Digital Literacy Skills: Insights from the experiences of using technology for learning of part-time adult students of Early Childhood Care & Education in an Irish Further Education College

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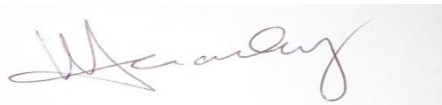dissertation is submitted**:   Master of Arts in Educational Practice

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Abstract

The development of digital literacy skills is a key focus for educational policy makers on both a global and national level driven in the main by economic factors and the need to meet the requirements of a continually evolving and fast paced technological world. This study used insights from an exploration of the experiences of using technology for learning of part-time adult students of an early childhood education and care programme in an Irish further education college to emphasise the importance of the development of digital literacy skills from an assessment of need basis taking into consideration the unique context of the adult learner. Using a qualitative phenomenological methodological approach supported by a theoretical framework of adult learning theories, semi-structured interviews were used to capture the experiences of six participants. The data were analysed using thematic analysis from which four final themes emerged: Confidence and emotional impact of a lack of confidence; Information and Support; Impact of technology on the learning experience; Technology use in ECCE. Findings show that at least basic digital literacy skills are necessary to use technology for learning with a lack of these skills having an adverse impact on learners' confidence and self-esteem. Support in the development of digital literacy skills was found to be provided in an ad hoc and informal manner without recognition of the diversity and unique context of the adult learner. Assessment of needs is required to provide appropriate support which should be on a formal and ongoing basis. Using technology for learning had positive and negative impacts on the learning experience with emphasis on the negative impact on the social aspect. The importance of digital literacy skills and technology use for work in the early childhood sector was found to be undervalued by the participants. These findings have generated knowledge that is valuable and of benefit to educators, educational institutions and policy makers in the further education sector and the early childhood care and education sector particularly in light of the emergency transition to online learning as a result of the COVID-19 pandemic and the study hopes to contribute to the discourse on the reconnect between

the experiences of students and policy design when it comes to the development of digital literacy

skills so that technology might be used to its full potential for learning and for work.

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List of Abbreviations

BTEI	Back to Education Initiative
CAS	Common Awards System
CSO	Central Statistics Office
DES	Department of Education and Skills
DFHERIS	Department of Further and Higher Education, Research, Innovation and Science
ECCE	Early Childhood Care and Education
ELC	Early Learning and Care
ETB	Education & Training Boards
EU	The European Union
FET	Further Education and Training Sector
ICT	Information Communication Technology
JISC	The Joint Information Systems Committee
NCI	National College of Ireland
NFQ	National Framework of Qualifications
OECD	The Organisation for Economic Co-operation and Development
PLC	Post Leaving Cert
QQI	Quality and Qualifications Ireland
STEM	Science, Technology, Engineering and Mathematics
STEAM	Science, Technology, Engineering, the Arts and Mathematics
UNESCO	The United Nations Educational Scientific and Cultural Organization
VLE	Virtual Learning Environment
VTOS	Vocational Training Opportunities Scheme
WHO	World Health Organisation

Chapter 1: Introduction & Background

Introduction

This chapter provides an overview of the research study being undertaken and outlines the rationale for the choice of topic and what the study hopes to achieve. The study focuses on highlighting the importance of the need for at least a basic level of digital literacy skills when required to use technology for learning and is situated in the context of the adult learner in the Irish Further Education and Training (FET) sector. It seeks to get insights from an exploration of how part-time adult students of a Quality and Qualifications Ireland (QQI) Level 5 Early Childhood Care and Education (ECCE) programme in an FET college experience the use of technology for learning.

The choice of topic is influenced by my professional role as a teacher on ECCE programmes in an FET college who has observed students' experiences of using technology for their learning both prior to and during the pandemic. However, as an adult learner undertaking a Master's Degree in Educational Practice, I also have a personal interest in this study as both a researcher and a user of technology for my own learning. I hope that the insights from an exploration of the experiences of a sample of part-time adult students' of ECCE use of technology for learning will emphasise the importance of identifying and assessing the digital literacy skills development needs in the unique context of the adult learner to provide appropriate support with a view to contributing to the discourse on digital literacy development in the education and policy arenas.

Background

The Organisation for Economic Co-operation and Development (OECD) in December 2016, reported that 56% of the world's adult population had either no or very basic ICT skills (OECD, 2016). The European Union (EU) Digital Economy and Society Index (DESI) which reports figures at European level noted in its 2020 report which was based on 2019 figures, that while there was an increase to

58% of people with at least basic digital skills, the lack of these basis skills remains an issue for the remaining 42% of EU citizens (EU, 2020).

In the national context, The EU Digital Economic & Society Index (DESI) 2020 Country Report for Ireland noted that the country performed well in terms of high-level digital skills with the number of people with above basic digital skills at 34%, just higher than the EU average of 33%. While there was an increase in the percentage of people with basic digital skills from 48% in 2018 to 53% in 2019, this remains below the EU average of 58% (EU, 2020). These figures highlight that at 47%, almost half of the adult population in Ireland remain in need of support in developing basic digital skills. Many of these adults are typical of the learner that FET attracts and includes students who have recently completed second level education, unemployed people, adult learners returning to education and learners from minority groups such as the Traveller and Roma communities which highlights the importance of the need for appropriate strategies and policies for supporting the development of these digital skills both at local and national level.

Historically, government policy had tended to focus on the development of the high-level specialised technological skills required for work and to meet the demands of employers. Objective 1 of The National Skills Strategy 2025 – Ireland's Future promised that "Education and training providers will place a stronger focus on providing skills development opportunities that are relevant to the needs of learners, society and the economy" (DES, 2016, p 10). Technology 2022: Ireland's Third ICT Skills Action Plan was "to provide appropriate education and training pathways for people to train, learn and upskill in a variety of high-level ICT skills which are sought after by a diverse range of industries" (DES, 2019, p. 4). Strategic Action 5 under Goal 1 of CUMASÚ Empowering Through Learning Action Plan for Education, 2019 aimed to "Ensure the education system meets the current and future needs of learners participating in an economy, labour market and society being transformed by technology" (DES, 2019, p.16) with focus on education "from early learning and care (ELC) to lifelong learning" (DES, 2019, p. 8).

As the need for the development of digital skills from an early age was recognised, the last decade saw digital skills development included in education policy at primary and secondary level through The Digital Strategy for Schools 2015-2020 (DES, 2015) which set about introducing digital skills learning from primary school through secondary and this work is to be continued through the new Digital Strategy for Schools which in its consultation phase promises to "to address and incorporate new and emerging issues and trends in digital technology" as part of Project Ireland 2040's "long-term overarching strategy to make Ireland a better country for all of its people" (DES, 2021).

While digital skills development was included in educational policy at both primary and secondary level, digital policy and strategy in the FET sector remained somewhat neglected until the establishment of SOLAS in 2013 as the Further Education and Training Authority. FET attracts a diversity of learners for whom a lack of basic digital skills can act as a barrier to commencement, participation and completion of a programme of education as highlighted in reports commissioned by SOLAS, 'Barriers to Further Education and Training with Particular Reference to Long Term Unemployed Persons and Other Vulnerable Individuals (Solas, 2017) and 'Supporting Working Lives and Enterprise Growth in Ireland: 2018-2021 Further Education and Training Policy Framework for Skills Development of People in Employment (Solas, 2018).

Rationale

Interest in the choice of research topic stemmed from observations of the experiences of a diversity of learners in an FET college as they struggled with basic digital skills when using technology for learning. While the 'digital natives' born between 1980 and 1994 (Prensky, 2001) among the learners appeared adept at using their mobile phones, this confidence was not evident in their use of technology for learning which requires different digital literacy skills (Aesaert, Voogt, Kuiper & Van Braak, 2017; Berghdahl, Fors, Hernwall & Knutsson, 2018). These 'digital natives' now aged between 27 and 41 years of age, are lifelong learners in terms of age profile as measured at national and EU level using the Labour Force Survey (LFS) "to calculate the share of adults aged 25-64 who had engaged

in formal and/or nonformal learning" and at 104,000 accounted for over 58% of all learners in FET in 2019 and of which over 62% were females (Solas, 2020).

Adult learners were observed having difficulties with using a computer, accessing information, typing, completing, and uploading assignments and engagement with the Virtual Learning Environment (VLE) used in the college emphasising the importance of viewing digital literacy skills in a broad sense and not just from the operational perspective of the ability to use the tools (Aydin, 2021; Jimoyiannis, 2015; Ng, 2012). An additional issue observed at the time was the lack of access to computers and internet outside of the college with many learners accessing their coursework on their mobile phones thus exacerbating the 'digital divide' between those with computer and internet access and those without (Braverman, 2016) with Aydin (2021) suggesting that in addition to access to technology, socio demographic variables also serve to widen the digital divide.

The global spread of COVID-19 from early 2020 created a worldwide health crisis which impacted on all areas of society including education. To minimise transmission, physical distancing and movement restrictions as recommended by the World Health Organisation (WHO) and implemented by national governments saw the delivery of educational programmes at all levels from early childhood to higher education move to fully online provision in response to the emergency situation created by the pandemic. While many education institutions already adopted a blended learning approach incorporating both in-class and online delivery, others did not. The emergency conditions which necessitated the transition to fully online provision served to emphasise the importance of the digital literacy skills necessary to use technology for learning and highlight the impact that a lack of these skills has on a student's ability to engage with learning, further exacerbating the digital divide. In response to the impact of COVID-19 on further and higher education and in an effort to narrow the digital divide, funding of €15 million was made available by the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) for the purchase of laptops (DFHERIS, 2021), however laptops are of little benefit in narrowing the divide without appropriate

support in the development of the digital literacy skills necessary for their use, taking into account the unique context of the learner and the impact on the digital divide of socio demographic factors such as age, educational levels, socio-economic issues as argued by Aydin (2021).

Given the move to online and blended provision due to the COVID-19 pandemic, the rationale for this study is even more pertinent in seeking to emphasise the importance of the development of digital literacy skills from an assessment of need basis taking into consideration the diversity and context of the adult learner with a view to providing appropriate supports. The concept of 'andragogy' (Knowles, 1980) suggests that adults learn differently to children and many theories of adult learning which are well documented in academic literature have evolved from this concept. Trusting & Barton's (2003) comprehensive and critical review of adult learning theories which have evolved from Knowles concept of andragogy, while possibly dated by this time, provided valuable insights for the theoretical framework for this study which is situated in an adult learning context. This framework was further supported by insights from contemporary theorists of adult learning such as Illeris who looked at learning through the lifespan in his book 'The Three Dimensions of Learning' (Illeris, 2002); Arnett who characterised the stage between 18 – 29 years of age as a distinct period of 'emerging adulthood' as discussed in 'The Oxford Handbook of Emerging Adulthood' (Arnett, 2016) and Lave & Wenger, 1991 whose Situated Learning Theory focused on learning in a 'community of practice' (Lave & Wenger, 2002). These theories have implications for how and why adults learn with focus on the unique context of the adult learner in terms of assessing their needs and providing appropriate support when it comes to the development of digital literacy skills to use technology for learning.

Much research in terms of assessment of digital literacy skills has focused on students in higher education and has been quantitative in nature (Martzoukou, Fulton, Kostagiolas & Lavranos, 2020; Newman, Beetham, Knight &, Langer-Crame, 2019) using self-assessment frameworks such as Dig comp 2.1 (Carretero, Vuorikari, & Punie, 2017a) or the Digital Capabilities Framework (JISC, 2019). While these quantitative studies have value, a risk with self-assessment studies is that students may

over or under assess their digital literacy skills (Martzoukou et al., 2020) and Per (2019) argues that they should be part of an integrated approach taking context into consideration to get at the nuance of the experience.

In recent years AONTAS, The Irish National Adult Learning Organisation has incorporated an element of qualitative research on the general experiences of learners in FET through its National FET Learner Forum Annual Synthesis Reports which have been undertaken since 2016 and which aim to give learners an opportunity to have their 'Learner Voice' heard and respected. The latest report issued in July 2021 presented findings from focus groups and online surveys from a total of over 2000 FET learners considering the impact of the COVID-19 pandemic (Aontas, 2021). Findings related to digital skills were mixed with some learners reporting that they "felt they were well supported in developing the digital skills necessary to learn online" (Aontas, 2021, p.35) while others highlighted digital skills support as an area for improvement with the use of "software and digital learning platforms remains a barrier for some learners" (Aontas, 2021, p. 41). These findings are valuable and further support the rationale for undertaking a specific qualitative exploration of experiences of using technology for learning to highlight the importance of digital literacy skills from an assessment of need basis with a view to highlighting the importance of providing appropriate support so learners may have full benefit from technology enhanced learning.

Aim and Purpose

This study is underpinned by the issue that while students are required to use technology for learning, they may lack the necessary digital literacy skills to do so and this impacts on the learning experience, an issue which has been highlighted due to the impact of the COVID-19 pandemic on the reliance of technology for learning and teaching. The diversity and individual context of the adult learner, supported by adult theories of learning, needs to be considered in any assessment of digital competency so that appropriate support may be provided. The purpose of the research is to highlight 'why' the assessment and development of digital literacy skills is important for 'how' students

experience using technology for learning and the aim of the study is to use insights from a qualitative exploration of the experiences of using technology for learning of part time adult students of ECCE to emphasise the importance of digital literacy skills development on an assessment of need basis.

A qualitative approach was deemed necessary to undertake an investigative exploration of experiences to dig deep and get the rich and meaningful data needed to get insights into understanding 'how' students use technology for learning and 'why' the development of digital literacy skills is important.   A well framed research question enables the specific study on a broad topic by defining the inquiry, setting boundaries and limits thereby providing direction and ensuring cohesion (Cresswell, 2007; O'Leary, 2017).

Using one-to-one semi-structured interviews, this study hopes to collect rich data on the experiences of students' use of technology which will provide insights into how their levels of digital literacy skills impacts on their ability to use technology considering their unique contexts as adult learners. While the findings will not be generalisable and have limited transferability, it is hoped that through their 'Learner Voice' the findings might contribute to the discourse on the need for the development of the digital literacy skills of students on an assessment of need basis

Outline of Dissertation

Chapter Two will provide a critical discussion of seminal literature and focus on key debates within the current discourse on digital literacy to include policy and frameworks. An overview of the evolvement of the FET sector to its current profile in the Irish education system will be outlined. The characteristics of the adult learner will be discussed with emphasis on the profile of the ECCE student and this will be supported by literature on adult learning theories as the theoretical framework which underpins this study.   In Chapter Three, the key elements in the research process will be detailed and justified. The underpinning philosophy and paradigmatic foundations which support the choice of approach will be outlined and the key elements in the design of the study to include methods, instruments, sampling, and data analysis process will be discussed. Considerations relating to rigour,

positionality and ethics will be addressed and the chapter will conclude with an acknowledgment of the limitations of the study.   The findings from the study will be critically analysed and discussed in Chapter Four considering the wider literature and the research questions to be addressed. In Chapter Five, the main conclusions to be drawn from the study will be outlined incorporating a discussion on its implications and contribution to the field and making recommendations for practice, policy, and future research.

Chapter 2: Literature Review

Introduction

This chapter explores the core variables of this study which seeks to get insights from the experiences of using technology for learning of part-time adult students of ECCE in an Irish FET College with a view to emphasising the importance of the development of digital literacy skills from an assessment of need basis, which need has been emphasised due to the impact of the COVID-19 pandemic which necessitated the increased use of technology for learning. These core variables are digital literacy, digital skills policy, the FET educational context, the adult learner, the profile and context of the ECCE practitioner and the COVID-19 pandemic.

In the first section, definitions of concepts within the area of digital skills development will be discussed with a view to providing an understanding of what it means to be digitally literate, and an overview of digital skills assessment frameworks will be presented. The next section outlines European Policy on digital skills development which in turn influences Irish policy and education policy with emphasis on educational policy as related to the FET context. A brief history of the evolvement of the FET sector follows culminating with its current profile in the Irish education arena. An exploration of the characteristics of the adult learner is outlined supported by theories and models of adult learning which provide the theoretical framework within which this research is situated. The profile of the ECCE practitioner is discussed which also addresses the perception of the value of digital literacy skills and technology use in early childhood education and care. A brief discussion on the impact of COVID-19 ensues with the main points from the literature summarised in the concluding section leading to a statement of the research questions to be addressed.

Digital Literacy – Definitions and Concepts

There have been many efforts at defining digital literacy and competency in the literature and a comprehensive presentation is beyond the scope of this paper. According to the United Nations

Educational Scientific and Cultural Organization (UNESCO) 2017 report on Digital skills for life and work, " 'digital skills' refers to a range of different abilities, many of which are not only 'skills' per se, but a combination of behaviours, expertise, know-how, work habits, character traits, dispositions, and critical understandings" (UNESCO, 2017, p.4).

Definitions of digital literacy may be limited to technological and operational ability (Ng, 2012) while others are more encompassing and include knowledge and understanding as well as the ability to use technology as a learning tool (Aydin, 2021). Jimoyiannis (2015) suggests that digital literacy, is simply the new literacy for the digital world in which we live encompassing using digital tools but also the development of skills in using the internet, evaluating information, the ability to understand media and visual information or as Gilster (1997) suggests "mastering ideas not keystrokes" (p. 15). The Joint Information Systems Committee (JISC) summarises by defining digital capabilities "as those which equip someone to live, learn and work in a digital society" (JISC, 2019).

The term 'digital natives' was coined by Prensky and refers to students born between 1980 and 1994 who have grown up in the technological world (Prensky, 2001). While these students might be confident in using technological tools for their day to day lives, this confidence and competence does not necessarily transfer to the digital skills necessary for learning (Bergdahl et al., 2018) when it comes to searching for information, evaluating content, and behaving in a way that secures their safety in the online arena as (Aesaert et al., 2017) argue that using technology for learning requires different skills.

The concept of the 'digital divide' came about in the 1990's and originally referred to the "growing gap between those who had access to the internet and those who did not" (Braverman, 2016, p. 17). Aydin (2021) investigated the concept of the digital divide in terms of the impact of socio- demographic variables in argument to the discourse on access to technology being the sole determining factor and suggests that these socio-demographic variables which impact on the digital divide in turn impact on students' digital skills (p. 2). Variables such as age, levels of educational

attainment, unemployment issues, socio-economic issues all contribute to the widening of the digital divide. To provide support for the development of digital skills, competence levels and abilities must be assessed, and this led to the development of self-assessment frameworks.

Dig Comp which is The European Digital Competence Framework for Citizens was first published in 2013 following comprehensive research and focused on the need to improve the digital competence of citizens for participation in work, education, and society (Punie & Brecko, 2013). The original framework had five dimensions, two of which were updated in Dig Comp 2 in 2016 (Carretero et al., 2017a). The current version, Dig Comp 2.1 sets out 21 competences mapped across 8 levels of proficiency from basic to advanced levels (Carretero et al., 2017b) spanning both operational and behavioural aspects (Markoutzou et al., 2020). Using an infographic 'Learning to Swim in the Digital Ocean' takes the individual through competencies from Level 1 which involves remembering simple digital tasks with guidance, through Level 4 which is understanding the digital tasks relative to independent needs to the creation of complex digital ideas and processes at Level 8 (EU, 2017). While the Dig Comp framework is available to all citizens in society, it is used in educational research, to assess the digital competencies of learners with a view to policy and strategy development and widely cited in international studies on digital literacy and digital competency (Enyon, 2021; Hatlevik, Guomundsdóttir, & Loi, 2015; Markoutzou et al., 2020).

JISC is a non-for-profit organisation which has been providing digital services and solutions to the UK education sectors at higher and further education levels for over 30 years (JISC, 2020). JISC has developed the Digital Capabilities Framework for assessing digital literacy levels specifically in the educational field using the 'Discovery Tool' which "students and staff can use to self-assess their digital capabilities, identify their strengths and opportunities to develop their skills further to enhance their practice of learning" through reflection on six areas: ICT Proficiency; Information, Data & Media Literacy; Digital creation, problem solving & innovation; Digital Communication, collaboration and participation; Digital Learning and Development; Digital Identity & Wellbeing (JISC, 2019). As part of

JISC's research and development work, Newman et al., (2019) presented findings from data collected from 30,000 students across 50 further, higher and sixth form colleges in the UK, across three themes: Digital Lives of Learners, Digital in the Institution and Digital at course level. One of the staggering findings from this report was that only 49% of respondents saw digital skills as important for their future careers and this has relevance for this study in that the participants are students of early childhood education, a sector in which the use of technology for teaching young children has not yet been fully embraced and therefore there appears to be a lack of perceived value of digital literacy skills for work as an early childhood educator.

An Irish initiative was 'All Aboard' by the National Teaching and Learning Forum which used a metro style interactive map as a metaphor for "an exploration, journey and progress" in digital assessment using 6 coloured metro lines to represent: Tools & Technologies; Find & Use; Identity & Wellbeing; Create & Innovate; Communicate & Collaborate; Teach & Learn. (All Aboard Project Consortium, 2015). While the focus in the development of All Aboard was on the higher education arena, the framework may be adapted for use in the FET context.

While these frameworks are useful in assessing digital competence levels, a difficulty lies in the fact that they are self-assessment surveys and students may over or underestimate their digital competence (Martzoukou et al., 2020) however Aesaert et al., (2017) found that students self-assessed digital skills were in line with actual skills.   Given that digital literacy encompasses behavioural, emotional, and social engagement as well as cognitive (Bergdahl & Nouri, 2020), it is difficult to get a nuanced perspective of an individual's ability through self-assessment and it is suggested that competence frameworks should be used as part of an integrated approach taking account of the context in which they are used (Per, 2019). These self-assessment frameworks however are widely used and have emanated from European digital policy.

Policy – European and National

Much focus has been placed on the development of digital education policy in Europe over the last decade as digital competence was recognised as necessary for work, life, and learning (Punie, Ferrari, & Brecko, 2013). Europe 2020 was a 10-year strategy for smart, sustainable, and inclusive growth which included The Digital Agenda for Europe as an initiative which emphasised the importance of digital literacy and competence to meet its ambitions for the following decade (European Commission, 2010). The Digital Compass outlines the EU's current strategy to 2030 and incorporates four main areas for attention: digital skills, digital infrastructures, digital business, and digital public services. In terms of digital skills the strategy proposes that "By 2030, at least 80% of all adults should have basic digital skills, and there should be 20 million employed ICT specialists in the EU – while more women should take up such jobs" as there remains "a severe gender imbalance with only one in six ICT specialists and one in three STEM graduates being women" (European Commission, 2020, p.4) despite efforts at focusing on gender equality in education and employment in recent years. In the Irish context, findings from the Women in Digital Ireland Scoreboard 2020 report that 53% of females have at least basic digital skills with just 33% having above basic skills (European Commission, 2020).

The Digital Education Plan 2021-2027: Resetting education and training for the digital age, sets out the EU strategy for digital education which focus is "To foster a high-performing digital education ecosystem" and "To enhance digital skills and competences for the digital age" recognising the importance of the development of basic digital literacy as well as high level digital skills (European Commission, 2020) which is welcome in light of the reported OECD figures from 2016 indicating that 56% of the world's adult population had either no or basic digital literacy skills (OECD, 2016) and the DESI 2020 Country Report for Ireland highlighting that only 53% of adults had basic digital skills (EU, 2020).

Irish digital policy has emanated from EU policy and directives, with historical focus from an economic perspective on the needs to develop the digital skills needed for the workplace and to meet the demand of employers. In 2013, Ireland launched Phase 1 of its National Digital Strategy (Department of Communications, Energy and Natural Resources, 2013) which focus was on increasing online engagement of citizens. Ireland's National Skills Strategy 2025 envisaged "the effective use of technology to support talent and skills provision, to grow enterprise and to enhance the lives of all withing society" (DES, 2016) and recognised the need for digital skills development to be incorporated from early education through the Digital Strategy for Schools 2015-2020 (DES, 2015). A new Digital Strategy for Schools which is in its consultation phase aims to build on the successes of the previous strategy considering the experiences of all stakeholders together with the impact of COVID-19 in highlighting the importance of technology enhanced learning (DES, 2021).

While FET was under the auspices of the DES until the establishment of the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) in 2020, it had remained somewhat neglected in terms of digital policy and strategy development until SOLAS was established as the Further Education and Training Authority in 2013. In 2014 SOLAS put in place The Further Education and Training Strategy 2014-2019, specifically for the further education sector (Solas, 2014). To complement and support this, the Strategy for Technology Enhanced Learning in Further Education and Training 2016 -2019 was commissioned by SOLAS and the Education & Training Boards Ireland (ETBI) and envisioned the use of technology across teaching and learning with learners supported to become digitally competent for work, learning and life. (Solas & ETBI, 2016, p. 3).

Future FET: Transforming Learning was published by SOLAS in 2020 and "is an ambitious new strategy based around the three core pillars of building skills, fostering inclusion, and facilitating pathways" (Solas, 2020 p.3) and seeks to "Embed digital literacy and capability as a core part of literacy and numeracy support to address the digital divide" (p.49). To complement this, SOLAS were tasked by the DFHEIRS in 2020 to implement a 10-Year Adult Literacy, Numeracy and Digital Literacy Strategy

for Ireland. This has gone through a comprehensive consultation phase, and it is envisaged that it "will take a whole-of-government approach and provide a framework to support individuals to improve their literacy, numeracy and digital skills" (DFHERIS, 2020) with particular focus on "those who do not possess digital literacies at a foundational level "(Solas, 2020) and this has implications for the diverse cohort of adult learners that FET attracts.

The Further Education and Training Sector

The historical perception of the FET was one of the poor relation or the 'Cinderella' (DES, 2014; Mcguinness, Bergin, Kelly, Mccoy, Smyth, Whelan, & Banks, 2014) in the Irish education arena. The sector evolved in a fragmented way with many stakeholders; Vocational Education Committees (VECs), An Foras Áiseanna Saothair (FÁS), An Comhairle Oiliúna (AnCo) making a cohesive definition difficult to provide (Maloney, 2021; Mcguinness et al., 2014). While until recently under the auspices of the DES, it was neither second level nor higher level. SOLAS, established in 2013 as the Further Education and Training Authority became the umbrella organisation for the FET sector with responsibility for funding, planning and co-ordinating the sector and bringing its identity to the fore in the Irish educational landscape.

Following the establishment of SOLAS, the previous 33 VECs were restructured to 13 Education and Training Boards (ETBs) and FÁS, which was the training arm, was abolished. SOLAS vision under the first FET Strategy was "to realise the vision of a world-class integrated system of further education and training in Ireland" (Solas, 2014, p.3.) and the profile has improved somewhat over the last decade. Its move from the remit of the DES to the DFHEIRS has contributed to improving its profile status bringing FET into the tertiary education arena and recognising its potential in meeting the future skills needed.

Today FET provides a large range of programmes including apprenticeship, Post Leaving Cert (PLC), Vocational Training Opportunities Scheme (VTOS), and Youthreach, the majority of which are provided by the 16 ETBs and cover many disciplines (Brownlee, Dunlop, Finnegan, Hodkinson,

Maloney, Munro, McEvoy, O'Donnell, O'Reilly, O'Sullivan, & Ryder, 2021). The student cohort is diverse from early school leavers, unemployed people, immigrants, and adults returning to education and FET recognises the unique context of these diverse students in terms of learning and the context of adult and lifelong learners.

Characteristics of the Adult Learner

Learning theories are well documented in academic literature and Trusting & Barton (2003) provided a comprehensive and critical review of adult learning theories and models from the psychological theories of behaviourism and constructivism through social constructivist theories to social learning theories and expands on the models of adult learning theories. While there is no single theory which explains how and why adults learn best, many have evolved from Knowles concept of andragogy (Knowles, 1980).

Andragogy is not a theory of adult learning per se, but an approach based on a set of principles or "a model of assumptions about learning or a conceptual framework that serves as a basis for an emergent theory" (Knowles, 1989, p. 112) to identify and name the characteristics of adult learning and differentiate them from those of children. Knowles referred to it as the 'art and science of helping adults learn' as distinct from pedagogy which was the art and science of 'teaching' children. He suggested that adult learners are self-directed; they bring life experiences with them; they want to learn what will be useful to and meaningful for them and their motivation is internal (Knowles, 1980) and this has implications for the adult learner in the FET context.

'Transformative learning' has been described as a uniquely adult form of learning and Jack Mezirow developed his theory following interviews with women who had returned to college because of a 'transformative learning' process – a process of meaning making which, through critical reflection on assumptions, beliefs, values, and experiences brings about a change in understanding (Mezirow, 1991; Taylor & Cranton, 2013). Stage one is an experience or a critical life incident, what Mezirow calls a 'disorienting dilemma' which spurs an adult to commence or return to education (Maloney,

2020) following which they go through the transformative learning process. Many adult learners in FET are there as a result of a 'disorienting dilemma' having perhaps reared their children and looking to return to education or employment.

Andragogy is not without its criticisms and there has been much debate in the field of education and psychology which question its limitations and relevance as a theory per se (Hartree, 1984; Pratt, 1993). Both andragogy and transformative learning have been critiqued for being prescriptive and not taking account of the unique context of the adult learner in terms of cognitive ability and social context (Baumgartener, Caffarella & Merriam, 2006; Merriam, 2004) however remain influential in terms of adult teaching and learning in differentiating the characteristics of the adult learner.

While formally and legally in Ireland, an individual is considered an adult at the age of 18, much academic literature considers the adult learner as one over the age of 23 or 25. This study adopts the Council of the European Union's definition of adult learning as stated in the 2011 Council Resolution on a renewed European Agenda for Adult Learning which states that "adult learning covers the entire range of formal, non-formal and informal learning activities — both general and vocational — undertaken by adults after leaving initial education and training" as the profile of adult learners in FET spans the youth, adult, and mature adult learner. Of note here is that in modern society, in terms of learner identity, the stage of 'youth' is taking much longer (Illeris, 2003) and Arnett (2016) argues that the period from age 18 – 29 should be viewed as a distinct developmental stage.

Illeris' background, experience and interests lie with youth and adult education and in particular those learners experiencing social disadvantage - like many learners typically found in FET colleges. Illeris reviewed the many founding theories of learning and development from Piaget and Vygotsky to Freud and Erikson and brought his conclusions together in his book 'The Three Dimensions of Learning' (Illeris, 2002) in which he looked at learning through the lifespan on a continuum. He characterised four stages of lifespan learning: Childhood, Youth, Adulthood and Mature Adulthood

and suggests the stage of 'youth' as the period between the onset of puberty to when what he calls "stable adulthood" can be established which may last up to a learner's mid-30's (Illeris, 2003, p.7) and while learners in FET are generally considered in terms of 'adult' learners, there are many students who are not yet fully in control of their lives or their learning and who have not yet developed a concept of self.

Arnett's theory of 'Emerging Adulthood' suggests that the period between 18 – 29 years be viewed as a distinct developmental stage and 'The Oxford Handbook of Emerging Adulthood' which outlines his theory which "has grown from a briefly sketched theoretical idea into a thriving burgeoning field", takes account of the impact of generation, gender, cognitive and social influences on the adult in this stage (Arnett, 2016, p. 1).

Social theories of learning emphasise the importance of the social context in which learning occurs and how learning is influenced by active participation in the learning experience. Drawing on elements of Bandura's (1977) Social Learning Theory and Vygotsky's (1978) Social Constructivist Theories, Lave & Wenger (1991) developed their theory of Situated Learning. A key concept in this theory is what Lave & Wenger called 'communities of practice' (Lave & Wenger, 2002) in which a group of learners share an interest and engage in collective or collaborative learning which fosters interaction, promotes critical thinking and problem-solving skills. Learning is viewed as a function of the activity and context in which it takes place, and the context should be meaningful to the adult learner with focus on application and use of learning rather than just acquisition of facts. This concurs with Knowles (1980) suggestion that adults want learning to be useful and meaningful and reflect real life experiences.

Theoretical Framework

Many adult students in FET have multiple roles combining work and family or caregiving commitments and much of the research on multiple roles has focused on female students (Lin, 2016; Quimby & O'Brien, 2004). These females bring with them life experiences and they want their learning

to be useful and meaningful for them in line with the characteristics of andragogy (Knowles, 1980) and many are returning to education a crisis point in their lives or following a 'critical incident' (Mezirow, 1991) and the age spread places them on Illeris' continuum of lifelong learning (Illeris, 2002) and situated within Arnett's theory of 'Emerging Adulthood' (Arnett, 2016) and who may benefit from the interaction and collaboration provided by being a member of a 'community of practice' (Lave & Wenger, 2002). It is these theories of adult learning which provide the theoretical framework for this study as they have implications for how and why adults learn and how this has implications for the learning experience and in the case of this research, the experience of using technology for learning of female adult learners.

The Female Adult Learner

The 'Women in FET' report undertaken by SOLAS, found that in 2019 over 60% of learners were females enrolled predominantly across education, health, and social science courses reflective of the CSO 2016 economic sector profiles (CSO, 2016). Of these females, 63% were enrolled in part-time courses which may reflect the flexibility of provision that FET part time courses provides (Solas, 2021, p. 12).

While studies in recent years have shown females to achieve academically well in areas of science, maths and engineering, a review of literature by Cai, Fan & Du (2016) found that males hold more positive attitudes towards using technology and that while the attitude of females was not negative, it was less positive and they suggest that understanding this attitudinal difference between males and females is an important consideration to counteract factors which could hinder females "development of learning and using technology" (p. 10). Berghdahl & Nouri (2020) however found that females had a higher degree of engagement with technology across the behavioural, cognitive, social, and emotional domains and were not impaired by increasing digitisation however reported the need for relationships as critical for learning and from an emotional perspective they were less likely to participate when feeling fear or worry.

A recent review of literature was undertaken by the DES to identify a set of effective interventions for addressing the gender imbalance in Science, Technology, Engineering and Mathematics (STEM) and emphasised the importance of the introduction of STEM at an early level (DES, 2020) which has implications for the perceived value of the importance of digital literacy skills and the use of technology by early childhood educators.   In line with the CSO 2016 economic sector profiles and reflected in the Women in FET figures presented above, there are areas in education that remain mainly female dominated areas such as health, education, and childcare.

The profile of the ECCE worker

Under The Child Care Act 1991 (Early Years Services) Regulations 2006 a childcare worker had to be 'suitable and competent' with either 'experience in caring for children under six' or an 'appropriate qualification in childcare' as traditionally caring was deemed to have been done in the home and education only started in primary school (Moloney, 2018).

In recent years, there has been much focus on the importance of quality early childhood education and care and provision of quality relies on a professional and educated workforce working in a 'competent system' which values 'the educative role of caring and the caring role of education' (Peeters et al., 2018, p. 1). The Child Care Act 1991 (Early Years Services) Regulations 2016 introduced for the first time a minimum Level 5 qualification on the National Framework of Qualifications (NFQ) for ECCE professionals. While many staff are qualified to Level 7 and higher on the NFQ, professional identity remains an issue and "unlike other established professions, we are still spoken to, and critical decisions are made for us, not with us" (Urban, 2019, p. 26).

The proposed introduction in September 2021 of the Early Learning and Care (ELC) Professional Awards which descriptors were published by QQI in November 2019 are a welcome development with a move away from the historic Common Awards System (CAS) and bringing qualifications in the area in line with other professional courses of study setting out the knowledge, skills and competence required to provide quality early learning and care (QQI, 2019).   Of note in the

proposed awards across Levels 5 – 8 is the requirement for learners to be able to develop strategies to support children's "emergent language, literacy, digital literacy and learning, numeracy, arts, creativity and problem-solving skills, STEAM" (QQI, 2019, p.6) and digital skills development has been incorporated as part of the new ELC programme at Level 5 through the Professional Practice Placement in Early Learning and Care Module which Learning Outcome 2 is to "Engage in essential research, report writing and digital skills necessary for education, training and employment in the ELC sector" (QQI, 2019).   This is of interest to this research study given that current technology use in the sector appears to be limited in the main to use for administration and communication purposes and it is hoped that by developing the digital literacy skills of learners on the new programme, they may re-assess the undervalued use of technology for teaching and learning.

Technology in ECCE

Technology has value as a learning and teaching tool however its potential has not yet been fully embraced nor realised in early childhood settings. Donoghue (2003) suggested almost two decades ago that the "The question is not if we should use technology, but how and why we use technology to improve program quality, increase responsiveness to parents, and expand opportunities for professional development" (p. 17).   Despite this, it's use remains limited as it is seen to go against the grain of play-based pedagogy (Murcia, Campbell & Aranda, 2018; Nikolopoulou & Gialamas, 2015) and developmental appropriateness (Langub & Lokey-Vega, 2017).   Dietze & Kashin (2013) however argue that technology should not be viewed as going against active play, but that consideration should be given to how technology can be used to enhance play and according to the National Institute for Literacy "Young children need opportunities to develop the early technology-handling skills associated with early digital literacy that are akin to the book-handling skills associated with early literacy development (National Early Literacy Panel, 2008).   Children however are familiar with technology from their home environment, yet this technology use is not replicated to its fullest potential in their ELC setting. To optimise the benefits of technology for teaching and learning in early childhood, future

students of ELC will need to become digitally literate highlighting the importance of the assessment of need of digital literacy support in the unique context of the ELC adult learner.

The COVID-19 Pandemic

A history of the progression of COVID-19 is beyond the scope of this paper but in sum, it is the disease caused by the coronavirus SARS-CoV-2 which first came to the attention of the World Health Organisation (WHO) in December 2019 as an outbreak of 'viral pneumonia' was reported from Wuhan, China. Droplets from the nose or mouth of an infected person who for example, sneezed or spoke became airborne and transmitted the disease leading to its rapid spread worldwide causing severe symptoms including many deaths. The world's scientists set about developing vaccines, and public health measures as advised by the WHO, were implemented by national governments in an effort to control the spread of the virus with research continuing as variants emerge (WHO, 2021). The COVID-19 pandemic created a worldwide health crisis which impacted on all areas of society including education.

Public health measures which included physical distancing and the restriction of movement were undertaken by the Irish government under advice from The National Public Health Emergency Team (NPHET) to minimise transmission. This saw the move from classroom-based teaching and learning to online delivery of educational programmes at all levels which served to highlight the importance of the development of the digital literacy skills of learners and teachers to engage with the technology. Research to date on the impact of COVID-19 on learning has in the main focused on the 'emergency' nature of the transition to online learning. Shim & Lee (2020) note that online learning, particularly using video to permit interaction, has been used successfully for many years however suggest that the 'emergency' transition due to the pandemic was reactionary with more focus on administration than quality of delivery of content. They argue that the preparedness or otherwise of colleges in terms of infrastructure and supports influenced students' perceptions and attitudes towards online and remote learning. Patricia Aguilera-Hermida (2020) highlights the

importance of the range of factors at play in students' perceptions of online learning in general and particularly under emergency conditions and found that the emergency transition to online learning increased students' knowledge of technology use and this in turn may have a positive impact on their future self-efficacy perspective.

In the Irish FET context, the Further Education (FET) Learner and Training Education Report undertaken by AONTAS in July 2020 found that while there remains a preference for face-to-face classroom-based learning, learners were appreciative of the level of support provided during the emergency transition to online learning. However, highlighted in this report was the need for further digital skills training, increased financial supports and overall wellbeing supports for learners as they continued to engage in online learning (AONTAS, 2020).

The emergency transition to online learning as a response to COVID-19 has highlighted the value of technology for learning while emphasising the importance of the development of digital literacy skills of both learners and teachers to fully embrace that value. As suggested by Shim & Lee (2020) above, it is important that the focus returns to quality of provision using the positives learned from the 'emergency' experience and to ensure that technology enhanced learning is used to its fullest potential by supporting the development of the digital literacy skills of all learners and teachers.

Conclusion

This chapter has explored the central themes related to the part-time adult ECCE students use of technology for learning in an Irish FET context. The first section provided an overview of the concept of digital literacy and competency and it's elements with a look at some of the frameworks used for assessing digital competency. An overview of policy on digital skills development both at European and national level was provided in section two with particular focus on educational policy and more specifically policy as it relates to the FE sector. Section three provided some historic background on the development of the FET in Ireland to its present place in the Irish education landscape. The characteristics of the adult learner were discussed in section four with focus on the female adult

learner supported by adult learning theories which provides the theoretical framework within which this study is posited. The profile of the early years practitioner was explored in section five which culminated with how the value of digital literacy skills and technology use for teaching and learning is perceived by the sector. The backdrop of the COVID-19 pandemic was briefly discussed in the final section.

The literature has provided a basis from which to ask the overarching research question 'How do part-time adult students of ECCE in a FET college experience using technology for learning? by seeking answers to the following sub questions:

1.   What skills are required to use technology for learning?

2.   How has the development of these skills been supported?

3.   How does the use of technology impact on their learning?

4.   How important is the ability to use technology for learning and for work as early childhood educators?

Chapter 3 – Methodology

Introduction

This chapter outlines the key elements in this research process and the rationale for the choice of methodology, data collection and analysis to answer the research question under study. It includes an exploration of the paradigmatic foundations underpinning the research approach from an ontological and epistemological perspective. It provides details on the sampling strategy and participants and the data analysis process. It addresses the rigour of the study and accounts for the ethical considerations concluding with an acknowledgement of the limitations of the study.

Using insights from the experiences of learners, the study aims to highlight the importance of the development of digital literacy skills of learners from an assessment of need basis. To meet this aim, the objectives of the study are to seek examples of learners existing levels of digital competence, to identify examples of supports in developing their digital literacy skills they have received and to identify examples of supports they perceive as necessary from their perspectives when required to use technology for learning and for their work in early childhood education. The exploratory nature of the inquiry necessary to meet the aim and objectives and answer the research question influenced the choice of research design.

The chosen research design is a qualitative phenomenological study influenced by an interpretivist paradigm. Qualitative research explores "the complexity and diversity of human interactions" (Robert-Holmes, 2018, p.83) and an interpretive epistemology requires the researcher to gain an understanding of "the subjective world of human experience" (Cohen, Manion & Morrison, 2018, p.19) through the eyes of the participants. This choice allows for the making of meaning through the interpretation of the learners' real experiences as collected through semi-structured interviews which data was analysed using thematic analysis. This qualitative phenomenological exploration is highly contextual and seeks to get deep and rich nuanced descriptions of experiences from a small

group of participants and while its subjectivity limits its generalisability, it may have transferability (O'Leary, 2017) generating knowledge that may be useful to the teaching community in Further Education from a local policy making perspective and in turn educational policy in the wider FET sector by contributing the 'Learner Voice' to the discourse on the development of digital literacy skills.

Methodology

Phenomenology, as "the question of how individuals make sense of the world around them" (Bryman, 2016, p.26) was chosen as the methodological approach as it relates to human experiences and how they are made meaningful through perception, interpretation, and explanation. The phenomena being explored is the lived experiences of the participants in the study, as they use of technology for learning from their perspectives as individuals participating in the social world (Cohen et al. 2018, p. 19). Pre-defined assumptions and hypotheses are avoided using an approach that is highly subjective emphasising the participants' voice as they relate and interpret their lived experiences.

Scotland (2012) argues that the paradigmatic framing relates to and informs all aspects of the research process and explores three major paradigms from a philosophical perspective – scientific, interpretive, and critical and outlines their related ontological and epistemological underpinnings in terms of what we know and how do we know it. He suggests that the 'what is' or ontology does not exist without human interaction and "the ontological position of interpretivism is relativism" (p. 9) and 'what it means to know' or epistemology depends on 'real world phenomena' and therefore is highly 'subjective' (Scotland, 2012, p.9) with the interpretivist paradigm requiring "that our personal perspectives along with those of our participants, are given voice" (p. 8) while efforts should be made to support the interpretation and understanding with existing research. Taylor & Medina (2013) provided a historical overview of the major paradigms that underpin educational research from the historical positivist viewpoint through the paradigm wars to the more contemporary paradigm views of interpretivism post modernism and using a metaphor suggest that "The interpretive fisherman

enters the water, establishes rapport with the fish, and swims with them, striving to understand their experience of being in the water" (p 4).

The phenomenon under study was the lived experiences of part time learners on an early childhood education programme in a further education college as they used technology for learning which involved gathering detailed and authentic accounts of what was meaningful and significant to them, giving them a voice, adding my voice as I tried to interpret and understand their experiences. Hopkins Regehr & Pratt (2017) suggest that "phenomenology helps us understand what we normally take for granted" and researchers bring with them their own values and beliefs "about the phenomenon they are studying, and about what a meaningful representation of that phenomenon looks like" (p. 21). The use of semi-structured interviews as the method of data collection using a small sample size was deemed most appropriate to gather nuanced and rich data however in terms of researcher positionality, I had to be aware of and reflect on my own values, beliefs, and experiences of using technology as both an adult learner and a teacher of adult learners on ECCE programmes, the observations of whom provided the rationale for undertaking this study.

Adopting a reflexive position by disclosing my 'self', I acknowledge that I bring my own values and beliefs, my own 'baggage' to the research process (Bryman, 2016; Cohen et al., 2018; Hopkins et al., 2017). As a user of technology as both a female adult learner and teacher on early childhood programmes, I had preconceptions in terms of the challenges and barriers that may be encountered due to a lack of digital literacy skills and a perceived lack of value of technology in early childhood education however Heideger argues that "researchers' previous knowledge and assumptions help them better understand the phenomenon under study" (Hopkins et al., 2017, p. 22).

Malterud (2001) suggests a metaphor of" the knower's mirror" for "attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process" (p. 484). In this regard, I adopted a systematic approach to the study by initially choosing the correct methodology to investigate the phenomena and critically analysing existing

literature. Thematic analysis of the data was supported by immersion in the data through the iterative back and forth process between raw data and emergent codes and themes, which was supported by reflective writing on initial thoughts and interpretations, questioning and clarifying ideas, revisiting codes and emergent themes until an understanding and interpretation of the data culminated in four final themes as presented and discussed in Chapter 4.

In terms of ethical risk, awareness of the teacher/student power relationships risk in terms of potential bias between students and teachers was necessary. To this end, and to combat any pressure on students to take part, a decision was made to sample students from the part time programme who were not direct students of the researcher albeit as a co-ordinator of the Level 5 ECCE programmes in the college, the researcher was known to the students on an administrative level. While acknowledging the dual role as interviewer and programme co-ordinator as a possible ethical risk, being a teacher on related programmes and course co-ordinator also provided a level of expertise and knowledge of how technology use is experienced by both learners and teachers in the college in addition to its use personally as an adult learner.

Alternative Approaches

A quantitative approach framed in a post-positivist paradigm was considered which would have produced "objective and generalizable knowledge about social patterns" (Taylor & Medina, 2013, p. 3) using a survey based on a standardised instrument such as the JISC "Digital Capability Discovery Tool" for students to self-assess their digital competence (JISC, 2019). The administration of a survey is efficient, cost effective and allows for data to be analysed electronically (Loomis & Paterson, 2018) with screening and testing to support to support quality and rigour and enabling the replication of the study by other FET colleges however a lack of sufficient knowledge and expertise in quantitative methods was prohibitive of this research design choice.

Per (2019) favours an integrated approach such as a mixed methods study. Underpinned by a pragmatic paradigm which ontological position is that reality is constantly changing and that there are

problems that need to be solved (Punch, 2014), pragmatism allows for the mixing of approaches to best answer the research question and a mixed methods approach incorporates the strengths of both qualitative and quantitative research while minimising the weaknesses of each approach (Johnson & Onwuegbuzie, 2004). An exploratory two-phase design collecting qualitative data first to inform the quantitative investigation (Punch, 2014, p. 310) would have reached the larger college student population (O'Leary, 2017) and avoided overreliance on one source of information to answer the research question. Mixed methods research requires time and resources for both data collection and analysis in both qualitative and quantitative research approaches and both a lack of time and experience in undertaking quantitative research were prohibitive of this as a choice of design.

A qualitative phenomenological study therefore was deemed the most appropriate to produce the experiential data required to get the nuanced and detailed 'insights' from the 'learner voice' on the experiences of the participants and was feasible in terms of experience and time.

Sample

It was decided that a small sample was best suited to the phenomenological choice of methodology as it would provide detailed nuanced accounts of the experiences of the participants while also allowing for comparison of differences and similarities between those experiences (Smith, Flowers & Larkin, 2009) to get 'thick' (Geertz as cited in Bryman, 2016) description and deep and meaningful insights. Non-probability purposive sampling using a convenience sample based on the criteria required for the purpose of the study was used and therefore it could not be deemed representative of the whole (Mukherji & Albon, 2018; Robert-Holmes, 2018) and has limited transferability. The collection of deep and meaningful data albeit from a small group was best suited to getting the insights necessary to answer the research question under study.   A risk with convenience sampling is that it can lead to bias in interpretation of findings, however the researcher hoped to combat this through reflexivity (Robert-Holmes, 2018; Taylor & Medina, 2013) and awareness of her own opinions, values, and biases throughout the process where the role of the

researcher 'self' is acknowledged as part of the process (Mukherji & Albon, 2018, p. 93) as an adult learner, researcher, and teacher.

All students in the part-time Level 5 class groups, both those in their first year of study and those in their second, were invited via their college emails attend a short Google Meet (Google, 2021) session scheduled during class time mutually agreed with the class teachers where an overview of the study was presented, questions were answered and a request for volunteers for participation was made. This was an informal way of introducing the study and Google Meet was a platform with which the students were familiar as it was the platform used by the college for online and blended programme delivery. To negate somewhat the student teacher power relationship that may exist from an ethical perspective, part-time students of Level 5 ECCE were chosen as the population from which to seek the sample as they were not taught by the researcher in her position as teacher. Furthermore, these students were working in early childhood settings and so had sector knowledge which it was felt would assist in answering the questions relating to the use of technology and value of digital literacy skills for work in the sector in an informed manner.

Following the information meeting, eight students volunteered to participate. A Research Participant Information Statement (Appendix A) which elaborated on the detail provided at the group meeting was sent from my NCI student email (Appendix B) attaching an Informed Consent Form (Appendix C) for completion and return prior to engaging further in the study. Two volunteers subsequently withdrew due to unforeseen and personal circumstances so the sample for the study numbered six participants from a population of seventeen students on the part-time Level 5 Early Childhood Care and Education programme. Five of the participants were in the 25 – 50 age bracket with one participant aged under 20 in line with the profile and age range of the adult learner in line with the Council of the European Union's definition as one who had completed initial education (EU, 2011) as discussed in the literature on the characteristics of adult learners as discussed in Chapter 2. Four participants reported their Leaving Certificate as their highest prior level of educational

achievement with two participants having achieved either a further or higher education qualification. Two were married which children and four were single with no children and living with parents and the sample is representative of the demographic and profile of the female adult learner as outlined in the SOLAS 'Women in FET' Report (Solas, 2020).

Data Collection

Data were collected using semi structured interviews which were conducted in May 2021. Six semi-structured interviews were completed using Google Meet at a time of the participants choosing which allowed for flexibility in relation to class time and work. The interviews lasted between 25 – 40 minutes and were video recorded with the participants' prior written and verbal consent using the record function on Google Meet.

The interview schedule (Appendix D) was drawn up and included six background questions for demographic purposes and to make the participants feel at ease and ten open-ended questions which could be tailored to suit the participants (Cohen, Manion & Morrison, 2018) using a mix of framing questions as guided by the aim of the research but flexible enough to allow for probing to elicit 'thick' data (Geertz as cited in Bryman, 2016, p. 384; Mertens, 1998) as through a 'conversation with purpose' (Smith et al, 2009, p. 59) participants shared their experiences and provided examples with feeling and emotion.

The interview questions were drawn up using the Dig Comp Framework and JISC Capability Tool, as discussed in Chapter 2, as guiding frameworks. While both are quantitative self-assessment frameworks, questions were adapted to an open-ended approach to enable the gathering of data to answer the research question and get nuanced information on the phenomenon being studied. For example, the JISC question "What personally owned devices do you use to support your learning" (Newman et al., 2019, p. 40) was adapted to the open ended "Technology is all around us and part of the way we live, work, and learn. Can you tell me a bit about how you use technology in your everyday life?" (Appendix D, Q1) and "When it comes to learning and engaging with your course, what

technology do you use for that? (Appendix D, Q2). The JISC question "Who supports you most to use digital technology in your learning?" (Newman et al., 2019, p. 51) was incorporated as a prompt or probe in drawing out the answer to Questions 1 and 2 in terms of 'how did you learn' how to use these technologies (Appendix D, Q 1c & Q 2d).

A pilot interview was conducted using a convenience sample of one student of part-time Level 5 ECCE who was not participating in the study but agreed to undertake a pilot interview. This pilot interview allowed for a trialling of the experience of undertaking semi-structured interview techniques using open-ended questions with prompts and probes giving the interviewer an opportunity to assess the suitability of the interview schedule in providing the data required to answer the research question and to gauge the timing of the interview. As an inexperienced interviewer, the pilot highlighted the difficulties involved in keeping participants on track when using open ended questions and the risk of leading the answers using prompts thereby highlighting the risk of instilling researcher bias.

Following the pilot, questions were re-ordered and re-structured and prompts revised to ensure that the experiences as relayed by the participants and to be interpreted by the interviewer, met the aims and objectives of the question under study. A final interview schedule was drawn up for use in the interviews with the six participants in the sample (Appendix D). The interviews took place over Google Meet. Prior to recording, each participant was again asked for their permission to video record the interview and told that they had the right to withdraw at any stage during the interview process should they wish to do so. A brief recap on the aims and purpose of the study was given followed by some background demographic questions for information purposes which also served the purpose of easing the participants into the interview and making them feel comfortable. Six semi-structured interviews were undertaken for data analysis.

Data Analysis

The semi-structured interviews were analysed using Braun & Clarke's (2006) six step thematic analysis framework to identify patterns or themes which process is described by Smith et al., (2009) as iterative and inductive. While there are software packages available for such analysis, given the small sample size and to get deep into the experiences of the participants for a richer interpretation, the data were analysed manually using Microsoft Word (Microsoft, 2021).

The first step in this process involved getting familiar with the data. After each interview was undertaken, initial notes were made to capture the immediate essence of the interview from the participant's tone and body language and my own initial thoughts and interpretations of what was said. The video-recordings of the interviews were immediately uploaded to NCI's OneDrive for password protected storage. They were subsequently transcribed using Word's Transcribe function (Microsoft, 2021). Unfortunately, this function in Word was unable to detect the particular 'accents' of participants and so, using a second device, each video recording was watched and listened to several times alongside the initial notes made by the interviewer at the time and the typewritten transcripts were edited and corrected accordingly to ensure that the captured data were authentic allowing for further notations to be added and for immersion in the data (Smith et al, 2009).

Initial codes were generated in the second stage through line-by-line analysis of the first interview transcript where distinctive responses within the document were highlighted and any further thoughts or notes were added to those initially made following the interview. These highlighted distinctive responses allowed for the creation of coded segments and these, together with the notes were transferred to a new working document which started the process of data reduction (Myles & Huberman, 1994; Smith et al., 2009) by moving away from the original raw data to working with the coded segments and this same process was followed for each transcript in turn at all times keeping the original raw data for reference and clarity and supporting the quality and rigour of the study.

During the third step, emergent themes were identified and developed through further review of the coded sections and reducing and simplifying the content further which made it easier for the themes to emerge and connections to be made between subthemes and themes. The fourth step in this process involved combining the emergent themes from all six interviews and searching for patterns and commonalities across them where there were shared or repetitive experiences among the participants and this allowed the provisional themes to emerge. These provisional themes were reviewed and modified referring back to the data in an iterative process (Smith et al., 2009) to ensure my interpretations of what was relayed by the participants was correct and to ensure these provisional themes made sense in relation to the research question being addressed.

The provisional themes were reworked and refined during the fifth step in this process which aimed to "identify the 'essence' of what each theme is about" (Braun & Clarke, 2006, p.92) and involved bringing together the relationships of and between subthemes and main themes. Following numerous re-workings and refining, four final themes emerged which was hoped would provide a 'thick' description of the experiences of the participants (Creswell, 2007; Smith et al., 2009) in addressing the research question under study. The final step in this process involved producing a narrative account telling the story of the results. This was done using a combination of participants' own words inserted verbatim to provide rich description of their experiences allowing the 'Learner Voice' to be heard. A critical interpretation of the findings contextualised using supporting literature and discussed in relation to the study's specific research questions is presented in Chapter 4 – Findings and Discussion.

Quality and Rigour

Quality and rigour in qualitative research can be difficult to assess unlike quantitative studies in the positivist paradigm which data benefits from screening for distributions and measurements for consistency using a myriad of tests to establish validity and reliability (Bryman, 2016, p. 158) and therefore transferability of findings. In establishing quality and rigour in qualitative research, Guba &

Lincoln (1994) suggest the following four corresponding criteria: credibility, dependability, transferability, and confirmability for assessing trustworthiness and authenticity.

The credibility of this study lies in the immersion of the researcher through the iterative back and forth process of thematic analysis of the data. All actions throughout the research process were taken in good faith with acknowledgment of researcher positionality as reflexive through reflection on values, beliefs and possible ethical risks as the researcher's 'self' was acknowledged as part of the process (Mukherji & Albon, 2018) which was systematic and thorough. The dependability of the study was supported by the clarity in the research question and sub questions being addressed and the appropriate choice of a phenomenological approach as the methodological approach best suited to answering those questions. The interview schedule was piloted to ensure its effectiveness in providing the answers necessary to generate the data required. The characteristics of the profiles of participants was provided and incorporation of their verbatim quotes in the provision of rich description together with the researcher's interpretations supported transferability enabling comparison with similar contexts (Taylor & Medina, 2013). Findings were linked back to the data for confirmability and the 'thick' description provided supported the authenticity (Guba & Lincoln, 1994; Onwuegbuzie & Leech, 2007) as did the ethical considerations taken (Taylor & Medina, 2013) as outlined below.

Ethical Considerations

Ethics in research is defined by Aubrey, Godfrey & Thompson (2000) as "The moral philosophy or set of moral principles underpinning a project' (p. 156) as guided by three main principles, respect, beneficence, and justice. Respect for the person recognises their autonomy, informed consent and right to protection. Beneficence relates to actions for the benefit of others without risk of harm and justice is about fairness of both the risks and benefits of the research. This study sought to get insights from the experiences of using technology for learning of a sample of six part-time adult students of ECCE, with equity of respect given to their values, beliefs and opinions recognising each as situated in

a particular individual context. Due care was taken at all stages of the research process to ensure "integrity in the production of knowledge and to ensure that the mental, emotional and physical welfare of participants was protected" (O'Leary, 2017, p. 123). To support transparency, a critical analysis of existing knowledge was undertaken with respect and consideration and credit attributed through appropriate citation and reference of literature. The qualitative phenomenological nature of the study sought to meet the aim and objectives in eliciting the experiences of the participants to produce rich data which it was hoped would contribute to existing knowledge and understanding and have implications for policy and practice in relation to digital literacy skills development and the use of technology for learning.

Consent to host the study was sought and received from the FET college in which the required population for the sample were enrolled. For selection criteria, only students on the part-time ECCE programme were considered from a teacher/student power relationship ethical risk perspective and participants were required to be over 18 for consent purposes. The selected population of part-time Level 5 ECCE students were initially invited to an informal presentation using Google Meet (Google, 2021) where an overview of the nature and purpose of the study was given, issues were addressed and questions answered and where the researcher explained, emphasised and reassured students that participation was entirely voluntary; their decision would be respected; there would be no adverse impact on their relationships with either the researcher, their teachers, or the college and that they had the right to withdraw at any stage of the process.

Following this informal meeting, a formal invitation to participate in the study was sent from my NCI student email account to the ECCE students' FET college emails. Attached to this email were a detailed information sheet on the nature of the study outlining the level of their required participation (Appendix A) and an informed consent form for completion and return via email (Appendix C). Eight accepted informed consent forms were initially returned, following which participants were invited to take part in a one-to-one interview with the researcher of approximately

30 minutes duration which was scheduled at a mutually agreeable time to allow for flexibility in relation to classes and work commitments. Two volunteers subsequently withdrew from the study due to unforeseen circumstances and so six interviews were undertaken, one of which was on a Sunday morning and two took place after 7 pm on a weekday evening recognising the unique context of the adult participants.

In terms of ethical risk, the researcher was aware of the unequal power relationships that can exist between students and teachers. To this end, and to combat the pressure students may feel to take part and sign an informed consent document, the researcher did not invite the students that she teaches to participate in an effort to neutralise this risk (O'Leary, 2017) however as a co-ordinator of the childcare courses in the college, the researcher was known to the proposed participants on an administrative level. In terms of positionality the researcher was aware of her own values, beliefs and attitudes and the importance of acknowledging these through reflexivity and remaining neutral during the interviews to avoid bias and leading the participants.

While participants were identifiable during the data collection process of one-to-one interviews using video, once transcribed, anonymity was applied by using the following pseudonyms: Anna, Bree, Chloe, Dee, Evie, Fay. The requirement to video record the interviews using Google Meet (Google, 2021) was highlighted at the introductory session and as part of the advance information sheet and agreement to this was signalled by return of the Informed Consent Form. In line with the right to withdraw at any stage of the process, this was re-emphasised to participants at the start of each interview and permission was again sought verbally prior to recording. Responsibility for the information and data generated lay with the researcher and was stored on NCI's OneDrive.

Guiding principles as identified by Aubrey et al., (2000) and O'Leary (2017) were considered throughout the research process. Participants' informed consent was given based on complete understanding of the study and their required level of participation with recognition of the autonomy and right to protection from emotional, psychological, and physical harm whilst respecting

confidentiality and anonymity. Ethical approval was sought and granted by NCI based on the ethical considerations outlined above.

Limitations

As previously discussed, quality and rigour in qualitative research can be difficult to measure and this research study has some limitations in terms of transferability. The small convenience sample of six participants used as part of the phenomenological methodological approach may not be deemed representative of the population of students ECCE across the FET sector and therefore have limited transferability however, despite a possible lack of value of the findings by the quantitative scientific community, it is hoped that the depth and richness of the data collected may be of value to educators and FET colleges at local level in emphasising the 'non-fit' of a 'one size fits all' approach to digital literacy development, highlighting the requirement for support on an assessment of need basis recognising the diversity and individual context of the learner, particularly the female adult learner.

Researcher positionality was addressed and acknowledged through reflection on own values, beliefs and experience when it comes to using technology for learning from both an adult learner and teacher of adult learners perspectives however this 'insider' position as an adult learner and teacher also influenced the choice of design as in order to hear the 'learner voice', a phenomenological exploration was warranted to get deep insights and a better understanding of the experiences as reported by the participants.

The inexperience of the researcher in undertaking semi-structured interviews has been acknowledged and piloting of the interview schedule highlighted areas for adjustment in terms of re-ordering questions and the use of prompts to collect the data necessary to answer the research questions. The decision to undertake thematic analysis manually rather than using software was taken due to the small sample size and while this was a time-consuming iterative process, it allowed for immersion in and reflection on the data and led to a deeper understanding of the experiences as recounted by the participants.

Conclusion

This chapter has outlined the key elements in this research process and the rationale for the choice of a qualitative phenomenological approach to answer the research question under study which discussion was supported by wider literature. It explored the paradigmatic foundations underpinning the choice from an ontological and epistemological perspective. It has detailed and justified the convenience sampling strategy used and described the data analysis process using thematic analysis. The quality and rigour of the study have been addressed and the ethical and positionality considerations outlined. It concluded with an acknowledgment of the limitations of the research.

Chapter 4: Findings and Discussion

Introduction

The overarching question in this study asked, 'How do part-time adult students of ECCE in a FET college experience using technology for learning?' The identified issue was that while students are required to use technology for their learning, they may lack the digital literacy skills to do so, and this study sought to emphasise the importance of the development of digital literacy skills from an assessment of needs basis. This issue was more pertinent given the move to online learning during the COVID-19 pandemic. To get the insights necessary to answer the research question and meet the aim, the following sub questions were used to guide the process:

1.   What skills are required to use technology for learning?

2.   How has the development of these skills been supported?

3.   How does the use of technology impact on their learning?

4.   How important is the ability to use technology for learning and for work as early childhood educators?

This chapter presents the findings as gathered from the thematic analysis of the interview transcripts of a sample of six part-time adult students of ECCE in an FET college. Of the sample, five participants were in the 25 – 50 age group with one under 20. All had completed at least secondary education; two had family caring commitments with four living in their parents' homes. They were working in early childhood settings and attending college on a part-time basis reflecting the flexibility of provision that FET part time courses provides, particularly in meeting the needs of the female adult learner who may have multiple roles. The findings are presented with embedded discussion on the themes contextualised in light of wider literature and the research questions being asked against the backdrop of the impact of COVID-19. Four final themes emerged from the thematic analysis:

Confidence and emotional impact of a lack of confidence; Information and Support; Impact of technology on the learning experience; Technology use in ECCE.

Confidence and emotional impact of a lack of confidence in using technology varied among the participants both in terms of technology used in their daily lives but particularly in terms of the use of technology for learning where a lack of digital literacy skills was found to have a huge emotional impact on participants confidence and self-esteem. Information and support in developing digital literacy skills was limited. Participants reported self-learning, learning from family and peers and trial and error in relation to the digital skills required for their daily use of technology while from an educational perspective support was delivered on an ad hoc 'one size fits all' basis with a lack of prior information regarding the use of technology for their learning. The impact of technology on the learning experience was found to be both positive and negative with learners reporting both benefits from using technology in terms of e.g., access to content and time saved commuting however all participants reported the negative impact of the lack of social presence of both teacher and peers which was exacerbated as a result of the emergency move to fully online provision of classes due to COVID-19 restrictions. Technology in ECCE remains undervalued as a teaching and learning tool, limited in the main to use for administration and communication purposes.

Theme One: Confidence and Emotional Impact of a lack of Confidence

Participants reported confidence when it came to using technology in their daily lives with ranges from "pretty confident" (Chloe) to "very comfortable using all of it - like it's not even a thought about using it" (Evie) however confidence levels did vary slightly with the age of the participants with the younger participants who "... grew up with technology and … knew straight away what they were and, how to use them" (Chloe) reporting slightly higher levels of confidence in their daily use. Mobile phones were used for communication using text, email, and WhatsApp, searching the internet using Google, watching YouTube or Netflix, listening to music on Spotify, using various applications such as Bus Timetable Apps. High levels of use of social media applications were reported among the younger

participants who communicated using "Facebook, WhatsApp, Instagram, Snapchat, Netflix yeah everything" (Chloe) with Evie reporting she was on it "nearly 24 hours a day".

The older participants' use of applications was more limited to those they deemed useful or necessary as characterised by the concept of 'andragogy' (Knowles, 1980). Bree reported that "Snapchat, social media, and all that. I haven't even ventured into all that" but would use "Google or YouTube if I was looking for kinda things" and "you can listen to podcast, you can listen to music, any music you want, and, in the meantime, you can look for the news" (Anna). Participants used technology for shopping online, accessing or applying for services as "you need it to apply for everything, like everything is done online. Shopping and all" (Fay). They recognised that we live in a digital world where "it's just the norm now. Everyone's doing it. That's what you need to know" (Bree) highlighting the need for digital literacy skills development of all citizens for participation in society.

While the mobile phone was the device of choice for daily use of technology as "today mobile is everything" (Anna) and "I'd use my iPhone, like, every day, probably like, I'd say a good amount of hours every day" (Dee) , it was also used by some participants for learning purposes with Anna using it "to do my research instead of turning on my laptop" and Evie used her mobile to "email people and stuff like that in regard to learning". While Bree used her phone for searching for information she preferred "just handwriting everything".

Jimoyiannis (2015) definition of digital literacy encompasses using digital tools such as mobile phones and computers but also the development of information and media literacy when using the internet and searching for and evaluating information. While all participants reported confidence in their use of technology in their daily lives, particularly their mobile phones, some were less confident when it came to technology for learning which Aesaert et al., (2017) suggest requires different skills and which concurs with Bergdahl et al., (2018) who suggest that the confidence and competence in daily use of technology does not necessarily transfer to the digital skills necessary for using technology for learning purposes. Reported confidence was in the main limited to the technological and

operational ability (Ng, 2012) of using devices such as mobile phones, tablets and computers and social media applications such as Facebook and Instagram however confidence was lacking when it came to knowledge and understanding, to evaluating information as Dee stated "Like I'm flying when it comes to using the stuff but not great when it comes to researching and referencing and that sort of stuff, if that makes sense" and to internet safety as expressed by Anna "I always have a caution when I put anything in writing on the internet".

A major finding was the emotional impact of a lack of confidence in using the technology necessary for engaging with their course and how this impacted on the learners' self-esteem and wellbeing. Anna reported "struggling and not only just me and six other girls" and Bree was "… like so many times, getting up to walk out and I was just persevering with it … because I, I couldn't do it". Difficulties in engaging with the VLE were found as Anna was "struggling with Google Classroom" and "just finding things and like you know things were in different categories and I've just never used that system before - that format" (Evie).

The feelings of fear and dread were evident in the emotional responses of the participants as they reported feeling stressed, frustrated, useless, highlighting how technology use impacted on their feelings of self-worth and self-esteem and motivation to learn and participate (Bergdahl & Nouri, 2020). Anna was afraid she would "break the school's computer" and get herself in trouble or "crash the system". Dee couldn't "communicate properly with teachers about certain things sometimes, that I'm like not really wanting to go on to my classes then and kinda do them, cos I'm a bit confused or maybe like, frustrated about an assignment and stuff". These feelings impacted on the self-esteem of participants who were "trying to keep up with the girls who knew how to do the computer" (Bree) and Chloe who felt "lost and you see everyone else, you know, moving along and you're stuck". The participants empathised with the "older people that take on this course as well that haven't been in education in years" (Fay) and who were struggling and how they felt fear and dread on their behalf.

Of note here are the hurdles which had to be jumped and while overcoming one hurdle or barrier and feeling perhaps a sense of achievement, their confidence was knocked back as they were faced with another as Bree noted "I'm typing up all this stuff and then I go to look for it and its gone. And then I'm like OMG or I went to upload it and it's gone to somebody else or its not there anymore and it was stressing me out" and:

> So, you know, you think you've done great work. You've actually, like, got the assignment finished and you know the deadline is coming up and all of a sudden you have this extra bit of panic because it's like, I don't know what to do with it now and its late at night and there's nobody to ask and then you can't do anything until the next day and then it's showing up as submitted late when you know you had it done on time. That's very stressful. (Fay)

These feelings and emotions were exacerbated by a lack of support in providing and developing the digital literacy skills necessary to undertake these technological tasks, particularly following the transition to online learning due to COVID-19 where support had to be provided through the medium of technology via video, on the VLE or by email. The emotional impact of a lack of these skills needs to be recognised in the unique context of the learner with appropriate assessment of needs and provision of support, both initial support at induction for but ongoing support in terms of developing further the digital literacy skills levels of the individual learners.

While not reviewed in the literature for this study it is suggested that research studies on 'technostress' (Chiappetta, 2017; Upadhyaya & Vrinda 2020; Wang, Tan, & Li, 2020) and on 'technology acceptance models' (Kemp, Palmer, & Strelan, 2019; Lai, Wang, & Lei, 2012) would be of benefit in supporting the findings in relation to the emotional impact of technology use for learning.

Theme Two: Information & Support

Participants reported that they were mainly self-taught when it came to using technology in their daily lives or learned how to use technology from family and peers by "watching my older brother

and then he taught me how to use them" (Chloe). The 'digital natives' "… just grew up knowing how to use them" (Dee) and taught themselves by "playing around with it, just pressing buttons on it, basically like just I know I can't make any mistakes" (Bree).

In relation to technology for learning, prior experience was limited and reflected the digital natives vs older adults spread of the participants and their levels of confidence with using technology. Bree, who had no experience of using technology in her secondary education "got an iPad for like, college work and that and it was no no basically from start to finish" while from a previous course, Dee had used "Google Classroom and I suppose that's why I was comfortable with it again this time" with Evie reporting "When I was in school in England, we did ICT" however Anna expected it to be "like the old days in the college. You just type your assignment, print out and use a ring binder and give it to the teacher".

Prior knowledge of the level of technology required engagement with the course was lacking with Dee not expecting it to "be as, like, as technical as it was, even if we were in the classroom" and this sentiment is supported by Evie who "didn't think I was gonna use this much technology actually". Bree "didn't know that I needed any technology to do this course. I didn't realise I needed to do any of that" and "went in blinded, like, I really, really, really hadn't got a clue how to do anything. Like to this day, I wouldn't have done this course-it's all about computers, I wouldn't have done it". This sentiment from Bree highlights the difference between the digital skills required for daily use of technology vis a vis those required for learning (Aesaert et al., 2017; Bergdahl et al., 2018). Fay however knew that she would use "the internet big time…. knew that was all entailed as part of the course".

Supporting the development of digital literacy skills to engage with technology for learning requires assessment of competence levels and abilities recognising the diversity of learners and accounting for variables such as age, education levels and socio-demographic variables. While various frameworks are available for the assessment of digital literacy and competency, the study found that

only one of the participants had undertaken a specific work related skills assessment "so my job could see where I was at for like my tech kind of side and all" (Dee) but none of the participants had ever been asked about their digital literacy skills nor assessed in relation to the skills required to use the technology to engage with their course. Not one had heard of any of the of the digital skills assessment frameworks Dig Comp 2.1 (Carretero et al., 2017b), or JISC Digital Capabilities (JISC, 2020) or the Irish initiative 'All Aboard' (All Aboard Project Consortium, 2015)

While they had not experienced using any of the assessment frameworks, they did value the idea of assessment of skills levels as "you can't just assume that everybody knows how to do all of this stuff" (Dee) and felt that "a little survey or like that or a skills assessment brief or a little just a quick test or whatever" (Evie) would be useful in determining a student's level of competence as "if you put everyone at the same level at the start, you would think that, yeah, everyone's fine but as I said like, they could be lost" (Chloe).

While participants reported satisfaction with the support received when using the technology necessary to engage with their learning, both in-class and online, this support was in the main provided in an ad hoc manner by peers " the girls in the class were very helpful" (Bree) and individual teachers who "sent us videos on how to use things properly and how to attach files and everything like that" (Chloe) however teacher digital competence was an issue for Anna as "unfortunately, she's a lovely teacher but she's not good in it so she couldn't explain to us either". Initial introduction and induction to the technology required was done by way of video tutorials which "shows you how Google Classroom works, how to register as a new student ……very clear and slow" (Anna) and "a booklet of, how to open up everything, with like, pictures with like, details sentences under each picture …it was sent in the post, so you didn't really need any technology to like, read that…but you would have needed the internet and a laptop and to know how to use email" (Chloe). While this support was welcome, it did not account for the diversity of the learner cohort nor recognised the individual digital literacy skills of learners but adopted a 'one size fits all' approach. This concurs with

findings from the recent Aontas Learner Forum in which some learners reported being well supported (Aontas, 2021, p. 35) while others reported that a lack of support in digital literacy skills development acted as a barrier (Aontas, 2021, p. 41) to their use of technology for engaging with their course.

In terms of support provided, participants who had reported high levels of digital literacy skills felt that they "didn't really need it" (Dee) and "knew exactly what I was doing" (Evie) however did acknowledge that their digital literacy skills were improved as while "I know everything I need to know about working at the laptop or a computer in Word, but he did teach me a lot" (Evie). Empathy with learners who lacked digital skills and competence was evident as "for people a lot older than myself, you definitely need supports put in place" (Dee) and "I definitely think there should be it like it should be taken into consideration about other people that, like, haven't been in education for a long time, that need help" (Fay). While the younger participants whose reported confidence levels were high, felt the support was adequate, they did feel that without prior knowledge or experience of using technology, they would be lost as "…there was a girl that was doing like her level 5 with me last year and she hadn't been, she hadn't a clue how to use a laptop and she was very slow on the laptop, and I was very nervous for her that she wouldn't get her assignment done in time because of how slow she was typing" (Fay). Dee's mother "wouldn't have, like, grown up in a tech, kinda way" and her older brother "is not tech savvy at all".

Participants felt that the individual context of the student needed consideration when it came to the ability to use technology for their course. Awareness of the digital literacy skills required should be made known in advance as Bree "didn't know that I needed any technology to do this course. I didn't realise I needed to do any of that" and "would have enjoyed it more if I had have known and if I had have had some sort of computer skills". It was suggested that assessment of digital literacy skills should be undertaken to identify needs so that appropriate support could be provided both initially and ongoing. Suggestions were a basic ICT skills course which would serve to meet the operational definition of digital literacy as outlined by Ng (2012) but also ongoing digital literacy development

support to include information and media literacy, as suggested by Jimoyiannis (2015) as "you have to search for information you know and know that you're looking in the right place – that it's, you know reliable and all of that. I don't think it's just about the physical sort of skills, you know, being able to type and that" (Fay) recognising the andragogical view that adults have an internal motivation and want to learn what is useful and meaningful for them (Knowles, 1980).

These findings suggest that policy for the development of digital literacy skills needs to be informed by the 'Learner Voice' of experiences of students and while self-assessment frameworks are useful, they should be used as part of an integrated approach (Per, 2019) so that a nuanced perspective of an individual's digital competence can be obtained with a view to identifying and providing adequate support as "you can't just assume that everybody knows how to do all of this stuff" (Dee). Participants were unaware of the percentage of adults with only basic digital literacy skills and while they hadn't heard of the proposed Adult Literacy Numeracy and Digital Literacy Strategy (ALNDL) (DFEHRIS, 2020) and felt that while it sounded "a bit ambitious" (Chloe), it was "long overdue" (Dee) and "technology is the times you know. And like, I think that everybody needs the basic skills yeah" (Evie) and government "do need to be helping people more and not just taking it for granted" (Bree)

Theme Three: The Learning Experience

Positive and negative impacts of using technology on the learning experience were reported with most reflecting the emergency move to fully online learning due to the COVID-19 pandemic. On the positive side "not being in the actual college, you have a lot more time to do, like your assignments and to, say like for myself, to work as well" as "you don't have to go into the college and like get stuff off teachers and all because everything is all in Google Classroom" (Dee) and can be accessed at any time so "I get to come up and do it whenever I want" (Fay) . Fay reported that she "much much prefer it online" with Evie suggesting that "without technology I probably wouldn't have, wouldn't have learned anything this year".

Anna felt that technology had both advantages and disadvantages as "good and it's bad. Both, same time" and that while it was convenient, it had a "lack of personal touch". This lack of personal touch reflected the impact of how using technology can impact in the social aspect of learning that all participants deemed missing. Dee felt that "you can't really get to know your teachers more like you would if you were in person with them" and this was echoed by Bree who would "rather be in the class asking loads of questions and then sending emails" and Chloe who felt "that social interaction, the social side of learning, I think, was missing massively". Fay missed "that discussion or chat about something" where "there's questions that other people might have, and I'd go, yeah, that's a good question, I want to hear the answer to that". Chloe "wouldn't even know some of the other girls at all, not even what they look like, cos they never turned on their cameras in class – so that's a bit weird" and "we haven't had the chance to meetup in the classroom and get to talk to each other so, like I don't know any other girls" (Dee). This lack of social interaction was also felt by Fay who said, "It's like I don't have any classmates" and "you can't build any kind of relationship with your classmates like that, like, you don't know what kind of person they are if you haven't spoken to them properly or met them".

All participants reported that using technology, particularly as everything was online for the past year due to the COVID-19 pandemic, impacted negatively on the social aspects of the learning experience and this may perhaps be attributed to the fact that they had commenced their programme in the classroom. This social context is important for learning as interaction promotes collaboration, critical thinking, and problem-solving skills through that sense of relationship from being part of a 'community of practice' as suggested by Lave & Wenger (2002), and while some classes were delivered 'live' using Google Meet as the medium, the teacher presence and classroom environment so crucial to the social aspect of learning, was difficult to replicate. Participants were working part-time in early childhood settings and of interest here is perhaps a reflection in these findings of the essence of their work with children which is a social process and focuses on the importance of positive relationships, collaboration, interaction, and emphasises values of caring, respect, trust, and empathy.

Participants missed the interaction that being in the classroom provides, the spontaneity and communication that takes place with the teacher and peers, seeing relationships as critical for learning (Berghdahl & Nouri, 2020).   While online classes took place, many students did not turn on their cameras and participants reported not being able to recognise their classmates if they met them in person. There was frustration when using technology for communication. While content was posted and many teachers recorded their classes for future viewing, this was not always the case. Participants reported their preference for being able to ask a question in class or the prompting in conversation that occurs from issues or questions posed by classmates. While they felt it was impersonal and that they did not get to know either the teacher or the classmates, they did concede that without technology, they would not have been able to engage with or complete their course.

Theme Four: Technology use in ECCE

Technology use in ECCE is in the main limited to communication where "the tablet, it has an app where you communicate with the parents of everything that was going on during the day" (Chloe) and "they'd just get it like, straight away" (Dee) and administration as the "receptionist downstairs that has all that and there's management that has all that" (Fay) purposes indicating that it has not yet been embraced as a teaching and learning tool. In terms of its use for teaching and learning, this appeared to be limited to "just the radio or cd" (Bree) or "when they had their free time, they'd play music on a speaker" (Chloe) with Dee reporting "we don't use any technology with the kids" or "the teacher might use a bit for research, but they wouldn't when it comes to actually teaching" (Evie).

Technology has value as a learning and teaching tool however it appears from these findings that it is not used to its full potential and still viewed as being at odds with play-based provision (Murcia et al., 2018; Nikolopoulou & Gialamas, 2015) and developmentally inappropriate (Langub & Lokey-Vega, 2017). Overall participants did not seem to see the value of technology for learning and teaching in ECCE as felt by Bree "I don't think it's good to introduce technology at a young age" and "it's not like from the ages of two to six, you need to know how to work an app on a phone like there's

more to life" and "it's probably good for them to have a break from it if I'm being honest" (Evie). Anna however felt that "technology use needs to be improved a little bit compared with some other countries" and Dee would use it "if there was something, like, that I thought that the kids, of like that age, would be interested in, I'd be like ya, lets pop it onto the tablet and see, see if they'll watch it or something". Fay felt that "there's a taboo against using technology, when it comes to phones anyway" and "you shouldn't have your phone on you full stop" which may be reflective of child protection and data protection guidance and legislation. However, she did concede that "when it's for educational purposes, I think you should be allowed" to use your phone.

Dee, when asked what her role was, replied "just a childcare assistant" which indicates that the professional identity of the ECCE worker remains an issue despite the focus on quality provision from a professional and qualified workforce (Peeters et al., 2018; Urban, 2019) with the historic 'caring' nature of the role persisting. Participants overall did not view digital literacy skills as absolutely necessary for their work as early childhood educators as "it's not like we're in, we're trained in the types of jobs where we're going to be sat at a computer all day. It's a hands-on job that we're doing, you know?" (Evie). Bree felt that "it's inclined to be older women, parents that have kids already and kinda more adapting that want to do childcare that they are familiar with it" rather than younger females however the youngest participant in this study was 19. While this may be the case in FET at Level 5 and Level 6, many younger learners are qualifying to degree level.

Of note is that these findings concur with those reported by Newman et al., (2019) whose study of over 30,000 students in the UK found that less than half saw digital literacy skills as important for their future work. This has implications for this study in that the participants are students of early childhood education, a sector in which the use of technology for teaching young children has not yet been fully embraced leading to a perceived undervaluation of the importance of digital literacy skills for work as an early childhood educator.

As an 'insider' teacher on early childhood programmes, it is important that this perception is changed and that learners are encouraged to develop their digital literacy skills and use technology in their workplace. The incorporation of digital skills development as part of the Early Learning and Care Professional Award at Level 5 and 6 is welcome where learners will be supported to develop the "digital skills necessary for education, training and employment in the ELC sector" so they may in turn support children's "emergent language, literacy, digital literacy and learning" (QQI, 2019, p.6). This will hopefully lead to a more positive view on the importance of digital literacy skills for teaching and learning and to see the value and benefit of technology for enhancing children's play (Dietze & Kashin, 2013).

Until 2016, a childcare worker just had to be 'suitable and competent' with either 'experience in caring for children under six' or an 'appropriate qualification in childcare' (Moloney, 2018) and this tended to attract the older adult female learner who might have reared her own children and so had the necessary experience to be suitable and competent. The sector remains mainly female dominated as supported by figures from the 'Women in FET' report (Solas, 2020) and in line with the CSO 2016 economic sector profiles (CSO, 2016). The Child Care Act 1991 (Early Years Services) Regulations 2016 stipulated a minimum QQI Level 5 qualification for ECCE professionals and Bree felt that this impacted on older female learners "in their 50s and 60s who been doing it all their lives and they have to go now and go onto IT and computers and all as well like" highlighting the need for the development of digital literacy skills to engage with learning to achieve this minimum qualification. While there was a lack of perceived value of digital literacy skills for work in ECCE, participants did see them as necessary for engaging with learning to undertake an ECCE qualification and it is hoped that the inclusion of digital literacy development in future programmes will lead to a reassessment by students of the value of technology for teaching and learning in early childhood education.

Conclusion

In answering the overarching research question 'How do part-time adult students of ECCE in a FET college experience using technology for learning?' findings from the thematic analysis of the interview data with embedded discussion supported by wider literature have been presented in this chapter through four final themes: Confidence and emotional impact of a lack of confidence; Information and Support; Impact of technology on the learning experience; Technology use in ECCE have addressed the address the four sub questions:

1.   What skills are required to use technology for learning?

Findings indicate that a level of at least basic digital literacy skills is necessary when required to use technology for learning and these encompass the operational skills of using the technological tools such as computers and engagement with the VLE and skills in information and media literacy and internet literacy. A lack of basic digital literacy skills has been found to adversely impact on emotional and social wellbeing and confidence.

2.   How has the development of these skills been supported?

The study found that participants were mainly self-taught when it came to the skills needed to use technology in their daily lives seeking support from family and peers if necessary. While they reported being satisfied with the support received for using technology for their learning, it was provided in an informal and unstructured manner by peers and teachers. Assessment of the digital literacy skills levels of learners was highlighted as necessary prior to providing appropriate support on a formal and ongoing basis to allow for the diversity of learners from basic users to more advanced users of technology. Prior knowledge of the level of digital literacy skills required to use the technology necessary to engage with the course should be provided by the FET college.

3. How does the use of technology impact on their learning?

    Participants reported both positive and negative impacts with technology allowing them to access materials at their own pace and time, allowing them to work and saving time on commuting. The emotional impact was addressed in terms of impact on confidence and wellbeing. The use of technology could not replicate the social aspect of the classroom and the study found that participants missed the engagement with the teacher and engagement with their peers as exacerbated by the impact of COVID-19 restrictions.

4. How important is the ability to use technology for learning and for work as early childhood educators?

    While the importance of the ability to use technology for learning was recognised in terms of the digital literacy skills needs as addressed above, its perceived value for work as early childhood educators was reduced to communication and administration purposes with little perceived value of the need for digital literacy skills for work in the sector in terms of using technology for pedagogical purposes.

The insights from this phenomenological exploration of the experiences of using technology for learning of the sample of part-time ECCE students in FET have been presented in this chapter with discussion on the four final themes contextualised in light of wider literature and enriched using verbatim quotes from the participants in answering the research questions. These findings have highlighted the importance of the development of digital literacy skills on an assessment of need basis taking into account the unique context of the adult learner when required to use technology for learning.

Chapter 5: Conclusion

Introduction

This chapter concludes the study which sought to answer the research question 'How do part time adult students of a Level 5 ECCE course in an Irish further education college experience using technology for learning? The rationale for undertaking this study came from observations of students' struggle with using technology for learning due to a lack of digital literacy skills and the research question was underpinned by the issue that while students are required to use technology, they may lack the necessary digital literacy skills to do so. While the observations took place prior to the COVID-19 pandemic, it further supported the rationale and provided a backdrop. The aim of the study was to emphasise the importance of the development of digital literacy skills on an assessment of needs basis, taking account of the individual context of the adult learner so that appropriate supports may be provided to ensure that the full potential of using technology for learning may be realised.

To get deep and meaningful insights, a qualitative phenomenological approach located in an interpretivist paradigm was deemed most suitable and a comprehensive discussion on this approach including the rationale for its choice over alternatives was provided in Chapter 3. Scotland (2012) suggests that qualitative exploration should be supported by wider theory and a comprehensive review of literature and policy relating to digital literacy and policy, the FET sector, the adult learner, and the profile of the ECCE practitioner was undertaken in Chapter 2 which included literature on adult learning theories which provided the theoretical framework to underpin this study.

Following thematic analysis of the data, four underlying themes emerged: Impact of Competence Levels on Confidence; Support Received and Supports Required; Impact of technology use on the learning experience; Value of digital literacy skills for work as an early childhood educator and Chapter 4 presented a comprehensive discussion of these findings in the context of wider literature and the research questions to be addressed.

In terms of quality and rigour, the limitations of this study have been addressed in Chapter 3 and while the findings may not be transferable, their value lies in the richness of the data as presented through the four themes as comprehensively discussed in Chapter 4.   The implications of these findings for educational practice and policy are discussed in this concluding chapter with suggested recommendations for future research.

Conclusions

Based on the findings as critically discussed in Chapter 4, the main conclusion to be drawn from this study is that the use of technology for learning requires at least a basic level of digital literacy skills to negate the adverse impact that a lack of these skills has on learners' confidence when using technology, particularly from an emotional perspective. Assessment of digital literacy skills of learners needs to be undertaken, taking into consideration the diversity and unique context of the adult learner so that appropriate supports can be provided as the study found that existing support is provided on an ad hoc and informal manner by family, peers, and teachers together with a large element of self-learning. Using technology for learning impacts both positively and negatively on the learning experience with particular emphasis on the negative impact on the social aspect of the learning experience with learners missing the interaction with teacher and peers, particularly as a result of the impact of the COVID-19 restrictions. Digital literacy skills were found to be undervalued when it came to working in the ECCE sector with little use of technology for teaching and learning purposes.

Limitations

The limitations of this study in terms of quality and rigour were addressed comprehensively in Chapter 3. To summarise, the small sample size used cannot be deemed representative of the population of students of ECCE and therefore the study has limited transferability, however given the depth and richness of the data collected from this study, it could be replicated at local level in other FET colleges to explore the experiences of similar size samples of students across a range of

programmes, not just ECCE with a view to getting insights from their experiences with using technology for learning and identifying supports required for digital literacy development.

Time was a limiting factor in undertaking this study as both interviewer and participants had the dual role of adult learner and worker and so flexibility had to be used in terms of interview scheduling which was spread out over the month of May 2021 prior to the end of the academic year. Inexperience in undertaking semi-structured interviews with open-ended questioning using prompting and probing was a factor and the interview schedule was piloted in an effort to negate some of this inexperience.

Both quantitative and mixed methods studies were possible alternatives which would have allowed for collection of data from a larger sample. Given the exploratory nature of the research question however it was felt that a quantitative approach would not have provided the rich data necessary to answer it and this together with a lack of experience in undertaking quantitative research prohibited its choice. A mixed methods study would have enabled triangulation of data which would have added to the validity of the study (Miles & Huberman, 1994) however inexperience in undertaking the quantitative element of this approach together with imposed time constraints prohibited this choice of approach with a qualitative phenomenological study deemed must suitable to meet the aims and purpose of the study which was to use insights from the experiences of the adult learners use of technology to highlight the important of the development of digital literacy skills on an assessment of need basis.

The issue of researcher positionality has been addressed through reflection and acknowledgment of my roles as researcher, adult learner, and teacher and by taking a systematic approach to the study with a deliberate choice of sample as non-students of the researcher in an effort to negate any possible ethical risk posed by the teacher/student power relationship.

Implications and Recommendations for practice and policy

This study has implications for practice and policy at both local college and government departmental level in that adult learners who are required to use technology for learning should be supported in developing the digital literacy skills necessary and this can only be done by assessing the digital literacy levels of learners, identifying their needs, and providing appropriate initial and ongoing support. While this study has limited transferability due to its size, the richness of the 'learner voice' as advocated by AONTAS in its FET Learner Forum Reports and expressed by the participants as relayed in the verbatim quotes in the Findings and Discussion Chapter emphasises the importance of digital literacy skills assessment and development when it comes to using technology for learning. It is important to build on the positives taken from the emergency transmission to online learning as a result of COVID-19 and to identify areas for improvement.

Recommendations at local college practice level are to:

• Make prospective learners aware of the level of technology used by the college for course delivery in terms of hardware and VLE.

• At induction stage, undertake a quantitative study of the student population using a framework such as Dig Comp or the Digital Capabilities Framework (JISC). While this is a self-assessment tool and measured statistically relying on students to self-assess their competency, it would perhaps give an indication of the digital literacy levels of students who are commencing a programme of learning.

• Following identification of those in need of support, provide appropriate support in a formal manner by way of basic ICT skills module, short course, or micro credential for those with little or basic digital literacy skills and ongoing support by way of scheduled drop-in or one-to-one sessions to further develop the digital literacy skills of those who have above basic knowledge

and may have high operational skills, but may require assistance in uploading assignments, engaging with the VLE, searching for an evaluating information.

Recommendations at policy level are to:

• Use the 'Learner Voice' from qualitative explorative studies such as the AONTAS Learner Forum to inform digital literacy development policy design and strategy considering the diversity and unique context of the adult learner together with focus on minority groups.

• While funding of €15 million was provided for hardware by the DFHEIRS in August 2020, ensure that funding is available for the provision of appropriate support for the ongoing development of digital literacy skills through provision of specialised staff or training and upskilling of existing staff as the hardware is of little use if students are not supported in its use.

• Ensure that digital literacy skills development is incorporated in the teaching of all modules in FET by providing in-class and assessment opportunities for students to use and develop their technological skills in a way that supports the all-encompassing definition of digital literacy.

Another implication of this study is the emotional impact that a lack of digital literacy skills has on a student's self-esteem and well-being.

Recommendations at practice level:

• Encourage students to exercise their 'learner voice' as stakeholders in their education by providing opportunities for them to do so through for example, the AONTAS Learner Forum.

• Ensure that well-being supports are in place and that learners are aware of them.

• Be aware that a 'one size fits all' informal approach to provision of digital literacy supports may have an adverse impact on the emotional wellbeing of learners.

Recommendations at policy level:

- Ensure that policy and strategy for the development of digital literacy skills focus on the unique context of the student and assessment of their individual needs so that appropriate policy and strategies may be devised.

- Policy should take a holistic approach to include the social and emotional wellbeing of all students as the use of technology for learning impacts on the social and emotional aspects of the learning experience.

A further implication of this study is perceived lack of value of digital skills and use of technology in the ECCE sector.

Recommendations at practice level:

- Ensure that students are given the opportunity in-class and in assignments to develop their digital literacy skills so they may become comfortable and competent with using technology for their learning and therefore take these transferable skills into the ECCE workplace.

- While digital literacy development is part of the proposed new ELC award from September 2021, provide opportunities for students to learn how to use it for teaching and learning purposes with a view to improving the perception of its value as a teaching tool in ECCE.

Recommendations at policy level:

- While the profile of the ECCE worker has been the subject of much debate in recent years with efforts continuing towards professionalism, policy should highlight the importance of digital literacy skills for work in the sector with emphasis on the value of technology for teaching and learning and not just as an administrative tool.

- Programme design for all courses in ELC should incorporate specific modules on how digital tools may be used for teaching young children.

Recommendations for further research

Had time permitted this study would have benefitted from the support of further qualitative data collected through observations or case studies which would have allowed for triangulation and added to the quality of the study in terms of validity and reliability. As previously mentioned, research in relation digital literacy skills and digital competence has, in the main, been quantitative in nature, based on self-assessment frameworks and has benefitted from the ability to reach many participants. Further research could be undertaken using such a study across the college population as a whole or the FET student population.

As previously suggested, a mixed methods two phase exploratory study could be undertaken. The findings from this qualitative exploration could be used to inform the questions for a survey instrument which could be distributed to either the population of ECCE students, both full and part-time in the college locally or across FET colleges and this would allow for the introduction of more demographic variables. As relayed in the recent launch of the Learner Forum Report by AONTAS, it is important that the 'Learner Voice' is heard through qualitative and mixed methods studies which explore experiences of learners as, along with teachers, colleges, and policy makers, they are stakeholders in their learning and findings from such studies should be used to inform strategy and policy making decisions, recognising the unique context of the adult learner.

Conclusion

The rationale for undertaking this research study came from observations of a diversity of learners in an FET college as they struggled with using technology for learning due to a lack of digital literacy skills. These observations took place prior to the COVID-19 pandemic which saw teaching and learning move completely to online and blended provision using technology and therefore exacerbated the issue for many learners and so this study was timely in identifying the issue that,

while students are required to use technology for learning, they may lack the necessary digital literacy skills to do.

The aim of the study was to use insights from a qualitative exploration of the experiences of students to emphasise the importance of digital literacy skills development on an assessment of need basis highlighting 'why' the assessment and development of digital literacy skills is important for 'how' students experience using technology for learning by asking

'How do part-time adult students of early childhood care and education experience using technology for learning in an Irish further education college?'

Semi-structured one to one interviews were undertaken with six part-time adult learners on an ECCE programme using open ended questions which enabled the participants to speak freely about their experiences with using technology and how it impacts on their learning experience. Following thematic analysis of the data, the emergent themes provided the structure for a critical discussion of the findings which were contextualised considering wider literature and in light of the research question.

While these findings are not generalisable and have limited transferability, they are rich in detail and emotion as evidenced in the verbatim quotes from the participants and it is hoped that through this 'Learner Voice', which highlights that a basic level of digital literacy skills is necessary for using technology for learning, that findings may have benefit for educators at local level, for administrators at college level and for policy makers at government level. It is important that there is a reconnect between the experiences of students and policy design as the development of digital literacy skills needs to be done on an assessment of need basis recognising the unique context of the adult learner so that appropriate supports may be provided initially and on an ongoing basis.

A good place to start might be to look at myself as a teacher and how I and my own college can use the findings from this study to ensure that we identify the digital literacy skills needs of our

learners so that we can move aware from the 'one size fits all' approach and provide appropriate and formal, initial and ongoing support for the development of the digital literacy skills of learners so that they may benefit from the use of technology for learning to its fullest potential.

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Appendix A

Research Participant Information Statement

Research Participant Information Statement

<div style="border:1px solid blue; padding:1em;">

Research Study Title

"Insights from the experiences of using technology for learning of Early Childhood Education students in a Further Education College"

Researcher: Martina Buckley, Student in Master of Arts in Educational Practice, National College of Ireland.

Email: x15041395@student.ncirl.ie

Mobile: 087 2906640

Research Supervisor: Dr. Leo Casey, Director of Centre for Education and Lifelong Learning, National College of Ireland.

Email: Leo.casey@ncirl.ie

Tel: 01 6599210

</div>

What is the study about?

The purpose of this study is to explore students' experiences with using technology for their learning with a view to understanding whether students are adequately supported in using technology and if not, to identify what supports are required from the students' perspective.

Who is carrying out the study?

This study is being carried out by Martina Buckley to fulfil the requirements for the Master of Arts in Educational Practice with National College of Ireland's Centre for Education and Lifelong Learning. The study will take place under the supervision of Dr Leo Casey. The research study has received research ethics approval from National College of Ireland.

What does the study involve?

If you decide to take part in this research, I would like to involve you in discussion and reflection on your experiences of using technology for your learning. Through this study, I wish to give a voice to

the students, allowing you to express your views and share your practical experiences. You will be asked to take part in a one-to-one interview with the researcher. The interviews will be semi-structured but will follow a line of questioning to extract insights from your experiences.

How much time will the study take?

The interview will last approximately 30 minutes and will be video recorded, with your permission, using Google Meet and then transcribed for analysis. These interviews will be arranged at a mutually agreed time during the month of April 2021.

What will happen to the information that is collected during the study?

Research findings will be available to you for review, insight, and critical feedback. All collected information will be treated confidentially and will be disclosed only with your permission, except as required by law.

Given the current COVID-19 restrictions, all materials will be in soft copy/digital format and saved into password protected files on the National College of Ireland One Drive and stored for five years as per NCI Data Retention policy. All video recordings will be immediately transcribed and identifying names and locations will be replaced with pseudonyms (e.g., Interviewee 1, Organisation A) so participants will not be recognisable in either visual or auditory form. Please understand that findings from the study may be used for examination, publication, and presentation purposes.

Will I receive the results of the study?

You have a right to receive feedback about the findings of the research study after the study is finished. You can ask for the feedback by emailing the researcher.

Can I withdraw from the study?

If you are happy to participate in this research study, please be always clear that your participation is entirely voluntary, and you can withdraw from the study at any time. This will not in any way impact on your relationship with the Researcher, other teachers, the further education college, or National College of Ireland.

If participants have concerns about this study at any time, feel free to please contact the Research Supervisor – details above.

Appendix B
Email to Participants

Dear Participant,

My name is Martina Buckley, and I am a student of the Master of Arts in Educational Practice at National College of Ireland. My research supervisor is Dr. Leo Casey.

For my Master's Dissertation, I am conducting a research study with the aim of gaining insights from the experiences of using technology for learning of Early Childhood Education students in a Further Education College.

I would greatly appreciate your participation in this research study. Please find attached a Research Participant Information Statement which will provide you with all information concerning your possible involvement with this project.

If you decide to take part in the proposed study, please read the information statement and return the attached Participant Consent Form to me by email at x15041395@student.ncirl.ie I will then contact you to arrange a mutually acceptable time to schedule your interview.

If you have any additional questions, please do not hesitate to contact me or my supervisor.

Kind regards

Martina Buckley

Researcher	Research Supervisor
Martina Buckley	Dr. Leo Casey
Student in Master of Arts in Educational Practice	Director of Centre for Education and Lifelong Learning
National College of Ireland	National College of Ireland
Email: x15041395@student.ncirl.ie	Email: Leo.casey@ncirl.ie
Mobile: 087 2906640	Tel: 01 6599210

Attachments: Research Participant Information Statement
Participant Consent Form (to be returned via email)

Appendix C

Participant Consent Form

Research Study Title: "Insights from the experiences of using technology for learning of Early Childhood Education students in a Further Education College"

Supervisor:	Dr. Leo Casey
	Director of Centre for Education and Lifelong Learning
	National College of Ireland.
Email:	Leo.casey@ncirl.ie
Tel:	01 6599210

Researcher:	Martina Buckley
	Student in Master of Arts in Educational Practice
	National College of Ireland
Email:	x15041395@student.ncirl.ie
Mobile:	087 2906640

_____

- I have read and fully understood the Research Participant Information Statement.
- Any questions I have about the research have been answered for me by the researcher.
- I agree to have my interview video recorded.
- I understand that I can withdraw from the study at any time should I wish to do so.

I confirm that return of this document via my email to the Researcher at

x15041395@student.ncirl.ie may be deemed my consent to participate.

Appendix D
Interview Schedule

Research Study Title: 'Insights from the experiences of using technology for learning of part-time Early Childhood Education students in a Further Education College'

Research Question: 'How do part-time adult students of ECCE in a FET college experience using technology for learning?'

Sub questions:

5.   What skills are required to use technology for learning?

6.   How has the development of these skills been supported?

7.   How does the use of technology impact on their learning?

8.   How important is the ability to use technology for learning and for work as early childhood educators?

Before Interview Starts

- Check informed consent received

- Thank participant for agreeing to take part

- Explain the goals of the study

- Explain the goals of the interview and the process

- Emphasise that the interview focus is on their experiences and opinions and there are no wrong or right answers or responses

- Ask permission to record and explain that all data well be treated confidentially

- Emphasise that participant has the right to pause the interview or withdraw at any stage of the process.

- Keep in Mind Research Questions above

Background Demographic Questions

- Year of Birth

- Highest level of education

- Current course

- Current role in ECCE

- Experience of using technology for learning prior to this course

Open Ended Questions:

1. Technology is all around us and part of the way we live, work, and learn. Can you tell me a bit about how you use technology in your everyday life?

    a. Devices/Apps

    b. Comfort/Confidence

    c. How did you learn?

2. When it comes to learning and engaging with your course, what technology do you use for that?

    a. Devices/Apps

    b. Digital skills needed

    c. Comfort/Confidence

    d. How did you learn?

3. When did you become aware of the digital skills you would need?

    a. Prior knowledge

    b. Assessment

    c. Support received

    d. Support necessary

4. How important are digital skills for your work in ECCE?

    a. Technology uses

    b. Administration

    c. Teaching and Learning

5. How might digital skills development be incorporated into this course?

    a. Assessment

    b. Ongoing use

6. Two of the survey type frameworks available for use in education to assess students levels of digital literacy skills are Dig Comp - The European Digital Competence Framework and the JISC Discovery Tool.   How useful do you think these are?

    a. Have you ever used them?

    b. How could they be used?

7. As an adult learner, tell me about any barriers or challenges you face when using technology for your learning?

    a. Access

    b. Internet

    c. Cost

    d. Family

8. How does using technology impact on your learning experience?

    a. Advantages

    b. Disadvantages

    c. Social impact

9. Were you aware that according to recent EU figures, almost of half of the adult population (47%) in Ireland do not have basic digital literacy skills and so the DFHERIS with SOLAS are developing a 10-Year Adult Literacy, Numeracy and Digital Literacy Strategy for Ireland. What are your thoughts on that?

10. Do you have any comments or anything you would like to add before we end the interview?

Thank you for your participation.