notion of digital inequality and how that affected the educational attainment and future prospects of my students.

Reflection Journal, June 2021

The Covid-19 related school closures of 2020/21 and the subsequent move to online learning highlighted the need for many teachers to upskill in the area of digital literacy (Scully, Lehane and Scully, 2021; Kilcoyne, 2021; Winter et al, 2021) in order to be able to deliver curricula online and to support students in *their* online learning. As HSCL during the pandemic I spent my days ringing parents and students to see how the school could best support students' learning and both first and second level digital divides were evident in these conversations. Parents reported that many students were unable to engage meaningfully with their school work due to a lack of access to digital devices (McCoy et al, 2020). When loaned a digital device by the school many students did not have the requisite skills to support their learning (for example, logging into and using Google Classroom). The inherent unfairness of this situation for disadvantaged students was striking as it was clear from my

discussions with parents and students that, even with access to a device, students struggled to partake fully in online remote learning due to not having the requisite digital literacy skills.

[The pandemic and its related school closures were a] clear indication of the digital inequities that exist in Irish society and need to bridge that gap. Access wasn't even the issue as the school gave out laptops but the skill level of both parents and students was very low.

Reflection Journal, June, 2021

As I reach the end of this Action Research cycle I can see how my value of *equality* has been strengthened. The process of working with students on digitally-based activities and the impact of the Covid-19 pandemic on teaching and learning underscored my belief that digital literacy instruction needs to be embedded across school curricula and teachers need to be equipped with the training and resources to be confident in their ability to do so effectively.

3. Collaboration and Risk

Two key facets of the Educational Entrepreneurial Approach (EEA) to Action Research are *collaboration* and *risk* (Crotty, 2015, 2014; Crotty and Kilboy, 2015). Although separate concepts, I pair them here as, for me, the two are inextricably linked. From the outset of my research I recognised the need for collaboration with others as a source of inspiration, validation and critique in creating a curriculum and accompanying online CPD course for teachers. However, I often felt extreme reluctance to do so, inhibited by feelings of vulnerability and fear of exposing myself to failure or criticism (Brown, 2012; Rolfe, 2010; Dewett, 2006). Through the process of carrying out my EEA inquiry I have come to be less inhibited and more confident in taking the risk to share my work and seek input from others.

Central to Crotty's (2014, 2015) EEA to Action Research is the requirement to share your innovative curriculum or digital artefact with others in order to elicit feedback. The feedback is then acted upon, where appropriate, to further improve your curriculum and/or artefact. I found the prospect of sharing my work in this manner extremely daunting throughout the process. I was very afraid of opening myself up to criticism and although I wanted and needed feedback from my colleagues and peers on my work, I was often reluctant to seek it for reasons I outlined in a reflection journal.

I think that absolutely one of the biggest impediments to my productivity is fear of judgement. Judgement of my own work and of others judging my work. The thought of committing my ideas to paper, of having others look at my work and critically evaluate it is terrifying to me.

Reflection Journal, October 2018

Despite my misgivings, I took the risk of sharing my work in a variety of contexts and each time found that the benefits of taking that risk outweighed the potential pitfalls as my collaborators (my supervisor, Dr. Crotty, conference attendees and my colleagues) were generous and insightful with their feedback. Each time I shared my work I found that my trepidation dissipated somewhat.

3.1. Supervisor

Throughout the years of my PhD research my supervisor, Dr. Yvonne Crotty, was a consistent collaborator and source of feedback. My [reflection journals](#) chronicle our meetings and the inspiration I took from them. Dr. Crotty felt like a *safe* collaborator; someone I trusted to deliver honest and informative feedback (Zhou, 1998) that facilitated creativity and

helped to ensure a level of quality in my curriculum and digital artefact (Crotty and Kilboy, 2015).

I was so caught up in the creative process of it that I actually had no idea any more if it was good, bad or indifferent so I was really pleased to get that positive feedback. [Dr. Crotty] thought that the course was engaging and the user would be kept engaged throughout. However, she brought up an important point that I had sort of been taking for granted; that there is no 'why?' for the user [in the welcome video].

Reflection Journal, July 2021

Having this supportive and encouraging environment in which to receive feedback allowed me to interpret that feedback as constructive, comprehensive and understanding (Zhou, 1998), this in turn increased my confidence to present and share my work in, what I perceived to be, riskier contexts.

3.2. Conferences

Throughout the course of my studies I presented at a number of academic conferences. Although daunting at first, I found presenting at conferences to be most worthwhile, particularly with regard to the feedback they elicited.

Initially I found it difficult to be concise and to the point when presenting my research. Through a discussion with Dr. Crotty, she indicated that I lacked clarity in my delivery and with her guidance successfully worked to improve that aspect of my presentation skills.

[Dr. Crotty's] feedback focused ... on my presentation skills and making my work more concise. I worked on that over the next few days, practising my presentation and trying to cut out the waffle. I reduced it from nearly 30 minutes to just under 15, so clearly there was a fair bit of chaff in there that needed to be cut.

Reflection Journal, June 2019

Feedback following the next conference I presented at attested to an improvement in my delivery which built my confidence going forward.

Although I was a little shaky at the start I delivered my presentation much more smoothly this second time round. Feedback from [Dr. Crotty, Dr. Farren] and others in the room was very positive, so I felt that I had communicated clearly what I had intended to and far more concisely this time.

Reflection Journal, June 2019

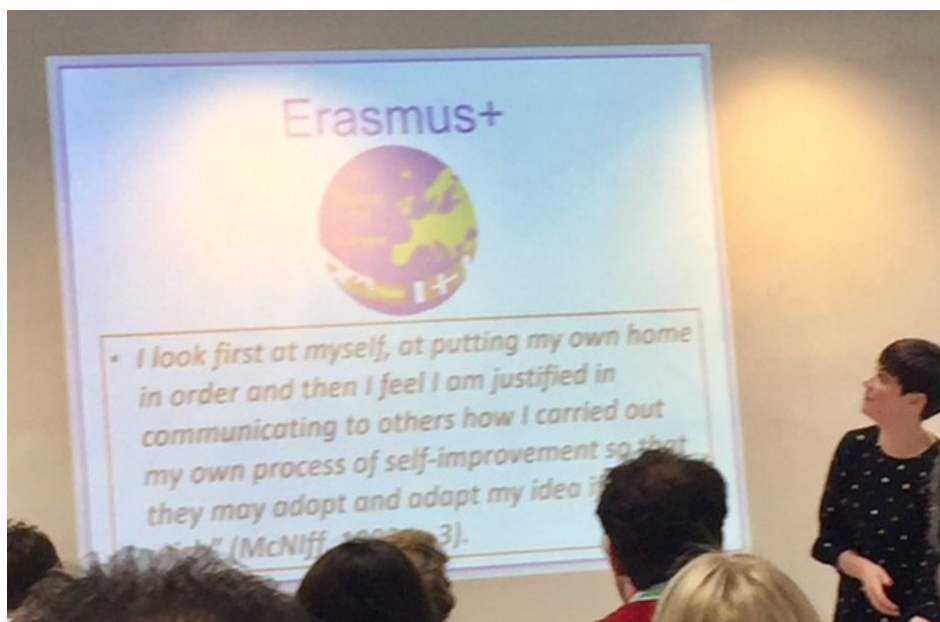


Fig 11.1 Presenting at the Computers in Education Society of Ireland's (CESI) 2019 Conference

Presenting at the [Media and Learning Conference](#) in Leuven in June 2019 provided another chance to present my work and receive thought provoking and insightful feedback ([Reflection Journal, June 2019](#)) from the symposium attendees. However, I found that the greatest takeaway for me was a growing awareness of how to talk about my research, something I was generally reluctant to do.

Everyone spoke with such confidence about their work and their topic of interest. They seemed so sure about their expertise and the idea that they were in fact experts in their area. I still have a bit of imposter syndrome when it comes to discussing my PhD or my research. I often feel like I'm winging it but listening to so many others over the few days gave me the sense of knowing as much in my area as they do in theirs.

Reflection Journal, June 2019

I also gained valuable insight into my own worth as a researcher, which further built my confidence to take the next steps in sharing my research and my artefacts more widely with my work colleagues.

I may be a secondary teacher rather than a researcher or lecturer in a university but, like others, I have read the papers, done the research, carried out data collection and because of the EEA created something (hopefully useful!!) as a result of the knowledge and expertise gained over the past 5 years. I came away from the conference thinking that I needed to be more assured in my own knowledge and project when speaking about it.

Reflection Journal, June 2019

3.3. Peers and Colleagues

The arena in which I was most hesitant to share my work was within my own work context.

The fear of my work being harshly judged or criticised intensified when I considered my colleagues, whose opinions I value and respect. Throughout the creation process of the curriculum and CPD artefact I knew that my DEIS school colleagues and students would be a great source of inspiration and they were who I ultimately envisioned as the end user of the artefacts.

Here is where I think collaborating with other teachers could be a source of great inspiration, the solution could be as simple as picking the brains of my colleagues for some alternative ideas...simply engaging with other teachers can generate ideas and starting points.

Reflection Journal, March 2018

However, at times this seemed to stymie my progress and creativity. Through continued reflective practice I came to an understanding of the idea, central to the EEA to Action Research, that risk was inherent and necessary if one was to create quality artefacts.

Making the different elements of the course, deciding on its layout and structure, adding interactivity, trying to reach the learning objectives in the most efficient way felt more high stakes and nerve wracking. What if I got it completely wrong? What if it doesn't work and no one likes it and no one ever learns anything from it?? This is where the risk aspect of the EEA comes into play yet again. Before I even take the risk of sharing it with colleagues I have to first risk making mistakes, messing up, having to try things over and over. Reflecting here I realise that this of course is central to action research.... This trying and failing and trying again, noting what you learn from that experience, feeding that back into the next iteration is vital to the AR process and to the ultimate aim of improving my own practice. I will take this thought with me as I proceed.

Reflection Journal, May 2021

The Covid-19 related school closures of 2020/21 highlighted the incongruity between my knowledge of online learning and digital literacy and my reluctance to share it with my colleagues at a time when it had never been more relevant.

*I'm embarrassed. It's a bit ridiculous really. The last 6 years studying and researching digital literacy, online learning and so on and when the time comes where it could not be more relevant I am too embarrassed to put myself out there... This is where the **risk** element of the EEA, so I need to make a simple plan on how I can help my colleagues, who might be a little tech adverse, during this difficult time.*

Reflection Journal, January 2021

This realisation acted as an impetus to share my research but also to use my skills to create further resources in the form of instructional screencast videos to help teachers, parents and students access work via Google Classroom on their phones. These resources were well received and were shared widely among the school community via Google classroom, YouTube, email and text message.

This gradual but consistent transformation in my readiness to collaborate and take risks in sharing my work with others meant that I began to feel more comfortable disseminating my work more widely with my colleagues. This dissemination was used to garner feedback that I then used to make improvements to my digital artefacts. This process is detailed in Chapter 10.

4. My Own Digital Skills

Another notable area of transformation is that of my own digital skills. Chapters 8 -10 detail the process of developing and creating an English/ digital literacy curriculum and accompanying online CPD course for teachers. Through this creative process I learned how to use a number of different online resources and software packages that can be used to enhance teaching and learning.

PowToon	Articulate 360 Storyline
Articulate 360 Rise	Articulate 360 Replay
Adobe Audition	Adobe InDesign
Audacity	Mentimeter
Quizlet	Screencast-o-matic
Storyboard That	iMovie
Amazon SW/ Cloudberry	Kahoot

Table 11.1. Applications and software used in the creation of a digital literacy curriculum and CPD course for teachers leading to an improvement in my digital skills.

The majority of these applications and softwares were new to me. Some I found easy and intuitive to use (Quizlet, Kahoot, Screencast-o-matic) which speaks to my general photovisual skills (Eshet-Alkalai, 2004, 2012). However, mastering others needed a great deal of practice and patience as I taught myself how to use them, usually using online tutorials. My reflection journals chronicle the progression of my digital skills with particular reference to PowToon, Adobe InDesign and Articulate Storyline. The improvement in my digital skills came about through consistency, practice, trial and error.

I thought it was a good opportunity to get some practice in using PowToon ... I'd gotten very rusty at it, forgetting the basics. It was a nice reminder that practice is what makes using these digital tools easy. No one has an inherent ability to use them. It takes a bit of work, messing about with the software, going slow, making mistakes and learning from them.

Reflection Journal, June 2019

I found with the various applications and software used that the more I used them, the faster I was able to make digital artefacts, for example, graphic layouts with InDesign, animated presentations with PowToon and course modules with Articulate. However, I was aware that the learning process itself was essential to improving my digital skills.

I began with no knowledge of the Storyline 2 or 360 software and the learning process itself took a while (and was quite stop-start with a couple of babies in between). If I was to start the course now, knowing what I know, it would be a much quicker process in terms of design and development but that initial learning was part of the overall process and could not be avoided.

Reflection Journal, June 2021

As with most things, with practice [using Articulate Storyline] became much easier and I began to figure things out and some aspects (adding triggers, considering the navigation of the course, etc) became somewhat instinctual. I mentioned in a previous entry how frustrating I was finding the learning process but now having finished my short course and made another for school I can see how that frustrating learning process was so necessary.

Reflection Journal, June 2021

Moreover, I was often excited and enthused to embark on a learning journey with a new piece of software and I found that this process often elicited a flow experience (Csíkszentmihályi, 1997).

There is definitely a spark of excitement at the thought of designing something new, learning to use a new piece of software [Articulate Storyline] and creating something tangible.

Reflection Journal, October 2019

I was genuinely enjoying this whole learning process but at some point I had to question whether I was using this more enjoyable activity of learning an interesting new software and new design techniques to avoid the more mundane tasks of writing up the curriculum.

Reflection Journal, January 2019

The digital skills I developed over the course of this EEA inquiry are evidenced primarily in the artefacts themselves and the many iterations they went through during the creation process (see Chapters 8-10). The wider application of my improved digital abilities were apparent in the impact they have had on the wider e-culture in my workplace, which will be discussed in more detail in the following section.

5. Work Culture

The EEA to Action Research (Crotty, 2014) seeks to bring about both personal and professional transformation for the practitioner-researcher. Having outlined some facets of my personal transformation I will now discuss changes that were brought about in my work context as a direct result of carrying out this EEA inquiry. While generally in my teaching practice I try to embed digital technologies, where appropriate, into teaching, learning and assessment here I will discuss three more explicit changes in my work context.

- Using my digital skills to create virtual open day for my school during Covid-19 related school closures
- Implementation of the Digital Media Literacy (DML) Junior Cycle short course
- Appointment to Assistant Principal II position with responsibility for digitally enhanced teaching, learning and assessment

5.1. Using my digital skills to create virtual open day for my school during Covid-19 related school closures

Given the Covid-19 restrictions during the 2020/21 school year my workplace was unable to host its annual open day, in which students from local feeder primary schools visit and get an insight into the school and the programmes and supports it offers. Not only is this event an effective promotional strategy but it also promotes a smooth transition from primary to post-primary school. During this period of restriction, I had seen promotional videos from other schools which I often felt were overly long and unengaging. In lieu of such a video I proposed creating a *virtual open day*.

I had in mind an interactive platform that used much shorter (segmented) videos that showcased all the subjects and supports in the school, that potential students and parents could click through at their leisure without having to watch a 10-15 minute from start to end. On my initial meeting with the principal I proposed the idea and she seemed keen so I followed up with a more detailed plan, including a short sample video I made for the English department.

Reflection Journal, June 2021

My proposal for the virtual open day, sent to staff via email, reflected a skill set closely aligned with those used in the creation and contents of the English/ digital literacy curriculum and its supplementary CPD course; scriptwriting, storyboarding, video recording and editing.

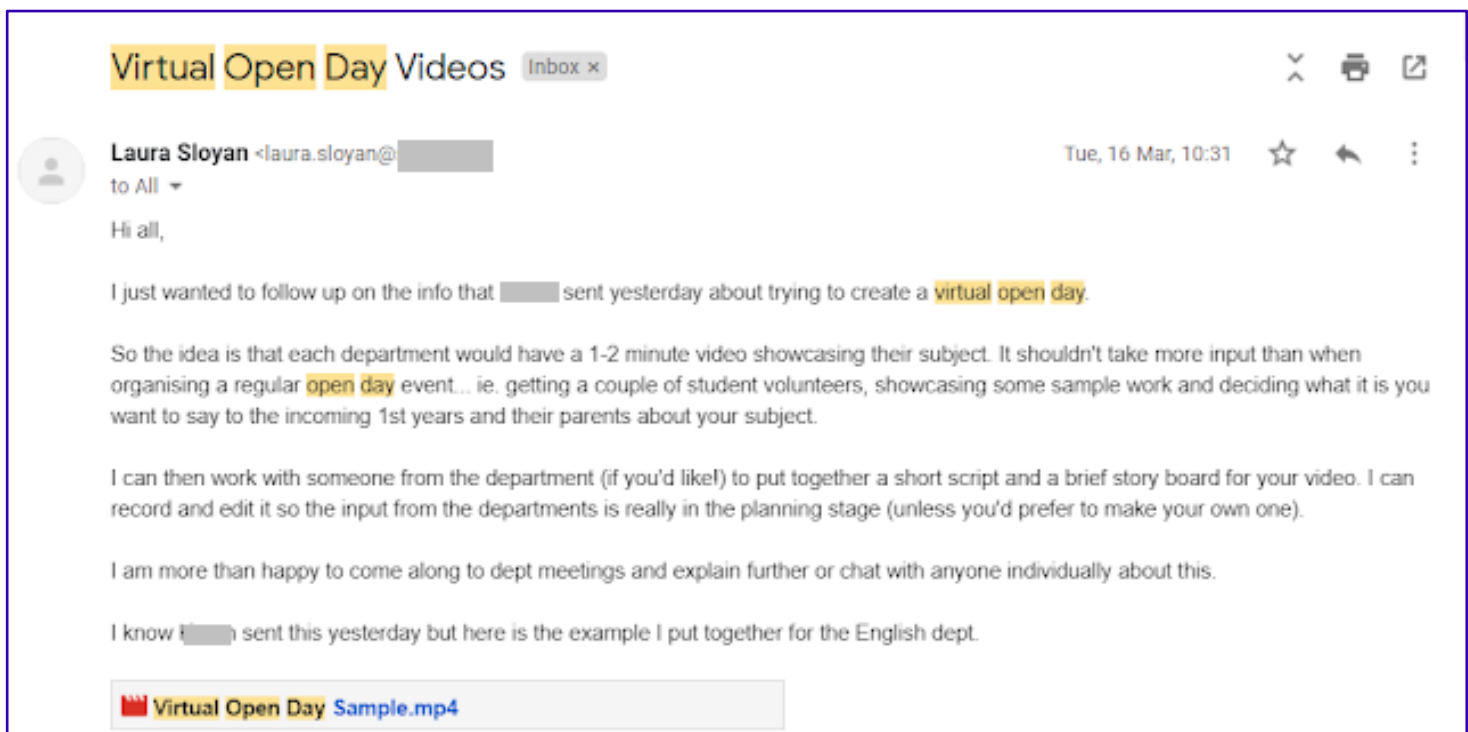


Fig 11.2. Email sent to staff outlining the virtual open day

However, as the project progressed I took other learnings from my PhD studies, considered my limitations and hired a videographer.

I was coming to the realisation that my video making (filming and editing) skills were not good enough to make the necessary videos in a timely manner. If this PhD has been teaching me anything is that I have a need to accept my limitations and in this regard, I had to accept that I was running out of time to make the videos, that I did not have the relevant buy in from staff and that if I didn't get outside help it would be a non-runner.

Reflection Journal, June 2021

In collaboration with the videographer, subject departments and students 27 short videos were made showcasing the school's subjects and supports. I then set about creating an interactive platform to host the videos using Articulate 360 Storyline. My learning curve in creating the digital literacy CPD course using Storyline meant that I was now familiar and comfortable with the software.

By this stage I was coming to the end of working on the CPD course and so I was feeling quite confident in using Storyline and creating the platform for the Open Day...In contrast with my initial attempts at making my CPD course, this was a much easier process. I was confident in using the software. I knew how layers, buttons and states worked. I had an idea of what transitions and animations looked well and the whole process probably only took me a few hours.

Reflection Journal, June 2021

The resulting virtual open day consisted of a Main Menu page that led to another four layers (see Figure 11.3). Each layer contained tabs that played a short one minute video relating to a subject or school support. The virtual open day used multimedia principles for learning (Mayer, 2017) including segmenting, personalisation, coherence, redundancy, modality, voice and embodiment to create an engaging alternative to the in-person open day

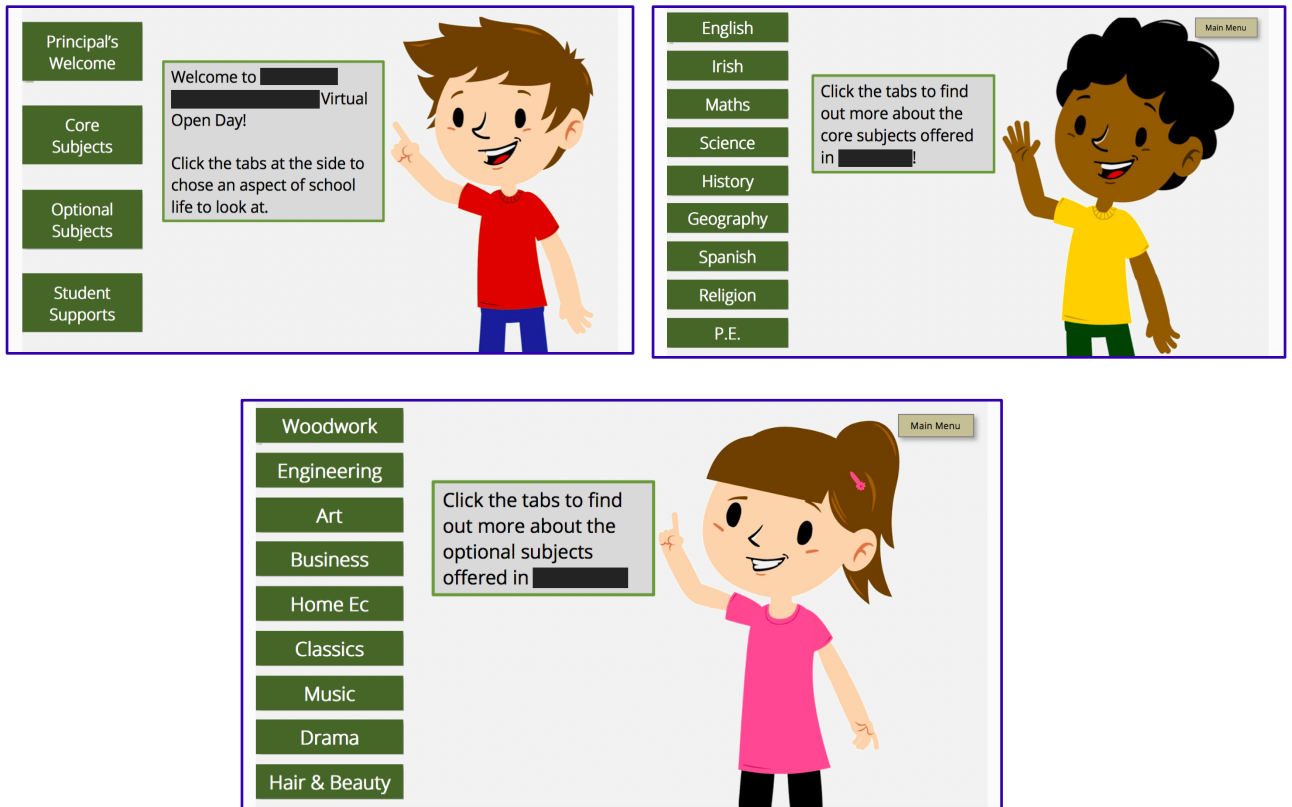


Fig. 11.3. Main menu and core and optional subject layers from virtual open day

On embarking on the virtual open day project I met with initial resistance from staff who had concerns around the time and technical abilities required to make a video promoting their subject. However, the completed artefact was met with great enthusiasm indicating a shift in perception about the operability and applicability of digital technologies in school.

Once the project went live on the website I shared it with management first. They were absolutely delighted with it and both the principal and VP rang me to let me know how pleased they were, how well it looked and how well the school was represented in it. _____ in particular was really impressed with the platform and was extra pleased when she realised that the idea was unique to [my workplace] and a concept I had come up with myself rather than something I had seen on another school's website.

Reflection Journal, June 2021

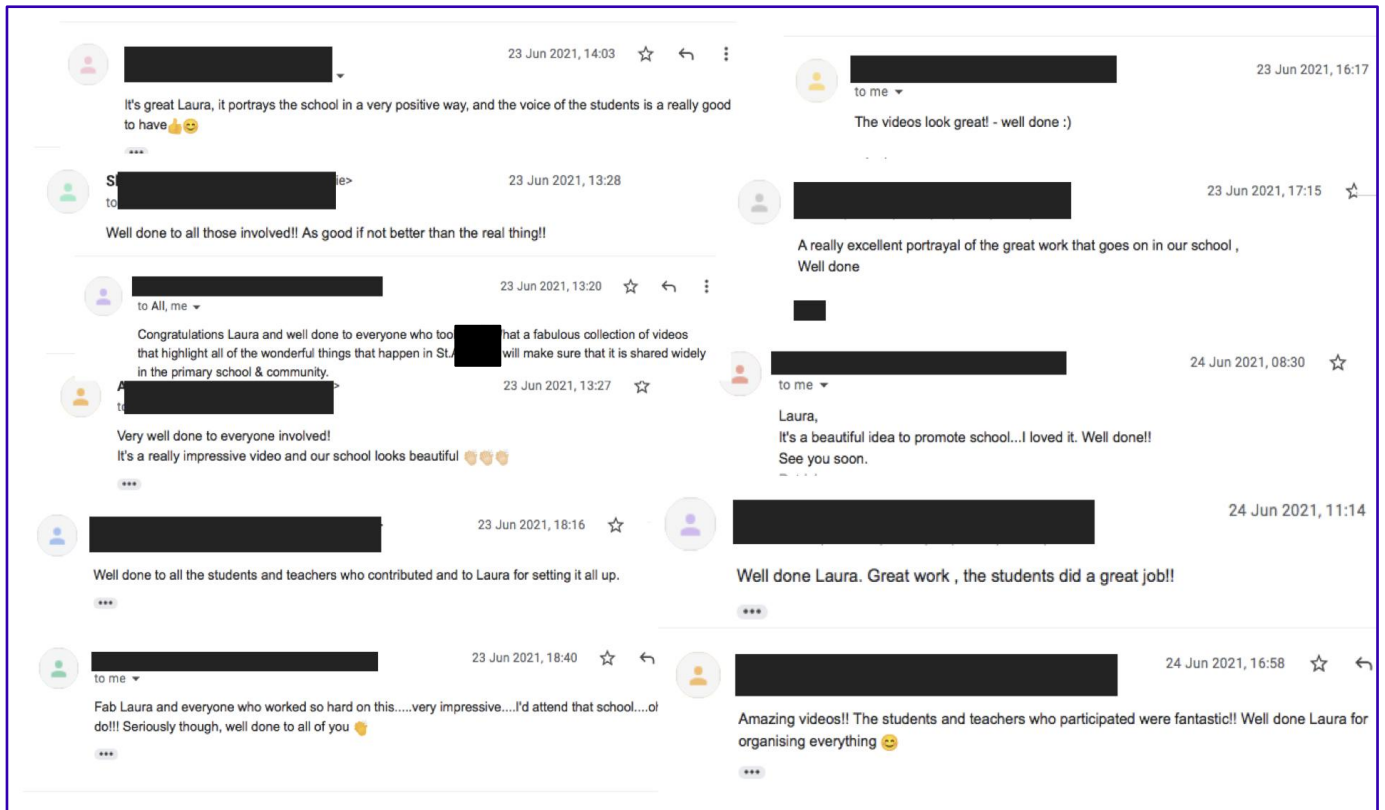


Fig 11.4. Feedback from colleagues regarding the virtual open day ([Click to enlarge](#))

I reflected on the wider reach of this digital artefact I had created collaboratively with the school community and its potential impact on incoming students. I also recognised a change in attitude to sharing my work and skills more openly with others.

I had been thinking about this project since November and to see it finally come to fruition was really satisfying. I gave it to the School Completion Programme (SCP) workers and they immediately sent it to the primary schools and started showing it to all the 6th classes. It was also sent via the primary school app to all the 5th & 6th class parents from 2 of our feeder schools... While it's not the open day we usually have, this covid-friendly, virtual version has its own advantages. Its reach will be wider, It's already been shown to all 6th class and been sent to all parents. I have the updated version on the website and I will share it on the school facebook and twitter pages and text a link directly to all parents/guardians.

Reflection Journal, June 2021

I was again surprised at the level of pride I felt in being able to share my work with my colleagues. I was so happy to have been able to represent their work and all the great work that's done in the school and to put it into a platform that allowed it to be shared across the wider community.

Reflection Journal, June 2021

I was keenly aware that this digital approach to promoting the school, and the pride it generated in my colleagues and myself, would not have come about without the foundational work of this EEA research inquiry.

I know that the idea [of the virtual open day] never would have occurred to me, never mind been executed had it not been for the work I have done on my PhD and my adventures in eLearning in general. I have been able to think outside the box and persevere in the face of a general level of apathy in order to ensure that an idea I had to help our incoming students settle became a reality.

Reflection Journal, June 2021

5.2. Leading the Implementation of the Digital Media Literacy Junior Cycle Short Course

My research, particularly gaining a better understanding of digital literacy and digital inequality through an exploration of relevant literature, led me to try and implement a change in the way computers were taught in my school. All Senior Cycle students have one computer class week but ICT classes are sporadic at Junior Cycle level as their provision is dependent on timetabling. The classes have a focus on learning how to use common software packages for word processing, spreadsheets and making presentations. I believed that while these are necessary skills the curriculum did not reflect the reality of students' use of digital tools and allowed for little creativity or developing the digital literacy skills of Eshet-

Alkalai's (2004, 2012) six-skill holistic digital literacy framework. While I believe that digital literacy should be integrated across school curricula, I saw the potential benefits of implementing the Digital Media Literacy (DML) Junior Cycle short course and made a proposal to management that it be included in the 2021/22 school timetable (Fig. 11.5). The proposal was accepted by management and I have been teaching DML to two first year classes with a view to expand the subject into more year groups and classes over the coming years. This change in the school's timetabling and its inclusion of DML as a standalone subject is further evidence of the transformation of its e-learning culture.

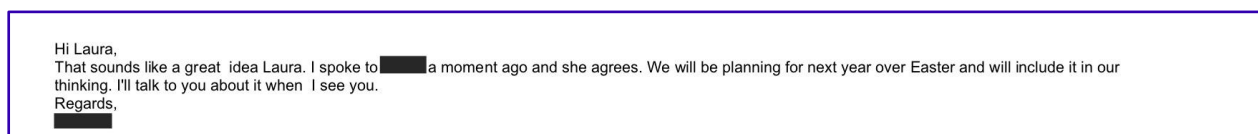
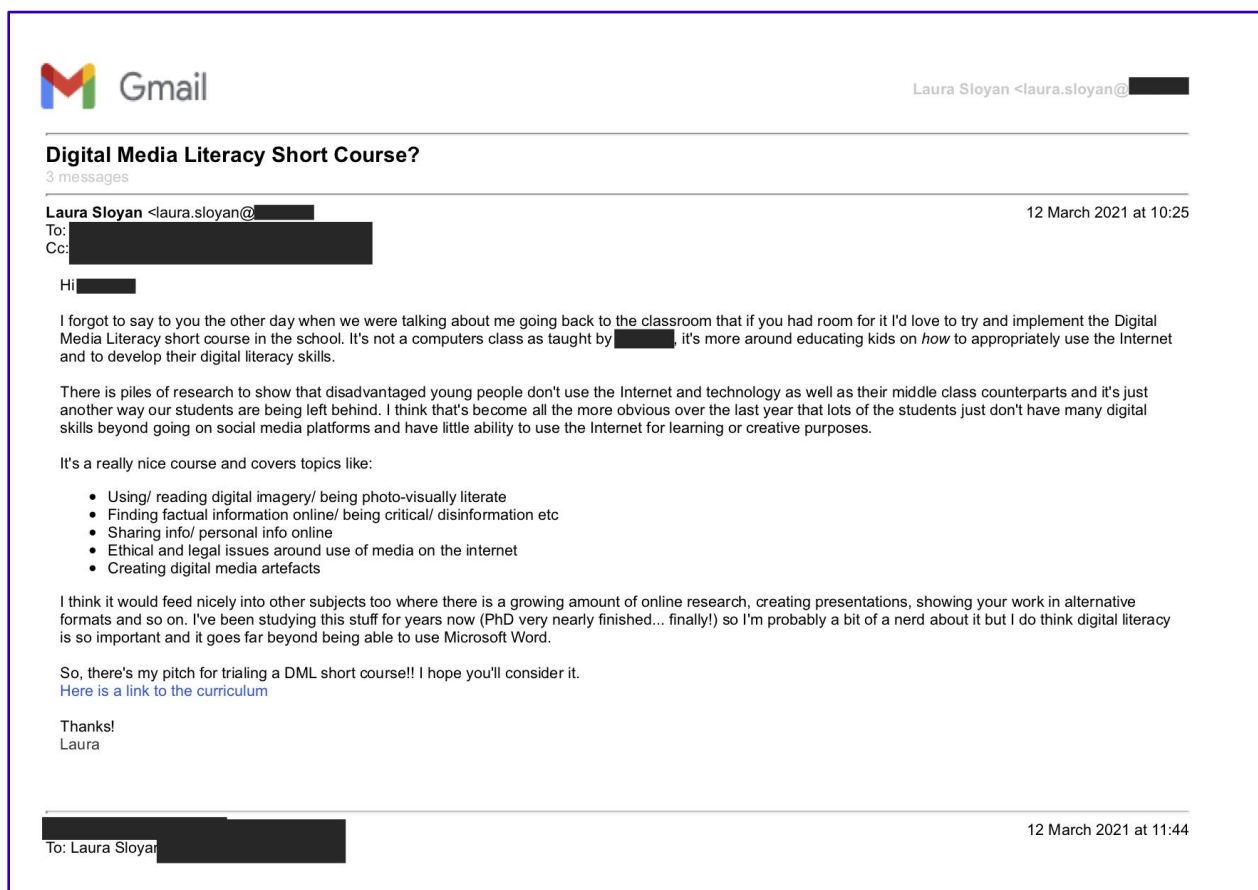


Fig 11.5. Email pitch to school management to include DML in the school timetable ([click to enlarge](#))

5.3. Appointment to Assistant Principal II position with responsibility for digitally enhanced teaching, learning and assessment

Another area of transformation that applies to both my own professional context and the school in general was my appointment to the role of Assistant Principal II (APII) with responsibility for digitally enhanced teaching, learning and assessment. This is a new role that was created through a consultation process with staff that sought to restructure the posts of responsibilities in line with the staff-identified needs of the school and the DES (2016) 'Looking at Our Schools' document.

While new to the role, I have used my learning from my research to implement a number of initiatives to try and encourage and assist staff in embedding digital tools within their subject curricula. These initiatives include a staff course club, a teaching and learning Google Classroom and a digital strategy steering group.

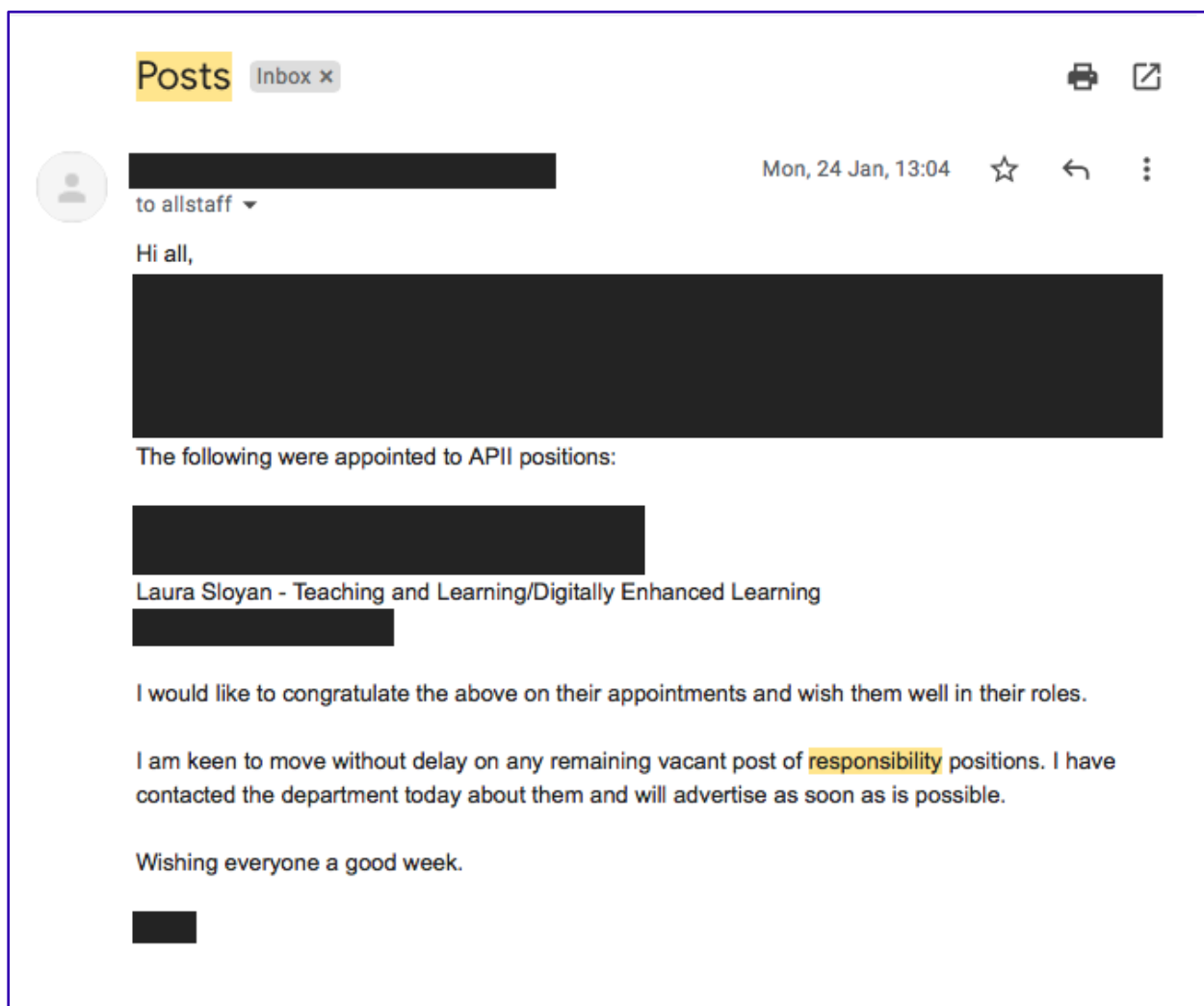


Fig 11.6- Email confirming appointment to APII role

5.3.1. Staff Course Club

Using the school's Google Workspace I set up a Google classroom in which a monthly online course is shared and interested staff members can take the course in their own time. Insights are then shared online within the Google Classroom platform. This initiative seeks to generate meaningful discussion around teaching, learning, assessment and the role of digital tools within these spheres and to create a culture where teachers routinely engage in online CPD for the benefit of their practice.

Course Club

Instructions Student work

Delivering Effective Feedback- 30 minute module

Laura Sloyan • Feb 17

Due Mar 16

Hi everyone!

- To take this short module you will need to make an account with Sanford Inspire. You can register here: <https://www.inspireteaching.org/>
- Once you make your account, you'll be able to access the courses. I've attached 2 short videos below to show you how to set up an account and how to find the specific course.
- There are lots of free courses/ modules but I picked one called 'Delivering Effective Feedback' for this March's Course Club. It is 30 mins long.
- The idea is to do the course and that should generate some discussion about the topic/ teaching & learning in general!
- I will put a MARCH COURSE topic in the stream and we should be able to comment about our experiences under that.

I hope this all makes sense but please chat to me if you need to clarify anything!!

Laura

How to access feedback mo...
Video

How to create an Inspire Tea...
Video

My Learning Portal – Sign In ...
<https://online.inspireteaching.or...>

Class comments

Fig 11.7. Sample of a course assigned to participants of staff 'Course Club'

5.3.2. Teaching and Learning Google Classroom and Staff Library

In order to further facilitate a culture of shared teaching and learning practices I maintain a Google Classroom where teachers can share effective teaching and learning practices. The 'classroom' contains links to resources and online CPD (*fig. 11.8*). I also established, and maintain, a teaching and learning library in the staffroom (*fig 11.9*). While neither of these initiatives are specific to the integration of digital tools into teaching and learning, they both work towards creating an environment where teachers are encouraged to take ownership of their own CPD and moreover are encouraged to access it online.

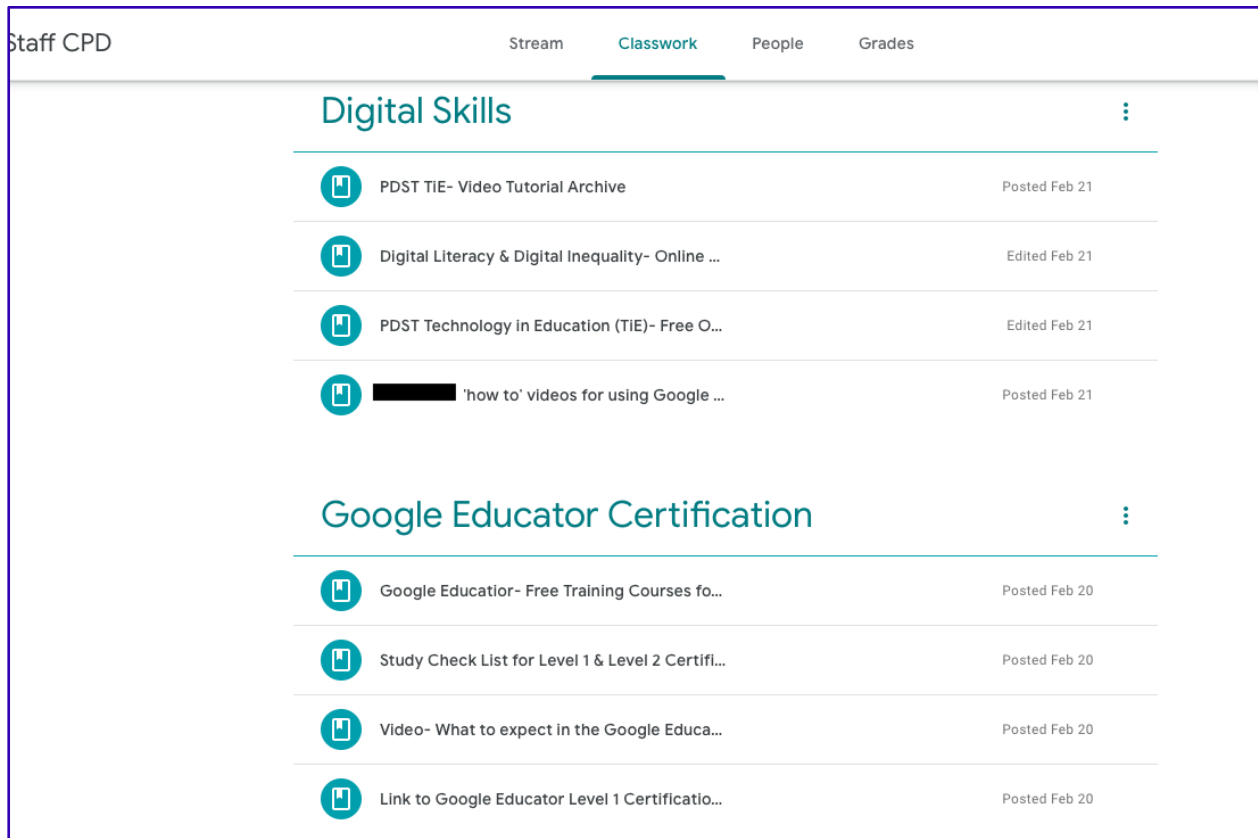


Fig 11.8 Screenshot of Teaching and Learning Google Classroom



Fig 11.9 Staff Teaching and Learning library

5.3.3. Digital Learning Plan

Central to the digitally enhanced teaching and learning APII role is the development of a digital strategy or digital learning plan (DLP) for the school. The development of such a strategy is a collaborative process and I sought expressions of interest from staff in being a member of a DLP steering committee (fig. 11.10). I elicited responses from six teachers who are keen to guide the digital direction of the school. Through a teacher questionnaire, and a separate student survey and focus group, the steering committee identified the effective digitally enhanced teaching and learning practices happening in the school already and identified key areas for improvement. The [DLP development resources](#) from the Professional Development Service for Teachers: Technology in Education (PDST TiE) were used to develop a digital strategy for the school in line with the DES (2017) Digital Learning Framework (DLF) and its guidelines for effective practice.

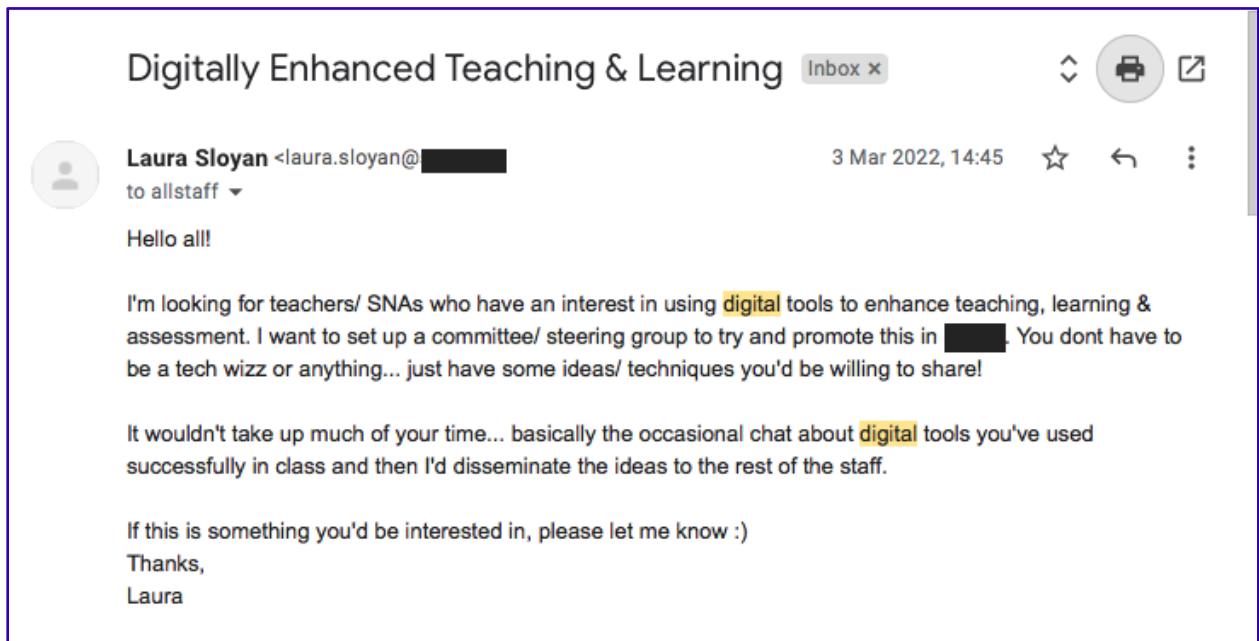


Fig 11.10 Emails sent to staff looking for volunteer members of a digital strategy steering committee

The engagement of staff and students in formalising a school DLP speak to a school-wide change in perception of the importance of embedding digital skills within the school curricula. In being appointed to the new APII role, with particular focus on digitally enhanced teaching and learning, I see my role in leading the development of the school's DLP as another way to bring my values into line with my practice. Collaborating with management, colleagues and students to establish an approach to digital integration allows for opportunities to target issues such as the second level digital divide (Hargaitti, 2002) and supports teachers in embedding digital literacy skills into all subject curricula in line with the Digital Strategy for Schools (DES, 2015, 2022).

Our Digital Learning Plan				
3. DLP Targets				
3.1. Target 1				
Domain: Learner Experiences				
Standard(s): Students grow as learners through respectful interactions and experiences that are challenging and supportive				
Statements: Students use digital technologies confidently to deepen their knowledge by engaging in appropriate public discourse and civic participation				
Targets:				
<ul style="list-style-type: none"> Students engaged in creative, digital activities that amplify student voice in the school and community (eg. podcasting, videos, audiobooks, website content, coding, etc) will increase from ██████% 				
Actions	Timeframe	Remits	Resources	Success Criteria
<input type="checkbox"/> Expand the use of podcasting/ audio recording equipment to a wider group of students <input type="checkbox"/> Development and facilitation of a short film making club <input type="checkbox"/> Conduct an Erasmus+ project with an emphasis on creative digital media <input type="checkbox"/> YSI and Gaisce initiatives	3 years	<ul style="list-style-type: none"> DL Coordinator SLT Class teachers to facilitate extra-curricular activities. Student council Student Council coordinator 	<ul style="list-style-type: none"> ICT Budget WiFi Devices- Chromebooks, Desktops running windows or Apple OS Recording equipment 	<ul style="list-style-type: none"> The targets are met within the timeframe. There is an measurable increase in students engaged in creative, digital activities

Fig 11.11 Sample page from DLP. [Click here](#) to see the DLP (in progress)

6. Wider Society

This research originated from what I perceived to be a need for teachers to have access to practical and quality resources to support the integration of ICT into the Junior Cycle English curriculum. While this research has, thus far, been predominantly impactful within my personal practice and my work culture, it certainly has the potential to be transformational in the wider society in terms of encouraging teachers and students to be creative in embedding digital literacy skills into the classroom.

6.1. Digital Skills Workshops through the International Centre for Innovation and Workplace Learning

A series of workshops, aimed at educators and based on the key components of the digital literacy curriculum and accompanying CPD course will be held in Dublin City University's (DCU), hosted by the International Centre for Innovation and Workplace Learning (ICIWL). The workshops offer educators an opportunity to work with the tools used in the curriculum and explore the concepts that underpin its creation, such as digital literacy, digital inequality and idea of the digital native. Through the development and delivery of the workshops there is the potential to impact the teaching practice of others in the wider education community, supporting educators in embedding digital literacy skills into their teaching, learning and assessment in tangible ways, as well as providing practical resources (the curriculum document and access to the online course) to enable participants to put their learning into practice.



Fig 11.12. Poster advertising ICIWL workshops ([Click to enlarge](#))

6.2. Erasmus+ Project

I am in the process of developing an Erasmus+ Key Action 2 project proposal for my school. The project proposal is based on the work carried out in this EEA action research project and seeks to partner with Dublin City University (DCU) in Ireland, as well as schools in Turkey, Portugal, Italy and Romania. In collaboration with a colleague, we developed an outline of a project that focuses on supporting students and teachers to use ICT to create digital artefacts within the parameters of post-primary curricula here in Ireland and elsewhere in Europe. If our application is successful, the project has the potential to provide a myriad of opportunities to embed digital skills into the subject curricula of the participating schools, provide training opportunities for teachers and help students and teachers develop their digital literacy skills in line with the [EU Digital Competency Framework](#). It is envisioned that the impact of engaging with the project will be transformative in a number of ways.

Firstly, teachers will be exposed to new pedagogical approaches using ICT and supported in implementing them through collaboration with their European project partners. Students will be empowered to use digital technologies to enhance their digital literacy through the creation of content, as opposed to content consumption, which is more typical of young people's use of digital tools and applications. Furthermore, the capacity for the digital literacy of both teachers and students to be improved in line with the competencies outlined in the European Union's DigiComp Framework (Vuorikari, Kluzer, and Punie, 2022) is substantial, as project partners would engage in collaborative, experiential learning in order to create the digital artefacts.

7. Conclusion

This chapter addressed the fourth stage of Crotty's (2014) Educational Entrepreneurial Approach (EEA) to Action Research. Changes in relation to my educational values, my willingness to take risks by collaborating with others and the e-culture of my workplace were discussed. Through the process of this EEA inquiry I believe that my primary educational value, *equality*, has strengthened. I have become more confident in sharing my work with others and seeking feedback from peers and colleagues, despite the perceived risks of failure or inviting criticism. I have become more aware of my own digital skills and abilities and enjoy utilising them for the benefit of myself, my colleagues and my workplace. The skills and knowledge gained during the course of this inquiry led to further change in my own work context as I took on an APII role with responsibility for digitally enhanced teaching and learning which offers further opportunities for developing teacher capacity to embed digital

literacy skills within their own subject and positively impact the second level digital divide can hinder students of low socio-economic status. The findings of this research will be disseminated more widely through digital literacy workshops for educators in DCU's ICIWL and potentially further afield through an Erasmus+ KA2 project.

Chapter 12

Conclusion

1. Introduction

The technological advances of the 20th and 21st century have seen technology infiltrate all areas of life in the developed world (Davis, 2016). The impact of these rapid advances and the digitisation of society has meant that humans have had to adapt by adopting technology, something that we appear to have done enthusiastically. For example, there are estimated to be five billion smartphone users worldwide (Pew Research Centre, 2019) and anywhere from 77% (Gibney and McCarthy, 2020) to 87% (Deloitte, 2019) of the Irish population own a smartphone. Society is has become ‘speedy, complex, hyper-connected and increasingly knowledge-based’ (Charalambos, 2019, p35) and people need to have an adequate level of digital skills if they are to be able to function effectively, and partake fully, in society (PDST, 2017; Webwise, 2017; Lankshear and Knobel, 2015; UNESCO, 2011b; Futurelab, 2010; Bawden, 2008; Martin and Grudziecki, 2006; Eshet-Alkalai, 2004, 2012). .

Ireland is moving towards an increasingly knowledge-based society and economy, a reality that is reflected in the Irish Government’s National Development Plan (NDP) 2021-2030 and the broader Project Ireland 2040. Significant investment in innovation and technology is a priority of the NDP, as is investment in third level Institutes of Technology and a half a billion euro disruptive technologies fund (Government of Ireland, 2018). The Future Jobs Ireland initiative contends that new technologies are changing how we experience and interact with the world. It is explicit in its assertion that there will be ‘fundamental changes in many occupations that exist today, and the creation of entirely new roles in the workplace’

(Department of Enterprise, Trade and Employment, 2019, p4). A population with high levels of digital skills will be necessary to fill these roles (DETE, 2019).

Aside from the impact on jobs and employment, the increasingly digitally driven nature of society means that in order to fully engage with economic, social, political, educational and institutional spheres of society people need to have a high level of digital skills (Hargittai and Micheli, 2019; PISA, 2016; Robinson et al; 2015; van Dursen and Helsper, 2015; Hargittai, 2008). Buying items and services online, banking, participating in social networks and generating social capital, engaging in politics, accessing government services and state institutions and partaking in formal and informal online learning opportunities often require a person to be able to navigate online spaces, which can be daunting for the older population, those with lower levels of education or people in lower socioeconomic groups (NESC, 2021; Aydin, 2021; van Dijk, 2020; van Dursen and Helsper, 2015).

Teachers play a significant role in preparing students for the world beyond school. As a practising teacher, I am cognisant that this is a technology driven world where digital skills are essential. How teachers can keep up with emerging technologies and use them for the benefit of their students has been an interest of mine since I started teaching and to further my knowledge in this area I undertook a MSc in Education and Training Management ([eLearning Strand](#)) (MEME) in Dublin City University (DCU) in 2008. Here, under the tutelage of Dr. Yvonne Crotty and Dr. Margaret Farren, I became familiar with emerging pedagogies and new and innovative approaches to using technology in education. I began to try and incorporate these approaches into my teaching practice, with some success, but often

found that these efforts were hampered by students' low levels of digital literacy and a lack of confidence in using technology for educational purposes. While teaching in remote indigenous communities in Australia I was struck by the under utilisation of technology for pre and inservice teacher training. Over time I have come to perceive these dual issues as intertwined; student levels of digital literacy, especially for educational or learning purposes, need to be improved and teachers are in a prime position to guide that improvement.

However, not all teachers have the requisite skills or knowledge to teach digital literacy skills and so need training in this area, which can be provided online. This problem has been recognised by the Department of Education (DE). Central to the Digital Strategy for Schools (DSS) 2015-2020, and the recently published DSS to 2027, is the idea that digital literacy skills should be integrated into all subject curricula. The DSS to 2027 calls for 'differentiated and ongoing models of support that are responsive and specific to individual needs and approaches of schools and teachers' (DE, 2022, p31) as they embed digital literacy skills into the curriculum. Moreover, this support should be provided through a variety of models to ensure equity of access for all teachers (DE, 2022).

Using an Educational Entrepreneurial Approach (EEA) I carried out an action research inquiry, creating a curriculum for use in Junior Cycle (JC) English classes with embedded digital literacy skills. Through the creation of this curriculum and its associated CPD resources I was able to show how digital literacy skills could be integrated, in a meaningful way, into subject curricula and be used to address learning outcomes. While it is too early to evaluate whether the curriculum could have a positive impact on the digital inequality that is apparent in contexts such as my own DEIS workplace, I believe I have created a practical

tool for teachers to help enhance students' digital literacy skills and encourage the use of digital tools for education and learning purposes, an area where young people of lower socioeconomic status fall behind their more advantaged peers (OECD, 2015; McKenzie et al, 2014; Kyrgiou and Tsiplakide, 2012). This research has had personal relevance as well as relevance for teachers, schools and policy makers more generally. This chapter concludes this research and details its personal and wider relevance in more detail.

2. Original Contribution to Knowledge

This research centred on the creation of an innovative, online resource to support post-primary teachers in integrating digital literacy skills into the Junior Cycle English Curriculum and promote digital equality.

The Digital Strategy for Schools (DSS) emphasises the importance of embedding digital skills into curricula but this is a relatively new concept. Through my own practice I became aware that there were few resources available to support Junior Cycle English teachers in this regard. Seeing a need for research in this area, I used an educational entrepreneurial approach (EEA) to action research (Crotty, 2014) to systematically create a resource for teachers that supported the integration of digital skills into the English curriculum, 'was rooted in classroom practice and promoted active student learning' (DE, 2022, p220). By applying the EEA to the creation of these resources I have attempted to 'bridge the radical separation of between research and practice' (Schon, 1995, p29). In employing reflective practice, collaboration and creativity and combining, what Elliot (2006) refers to as, *techne* (technical rationality) and *phronesis* (practical wisdom/ commonsense) I have created a resource for teachers that is novel and appropriate,

original and useful while making the process explicit so that others may ‘adopt and adapt’ it if they wish (McNiff, 1992).

3. My Research

This research is carried out within a critical theory paradigm. Critical theory as a research paradigm best reflects my worldview, in that it seeks to promote equality and freedom and to give people power over their own lives by bringing about social change in unjust social systems through dialogue and democratic means (Katsarou, 2016; Gray, 2005; Cohen et al, 2005). Years of teaching in areas of low socioeconomic status have made me acutely aware of how people’s power may be taken from them due to matters of race, socioeconomic status, gender, religion, and other social constructs. Critical theory has been criticised for being too political with too transformative an agenda, unlike more traditional, positivist forms of research where the researcher is ‘dispassionate, disinterested and objective’ (Cohen et al., 2007, p30). However, I *am* passionate about, and inherently interested in, delivering the best ‘service’ for my students to see them achieve success both in and out of school regardless of socioeconomic status. It was this passion and interest that led me to undertake this research study and within the critical theory paradigm, action research seemed to be the most appropriate research methodology for me as a practising teacher.

Action research begins with the researcher identifying a problem within their practice. The problem that I identified was two-fold:

1. Students, such as my own, in areas of low socioeconomic status have lower levels of digital literacy and use digital technology predominantly for consuming content and

communicating and rarely for educational purposes (van Dijk, 2020, 2012; Yates and Lockley, 2018; Harris, Straker and Pollock, 2017; OECD, 2015; PISA, 2016; Kyrgiou and Tsiplakide, 2012).

2. Teachers are expected to integrate the use of digital tools into their teaching as a means to teach digital skills but often do not have the requisite skills or access to technology to do so. More CPD for teachers is needed in this area but barriers such as family commitments, lack of time, unsuitable CPD/ courses, expense or conflict with work schedule (TALIS, 2009, 2013, 2018) can inhibit teachers' ability to access the learning opportunities that would allow them to engage with technology in the classroom.

Once a problem has been identified the practitioner-researcher then formulates a plan to address the issue, acts on the plan and reflects on the outcome before repeating the cycle as necessary. To carry out my action research inquiry I adopted an Educational Entrepreneurial Approach (EEA) (Crotty, 2014). Comprising four stages, the EEA requires the researcher to *explore* their educational values, passions, skills, literature and work culture, bringing about a greater *understanding* of how they might use their knowledge, skills, passions and creativity to improve their practice. The researcher then *creates* an innovative curriculum and/or digital artefact to bring about the desired improvement. In the final stage of the EEA the researcher identifies and makes explicit the *transformation* that has been brought about by the research.

Throughout the *explore* stage of the EEA, I came to recognise *equality* as my primary educational value. I want my students to have the same opportunities and to derive the same benefits from using technology as their more advantaged peers. I want my colleagues to be

able to have equal access to CPD regardless of their family, financial or work situation. I believed that I had the skills, creativity and commitment to address the problem that I had identified in my work practice. I set out initially to create an online CPD course for teachers in the area of digital literacy, however, as my understanding of the relevant topics grew, through an exploration of myself, my work culture, policy and literature, the research evolved. The DSS 2015-2020 made it clear that the vision of the Department of Education and Skills (now the Department of Education) was to have digital literacy skills embedded into school curricula. In coordinating an Erasmus+ programme, entitled A Peace of Europe, I was able to work with my students on a number of activities that involved using the digital literacy skills included in Eshet-Alkalai's (2004, 2012) six-skill, holistic digital literacy framework. Working with the students to create a short animated documentary and video presentations on topics related to the theme of peace provided me with an opportunity to 'put my own home in order' (McNiff, 1992, p3) in terms of using digital tools to create digital artefacts in class. This process was, what I considered, a 'meta' action research cycle in which I was able to plan how to carry out the activities, put that plan into action and then observe and reflect on the outcomes. The learning garnered from this process was then fed back into the creation of a curriculum for use in JC English, its associated resources and an online CPD course which provides contextual information for teachers on digital literacy, digital inequality and digital natives.

To ensure the validity of the research I adopted Winter's 'Principles and Procedures for Conducting Action Research' (Winter, 1996). The creation of these resources was a collaborative endeavour, with students, colleagues and my PhD supervisors all having

valuable input. This variety of viewpoints made for a rich resource which does not claim to be the only approach to integrating digital skills into the JC curriculum, but is a feasible one (Winter, 1996). The research itself and the creation of the digital resources carried an amount of risk. In its creation I challenged the ‘taken-for-granted processes’ (Winter, 1996, p23) that I used in my teaching practice and considered how I might improve them in collaboration with others. Risk is an essential facet of the EEA and in conducting the research I opened myself, my viewpoints and my findings open to critique or refutation, which was a daunting but necessary process. This inquiry presents a wide variety of viewpoints, accounts, perspectives and data through a variety of representations (for example, written report, photographs, video, student work, multimedia artefacts) creating a plural structure that, rather than present a neat conclusion, ends with ‘questions and possibilities intended to be relevant in various ways for different readers’ (Winter, 1996, p23). Moreover, this action research inquiry was a transformative endeavour, with transformation evident in myself, my practice and my work culture.

3. Relevance for Teachers and School Leaders

Within action research the researcher and their values are often at the centre of the research (Whitehead, 1989). Moreover, action research is a collaborative process, done *with* participants rather than *on* them (Kemmis, McTaggart and Nixon, 2014). As a result, action research is ‘distinctive in that it produces ‘personal’ (rather than ‘objective’) knowledge’ (Clarke et al, 1993, p491). Here I present recommendations for teachers and school leaders, mindful that the research took place in my own work context (that of a DEIS school), was underpinned by *my* educational values and was both an ‘individual creative process and a

dialogic-collaborative process' (Farren and Crotty, 2014, p65) that involved my students and colleagues. The research centred around the creation of a curriculum and accompanying CPD course for use in the Junior Cycle English class. With that in mind, recommendations made here refer to Junior Cycle English teachers but are likely to be more widely applicable to other subject departments.

- When creating the curriculum and its associated resources I used Eshet-Alkalai's (2004, 2012) six-skill, holistic digital literacy framework as a guide. Although Eshet-Alkalai's is not the only digital literacy framework (see, for example, Ng (2012), Belshaw (2014) or webwise.ie (2017)), having a defined framework was invaluable when creating activities and resources as it allowed me to identify the specific digital literacy being addressed. One of the three pillars of the DSS to 2027 is the embedding of digital technologies in teaching, learning and assessment (DE, 2022). In order for schools to do this effectively it would be prudent for teachers and school leaders to have a shared understanding of what digital literacy is by adopting a framework and identifying the elements of the framework that are a priority. While the Digital Learning Framework (DLF) for Post Primary Schools (DES, 2017) provides detailed descriptors of effective and highly effective practice when embedding digital technologies into teaching and learning, however, a more concise, agreed understanding of digital literacy would make a collaborative approach to embedding digital literacy skills in school curricula cohesive across all subject departments.
- Young people are often regarded as digital natives (Prensky, 2001). This perception needs to be challenged in schools so that all teachers can see the value in teaching digital literacy skills to young people, especially for creative or educational purposes.

The use of an asynchronous, online course, such as the one created as part of this research study could be a straightforward way of making teachers aware of many factors that actually influence a young person's level of digital literacy.

- In creating this course I made use of screencasting software to create instructional videos for teachers and students, showing how to use various software. This type of software (for example, Screencast-o-matic, Monosnap or Replay 360) is generally simple to use and could be used as a powerful tool for informally sharing step-by-step instructions on how to use a variety of educational software in schools. Such videos could be shared within subject departments or as part of a school's cross curricular strategy using Google Classroom, Microsoft Teams or similar.
- Making educational resources, such as the curriculum and accompanying CPD course central to this study, that support the embedding of digital literacy skills into curricula is a time consuming endeavour that requires a number of skills (using a variety of software, graphic design, instructional design, curriculum design) that not all teachers have or are motivated to learn. Across subject departments and schools, teachers hold a broad range of skills and knowledge that can be utilised to create appropriate digital literacy resources and a collaborative approach to building on these skills and knowledge should be a priority in all schools. In implementing the DSS, school leaders should strive to develop a culture that encourages, nurtures and supports teachers in their efforts to create strategies and resources that embed digital literacy skills into the English curriculum and other subject curricula, be that through the provision of time, access to hardware and software or the nurturing of an environment

where teachers can be ‘open and ambitious’ (Belshaw, 2022) about developing innovative, ICT centred, pedagogical approaches.

4. Relevance for Policy

In April 2022 the Department of Education (DE) published the Digital Strategy for Schools (DSS) to 2027. This timely document outlines a number of recommendations that align with the findings and recommendations of this research.

One of the three key pillars of the DSS to 2027 (hereinafter referred to as the DSS) is supporting the embedding of digital technologies into teaching, learning and assessment (TLA) (DE, 2022). The document outlines the need for teachers to be supported in this endeavour through an increase in teacher professional learning at all stages of the continuum of teacher education, that focuses on enhancing teachers’ digital skills and their ability to use digital tools to enhance TLA. As with the DSS 2015-2020 (DES, 2015), this updated strategy states that professional development provided should use the Technological, Pedagogical and Content Knowledge (TPCK) framework (Mishra and Koehler, 2014) to ensure , ‘differentiated, flexible and needs-based’ (DE, 2022, p21) CPD that supports teachers in using digital technology to *enhance* teaching and learning (rather than simply to replicate traditional practices) and develop ‘confident and competent’ (DE, 2022, p22) digitally literate learners. The DSS’s notion of ‘pedagogy first, technology second’ (DE, 2022, p22) reflects this research’s creation of a Junior Cycle English curriculum that placed the subject

matter first and the technologies to support it second. It is heartening to see the promotion of innovative, technology based pedagogies to enhance TLA central to government policy.

The DSS acknowledges that although there are numerous supports available to teachers who wish to learn how to embed digital technology into their curriculum (most notably through the PDST TiE) many teachers are unaware that this support is available (DE, 2022). I agree with Osman and Warnet's (2020) contention that teachers need to see high value and have high expectations of success when engaging in, and then implementing learning from, CPD. While teachers do have access to CPD in this area, they may need more contextual information around topics such as digital inequality, particularly the first and second level digital divides to see the value of embedding technology into their teaching.

The DSS calls for the 'development and dissemination of high quality resources to promote... the use of the Internet and digital technologies' (DE, 2022, p52). Moreover, it stresses the importance of research to inform the development and creation of such resources and supports for schools and teachers. There is scope for the provision of subject specific resources for English teachers with regard to embedding ICTs into teaching, learning and assessment. Whether generated within a subject departments or provided through educational publishing companies, resources must reflect the reality that teachers' ability to use ICT exists on a spectrum (Bullen and Morgan, 2010; McCoy et al; 2016).

Finally, the DSS highlights technology's potential to 'promote inclusion and remove barriers to learning when used successfully' (DE, 2022, p28). The DSS focuses on students with

additional learning needs although it does mention the potential benefits to ‘those learners at risk of educational disadvantage’ (DE, 2022, p28). Disparities in students’ digital skills (the second level digital divide) has potential to lead to disparities in advantageous outcomes of technology use (the third level digital divide) particularly among those of lower socioeconomic status and this is potentially an area for more emphasis in future government policy.

5. Final Thoughts

Reading Donald Schön’s (1995) ‘The New Scholarship Requires a New Epistemology’ as part of an assignment on the MSc in Education and Training Management (eLearning Strand) in DCU in 2009 was eye opening for me. Never before had I considered that teachers, as practitioners, could have knowledge and insight that was as important, if not more so, that that of those studying in higher education institutions. That I could make explicit my tacit knowledge about what worked and what did not in my classroom, and share it with other teachers, was revelatory.

In this action research inquiry, using an educational entrepreneurial approach (Crotty, 2014) I have sought, through action, reflection and collaboration, to make explicit my knowledge in the area of using digital tools in Junior Cycle English and of creating resources for teachers to do the same.

As a teacher, I strive to prepare my students for the world beyond school. In my 20 years of teaching that world has grown increasingly more digitalised. Working in disadvantaged contexts made me aware of the vast inequalities that exist for some of my students,

inequalities that I believe will only be exacerbated if they do not have the adequate digital literacy skills to navigate this ever evolving digital society. Motivated by my primary educational value of *equality*, this action research inquiry represents, for me, a step in the right direction; an opportunity to bring my values to the fore of my practice, to collaborate and create with students and colleagues to improve levels of digital literacy and to ‘marry the head and the heart’ (Crotty, 2012, p187) within my own practice.

References

60 Second Documentaries. (2017). *Slime Girl* [Video]. Youtube.

<https://www.youtube.com/watch?v=Th8PewwGCBs>

Accenture. (2020). *Bridging the gap: Ireland's digital divide*. Dublin: Accenture.

Access ERIC. (1999). *What should parents know about information literacy?*. New York: ERIC.

Adelman, C. (1993). Kurt Lewin and the origins of action research. *Educational Action Research, 1*(1), 7-23.

Adobe. (2020). *Adobe Flash Player End of Life General Information Page*. Retrieved 4 November 2021, from <https://www.adobe.com/ie/products/flashplayer/end-of-life.html>

Adobe. (2022). *InDesign Tutorials*. Adobe.

<https://helpx.adobe.com/indesign/tutorials.html?mv=product&mv2=ind>

Akçayır, M., Dündar, H., & Akçayır, G. (2016). What makes you a digital native? Is it enough to be born after 1980? *Computers in Human Behaviour, 60*(1), 435-440.

Alder, R. P. (1999). *Information literacy: Advancing opportunities for learning in the digital age- A report of the aspen institute forum on communications and society*. Washington DC: The Aspen Institute.

All Ireland Research Observatory. (2011). All-island HP deprivation index mapping viewer. Retrieved from <http://airo.maynoothuniversity.ie/external-content/deprivationindex2014>

Al Riyami, T. (2015). Main approaches to educational research. *International Journal of Innovation and Research in Educational Sciences*, 2(5), 25th January 2017.

Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review*, 40(1), 39-58.

Anderson, L. W., Krathwohl, D. R., & Bloom, B. S. (2001). In Anderson L. W., Krathwohl D. R. (Eds.), *A taxonomy for learning, teaching, and assessing: A revision of bloom's taxonomy of educational objectives*. New York: Longman.

Andrade, H. (1997). Understanding rubrics. *Educational Leadership*, 54(4), 1-7.

Andrade, H. (2007). Self-assessment through rubrics *Educational Leadership*, 65(4), 60-63.

Andrade, H. & Valtcheva, A. (2009). Promoting learning and achievement through self-assessment *Theory into Practice*, 48(1), 12-19.

Antunes, P., Barbosa, I., & Moreira, A. (2013). Social Networking and Teachers' Professional Development. *Communications in Computer and Information Science*, 278, 117–120.

Applebaum, S. H., Habashy, S., & Malo, J.L. & Shafiq, H. (2012). Back to the future: Revisiting Kotter's 1996 change model *Journal of Management Development*, 31(8), 764-782.

Articulate. (2021). *Storyline 360*. Retrieved 4 November 2021, from <https://articulate.com/360/storyline>

Association of College and Research Libraries (ACRL). (2019). Information literacy glossary. Retrieved from <http://www.ala.org/acrl/issues/infolit/overview/glossary>

Association of Secondary Teachers Ireland (ASTI). (2015). Junior cycle campaign. Retrieved from <http://www.asti.ie/news/campaigns/junior-cycle-campaign/>

Aufderheide, P. (1992). *Media literacy: A report of the national leadership conference on media literacy*. Queenstown: Aspen Institute.

Australian Curriculum, Assessment and Reporting Authority. (2013). *NAPLAN achievement in reading, persuasive writing, language conventions and numeracy: National report for 2013*. (No. 1). Sydney: ACARA.

Australian Curriculum, Assessment and Reporting Authority. (2015). *NAPLAN achievement in reading, persuasive writing, language conventions and numeracy: National report for 2015*. Sydney: ACARA.

Australian Human Rights Commission. (2008). *Social justice report: Aboriginal and Torres Strait Islander social justice commissioner* (No. 1). Sydney: Human Rights and Equal Opportunity Commission.

Aviram, R., & Eshet-Alkalai, Y. (2006). Towards a theory of digital literacy: Three scenarios for the next steps. *European Journal of Open Distance e-Learning*, 2

Aydin, M. (2021). Does the digital divide matter? Factors and conditions that promote ICT literacy. *Telematics and Informatics*, 58, 1-7.

Badke, W. (2010). Foundations of information literacy: Learning from Paul Zurkowski. *Online*, 34(1), 48-50.

Baird, J., Isaacs, T., Johnson, S., Stobart, G., Guoxing, Y., Sprague, T., & Daugherty, R. (2011). *Policy effects of PISA*. (). Oxford: Oxford University Centre for Educational Assessment.

Ball, D., & Cohen, D. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 3-32). San Francisco, CA: Jossey-Bass.

Bandura, A. (1982). Self- efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.

Bandura, A. (1994). Self- efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behaviour* (4th ed., pp. 71-81). New York: Academic Press.

Bartram, B. (2019). Using Questionnaires. In M. Lambert (Ed.), *Practical Research Methods in Education: An Early Researcher's Critical Guide*. Oxon: Routledge.

Bawden, D. (2008). Origins and concepts of digital literacy. In C. Lankshear, & M. Knobel (Eds.), *Digital literacies: Concepts, policies and practices* (1st ed., pp. 17-32). New York: Peter Lang Publishing Inc.

BBC. (2017). *Blue planet II: Predator fish leaps out of water to catch bird* [Video]. YouTube. <https://www.youtube.com/watch?v=ANxlmqF0wj8>

Beaunoyer, E., Dupéré, S., & Guitton, M. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies *Computers and Human Behaviour*, 111, 1-9. doi:<https://doi.org/10.1016/j.chb.2020.106424>

Belshaw, D. (2022, April 28). *Why working openly on ambitious projects breeds excitement*.

Medium. <https://blog.weareopen.coop/why-working-openly-on-ambitious-projects-breeds-excitement-537b17ec7ec0>

Belshaw, D. A. J. (2011). *What is 'digital literacy'?* (PhD). Retrieved from <https://clalliance.org/wp-content/uploads/files/doug-belshaw-edd-thesis-final.pdf>

Bennett, S., & Maton, K. (2010). Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning, 26*, 321-331.

Bennett, S., Maton, K., & Kervin, L. (2008§). The 'digital natives' debate: A critical review of the evidence *British Journal of Educational Technology, 39*(5), 775-786.

Bhatt, I., de Roock, R., & Adams, J. (2015). Diving deep into digital literacy: Emerging methods for research *Language and Education, 29*(6), 477-492.

Bishop, K. (2003). What in the world is happening with information literacy? *Knowledge Quest, 31*(5), 14-16.

Blau, I., & Eshet-Alkalai, Y. (2017). The ethical dissonance in digital and non-digital learning environments: Does technology promote cheating among middle school students? *Computers in Human Behavior, 73*(1), 629–637.

Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals* . Michigan: David McKay Co. Inc.

Bond, M., & Bedenlier, S. (2019). Facilitating Student Engagement Through Educational Technology: Towards a Conceptual Framework. *Journal of Interactive Media in Education, 1*(11), 1–14. <https://doi.org/DOI: https://doi.org/10.5334/jime.528>

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of the theory and research for the sociology of education* (pp. 241-258). Westport, CT: Greenwood.

Broadcasting Authority of Ireland. (2016). *Media literacy policy*. Dublin: Broadcasting Authority of Ireland.

Brouwer, N., & Korthagen, F. (2005). Can teacher education make a difference? *American Educational Research Journal*, 42(1), 153-224.

Brown, B. (2012). *Daring greatly: How the courage to be vulnerable transforms the way we love, love, parent and lead* (1st ed.). London: Penguin.

Bruce, D. L. (2011). Framing the text: Using storyboards to engage students with reading. *The English Journal*, 100(6), 78-85.

Buckingham, D. (2015). Defining digital literacy: What do young people need to know about digital media? *Nordic Journal of Digital Literacy*, 1, 21-34.

Buckingham, D. (2019). Teaching media in a 'post-truth' age: Fake news, media bias and the challenge for media/digital literacy education. *Culture and Education*, 31(2), 213-231.

Bulger, M. E., Meyer, R. E., & Metzger, M. J. (2014). Knowledge and processes that predict proficiency in digital literacy. *Reading and Writing*, 27(9), 1567-1583.

Bullen, M. & Morgan T. (2011). Digital learners not digital natives. *La Cuestión Universitaria*, 7(1), 60-68.

Cambridge Assessment. (2013). *What is literacy? An investigation into definitions of English as a subject and the relationship between English literacy and 'being literate'*. London: Cambridge Assessment.

Campbell, A., & Groundwater-Smith, S. (2007). *An ethical approach to practitioner research: Dealing with issues and dilemmas in action research*. London; New York: Routledge.

Carr, W., & Kemmis, S. (1986). *Becoming critical education, knowledge and action research* (1st ed.). New York: Routledge Falmer.

Central Statistics Office (CSO). (2020). Information society statistics - Households 2020. Retrieved from <https://www.cso.ie/en/releasesandpublications/ep/p-isshh/informationstatistics-households2020/introductionandkeyfindings/>

Charalambos, T. (2019). Surviving and thriving in the Fourth Industrial Revolution: Digital skills for education and society. *Homo Virtualis*, 2(1), 34–42.

Clarke, J., Dudley, P., Edwards, A., Rowland, S., Ryan, C., & Winter, R. (1993) *Ways of Presenting and Critiquing Action Research Reports*. 1:3, p490-492

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Routledge.

Collinson, V., Kozina, E., Yu-Hao, K.L., Ling, L., Matheson, I., Newcombe, L., Zolga, I. (2009). Professional development for teachers: A world of change. *European Journal of Teacher Education*, 32(1), 3-19.

Combat Poverty Agency. (2002). *Educational disadvantage in ireland*. (Quarterly No. 1). Dublin: Combat Poverty Agency.

Cope, B., & Kalantzis, M. (2009). "Multiliteracies": New literacies, new learning
Pedagogies: An International Journal, 4(3), 164-195.

Correa, T., Pavezb, I., & Contrerasa, J. (2020). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in internet access, skills and use
Information, Communication & Society, 23(7), 1074-1091.

Cosgrove, J., Duggan, A., Shiel, G., & Leahy, M. (2018). *Digital learning framework trial evaluation: Final report executive summary*. (No. 1). Dublin: Educational Research Centre.

Creative Ireland. (2017). Creative ireland programme 2017-2022. Retrieved from
<http://creative.ireland.ie/#programme>

Creswell, J. (2014). *Research design- qualitative, quantitative and mixed methods approaches* (4th ed.). Thousand Oaks, California: Sage Publications.

Cristiano, G. (2012). *The Storyboard Artist: A Guide to Freelancing in Film, TV, and Advertising*. Michael Wiese Productions.

Crotty, Y. (2012). *How am I bringing an educational entrepreneurial spirit into higher education?* (PhD). Retrieved from http://yvonnecrotty.com/?page_id=102

Crotty, Y. (Producer), & Crotty, Y. (Director). (2015). *Educational entrepreneurial approach to action research*. [Video/DVD] Dublin

Crotty, Y. & Kilboy, L. (2015). The co-creation of a video to inspire humanitarianism: How an educational entrepreneurial approach inspired humanitarian workers to be mindfully innovative whilst working with technology. *International Journal for Transformative Research*, 2(1), 35-43.

Csikszentmihályi, M. (1996). *Creativity: Flow and the psychology of discovery and invention* (1st ed.). New York: Harper Collins.

Csikszentmihályi, M. (1997). *Finding flow: The psychology of engagement with everyday life* (1st ed.). New York: Basic Books.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development*. Palo Alto, CA: Learning Policy Institute.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education*, 57(3), 300-314.

Davis, N. (2016). *What is the fourth industrial revolution?* World Economic Forum. Retrieved 9 September 2021, from <https://www.weforum.org/agenda/2016/01/what-is-the-fourth-industrial-revolution/>

Department of Education. (2021). *Retention Rates of Pupils in Second-Level Schools—2014 Entry Cohort* (pp. 1–12). Department of Education.

Department of Education. (2022). *Digital Strategy for Schools to 2027*. DES. <https://www.gov.ie/en/publication/69fb88-digital-strategy-for-schools/>

Department of Education and Science. (2005). *Delivering equality of opportunity in schools: An action plan for educational inclusion*. Dublin: DES.

Department of Education and Science. (2009). *Smart schools = smart economy: Report of the ICT in schools joint advisory group to the minister for education and science*. Dublin: Stationary Office.

Department of Education and Skills. (2011). *Literacy and numeracy for learning and life: The national strategy to improve literacy and numeracy among children and young people 2011- 2020*. (). Dublin: DES.

Department of Education and Skills. (2012). *A framework for junior cycle*. (No. 1). Dublin: The Department of Education and Skills.

Department of Education and Skills. (2015). *A framework for Junior Cycle 2015*. Dublin: DES.

Department of Education and Skills. (2015). *Digital strategy for Schools 2015-2020: Enhancing teaching, learning and assessment*. Dublin: DES.

Department of Education and Skills. (2015). Supports to DEIS schools. Retrieved from <http://www.education.ie/en/Schools-Colleges/Services/DEIS-Delivering-Equality-of-Opportunity-in-Schools-/DEIS-Supporting-Information/Supports-to-DEIS-Schools.html>

Department of Education and Skills. (2015a). Digital strategy for schools 2015-2020. Retrieved from <https://www.education.ie/en/Schools-Colleges/Information/Information-Communications-Technology-ICT-in-Schools/Digital-Strategy-for-Schools/>

Department of Education and Skills. (2016). *Looking at our school 2106: A quality framework for post-primary schools*. Dublin: The Inspectorate DES.

Department of Education and Skills. (2017). *Digital learning framework for post primary schools*. Dublin: DES.

Department of Education and Skills. (2019). Information & communications technology (ICT) in schools. Retrieved from <https://www.education.ie/en/Schools-Colleges/Information/Information-Communications-Technology-ICT-in-Schools/Information.html>

Department of Education and Skills. (2020). *DES Circular 0076/2020*. Dublin: DES. <https://www.gov.ie/en/circular/c797a-arrangements-for-the-implementation-of-the-framework-for-junior-cycle-with-particular-reference-to-school-year-202021/#>

Department of Education and Skills (DES). (2005). *A Brief Description of the Irish Education System*. Dublin: DES.

Department of Education and Skills (DES). (2018). *Circular Letter 0037/2018- Prescribed material for Junior Cycle English*. <https://circulars.gov.ie/pdf/circular/education/2018/37.pdf>

Department of Education and Skills (DES). (2021). *Minister Foley announces development of a New Digital Strategy for Schools*. <https://www.gov.ie/en/press-release/d32fc-minister-foley-announces-development-of-a-new-digital-strategy-for-schools/>

Department of Enterprise, Trade and Employment (DETE). (2019). *Future Jobs Ireland: Executive Summary*. Dublin: Government of Ireland.

Department of Enterprise, Trade and Employment (DETE). (2021b). *Government announce €95m for ground-breaking projects under Disruptive Technologies Fund*. DETE. <https://enterprise.gov.ie/en/News-And-Events/Department-News/2021/April/20210421a.html>

DES, TUI, & ASTI. (2015). *Junior cycle reform: joint statement on principles and implementation* (No. 1). Dublin: DES. Retrieved from <https://www.education.ie/en/Publications/Education-Reports/Junior-Cycle-Reform-Joint-Statement-on-Principles-and-Implementation.pdf>

Dewett, T. (2006). Exploring the role of Risk in employee creativity *Journal of Creative Behavior*, 40(1), 27-45.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Lexington, Mass.: Heath & Co.

Digital Schools of Distinction. (2020). *About the Digital Schools of Distinction Award*. <http://www.digitalschools.ie/about/>

DiMaggio, P., & Hargittai, E. (2001). *From the 'digital divide' to 'digital inequality': Studying internet use as penetration increases*. Princeton: Center for Arts and Cultural Policy Studies. doi:<https://journals.uic.edu/ojs/index.php/fm/article/view/10845>

Dublin City University. (2015). MSc in education and training management (eLearning) . Retrieved from http://www.dcu.ie/education_studies/meme.shtml

Dublin City University (DCU). (2021). *What are DEIS schools?* <https://www.dcu.ie/access/what-are-deis-schools>

Duckworth, A. (2016). *Grit: The power of passion and perseverance* (1st ed.). London: Vermillion.

Earley, P. & Bubbs, S. (2010). *Helping staff develop in schools* (1st ed.). London: Sage Publications.

Education act, 9U.S.C. 32 (9) (1998). Retrieved from
<http://www.irishstatutebook.ie/1998/en/act/pub/0051/sec0032.html>

Elliott, J. (1983). A curriculum for the study of human affairs: The contribution of Lawrence Stenhouse. *Journal of Curriculum Studies*, 15(2), 105-123.

Elliott, J. (1991). *Action research for educational change* (1st ed.). Buckingham: Open University Press.

Elliott, J. (2006). Educational Research as a Form of Democratic Rationality. *Journal of the Philosophy of Education Society of Great Britain*, 40(2), 168–185.

Elliott, J. (2010). Educational action research and the teacher. *Action Researcher in Education*, 1(1), 1-3.

Elliott, J. (2012). Building Educational Theory through Action Research. In *The SAGE Handbook of Educational Action Research*. London: SAGE Publications.

Eshet-Alkalai, Y., & Amichai-Hamburger, Y. (2004). Experiments in digital literacy. *Cyber-Psychology and Behaviour*, 7(4), 421-429.

Eshet-Alkalai, Y., & Chajut, E. (2009). Changes over time in digital literacy. *Cyber-Psychology and Behaviour*, 12, 713-715.

Eshet-Alkalai, Y., & Chajut, E. (2010). You can teach an old dog new tricks: The factors that affect changes over time in digital literacy. *Journal of Information Technology Education*, 9, 173-181.

Eshet- Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93-106.

Eshet-Alkalai, Y. (2008). Real-time thinking in the digital era. In M. Khosrow-Pour (Ed.), *Encyclopedia of information science and technology* (2nd ed., pp. 3219-3223). London: Idea Group Inc.

Eshet-Alkalai, Y. (2012). Thinking in the digital era: A revised model for digital literacy. *Issues in Informing Science and Information Technology*, 9, 268-276.

EU Kids Online. (2014). *EU kids online: Findings, methods, recommendations*. LSE, London: EU Kids Online.

European Commission. (2007). *A European approach to media literacy in the digital environment*. Brussels: Commission of the European Communities.

European Commission. (2015). *Erasmus+ programme guide*. Brussels: European Commission.

European Commission. (2020). *Digital Economy and Society Index (DESI) 2020: Ireland*. Brussels: European Commission

European Literacy Policy Network (ELINET). (2016). *ELINET position paper on Digital literacy*. Paris: European Commission Lifelong Learning Programme.

Evans, M., & Boucher, A. (2015). Optimizing the Power of Choice: Supporting Student Autonomy to Foster Motivation and Engagement in Learning. *Mind, Brain and Education*, 9(2), 87–91.

Farren, M., & Crotty, Y. (2014). Researching Our Own Practice: An Individual Creative Process and a Dialogic-Collaborative Process. *International Journal for Transformative Research*, 1(1), 63–74. <https://doi.org/10.2478/ijtr-2014-0004>

Farren, M. (2005). *How can I create a pedagogy of the unique through a web of betweenness?* (PhD).

Fernández-de-Arroyabe-Olaortua, A., Lazkano-Arillaga, I., & Eguskiza-Sesumaga, L. (2018). Digital natives: Online audiovisual content consumption, creation and dissemination *Comunicar: Media Education Research Journal*, 57(36), 61-69.

Ferrance, E. (2005). *Themes in education: Action research*. Providence, RI: Brown University.

Ferrick, E., Cosgrove, J., & Moran, E. (2021). *Digital Learning Framework (DLF) national longitudinal evaluation: One year on – Wave 1 report*. Educational Research Centre.

Fichtman Dana, N. & Yendol- Hoppey, D. (2009). *The reflective educator's guide to classroom research* (1st ed.). Thousand Oaks: Crowin Press.

Filozof, E. M., Albertin, H. K., Jones, C. R., Steme, S. S., Myers, L., & McDermott, R. J. (1998).

Forkan, C. (2006). Traveller children and education: Progress and problems. *Youth Studies Ireland*, 1(1)

Forte, A. M., & Flores, M. A. (2014). Teacher collaboration and professional development in the workplace: A study of Portuguese teachers. *European Journal of Teacher Education*, 37(1), 91-105.

Freire, P. (1970). *Pedagogy of the oppressed*. London: Penguin.

Gabel, D. (1995). An introduction to action research. Retrieved July, 27, 2006.

Gacs, A., Goertler, S., & Spasova, S. (2020). Planned online language education versus crisis-prompted online language teaching: Lessons for the future. *Foreign Language Annals*, 53(2), 380–392. <https://doi.org/10.1111/flan.12460>

Garlitz, D., & Zompetti, J. (2021). Critical theory as Post-Marxism: The Frankfurt School and beyond. *Educational Philosophy and Theory*, 1–8. <https://doi.org/10.1080/00131857.2021.1876669>

Gibney, S., & McCarthy, T. (2020). *Profile of Smartphone Ownership and Use in Ireland* (pp. 1–8). Dublin: Department of Health.

Glister, P. (1997). *Digital literacy*. New York: Wiley.

Gorozidis, G., & Papaioannou, A. G. (2014). Teachers' motivation to participate in training and to implement innovations. *Teaching and Teacher Education*, 39, 1-11.

Government of Ireland. (2018). *Project Ireland 2040: National Development Plan 2018—2027*. Department of Public Expenditure and Reform. Dublin: Department of Public Expenditure and Reform

Government of Ireland. (2018). *Project Ireland 2040: National Development Plan 2018-2027*. Dublin: Government of Ireland.

Government of Ireland. (2021a). *Project Ireland 2040*. Project Ireland 2040. <https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/>

Greene, J., & Kreider, H. & Mayer, E. (2005). Combining qualitative and quantitative methods in social inquiry. In Somekh, B. & Lewin, C. (Ed.), *Research methods in the social sciences* (1st ed., pp. 274-281). London: SAGE Publications.

Guba, E.G. & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In Denzin, N.K. & Lincoln, Y.S. (Ed.), *Handbook of qualitative research* (1st ed., pp. 105--117) Sage Publications.

Guenther, J., Bat, M., & Osborne, S. (2013). Red dirt thinking on educational disadvantage. *The Australian Journal of Indigenous Education*, 42(2), 100-110.

Gulatee, Y. & Combes, B. (2018). Are you sure this generation are digital natives? Paper presented at the *Ettlis*, India. , 10

Guskey, T. R., & Yoon, K. S. (2009). What works in professional development? *Phi Delta Kappan*, 90(7), pp 495-502.

Habermas, J. (1976). *Communication and the evolution of society* (T. McCarthy Trans.). (1st ed.). Toronto: Beacon Press.

Hague, C., & Payton, S. (2010). *Digital literacy across the curriculum- A futurelab handbook* (1st ed.) Futurelab.

Hammersley, M. (2004). Action research: A contradiction in terms? *Oxford Review of Education*, 30(2), 165-181.

Hampden- Thompson, G.,. (2013). Family policy, family structure and children's educational achievement. *Social Science Research*, 42(1), 804-817.

Hargittai, E., & Micheli, M. (2019). Internet skills and why they matter. In M. Graham, & W. H. Dutton (Eds.), *Society and the internet: How networks of information and communication are changing our lives* (pp. 109-124). Oxford: Oxford University Press.

Hargittai, E., & Walejko, G. (2008). The participation divide: Content creation and sharing in the digital age. *Information, Community and Society*, 11(2), 239-256.

Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4) doi:<https://doi.org/10.5210/fm.v7i4.942>

Hargittai, E. (2008). The digital reproduction of inequality. In D. Grusky (Ed.), *Social Stratification* (pp. 936-944). Boulder: Westview Press.

Hargittai, E. (2010). Digital na(t)ives? variation in internet skills and uses among members of the “Net generation” *Sociological Inquiry*, 80(1), 92-113.

Harris, C., Straker, L., & Pollock, C. (2017). A socioeconomic related 'digital divide' exists in how, not if, young people use computers. *Plos One*, 12(3), 1-13.

doi:<https://doi.org/10.1371/journal.pone.0175011>

Harwell, S. H. (2003). *Teacher professional development: It's not an event, it's a process.* (No. 1). WACO: CORD. Retrieved from <http://www.cord.org/uploadedfiles/HarwellPaper.pdf>

Hitlin, S., & Piliavan, J. A. (2004). Values- reviving a dormant concept? *Annual Review of Sociology*, 30(1), 359-393.

Hobson, D. (2001). Action and reflection: Narrative and journaling in teacher research. In G. Burnaford, J. Fischer & D. Hobson (Eds.), *Teachers doing research* (1st ed., pp. 7-27). London: Lawrence Erlbaum Associates.

Hobson, D. (2001). Learning with each other: Collaboration in teacher research. In G. Burnaford, J. Fischer & D. Hobson (Eds.), *Teachers doing research: The power of action through inquiry* (2nd ed., pp. 173-191). New Jersey: Lawrence Erlbaum Associates.

Hodge, E. M. (2014). Classroom- based professional development training program. *Professional Development in Education*, 40(2), 316-318.

Holmes, H., & Burgess, G. (2020). "Pay the wi-fi or feed the children": Coronavirus has intensified the UK's digital divide. University of Cambridge.
doi:<https://www.cam.ac.uk/stories/digitaldivide>

Hopkins, D. (2008). *A teacher's guide to classroom research* (4th ed.). Maidenhead: Open University Press.

Humphries, J. (2014, 24th Sept 2015). Teachers threaten further industrial action after split vote. *The Irish Times*

Humphries, J. (2015a, 4th Feb 2015). School drop-out rates at new low as 90% sit leaving cert. *The Irish Times*

Instagram. (2019). What is instagram?. Retrieved from
<https://help.instagram.com/424737657584573?sr=10>

Intellectual Property Office of Ireland (IPOI). (2019). *General Information Concerning Copyright and Related Rights*. Intellectual Property Office of Ireland.
<https://www.ipoi.gov.ie/en/understanding-ip/help-guidance/ip-information-booklets/copyright-and-related-rights.pdf>

International Federation of Library Associations (IFLA). (2005). Beacons of the information society: The alexandria proclamation on information literacy and lifelong learning. Retrieved from <https://www.ifla.org/publications/beacons-of-the-information-society-the-alexandria-proclamation-on-information-literacy>

International ICT Literacy Panel. (2002). *Digital transformation: A framework for ICT literacy*. Princeton, NJ: Educational Testing Service.

Jacobs, G. E. (2013). Multi, digital, or technology? Seeking clarity of teaching through a clarity of terms. *Journal of Adolescent & Adult Literacy*, 57(2), 99-103.

Jansen in de Wal, J., den Brok, P. J., Hooijer, J. G., Martens, R. L., & van den Beemt, A. (2014). Teachers' engagement in professional learning: Exploring motivational profiles. *Learning and Individual Differences*, 36, 27-36.

JCT. (2021). *Junior Cycle for Teachers Home Page*. Retrieved 10 September, from <https://www.jct.ie/home/home>

Jewett, C. (2012). *National centre for research methods working paper- an introduction to using video for research*. London: Economic and Social Research Council.

Judd, T. (2018). The rise and fall (?) of the digital native. *Australasian Journal of Educational Technology*, 34(5), 99-119.

Jungck, S. (2001). How does it matter? Teacher inquiry in the traditions of social science research. In G. Burnaford, J. Fischer & D. Hobson (Eds.), *Teachers doing research: The power of action through inquiry* (2nd ed., pp. 329-344). New Jersey: Lawrence Erlbaum Associates.

Kalantzis, M., & Cope, B. (1997). *Multiliteracies: Rethinking what we mean by literacy and what we teach as literacy the context of global cultural diversity and new communications technologies*. Haymarket: The Centre for Workplace Communication and Culture.

Kanstrup, A. M. (2002). Picture the Practice—Using photography to explore the use of technology within teachers' work practices *Forum: Qualitative Social Research*, 3(2), 18th April 2017-<http://www.qualitative-research.net/index.php/fqs/article/view/856/1860#g31>.

Katsarou, E. (2016). The multi-paradigmatic character of contemporary educational action research: A promising perspective or an underlying threat? *Educational Action Research*, doi:10.1080/09650792.2016.1241184

Katz, I. R., & Macklin, A. S. (2007). Information and communication technology (ICT) literacy: Integration and assessment in higher education *Systemics, Cybernetics and Informatics*, 5(4), 50-55.

Kay, R. H., & Ahmadpour, K. (2015). Negotiating the digital maze of information literacy: A review of literature. *Journal of Educational Informatics*, 1, 1-15.

Kellner, D. (2017). *Frankfurt School*. Oxford Bibliographies.
<https://www.oxfordbibliographies.com/view/document/obo-9780190221911/obo-9780190221911-0043.xml>

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The Action Research Planner: Doing Critical Participatory Action Research*. Springer.

Kemmis, S. (2009). Action research as a practice-based practice. *Educational Action Research*, 17(3), 463-474.

Kennedy, D.M. & Fox, B. (2013). 'Digital natives': An asian perspective for using learning technologies *International Journal of Education and Development using Information and Communication Technology*, 9(1), 64-79.

Kennedy, E., Dunphy, E., Dwyer, B., Hayes, G., McPhillips, T., Marsh, J., . . . Sheils, G. (2012). *Literacy in early Childhood and primary education*. (No. 15). Dublin: National Council for Curriculum and Assessment (NCCA).

Kilcoyne, A. (2021). Living and learning with Covid-19: Re-imagining the digital strategy for schools in Ireland. *Irish Educational Studies*, 40(2), 247–253.

<https://doi.org/10.1080/03323315.2021.1915839>

Kincheloe, J.L. & McLaren, P. (2005). Rethinking critical theory and qualitative research. In Denzin, N.K. & Lincoln, Y.S. (Ed.), *SAGE handbook of qualitative research* (3rd ed., pp. 303-342). Oxford: SAGE Publishers.

Kirschner, P.A. & De Bruyckere, P. (2017). The myths of the digital native and the multitasker. *Teaching and Teacher Education*, 67(1), 135-142.

Knoblauch, H., & Tuma, R. & S., B. (2013). Video analysis and videography. In U. Flick (Ed.), *The sage handbook of qualitative data analysis* (1st ed., pp. 435-449). London: Sage.

Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy *Media, Culture & Society*, 33(2), 211-221.

Kotter, J. (2017). The eight step process for leading change. Retrieved from

<https://www.kotterinternational.com/8-steps-process-for-leading-change/>

- Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*(3), 805-820.
- Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education, 19*(1), 149-170.
- Kyrgiou, E., & Tsiplakide, I. (2012). Digital divide: Students' use of the internet and emerging forms of social inequalities. *Research on e-Learning and ICT in Education, , 55-68*. doi:DOI 10.1007/978-1-4614-1083-6_5
- Lackéus, M. (2015). *Entrepreneurship in education- what, why, where, when*. (No. 1). Paris: OECD.
- Lankshear, C., & Knobel, M. (2015). Digital literacy and digital literacies: Policy, pedagogy and research considerations for education. *Nordic Journal of Digital Literacy, 1*(1), 8-20.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation* (1st ed.). Cambridge: Cambridge University Press.
- Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research, 77*(4), 575-614.
doi:10.3102/0034654307309921
- Leaning, M. (2017). *Media and information literacy: An integrated approach for the 21st century*. Kidlington: Chandos Publishing.
- Léargas. (2016). Léargas- about us. Retrieved from <http://www.leargas.ie/about-us/>

Leonardo, Z. (2004). Critical social theory and transformative knowledge: The functions of criticism in quality education. *Educational Researcher*, 33(6), 11-18.

Leu, D. J., Zawilinski, L., Castek, J., Banerjee, M., Housand, B. C., Liu, Y., & O'Neil, M. (2007). What Is New About The New Literacies of Online Reading Comprehension? In L. S. Rush, A. J. Eakle, & A. Berger (Eds.), *Secondary School Literacy: What Research Reveals for Classroom Practice* (Vol. 1–Book, Section, pp. 37–69). National Council of Teachers of English.

Lewis, S. (Producer), & Dubner, S. J. (Director). (2017). *The taboo trifecta*. [Video/DVD] New York: Freaknomics Radio. Retrieved from <http://freakonomics.com/podcast/the-taboo-trifecta/>

Livingstone, S., & Haddon, L. (2009). *EU kids online: Final report*. LSE, London: EU Kids Online.

Livingstone, S. (2003). *The changing nature and uses of media literacy*. London: European Medi@Culture-Online.

Livingstone, S. (2004). What is media literacy? *Intermedia*, 32(3), 18-20.

Locke, T., Alcorn, L., & O'Neill, J. (2013). Ethical issues in collaborative action research *Educational Action Research*, 21(1), 107-123.

Lockhart, P. (2009). *A mathematician's lament: How school cheats us out of our most fascinating and imaginative art form* (1st ed.). New York: Bellevue Literary Press.

Lomax, P., & Parker, Z. (1995). Accounting for ourselves: The Problematic of Representing Action Research. *Cambridge Journal of Education*, 25(3), p301-315.

London School of Economics. (2019). EU kids online: About the project. Retrieved from <http://www.lse.ac.uk/media-and-communications/research/research-projects/eu-kids-online/about>

Louis Cohen, Lawrence Manion, Keith Morrison, & Richard Bell. (2013). *Research methods in education* (7th ed. ed.) Routledge Ltd - M.U.A.

Machi, L.A. & McEvoy, B. (2012). *The literature review: Six steps to success* (2nd ed.). Thousand Oaks: Corwin.

MacIssac, D. (1996). An introduction to action research. Retrieved from <http://physicsed.buffalostate.edu/danowner/actionrsch.html>

Management Study Guide. (2017). Work culture - meaning, importance & characteristics of a healthy culture. Retrieved from <http://www.managementstudyguide.com/work-culture.htm>

Marcus-Quinn, A., & McGarr, O. (2013). Digital Divide in post-primary schools. In C. Fowley, C. English & S. Thouësny (Eds.), *Internet research, theory, and practice: Perspectives from Ireland* (pp. 277-303). Dublin: Research-publishing.net.

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies *Computers and Education*, 56, 429-440.

Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development *Innovation in Teaching and Learning in Information and Computer Sciences*, 5(4), 249-267.

Martin, A., & Madigan, D. (2006). Preface. In A. Martin, & D. Madigan (Eds.), *Digital literacies for Learning* (pp. xxv-xxviii). London: Facet Publishing.

Matzat, U. (2013). Do blended virtual learning communities enhance teachers' professional development more than purely virtual ones? A large scale empirical comparison. *Computers and Education*, 60, 40.

Mayer, R. E. (2014). Cognitive Theory of Multimedia Learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 31–48). Cambridge University Press.

Mayer, R. E. (2017). Using Multimedia for e-learning. *Journal of Computer Assisted Learning*, 33(Journal Article), 403–423.

McCoy, S., Mohan, G., Carroll, E., Mihut, G., Lyons, S., & Mac Domhnaill, C. (2021). *Learning for all? second level education in Ireland during COVID-19*. (ERSI Survey and Statistical Report Series No. 92). Dublin: ERSI.

McDougall, J., Brites, M., Couto, M., & Lucas, C. (2019). Digital literacy, fake news and education. *Culture and Education*, 31(2), 203-212.

McKenzie, J., Pizzica, J., Gosper, M., Malfroy, J., & Ashford-Rowe, K. (2014). Socio-economic status and students' experiences of technologies: Is there a digital divide? In B. Hegarty, J. McDonald & S. Loke (Eds.), *Rhetoric and Reality: Critical perspectives on educational technology* (pp. 699-692). Dunedin: Proceedings ascilite.

McMillian, D. J. e. a. (2014). Continuing professional development- why bother? perceptions and motivations of teachers in ireland. *Professional Development in Education*, 40(5), 1.

McNiff, J. (1993). *Teaching as learning: An action research approach*. London: Routledge.

McNiff, J. (2002). *Action research: Principles and practice* (2nd ed.). London: Routledge-Falmer.

McNiff, J. (2008). Planning, designing and doing action research. Retrieved from <http://www.actionresearch.net/writings/jack/jmplanar.pdf>

McNiff, J. & Whitehead, J. (2011). *All you need to know about action research* (2nd ed.). London: Sage Publications.

McTaggart, R. (1994). Participatory action research: Issues in theory and practice *Educational Action Research*, 2(3), 313-337.

Mertens, D. M. (2007). Transformative paradigm : Mixed methods and social justice *Journal of Mixed Methods Research*, 1(3), 212-225.

Mills, G. E. (2000). *Action research- A guide for the teacher researcher* (1st ed.). New Jersey: Prentice- Hall Inc.

Mishra, P. & Koehler, M.J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge *Teachers College Record*, 108(6), 1017-1054.

Moon, J. (2004). *A handbook of reflective and experiential learning: Theory and practice* (1st ed.). London: Routledge-Falmer.

Moon, J. A. (1999). *Reflection in learning and professional development: Theory and practice* (1st ed.). London: Routledge-Falmer.

Moore, N., Coldwell, M., & Perry, E. (2021). Exploring the role of curriculum materials in teacher professional development. *Professional Development in Education*, 47(2), 331–347. <https://doi.org/10.1080/19415257.2021.1879230>

Moran, S. (2010). The roles of creativity in society. In Kaufman, J.C. & Sternberg, R.J. (Ed.), *The Cambridge handbook of creativity* (1st ed., pp. 74-92). Cambridge: Cambridge University Press.

Morrison, K. (1995). Dewey, Habermas and reflective practice. *Curriculum*, 16(2), 82-94.

Morrison, M. (2007). What do we mean by educational research? In Briggs, A.R.J. & Coleman, M. (Ed.), *Research methods in educational leadership and management* (2nd ed., pp. 13-36). London: Sage Publications.

Naar, J. M. M. (2013). Storyboards and reading comprehension of literary fiction in English. *How*, 20(1), 149-169.

Napoli, P. M., & Obar, J. A. (2014). The emerging mobile internet underclass: A critique of mobile internet access. *The Information Society*, 30(5), 232-334.

National Centre for Technology in Education. (2009). *Planning and implementing E-learning in your school: Handbook for principals and ICT coordinating teachers*. Dublin: NCTE.

National Council for Curriculum and Assessment. (2016). *Short course in digital media literacy: Specification for Junior Cycle*. Dublin: NCCA.

National Council for Curriculum and Assessment. (2018a). *Junior Cycle English specification* (2nd ed.). Dublin: NCCA.

National Council for Curriculum and Assessment. (2018b). *Report of the review of the early enactment of junior cycle english*. Dublin: NCCA.

National Council for Curriculum and Assessment. (2021). *Expectations for Students/Learning Outcomes*. [https://www.curriculumonline.ie/Junior-cycle/Junior-Cycle-Subjects/English-\(1\)/Expectations-for-Students-Learning-Outcomes/](https://www.curriculumonline.ie/Junior-cycle/Junior-Cycle-Subjects/English-(1)/Expectations-for-Students-Learning-Outcomes/)

National Council for Curriculum and Assessment. 2019. *Junior Cycle English: Guidelines for the Classroom-Based Assessment and Assessment Task*. Dublin: NCCA.

National Council for Curriculum and Assessment. 2019. *Junior Cycle English: Guidelines for the Classroom-Based Assessment and Assessment Task*. Dublin: NCCA.

National Council for Curriculum and Assessment (NCCA). (2009). *Aistear: The early childhood curriculum framework*. Dublin: NCCA.

National Council for Curriculum and Assessment (NCCA). (2014). *Key skills of junior cycle*. Dublin: NCCA.

National Council for Curriculum and Assessment (NCCA). (2019). Framework for junior cycle. Retrieved from <https://www.ncca.ie/en/junior-cycle/framework-for-junior-cycle>

National Council of Teachers of English (NCTE). (2017). NCTE framework for 21st century curriculum and assessment. Retrieved from <http://www.ncte.org/digital-literacy>

National Council of Teachers of English (NCTE) (2017). *Secondary school literacy: What research reveals for classroom practice* (pp. 37-69). Urbana, IL: National Council of Teachers of English.

National Economic and Social Council (NESC). (2021). *Digital Inclusion in Ireland: Connectivity, Devices and Skills* (Council Report No. 154). Dublin: National Economic and Social Council.

National Geographic [Nat Geo WILD]. (2017). *Lions 101* [Video]. YouTube.
<https://www.youtube.com/watch?v=OMkEVX23BdM>

National Induction Programme for Teachers. (2021). *What is Droichead?* Retrieved 13 September 2021, from <https://www.teacherinduction.ie/en/supports-2/droichead>

Neumann, M. M., Finger, G., & Neumann, D. L. (2017). A conceptual framework for emergent digital literacy *Early Childhood Education*, 45(1), 471-479.

Ng, C. (2010). Do career goals promote continuous learning among practising teachers? *Teachers and Teaching: Theory and Practice*, 16(4), 397-422.

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers and Education*, 59, 1065-1078.

Noffke, S. (1995). Action Research and Democratic Schooling. In S. Noffke & R. Stevenson B. (Eds.), *Educational Action Research: Becoming Practically Critical*. Teachers College Press.

Northern Territory Government. (2011). Teaching jobs. Retrieved from <http://www.teaching.nt.gov.au/remote/index.cfm?attributes.fuseaction=home>

Oblinger, D. & Oblinger, J. (2005). Is it age or IT: First steps toward understanding the net generation In Oblinger, D. & Oblinger, J. (Ed.), *Educating the net generation* (1st ed., pp. 2.7-2.19). <https://www.educause.edu/educatingthenetgen/>: Educase.

Oliver, M. (n.d.). *Writing literature reviews*. Unpublished manuscript.

Organisation for Economic Cooperation and Development (2019). *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. OECD Publishing, Paris.

Organisation for Economic Co-operation and Development (OECD). (2009). *Creating effective teaching and learning environments - first results from TALIS*. (No. 1). Paris: OECD.

Organisation for Economic Co-operation and Development (OECD). (2011). *Building a high quality teaching profession: Lessons from around the world*. (). Paris: OECD. Retrieved from <http://www.oecd.org/education/school/programmeforinternationalstudentassessmentpisa/47506177.pdf>

Organisation for Economic Co-operation and Development (OECD). (2014). *TALIS 2013 results: An international perspective on teaching and learning*. (). Paris: OECD.

Organisation for Economic Co-operation and Development (OECD). (2015). (No. 1). Paris: OECD. Retrieved from <http://dx.doi.org/10.1787/eag-2015-en>

Organisation for Economic Co-operation and Development (OECD). (2015). *Students, computers and learning: Making the connection*. (No. 1). Paris: OECD. Retrieved from <http://www.oecd.org/publications/students-computers-and-learning-9789264239555-en.htm>

Organisation for Economic Co-operation and Development (OECD). (2016). *PISA for development brief: How does PISA for development measure reading literacy?* (No. 8). Paris: OECD.

Organisation for Economic Co-operation and Development (OECD). (2016a). *PISA 2015 assessment and analytical framework: Science, reading, mathematics and financial literacy*. Paris: OECD.

Organisation for Economic Co-operation and Development (OECD). (2016b). Are there differences in how advantaged and disadvantaged students use the internet? *PISA in Focus*, 64, 1-4. doi:<http://dx.doi.org/10.1787/5j1v8zq6hw43-en>

Organisation for Economic Co-operation and Development (OECD). (2019). *OECD future of education and skills 2030: Conceptual learning framework concept note*. Paris: OECD.

Organisation for Economic Cooperation and Development (OECD). (2019). *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. Paris: TALIS.

Organisation for Economic Cooperation and Development (OECD). (2020). *Education in Ireland: An OECD Assessment of the Senior Cycle Review*. Paris: OECD Publishing.

Osman, D. J., & Warner, J. R. (2020). Measuring teacher motivation: The missing link between professional development and practice. *Teaching and Teacher Education*, 92(1), 1–13.

Osterman, M. D. (2012). Digital literacy: Definition, theoretical framework, and competencies Paper presented at the *Proceedings of The 11th Annual College of Education and GSN Research Conference*, Florida International University. 135-141. Retrieved from <https://core.ac.uk/download/pdf/46946450.pdf>

O'Neill, B., Grehan, S., & Ólafsson, K. (2011). *Risks and safety for children on the Internet: The Ireland report*. LSE, London: EU Kids Online.

Palfrey, J. & Gasser, U. (2008). *Born digital: Understanding the first generation of digital natives*. New York: Basic Books.

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

Peace of Europe Co-ordinator. (2014). Erasmus+ application form- KA2 – cooperation and innovation for good practices.

Pensiero, N., Kelly, T., & Bokhove, C. (2020). *Learning inequalities during the covid-19 pandemic: How families cope with home-schooling*. Southampton: University of Southampton. doi:<https://doi.org/10.5258/SOTON/P0025>

Pereira Dias, M. (2012). Australia's project for universal broadband access: From policy to social potential. *First Monday*, 17(9)

Peters, M. & Robinson, V. (1984). The origins and status of action research. *The Journal of Applied Behavioural Science*, 20(2), 113-124.

Pew Research Centre, L. (2019). *Smartphone Ownership Is Growing Rapidly Around the World, but Not Always Equally* (pp. 1–46). Pew Research Centre.
<https://www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/>

Philbeck, T., & Davis, N. (2019). The Fourth Industrial Revolution: Shaping a New Era. *Journal of International Affairs*, 72(1), 17–22.

Pine, G. J. (2008). *Teacher action research : Building knowledge democracies*. SAGE Publications, Incorporated.

Pink, D. H. (2010). *Drive: The surprising truth about what motivates us* (1st ed.). New York: Riverbed Books.

Piperopoulos, P. & Dimov, D. (2015). Burst bubbles or build Steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 53(4), 970-985.

Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: Junior high-school students' perceived competencies versus actual performance. *Computers and Education*, 126, 23-36.

Powell, E., Terrell, I., Furey, S., & Scott-Evans, A. (2003). Teachers' perceptions of the impact of CPD: An institutional case study. *Journal of Inservice Education*, 29(3), pp 389-404.

PowToon. (2020). *How to make video online in the Powtoon Studio | Powtoon Tutorial* [Video]. YouTube. <https://www.youtube.com/watch?v=vkfacjOpTcM>

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, 9(5), 1-6. doi:<https://doi.org/10.1108/10748120110424816>

Prensky, M. (2009). H. sapiens digital: From digital immigrants and digital natives to digital wisdom. *Innovate: Journal of Online Education*, 5(3), 1-9.

Professional Development Service for Teachers (PDST). (2017). Developing digital literacy skills. Retrieved from <https://www.pdsttechnologyineducation.ie/en/NEWS/Developing-Digital-Literacy-Skills.html>

Professional Development Service for Teachers (PDST). (2017). *The Professional Development Service for Teachers; Strategic Plan 2015-2020*. Dublin: PDST.

Professional Development Service for Teachers (PDST). (n.d.). *Leaving Certificate Applied: A different way*. Ennis: PDST.

Putnam, R., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning?. *Educational Researcher*, 29(1), 4-15.

Ragnedda, M., & Muschert, G. W. (2012). Introduction. In M. Ragnedda, & G. W. Muschert (Eds.), *The digital divide: The internet and social inequality in international perspective* (pp. 1-14). London: Routledge.

Reason, P. & Bradbury, H. (2001). Introduction: Inquiry & participation in search of a world worthy of human aspiration. In Reason, P. & Bradbury, H. (Ed.), *Handbook of action research: Participative inquiry and practice* (1st ed., pp. 1-17). Thousand Oaks: Sage Publications.

Relationship of adolescent self-esteem to selected academic variables *Journal of School Health*, 68(2)

Richter, D., Kunter M., Klusmann U., Lüdtke O., & Baumert J. (2011). Professional development across the teaching career: Teachers' uptake of formal and informal learning opportunities. *Teaching and Teacher Education*, 27(1), 116-126.

Robinson, K. (Sept 2016). Life is your talents discovered. Retrieved from <https://www.youtube.com/watch?v=FLbXrNGVXfE>

Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., W.;Schulz, J., Hale, Stern , M. J. (2015). Digital inequalities and why they matter. *Information, Communication & Society*, 18(5), 569-582.

Robinson, L., Schulz, J., Khilnani, A., Ono, H., Cotten, S. R., McClain, N., Tolentino, N. (2020). Digital inequalities in time of pandemic: COVID-19 exposure risk profiles and new forms of vulnerability. *First Monday*, 25(7)

Rosenberg, M. J. (2001). *E-Learning: Strategies for delivering knowledge in the Digital Age*. McGraw-Hill.

Ross, J. A. (2006). The reliability, validity, and utility of self-assessment *Practical Assessment, Research and Evaluation*, 11(10), 1-13.

RTE (2015). *Documentary On One/Junior Cycle for Teachers (JCT)*. rte.ie.
<https://www.rte.ie/radio/doconone/2015/1103/739371-documentary-on-one-junior-cycle-for-teachers-jct/>

Saldana, J., Leavy, P., & Beretvas, N. (2011). *Fundamentals of qualitative research* (1st ed.). New York: Oxford University Press.

Schilenberg, J. E., Vondracek, F. W., & Crouter, A. C. (1984). The influence of family on vocational development. *Journal of Marriage and Family*, 46(1), 129-143.

Schneiders, J., Drukker, M., van der Ende, J., Verhulst, F. C., van Os, J., & Nicolson, N. A. (2003). Neighbourhood socioeconomic disadvantage and behavioural problems from late childhood into early adolescence *Journal of Epidemiol Community Health*, 57(1), 699-703.

Schön, D. (1995). Knowing in action- the new scholarship requires a new epistemology. *Change*, 27(6), 26-34.

Schulmeister, R. (2015). Deconstructing the net generation thesis. *Qwerty*, 10(1), 69-103.

Scott, D. & Morrison, M. (2006). *Key ideas in educational research* (1st ed.). London: Continuum.

SCRGSP (Steering Committee for the Review of Government Service Provision). (2014). *Overcoming indigenous disadvantage: Key indicators 2014*. Canberra: Productivity Commission.

Scully, D., Lehane, P. & Scully, C. (2021) 'It is no longer scary': Digital learning before and during the Covid-19 pandemic in Irish secondary schools. *Technology, Pedagogy and Education*, 30(1), 159-181, DOI: [10.1080/1475939X.2020.1854844](https://doi.org/10.1080/1475939X.2020.1854844)

Selwyn, N. (2009). The digital native - myth and reality. Paper presented at the *Aslib Proceedings*, 61(4) 364-379. doi:<https://doi.org/10.1108/00012530910973776>

Shulman, L. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4–14. <https://doi-org.dcu.idm.oclc.org/10.3102/0013189X015002004>

Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: A critical review. *School Effectiveness and School Improvement*. 32(1), 47–63.

Skilbeck, M. (1983). Lawrence Stenhouse: Research methodology. *British Educational Research Journal*, 9(1), 11-19.

Sloyan, L. (2011). How can I use video to improve teacher engagement with my school's abundant ICT equipment? *Educational Journal of Living Theories*, 4(1), 104-130.

Smith, K. & Petersen, J.L. (2006). What is educational entrepreneurship? In F. M. Hess (Ed.), *Educational entrepreneurship: Realities, challenges, possibilities* (1st ed., pp. 1-34). Cambridge, Mass.: Harvard Education Press.

Snapchat. (2019). What is snapchat?. Retrieved from <https://whatis.snapchat.com>

Society of College, National and University Libraries (SCONUL). (1999). *Briefing paper: Information skills in higher education* . London: SCONUL.

Society of College, National and University Libraries (SCONUL). (2011). *The SCONUL seven pillars of information literacy: Core model for higher education* . London: SCONUL. Retrieved from <https://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf>

Somekh, B. & Zeichner, K. (2009). Action research for educational reform: Remodelling action research theories and practices in local contexts *Educational Action Research*, 17(1), 5-21.

Sparks, J., Katz, I. R., & Beile, P. M. (2016). *Assessing digital information literacy in higher education: A review of existing frameworks and assessments with recommendations for next-generation assessment* (No. RR-16-32). Princeton, NJ: Educational Testing Service (ETS). Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1002/ets2.12118>

Speering, G. (2015). Professional development programmes for teachers in the northern territory of australia: Enablers and inhibitors for success in two aspirant leadership programmes *Professional Development in Education*, , 1-20.
doi:10.1080/19415257.2015.1102165

- Stenhouse, L. (1975). *An Introduction to Curriculum Research and development*. London: Heinmann Educational Books.
- Stenhouse, L. (1981). What Counts as Research? *British Journal of Educational Studies*, 29(2), 103–114. <https://doi.org/10.2307/3120018>
- Sternberg, R.J. & Lubart, T.I. (1999). The concept of creativity: Prospects and paradigms. In R. J. Sternberg (Ed.), *Handbook of creativity* (1st ed., pp. 3-14). Cambridge: Cambridge University Press.
- Supovitz, J. A., & Zief, S. G. (2000). Why they stay away. *Journal of Staff Development*, 21(4), 24-28.
- Tammi, L. (2020). Across the great divide: The impact of digital inequality on Scotland's Gypsy/Traveller children and young people during the COVID-19 emergency. *International Journal of Roma Studies*, 2(2), 52-65. doi:10.17583/ijrs.2020.6301
- Tapscott, D. (1998). *Growing up digital: The rise of the net generation*. New York: McGraw Hill.
- Teaching Council. (2016). *Cosán: Framework for teachers' learning*. (No. 1). Maynooth: Teaching Council.
- The New London Group. (1996). The pedagogy of multiliteracies: Designing social futures. *The Harvard Educational Review*, 66(1), 60-92.
- The Teaching Council. (2011). *Policy on the continuum of teacher education*. (No. 1). Kildare: The Teaching Council.
- The Teaching Council. (2012). *Code of professional conduct for teachers*. (No. 2). Kildare: The Teaching Council.

The Teaching Council. (2014). *Driochead: A quick reference guide- teaching council policy on new method of induction and probation*. Kildare: The Teaching Council.

The Teaching Council. (2015). *Draft framework for teachers' learning- cosán- for consultation*. (No. 1). Kildare: The Teaching Council.

The Teaching Council. (2016). *Cosán: Framework for teachers' learning*. Kildare: The Teaching Council.

The Teaching Council. (2021). *FAQs: Cosán*. Retrieved 13 September 2021, from <https://www.teachingcouncil.ie/en/faqs/cosan/>

Twenge, J. (2017, September 2017). Have smartphones destroyed a generation? *The Atlantic*, Retrieved from <https://www.theatlantic.com/magazine/archive/2017/09/has-the-smartphone-destroyed-a-generation/534198/>

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2004). *The plurality of literacy and its implications for policies and programmes*. (No. 1). Paris: UNESCO.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2006). *Global monitoring report: Literacy for all* (No. 1). Paris: UNESCO.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2011a). *ICT competency framework for teachers*. Paris: UNESCO.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2011b). *Digital literacy in education*. Moscow: UNESCO Institute for Information Technologies in Education.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2017). Information literacy. Retrieved from <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/information-literacy/>

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2018). *A global framework of reference on digital literacy skills for indicator 4.4.2.* (No. 51). Quebec: UNESCO Institute for Statistics. Retrieved from <http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf>

Universities Council for the Education of Teachers. (2021). *UCET Discussion paper on Continuing Professional Development.* UCET CPD Working Group.

van Deursen, A. J. A. M., & Helsper, E. J. (2015). The third-level digital divide: Who benefits most from being online? *Communication and information technologies annual (Studies in media and communications, vol. 10)* (pp. 29-52) Emerald Group Publishing Limited. doi:<https://doi.org/10.1108/S2050-206020150000010002>

van Deursen, A. J. A. M., & Helsper, E. J. (2015). The third-level digital divide: Who benefits most from being online? *Communication and information technologies annual (Studies in Media and Communications, vol. 10)* (pp. 29-52) Emerald Group Publishing Limited. doi:<https://doi.org/10.1108/S2050-206020150000010002>

van Dijk, J. (2005). *The deepening divide: Inequality in the information society.* London: SAGE Publications. doi:<https://www.doi.org/10.4135/978145222981>

van Dijk, J. (2013). A theory of the digital divide. In M. Ragnedda, & G. W. Muschert (Eds.), *The Digital Divide: The Internet and Social Inequality an International Perspective* (pp. 29-52). Oxford: Routledge.

van Dijk, J. (2020). *Closing the digital divide: The role of digital technologies on social development, well-being of all and the approach of the covid-19 pandemic*. Twente: United Nations.

Vanevenhoven, J. (2013). *Advances and challenges in entrepreneurship education* *Journal of Small Business Management*, 51(3), 466-470.

Varvel, V. E., & Lindeman, M. (2005). *Online Courses as Learning Scripts: Using Storyboards in Online Course Design*. http://www.ion.uillinois.edu/resources/pointersclickers/2004_09/storyboard.pdf

Venezky, R. L. (1990). Definitions of literacy. In R. L. Venezky, D. A. Wagner & B. S. & Ciliberti (Eds.), *Toward defining literacy* (pp. 2-17). Delaware: International Reading Association.

Vuorikari, R., Kluzer, S. and Punie, Y., (2022). DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes. Luxembourg: Publications Office of the European Union

Webwise. (2017). Developing digital literacy skills. Retrieved from https://www.webwise.ie/teachers/digital_literacy/

Webwise.ie. (2015). Explained: What is YouTube? *Webwise.Ie*. <https://www.webwise.ie/parents/what-is-youtube/>

Webwise.ie. (2018). Explainer: What is Snapchat? -. *Webwise.Ie*.
<https://www.webwise.ie/parents/explainer-what-is-snapchat-2/>

Welsh, T. S., & Wright, M. (2010). *Information literacy in the digital age: An evidence based approach*. Oxford: Chandos Publishing.

Wennergren, A. C. (2016). Teachers as learners – with a little help from a critical friend
Educational Action Research, 24(2) doi:10.1080/09650792.2015.1058170

Wessels, B. (2012). The reproduction and reconfiguration of inequality: Differentiation and class, status and power in the dynamics of digital divides. In M. Ragnedda, & G. W. Muschert (Eds.), *The digital divide: The internet and social inequality in international perspective* (pp. 17-28). London: Routledge.

Whitbek, L. B., & Gecas, V. A. (1988). Value attributions and value transmission between parents and children. *Journal of Marriage and Family*, 50(1), 829-840.

Whitehead, J., & McNiff, J. (2006). *Action research: Living theory*. London: SAGE.

Whitehead, J. (1989). Creating a living educational theory from questions of the kind, 'how do I improve my practice?' *Cambridge Journal of Education*, 19(41), 52.

Whitehead, J. (2005). Living critical standards of judgement in educational theorising . Paper presented at the *Paper to be Presented in the Symposium on Creating Inclusional and Postcolonial Living Educational Theories at BERA 2005*, University of Glamorgan.

Whitehead, J. (2009). Using a living theory methodology in improving practice and generating educational knowledge in living theories. *Educational Journal of Living Theories*, 1(1), 103-126.

Whitehead, J. (2011). Action planning in improving practice and generating educational knowledge in creating your living educational theory . Retrieved from <http://www.actionresearch.net/writings/jack/arplanner.htm>

Wilkin, S., Davies, H., & Eynon, R. (2017). Addressing digital inequalities amongst young people: Conflicting discourses and complex outcomes *Oxford Review of Education*, 43(3), 332-347.

Winter, E., Costello, A., O'Brien, M., & Hickey, G. (2021). Teachers' use of technology and the impact of Covid-19. *Irish Educational Studies*, 40(2), 235–246.
<https://doi.org/10.1080/03323315.2021.1916559>

Winter, R. (1996). Some principles and procedures for the conduct of action research. In O. Zuber-Skerritt (Ed.), *New directions in action research* (pp. 13-27). London: Falmer Press.

World Economic Forum. (2016). 8 digital skills we must teach our children. Retrieved from <https://www.weforum.org/agenda/2016/06/8-digital-skills-we-must-teach-our-children/>

Yates, S., & Lockley, E. (2018). Social media and social class. *American Behavioral Scientist*, 69(9), 1291-1316.

Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Shapley, K. L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement (issues and answers report, REL 2007-no.033)*. (No. 033). Washington DC: US Department of Education, Institute of Education Sciences, National Centre for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Retrieved from http://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/rel_2007033_sum.pdf

Zhou, J. (1998). Feedback valence, feedback style, task autonomy, and achievement orientation: interactive effects on creative performance. *Journal of Applied Psychology*, 83(2), 261-276.

Zuber- Skerritt, O. (2001). Action learning and action research: Paradigm, praxis and programs In S. Sankara, B. Dick & R. and Passfield (Eds.). *Effective change management through action research and action learning: Concepts, perspectives, processes and applications*. (1st ed., pp. 1-20). Lismore, Australia: Southern Cross University Press.

Zurkowski, P. G. (1974). *National program on library and information services: The information service environment relationships and priorities* (No. 5). New York: National Commission on Libraries and Information Science. Retrieved from <https://files.eric.ed.gov/fulltext/ED100391.pdf>