

**Ireland and the lifelong learning curve: The intergenerational contribution to
digital literacy for life**

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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

I declare that the word-length of this thesis, 49,619 words, conforms to the permitted maximum.

Signature:

Abstract

In 2021, data on Internet usage for those aged 75 years and older in Ireland indicated that almost half of this cohort (46%) had never accessed the Internet (Central Statistics Office, 2021b). This study examines the role of intergenerational and peer relationships in the digital lives of older adults in Ireland, first, to explore perspectives on lifelong learning, and second, to understand the perceived impacts of digital engagement on personal quality of life in later years. A case study was employed as the overarching methodological approach. Data from participants were collected using a mixed methods approach through an online survey, and interviews with participants, representing two cases as units of analysis - onliners and offliners. These data were collected and analysed using a constructivist grounded theory approach.

My findings indicate that intergenerational relationships support the development of digital skills of older adults in this study. The generations, however, are largely adjacent (sons and daughters) rather than non-adjacent (grandchildren) and these learning exchanges are informal. While the study did not set out to examine learning between members of the same generation, it found that questions surrounding digital technologies were best addressed on an individual level, often from a same generation peer, whether household member, family or other relative, friend or member of one's social environment. There was evidence of indirect reciprocity from these learning exchanges to a participant's peers. Lifelong learning is important to perceived positive quality of life amongst many older adults. Research into peer learning in informal social and community environments for older adults has been scarcely addressed up to now. This thesis highlights that it is here that much later-life learning relating to digital skills

takes place. Building on Rogoff's model (Rogoff, 1994), a community-of-peer learners that would involve informal intentional and incidental learning, from one another and together, about digital skills is proposed.

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Publications derived from work on the Doctoral Programme

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List of abbreviations¹

A.E.S.	Adult Education Survey
A.L.E.	Adult learning and education
C4AR	Centre for Ageing Research, Lancaster University
CASP-19	Domains of need: control, autonomy, self-realisation, pleasure.
C.L.A.	Classification of Learning Activities
CSO	Central Statistics Office. Ireland
CVTS	Continuing Vocational Training Survey
DEAP	Digital Education Action Plan
DESI	Digital Economy and Society Index
EC	European Commission
ESD	Education for Sustainable Development
E.T.B.I.	Education and Training Boards Ireland
EU	European Union
EU-LFS	Labour Force Survey – European Union
GNAFCC	WHO Global Network for Age-friendly Cities and Communities

¹ All abbreviations were validated for accessibility using the Microsoft Word Read Aloud feature. Some required the addition of full stop punctuation in order to read in this list as the abbreviation is commonly known. Abbreviations in the body of this work are used without the punctuation for visual display purposes.

GNLC	UNESCO Global Network of Learning Cities
I.C.T.	Information and Communications Technology
I.S.C.E.D.	International Standard Classification of Education
LLL	UNESCO abbreviation for lifelong learning
NESC	National Economic and Social Council - Ireland
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
PIAAC	OECD Programme for the International Assessment of Adult Competencies
Q.o.L.	Quality of Life
RVA	Recognition, Validation and Accreditation of learning outcomes
SDG3	Sustainable Development Goal 3 - Good Health and Well-being
SDG4	Sustainable Development Goal 4 - Quality Education
S.N.I.	Berkman-Syme Social Network Index
TILDA	The Irish Longitudinal Study on Ageing
TILL	Technology in Later Life Study - Canada and United Kingdom
U3A	University of the Third Age

UIE	UNESCO Institute for Education
UIL	UNESCO Institute for Lifelong Learning
UIS	UNESCO Institute for Statistics
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
U.N.G.A.	United Nations General Assembly
W.E.F.	World Economic Forum
WHO	World Health Organization

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Chapter 1 : Introduction

As economy and society become increasingly digital, those who do not engage risk becoming marginalised from participating fully in aspects of society. They may also be excluded from economic benefits available to those who make commercial transactions online such as managing utility services and insurance products. Reasons for low and no Internet usage by older age groups are not transparent. For some it may be a question of access, for others a question of choice; they may simply have no interest. Poor health and conditions of older age certainly account for another portion. Given the consistent Irish government policy promoting the benefits of digital skills amongst all Irish citizens, it is concerning that recent data on Internet usage for those aged 75 years and older indicate that, in 2020, 50% of this cohort had never accessed the Internet; in 2021, this percentage improved to 46%. For the age range 60 to 74 years, this percentage improved from 21% in 2020 to 19% in 2021 (Central Statistics Office, 2021b; Eurostat, 2022c).

My motivation for this research topic stemmed from several years' experience of volunteering activities with older adults who ranged between approximately 55 and 85 years of age. I observed that they demonstrated varying levels of digital skills; some preferred to be communicated with by telephone to arrange activities, others were happy to be part of a messaging group. At a volunteer event, I recall overhearing a conversation involving an 80-year-old explaining to a 60-year-old the cost savings benefit of using WhatsApp to share photographs rather than through the messaging service of the mobile telephone provider. I volunteer each weekday with an organisation whereby I telephone a woman who is now 83 years of age for a chat. By comparison to others, Mary lives alone with her dogs, cats, and television for company.

She has no family. Living with dyslexia, her mobile telephone is her lifeline to communicating with the outside world. She cannot use the text messaging feature, nor does it matter whether the telephone is Internet-enabled, she simply could not use its features. She misses hospital appointments because the reminder has been sent by text message that she cannot read. The government target to increase the proportion of adults with at least basic digital skills to 80% by 2030 (Department of the Taoiseach, 2022) does not include Mary. Nonetheless, she is satisfied with her quality of life, acknowledging the limitations of her health conditions. Digital skills are not something she considers as she goes about her daily activities.

Ageing is a fact of life. In that sense this research study is personal. By undertaking it, I hope to be a beneficiary of any recommendations at some point in the future. Older adults who have contributed to economy and society throughout our lives should be facilitated to continue our contribution, if we so wish. We should not have to struggle to do so. Our time is precious and should be valued as with any other member of society. Use of technology and digital tools today is very different to what it was 20 years ago, and no doubt will be further different in another 20 years. The pace of change is not always easy to keep up with, regardless of our age. As we grow older, who of us wants to spend our retirement years wrestling with changing technology that we would prefer to spend doing things that we enjoy? Some of us may be lucky enough to have family and friends around us to help as we navigate these changes and become familiar with new features of technology that apply to our lives. Others of us may not.

In this chapter, I argue the need for this study's research topic, starting with the context and working propositions (section 1.1). In section 1.2, I contend that intergenerational learning, an element of lifelong learning, whether through informal family and friends'

exchanges or social network and community supports, has not been widely researched in Ireland. I present research questions and sub-questions to answer the overarching question of interest in this study. Section 1.3 describes the key terms used in the study and section 1.4 presents an overview of the chapters that follow.

1.1 Context of the study

During the COVID-19 pandemic lockdown in the spring of 2020 in Ireland, public health guidance to over-70-year-olds was to remain in their homes and not leave for any reason (Department of Health, 2020). Since this cut many people off from their social networks, the importance of information and communications technologies (ICTs) in order to stay in contact with family and friends was highlighted. Yet, in 2019, 33% of the population between the ages of 65 and 74 years had never accessed the Internet. No data were published for those aged 75 years and older (Eurostat, 2022c). This presented a challenge at two levels. For some people it was a question of access, since in the past they had no need for technology other than a telephone to stay connected with family and friends to supplement in-person interactions. For others, it was a question of adoption; they may have had some technological devices and a reliable broadband service but never felt the need to use them. My earlier module paper explored the contribution made by young adults to the development of digital communication skills by older family members during this period (Flynn, 2020). It found that over half of the young people in the sample (n=442) provided support to older family members; and that the support provided had successful outcomes with family members being able to keep in touch through richer communications media than the

telephone, most notably video and group communications. Members of the older cohort who were already comfortable with their use of ICTs continued their practice during lockdown and enhanced their skills as necessary through supports from younger family members (Flynn, 2020) and volunteer-led telephone support by organisations such as GenerationTech (GenerationTech, 2020).

COVID-19 amplified an issue that already existed in Irish society for its older age cohorts across technologies generally. At 70% in 2021, Ireland has a high rate of basic overall digital skills for those aged 16 to 74 years, behind only the Netherlands and Finland at 79% and compared with a European Union (EU) average of 54% (Eurostat, 2022b). However, by comparison with other EU member states, in terms of Internet usage by its older citizens, Ireland lags behind a number of countries (Iceland, Norway, Denmark, the Netherlands, Sweden, Finland), and until its departure from the EU, the United Kingdom. In 2021, 13% of those aged 65 to 74 years in Ireland had never accessed the Internet (Eurostat, 2022c). The EU does not require member states to report data for the cohort aged 75 years and older.

Given this context I developed two working propositions (Baxter & Jack, 2008; Yin, 2018) that I considered appropriate to guide the development of the study:

1. Younger adults can support older adults (through an intergenerational learning exchange) to develop and stay current with digital literacy skills.
2. Developing and maintaining digital literacy skills contributes positively to quality of life in later years.

1.2 Research aim and scope

Based on the two propositions set out in section 1.1, this research study aimed to explore intergenerational relationships, specifically how and the extent to which such relationships support the development of digital literacy skills amongst older adults through informal and non-formal modes of lifelong learning. It further aimed to understand the perceived impacts of digital engagement to personal quality of life in later years.

In order to achieve these aims, I posed an overarching research question (RQ):

To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges amongst older adults in Ireland?

This is supported by a number of more specific research questions and sub-questions (RQ1 to RQ3.2) to be answered by the study:

RQ1 What has been the contribution of Irish government digital policy to the achievement of the Sustainable Development Goal 4 (SDG4), of promoting lifelong learning opportunities for all?

RQ1.1 How has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?

RQ2 How do informal and non-formal learning exchanges through uses of digital technologies across generations contribute to adult lifelong learning at all ages?

RQ2.1 What have been the learnings of older adults as a result of an intergenerational

exchange?

RQ3 What are the perceived impacts to personal quality of later life by being connected in a digital world?

RQ3.1 In what ways do these perceived impacts contribute to positive and negative quality of life?

RQ3.2 What are the impacts of digital engagement on older adults' levels of social participation?

RQ1 will be answered through a process of documentary research pertaining to the government policies surrounding lifelong learning in Ireland. RQ2 and RQ3 will be answered through data collected from older adults using an online survey instrument and an interview. In chapter 3, Table 3.2 presents a mapping of data collection methods to the research questions.

1.3 Key terms and their description

In this thesis, I focus on a number of key areas that are described by the terms presented in Table 1.1 in alphabetical order.

Term	Description and use in this study
Adjacent generation	In families, an adjacent generation relationship typically exists between parent and child.

Term	Description and use in this study
Digital literacy	<p>Literacy, a broad concept, may be subdivided further into types of literacies including digital literacy, information literacy (Bawden, 2001), communications and collaboration skills and citizenship (Beetham et al., 2009), technological literacy, media literacy, visual literacy and communication literacy (Martin & Grudziecki, 2006). Of these types of literacies, this study focusses on digital literacy, a term that Gilster (1997) defines as, “the usage and comprehension of information in the age of digital technologies” (van Dijk, 2019, p. 62).</p>
Digital skills	<p>Eurostat considers digital skills as a measure of digital literacy: “the skills required to achieve digital competence, the confident and critical use of information and communication technology (ICT) for work, leisure, learning and communication” (Eurostat, 2019).</p> <p>The term digital literacy skills is used in this thesis to denote that digital literacy is in itself a skill that requires maintenance and development.</p>

Term	Description and use in this study
Formal learning	<p>In addition to the definition of informal education offered by Coombs and Ahmed (1974), (see lifelong education below), for the purposes of data collection in this study I consider formal learning to be the period of continuous full-time education experienced by an individual. Cedefop (2008) presents the following explanation of the term extending it beyond the realm of full-time education:</p> <p>“Learning that occurs in an organised and structured environment (such as in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time, or resources). Formal learning is intentional from the learner’s point of view. It typically leads to certification” (CEDEFOP - European Centre for the Development of Vocational Training, 2014, p. 99).</p>
Generativity	<p>Merriam-Webster defines generativity as “a concern for people besides self and family that usually develops during middle age” (Merriam-Webster, n.d.-b). For the purposes of this study, I consider the term to be synonymous with the term volunteering.</p>
Incidental learning	<p>Generally associated with informal learning, incidental learning is unintentional and generally occurs “as a byproduct of something else” (Marsick & Watkins, 2015, p. 33).</p>

Term	Description and use in this study
Informal learning	<p>In addition to the definition of informal education offered by Coombs and Ahmed (1974), (see lifelong education below), I use the term informal learning to describe interactions that enable learning in an informal environment, usually involving family, friends, social contacts. This use aligns with that offered by Cedefop (2008): “Learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or learning support. Informal learning is in most cases unintentional from the learner’s perspective” (CEDEFOP - European Centre for the Development of Vocational Training, 2014).</p>
Intentional learning	<p>Intentional learning is defined as “learning that is motivated by intentions and is goal directed” (Blumschein, 2012, p. 1600), something a learner sets out to do.</p>
Intergenerational learning	<p>Intergenerational learning is a concept closely related to lifelong learning and has two important features. Firstly, the intergenerational transmission of knowledge and skills in both directions. Secondly, it affords the opportunity “for generations to learn more about each other, to understand perspectives of other generations without necessarily adopting them” (Boström & Schmidt-Hertha, 2017, p. 1).</p> <p>Three forms of intergenerational learning attributed to Siebert and Seidel by Schmidt-Hertha et al. (2014) are learning from one another, learning together, and learning about one another. While all three are of interest to this study, it is the first, learning from one another that is central.</p>

Term	Description and use in this study
Intrafamilial learning	<p>Attempts to establish a clear definition for learning that occurs within a family proved challenging. The Merriam-Webster dictionary defines interfamily as “existing or occurring between families” (Merriam-Webster, n.d.-d). Between families is also used in the definition of interfamilial (Merriam-Webster, n.d.-c).</p> <p>Intrafamily is not included in the Merriam-Webster dictionary; however, intrafamilial appears as a medical definition: “occurring within a family” (Merriam-Webster, n.d.-f). This definition, albeit a medical one, is appropriate for the focus of this study. In the absence of an alternative, the term intrafamilial is adopted to describe informal learning exchanges that occur within the family environment.</p>
Intrageration	<p>In the context of this study, the term refers to non-familial peers e.g., friends. It may also refer to life partners or spouses, assumed to be of similar age cohort. I use the terms peer and peer learning to denote broad similarity of age range and generation amongst learners.</p>

Term	Description and use in this study
Lifelong education	<p>In 1974, Coombs and Ahmed presented their definitions of three distinct elements of lifelong education - formal, non-formal and informal:</p> <p><u>Formal education</u>: the highly institutionalised, chronologically graded and hierarchically structured education system, spanning lower primary school and the upper reaches of the university.</p> <p><u>Nonformal education</u>: any organized, systematic, educational activity carried on outside the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children.</p> <p><u>Informal education</u>: the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment – at home, at work, at play; from the example and the attitudes of the family and friends; from travel, reading newspapers and books or by listening to the radio or viewing films or television (Coombs & Ahmed, 1974, p. 8), cited in Boström (2003).</p> <p>I consider these definitions to be equally valid today. For the purposes of this study, I use the term learning in place of education, therefore, lifelong learning, formal learning, informal learning, non-formal learning.</p>

Term	Description and use in this study
Lifelong learning	Following the 2000 meeting of the European Council in Lisbon, Portugal, the European Commission (EC) communicated a definition of lifelong learning as “all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective” (European Commission, 2001, p. 10). For the purposes of this study, I concur with this definition, in particular that lifelong learning takes place throughout an individual’s life stages, from cradle to grave.
Life-wide learning	The learning contexts an individual comes into contact with throughout their life stages, “(family, school, community, workplace and so on) and through a variety of modalities (formal, non-formal and informal)” (UNESCO Institute for Lifelong Learning, 2022, p. 19) constitute life-wide learning.
Non-adjacent generation	In families, a non-adjacent generation relationship typically exists between grandparent and grandchild.

Term	Description and use in this study
Non-formal learning	<p>In addition to the definition of non-formal education offered by Coombs and Ahmed (1974) (see lifelong education above), I use the term non-formal learning to describe those activities organised by community groups and associations for older adults such as invited speakers and guest demonstrations. This aligns with the definition presented by Cedefop (2003) as follows:</p> <p>“Learning which is embedded in planned activities not explicitly designated as learning (in terms of learning objectives, learning time, or learning support), but which contain an important learning element. Non-formal learning is intentional from the learner’s point of view. It typically does not lead to certification” (CEDEFOP - European Centre for the Development of Vocational Training, 2014, pp. 183-184).</p>
Peer learning	<p>Topping (2005) describes peer learning in the following manner: “the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. It involves people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by so doing” (p. 631). In this sense, I consider peer learning to be informal.</p>
Quality of life	<p>The Merriam-Webster dictionary defines quality of life as a furtherance of well-being, specifically “the degree to which a person or group is healthy, comfortable, and able to enjoy the activities of daily living” (n.d.-g).</p>

Term	Description and use in this study
Reciprocity	In the context of learning, I use the term reciprocity in this study to denote the mutual benefits that arise through social relationships (Woolcock, 1998) either directly or indirectly (Gosseries, 2009).
Social capital	In the context of this study, I consider social capital to contribute to social connectedness and well-being in a variety of ways, including an individual's network of social ties and civic participation (Neves, 2013).

Table 1.1 Key terms - description and use

1.4 Overview of the study

The thesis is presented as six chapters:

Chapter 1: Introduction. The current chapter describes the background and context for the study along with my motivation to engage in such research. It presents the overarching aim of the research study, what it seeks to achieve. The chapter concludes with this structural overview of the thesis.

Chapter 2: Literature review. This chapter presents an analysis of the literature in the domains of digital literacy and divides; lifelong and intergenerational learning; the relationship of these to quality of life in older adults. The research gap is identified.

Chapter 3: Research design. This chapter describes the methodological design of the project, a case study employing mixed methods for data collection, bounded by two groups: those who use the Internet (onliners) and those who do not (offliners).

Chapter 4: Findings from the data. The empirical data are presented in this chapter, commencing with policy research findings to address RQ1. Next are findings from the survey data in response to RQ2 and RQ3, and interview findings also to address RQ2 and RQ3.

Chapter 5: Discussion of the data. This chapter discusses my findings in relation to the research questions and literature reviewed.

Chapter 6: Conclusions and recommendations. In the final chapter I indicate the study's contributions to knowledge, outline practical and theoretical implications, along with some limitations and recommendations for further research.

Chapter 2 : Literature review

The focus of this study concerned the contribution of intergenerational relationships to lifelong learning generally, and digital skills development specifically, of older adults in Ireland. It further explored the perceived impacts of digital engagement to quality of later life. In this chapter, I first present an overview of the process followed to review a variety of documents all of which provide input to the Irish national policies and strategies (section 2.1). Guided by RQ1, I explore lifelong learning in the context of Irish Government policy documentation derived from international organisations who interpret the concept in different ways (section 2.2). Next, I present a critical review of the literature pertaining to the focus elements outlined in chapter 1: lifelong and intergenerational learning in non-formal and informal environments (sections 2.3 and 2.4, quality of life in later years, social participation, and digital engagement (section 2.5). I lay the foundations of my argument that a research gap exists (section 2.6) in an Irish context relating to informal learning amongst adjacent generations and amongst peers. The inclusion of peer learning as a focus of the study arose following the application of a constructivist grounded theory approach to the collection and analysis of interview data. Consequently, sub-sections 2.3.3 and 2.3.3.1 were added. Informal learning already featured in the thesis, and based on the data collected from participants, literature was revisited, resulting in the concepts of incidental and intentional learning being added as sub-section 2.3.2.1.

Recalling the title of this study, *Ireland and the lifelong learning curve: The intergenerational contribution to digital literacy for life*, and its overarching research question: *To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges*

amongst older adults in Ireland?, I selected concepts to explore in the literature review that directly relate to the research questions. Combinations of relevant keyword searches in appropriate databases were complemented with research in seminal texts, contemporary publications and exploring relevant material from journal article reference lists. Other areas that might have been explored include the role of the workplace and types of jobs that might contribute to digital skills development, for example, office-based roles. I chose not to examine this area since a number of interview participants had undertaken a commercial or secretarial course to end their formal education and begin their working lives. This, I felt, may have brought a gender bias to the study that I had not intended. Motivation is another area that I touched on briefly but did not consider extensively in the literature. I felt that the area was already well covered and my study would not bring anything further to the knowledge area.

To summarise the remainder of this chapter, section 2.1 sets out the process undertaken for the policy document review that follows in sub-section 2.2.

Section 2.3 is concerned with the constructs of lifelong learning, an established concept in the literature. RQ2 examines the modes of lifelong learning outside of a formal learning environment, and related literature is reviewed in sub-sections 2.3.1 to 2.3.3.1.

Section 2.4 focusses on intergenerational learning, a component of lifelong learning that is widely discussed in the literature. The role of intergenerational relationships in the development of digital skills and literacy is central to this study's thesis. In this section and sub-sections that follow (2.4.1 to 2.4.3), I explore the intergenerational learning (IGL) concept in the literature from the perspective of older adults, as presented through RQ2.1).

Section 2.5 of the chapter concerns factors that contribute to quality of life in later years. First, a variety of terms used in the literature to describe the process of ageing that relate to quality of life are presented. Successful ageing, active ageing, healthy ageing, and positive ageing are reviewed in turn. Next, in sub-sections 2.5.1 and 2.5.2, I review literature that focusses on elements of social capital considered important to quality of life, social participation, social connectedness and volunteering activity. Finally, in sub-sections 2.5.3 to 2.5.5 the impacts of digital engagement and disengagement on older adults' levels of social participation are reviewed.

I believe these topics are important and appropriate to explore in this study for two reasons: first, as 21st century economy and society becomes increasingly digitalised, there is a general expectation that we all need to keep up with the pace of technological change in order to participate; second, insofar as those who do not wish to engage in a digital society, examining the impact of non-engagement on their quality of life will help raise awareness that digital engagement should be an individual choice. I conclude the chapter with a summary in section 2.4 and identify the research gap that this study fills in sub-section 2.4.1.

2.1 Policy review process

The review of documents can be a useful process in case study research. It can provide the researcher with information to set the context and background for the study. To answer RQ1 (stated in section 3.3), a review of a variety of documents was undertaken including from the European Union (EU), Organisation for Economic Co-operation and Development (OECD), United Nations (UN), and World Health Organization (WHO), all of

which provide input to the Irish national policies and strategies. These were primary document sources for the most part, with secondary document sources as appropriate that interpret the primary sources (Grix, 2019). Determining what type or genre of documentary research to undertake was a key first step. Tight (2019b) presented five genres: literature reviews, systematic reviews and meta-analyses, secondary data analysis, historical and archival research, and policy research. It is the latter genre, policy research, that was selected for the purposes of answering RQ1 (Tight, 2019b). This approach aligned with the context of my research since the purpose was to explore and examine historical public records and policy documents as data sources to understand the contribution of Irish government digital policy to SDG4 (United Nations Department of Economic and Social Affairs, 2015).

Documentary research should be undertaken with similar diligence to undertaking empirical research (Tight, 2019b). In this study, I undertook a series of six steps, from identifying and locating relevant documents to recording the data collected. Details of each step in this process are presented as follows:

Step 1. Determine and locate the documents

This study was interested in documents that provide input to national digital strategy and policy in Ireland. These included policy documents at national level, and at the levels of the EU, OECD, UN and WHO. These bodies were selected because their policies have contributed to current strategies and policies in Ireland listed in Table 2.1. One example is the Department of Further and Higher Education, Research, Innovation and Science which engages with the OECD in relation to skills strategy. As a result of an OECD report on the Ireland skills level (OECD, 2021b), in June 2022, the first public

consultation survey is open, inviting members of the public to the review of the National Skills Strategy 2025 (Department of Further and Higher Education, Research, Innovation and Science, 2021b, 2022). Another example is Age Friendly Ireland, one of only five affiliates of the WHO Global Network for Age-friendly Cities and Communities (World Health Organization, 2018). Most of the policy documents of interest to this study were in the public domain and freely available to researchers. One exception was the OECD, where some documents were only accessible on payment of a fee; however, these were not deemed to be of sufficient value and were discounted.

Step 2. Select an appropriate sample

The Irish government website (www.gov.ie) hosts information on government departments, consultations, publications, and policies and is a useful starting point to identify documents of relevance to policy research. Further guidance was sought from Maria Rogers, Research Librarian at the Oireachtas (Irish National Parliament), who suggested conducting searches of the Parliamentary Questions, Oireachtas Debates, and the Oireachtas Library Digital Collections for additional insights into my research focus area. Ultimately, it is the design of Irish government policy that determines whether and how specific goals are pursued, including the United Nations's SDG4, to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations Department of Economic and Social Affairs, 2015), that relate to digital skills, digital literacy and lifelong learning in Ireland.

Step 3. Determine the inclusionary and exclusionary criteria

A number of keywords and search terms were used to collect an initial sample of documents from the Irish government website in June 2021, and again in September

2021. Identifying the initial sample followed a systematic approach, with search terms clearly recorded for the purposes of an audit trail that future researchers can follow (Table 2.1). Following the compilation of this initial sample, inclusionary criteria were applied to determine which documents should be analysed (Gross, 2018). This process involved careful consideration of RQ1 and RQ1.1 as the basis for including documents for further analysis. From an initial result of 665 potential documents, 34 were selected for inclusion for analysis based on their relevance to RQ1 and/or RQ1.1. These 34 documents are listed in Appendix C. From the contents of the 34 documents, I was able to link to source documents from the EU, OECD, UN and WHO. Documents from these bodies were reviewed in the context of the Irish documents selected in Table 2.1 and listed in Appendix C. The purpose was to determine the input of wider policies and strategies to Irish government policies pertaining to digital, older adults and lifelong learning.

Search term	Search query string	Number of results	Inclusion rationale
Digital strategy	https://www.gov.ie/en/publications/?q=digital+strategy&sort_by=published_date	82	Eight documents were considered relevant to the topic of this study. These are listed in Appendix C.

Search term	Search query string	Number of results	Inclusion rationale
Digital policy	https://www.gov.ie/en/publications/?q=digital+policy&sort_by=published_date	21	One additional document was considered relevant to the topic of this study. This is listed in Appendix C.
Digital literacy	https://www.gov.ie/en/publications/?q=digital+literacy&sort_by=published_date	20	Four additional documents were considered relevant to the topic of this study including three referred to that were located and added from key stakeholder organisations: SOLAS – the Further Education and Training Authority; NALA - the National Adult Literacy Agency; and AONTAS - Voice of Adult Learning. These are listed in Appendix C.

Search term	Search query string	Number of results	Inclusion rationale
Digital inclusion	https://www.gov.ie/en/publications/?q=digital+inclusion&sort_by=published_date	8	No additional documents were considered relevant to the topic of this study.
Social inclusion	https://www.gov.ie/en/publications/?q=social+inclusion&sort_by=published_date&page=20	154	No additional documents were considered relevant to the topic of this study.
Older people or Older Adults or Elderly	https://www.gov.ie/en/publications/?q=%22older+people%22+or+%22older+adults%22+or+%22elderly%22&sort_by=published_date	348	Sixteen additional documents were considered relevant to the topic of this study. These are listed in Appendix C.
Lifelong learning	https://www.gov.ie/en/publications/?q=lifelong+learning&sort_by=published_date	32	Five additional documents were considered relevant to the topic of this study. These are listed in Appendix C.

Table 2.1 Irish Government documents - June and September 2021

Step 4. Consider ethical and any other issues

Fitzgerald's 8 questions listed in Table 2.2 (Fitzgerald, 2007) were used as a guide to determine the appropriateness of each document for use in this study, and to identify

any potential issues with a document.

1. Who wrote the document? What is known about the personal and professional biography of the author?	2. When was the document written? What other events were occurring at that time?	3. What prompted the writing of this document? Were there social, political, economic, or historical reasons that may have influenced the writer and the contents?	4. What audience was this written for? Does this document set a particular agenda?
5. What are the contents, the language and terms used and the key message(s)? What is the ideological position of the author?	6. What are the omissions? Was this deliberate? How do you know?	7. Are there any sources that can be used as a comparison?	8. Is this document reliable?

Table 2.2 Fitzgerald's 8 questions applied to 34 policy documents identified in Appendix C.

Source: cited in Tight (2019a, p. 30)

Step 5. Extract required information from selected documents

Each document was selected for analysis based on its relevance to RQ1 and sub-question RQ1.1. The exercise culminated in the findings presented in section 2.2.

Step 6. Record the data collected

A reading log was maintained in spreadsheet format. It contained details of each document, reading notes, potential codes for qualitative analysis and any issues of importance.

2.2 Policy review findings

RQ1 asks, what has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all? It is supported by sub-question 1.1 that asks: how has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?

Guided primarily by Tight (2019b), I undertook a process of policy research to explore the 'how' approach of Irish government policy towards digital strategy in the formation of relevant policies that govern lifelong learning in the twenty-first century. In sub-section 2.2.1, I consider selected policy documents of the EU. This is followed by the UN and their associated partners in sub-section 2.2.2. In sub-sections 2.2.3, 2.2.4 and 2.2.5, I examine the contribution of relevant policies from the WHO, OECD, and the World Economic Forum (WEF). The chapter section is summarised in sub-section 2.2.6 where I present what my review of the policies means for Ireland.

2.2.1 European Commission (EC)

Ireland is a member state of the EU and is guided by the policies set out by the EC in its capacity as executive for the EU, legislator, and policy manager for its member states.

During her candidature for President of the EC, Ursula von der Leyen set out 6 strategic priorities for the period 2019 to 2024 (European Commission, 2019). In priority 3, A Europe fit for the Digital Age, she presented her vision for Europe “to strive for more by grasping the opportunities from the digital age within safe and ethical boundaries” (European Commission, 2019, p. 13). The empowerment of citizens through education and skills is central to investment in the future with a culture of lifelong learning. She stated a priority of getting Europe “up to speed on digital skills for both young people and adults” (European Commission, 2019, p. 14) with an updated Digital Education Action Plan. The Internet has the potential to connect people through the use of communications technologies. It has potential to provide users with access to information and services through a variety of information technologies. It has potential to enable everyone wishing to do so, to engage in lifelong learning opportunities far greater than available heretofore. However, to achieve these goals, basic digital literacy skills must be a foundation for everyone. Supporting this strategic priority are two pillars: Shaping Europe’s Digital Future and Europe’s Digital Decade for the period up to 2030. Shaping Europe’s Digital Future sets out a clear vision for digital transformation that can benefit the citizens of Europe, businesses and the environment (European Commission, 2021b). It aims to invest in digital skills for all European citizens along with the necessary infrastructure and support to engage safely in a digital society.

Europe’s Digital Decade aligns with the UN SDGs to be achieved by 2030. The vision is

set out in the Digital Compass that focusses on four cardinal points: 1) digitally skilled citizens comprising at least 80% of the population and highly skilled digital professionals; 2) secure and sustainable digital infrastructure with all EU households having gigabit connectivity; 3) digital transformation of businesses; and 4) digitalisation of public services with all key public services available online (European Commission, 2021c).

While there are many EC policy documents that could be considered, I believe three are particularly relevant to the research question owing to their focus on lifelong learning, education and training. These are:

1. The European Pillar of Social Rights Action Plan (2021)
2. The Digital Education Action Plan (2021-2027)
3. The Green Paper on Ageing (2021)

1. The European Pillar of Social Rights Action Plan sets out twenty principles for a future strong social Europe. The first of these principles is 'Education, training and life-long learning' (European Commission, 2021d). The Commission recognises the importance of up-skilling and re-skilling and it is in this context that a target has been set for at least 80% of EU citizens in the age range 16 to 74 years to have basic digital skills by 2030 in order to participate in Europe's economy and society. To support this target, the EC encourages member states "to develop comprehensive policies to provide quality education for all" (European Commission, 2021d, p. 24). The age of 74 years might be appropriate relative to an individual's working life since they might expect to retire by that age. However, basic digital skills are also important for participating in

society after the age of 74 years.

2. The Digital Education Action Plan (DEAP) updated for the period 2021 to 2027 lists two strategic priorities (European Commission, 2020, pp. 10-12):

- Priority 1 Fostering the development of a high-performing digital education ecosystem.

- Priority 2 Enhancing digital skills and competences for the digital transformation.

Priority 2 recognises the essential nature of digital literacy in everyday life, economy and society, whereby every citizen should possess basic digital skills. The actions 7 through 13 focus on obtaining skills through education and training to engage in the workforce and economy specifically rather than society generally. This may be explained by the demographics of those who contributed to the open public consultation in a personal capacity. Forty-four per cent identified as 'educator and staff', a further 44% identified as 'parent'. However, the actions do not include specific support for citizens of all ages to develop their digital skills.

3. The Green Paper on Ageing adopted by the EC in 2021 (European Commission, 2021e) is a policy document that responds to the changing demography of the EU. Twenty per cent of the population today is aged 65 years or older and this will increase in the years and decades ahead. It is expected that by 2070, 30% of the population will be over 65 years, and the portion of those over 80 years will have doubled from 6% in 2019 to over 13% in 2070. The Green Paper's purpose (European Commission, 2021e, p. 2) is set out as follows:

...to launch a broad policy debate on ageing to discuss options on how to anticipate and respond to the challenges and opportunities it brings, notably taking into account the UN 2030 Agenda for Sustainable Development and UN Decade for Healthy Ageing. Competences for dealing with the effects of ageing are largely in the hands of Member States and the EU is well placed to identify key issues and trends and support action on ageing at national, regional and local level. It can help Member States and regions develop their own, tailor-made policy responses to ageing.

Two policy concepts are presented “to enable a thriving ageing society: healthy and active ageing, and lifelong learning” (European Commission, 2021e, p. 3). It notes the importance of these concepts from an early age and that they can help “prevent, limit and postpone some of the challenges linked to ageing” (p. 3). Lifelong learning is defined for the purposes of the Green Paper as “investing in people’s knowledge, skills and competences throughout their lives” (European Commission, 2021e, p. 4). It is important for democratic participation and active citizenship and can play an important role in the lives of all adults. As the population lives longer and is healthier into older age, there is a role for learning with contributions to both economy and society often through volunteering activities.

Referring to the DEAP, the Green Paper asks, “what are the most significant obstacles to lifelong learning across the life cycle? At what stage in life could addressing those obstacles make most difference? How should this be tackled specifically in rural and remote areas?” (European Commission, 2021e). The Green Paper notes the importance of healthy lifestyles throughout our lives, in turn contributing to healthy and active ageing. In order to be most effective, lifelong learning is recommended to start early in

life (European Commission, 2021e, p. 4). Another obstacle refers to rural and remote areas where digital connectivity is not available, thus limiting opportunities to lifelong learning (European Commission, 2021e). Having considered noteworthy concepts from the selected policy documents in terms of RQ1, digital education and lifelong learning, it is clear that the EC considers these as contributors to healthy and active ageing amongst the EU population.

2.2.2 United Nations (UN)

On 8 September 2000, the United Nations General Assembly (UNGA) adopted resolution 55/2: United Nations Millennium Declaration (United Nations General Assembly, 2000), setting out the Millennium Development Goals, to be achieved by 2015. In a 2013 progress report (United Nations General Assembly, 2013, p. 14), the Secretary-General outlined areas requiring action beyond 2015, including:

86. Provide quality education and lifelong learning. Young people should be able to receive high-quality education and learning, from early childhood development to post-primary schooling, including not only formal schooling but also life skills and vocational education and training.

Laying the foundations for lifelong learning early on in the lifespan was clearly recognised, and the need for quality education and lifelong learning was included in the subsequent SDGs. On 25 September 2015, the UNGA adopted resolution 70/1: Transforming our world: the 2030 Agenda for Sustainable Development (hereafter the Agenda), setting out the SDGs to be achieved by 2030 (United Nations General Assembly, 2015). The Agenda includes 17 goals and 169 targets across five areas

deemed important to humanity: “people, planet, prosperity, peace, and partnership, pledging to leave no-one behind” (United Nations General Assembly, 2015, p. 8). Older persons are included in the declaration as a group whose needs are reflected in the Agenda (United Nations General Assembly, 2015).

SDG4, Quality Education, strives to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations Department of Economic and Social Affairs, 2015). Target 4.4 focusses on the skills required for jobs, employment and entrepreneurship, while Target 4.6 focusses on literacy and numeracy for all youth “and a substantial proportion of adults, both men and women” (United Nations Department of Economic and Social Affairs, 2015). Despite the period of the goals from 2015 to 2030, there is no reference to development of skills (including digital skills) for older persons moving beyond their working life.

In 2016, the EU set out its first statistical view of the SDGs (Eurostat, 2016b). Compiled by Eurostat, the report looked at each of the SDGs in turn, presenting data as a starting point for future action. In relation to SDG4, Quality Education, it noted (Eurostat, 2016b, p. 14):

More people have also been taking part in adult education. In the EU, 11.7 % of women and 9.7 % of men aged 25 to 64 participate in lifelong learning (2015 data). This is a 4.0 and 3.1 percentage points improvement since 2002 for women and men, respectively.

Lifelong learning, therefore, is measured as adults taking part in adult education between the ages of 25 and 64 years. Ireland does not account for adults over the age of 64 years in its measurement of lifelong learning.

2.2.2.1 *United Nations Educational, Scientific and Cultural Organization (UNESCO)*

The UNESCO Institute for Lifelong Learning (UIL) has adult learning and education (ALE) as a key focus of its lifelong learning policies. As part of the Futures of Education initiative, the Institute prepared a report with the goal of embracing a culture of lifelong learning by 2050. In it, the authors recognise learning as a valuable, collective process that includes peer and intergenerational learning (UNESCO Institute for Lifelong Learning, 2020). Further, with regard to nurturing learning amongst older adults, the authors note (p. 8):

Promoting learning among older people requires a pedagogical approach that acknowledges their role in society and contributes to a more positive representation of ageing. This implies seeing education as more than an economic transaction and acknowledging its public and private value.

The report (p. 9) offers ten key messages and action points to embrace a culture of lifelong learning as follows:

1. Recognize the holistic character of lifelong learning (medium to long-term).
2. Promote transdisciplinary research and intersectoral collaboration for lifelong learning (short to medium-term).
3. Place vulnerable groups at the core of the lifelong learning policy agenda (short to long-term).
4. Establish lifelong learning as a common good (medium to long-term).
5. Ensure greater and equitable access to learning technology (medium to long-

term).

6. Transform schools and universities into lifelong learning institutions (short to long-term).

7. Recognize and promote the collective dimension of learning (short to long-term).

8. Encourage and support local lifelong learning initiatives, including learning cities (short to long-term).

9. Reengineer and revitalize workplace learning (medium-term).

10. Recognize lifelong learning as a human right (medium to long-term).

These action points can be considered by member states for strategic planning. In the case of Ireland, it should be noted that UIL does not list any strategy, policy, or plan on its web page. By contrast, Denmark, with a similar population size to Ireland, along with other countries, has strategies with issue dates - as far back as 2003 in the case of Finland, and 2004 in Germany. Established in 1980 within the EU, Euridyce publishes information in relation to the education systems of all the countries in the Erasmus+ programme including EU member states. Its mission is to provide information from other members to those with responsibility for education policies in each country. The chapter on lifelong learning for Ireland was updated in December 2021 (Eurydice, 2021). It refers to a white paper on adult education learning for life published in 2000 and the publication of a national skills strategy in 2007. A new national skills strategy initiated in 2016 for the period up to 2025 was published in 2021. It refers to lifelong learning and states as an objective that “people across Ireland will engage more in

lifelong learning” (Department of Further and Higher Education, Research, Innovation and Science, 2021b, p. 17). The executive summary, on the other hand, states that “increasing people’s lifelong learning, especially of those in employment, is a national performance gap that this Strategy will tackle” (p. 10). It appears, therefore, that the focus of lifelong learning in Ireland is more on those in employment, or up-skilling and re-skilling those wishing to return to employment, rather than long-term learning for all its citizens independent of age.

2.2.2.2 Office of the High Commissioner for Human Rights (OCHCR)

In 1991, the UNGA adopted a set of principles for older persons, in appreciation of the contribution that they make to society. Eighteen principles under headings of independence, participation, care, self-fulfilment and dignity were set out (United Nations General Assembly, 1991). The aim was to encourage national governments to integrate these principles into their policies and programmes where possible. Four principles in particular are relevant to this study in the context of active and healthy ageing along with lifelong learning (United Nations General Assembly, 1991, p. 2):

7. Older persons should remain integrated in society, participate actively in the formulation and implementation of policies that directly affect their well-being and share their knowledge and skills with younger generations.

8. Older persons should be able to seek and develop opportunities for service to the community and to serve as volunteers in positions appropriate to their interests and capabilities.

15. Older persons should be able to pursue opportunities for the full

development of their potential.

16. Older persons should have access to the educational, cultural, spiritual and recreational resources of society.

The Office of the High Commissioner for Human Rights (OHCHR) was subsequently established following a resolution by the UNGA in 1993. Included in its mandate is the promotion and protection of human rights for all (United Nations General Assembly, 1993). The Third Committee of the OHCHR is concerned with social, humanitarian and cultural issues that affect people all over the world. It is also tasked with addressing important social development questions to areas that include ageing (United Nations General Assembly, 2020). The Government of Ireland, in its list of voluntary commitments and pledges in 2012 when it sought a place on the Human Rights Council for the term 2013-2015, made no reference to older persons (United Nations General Assembly, 2012).

From this review of the selected policies, it may be seen that the UN and related organisations UNESCO and OCHCR have an important guiding role in member states' individual approaches to education and learning along with the rights of older people in society. While these organisations promote awareness and provide suggestions as to what might be included in each policy, ultimately, the content is the responsibility of the individual member state. In the case of Ireland's policies, there is more work that can be done to ensure that lifelong learning is an opportunity for all citizens including older adults.

2.2.3 World Health Organization (WHO)

Partner organisations are important to the UN as it strives to achieve a variety of targets and goals. In partnership with the UN, the WHO launched a Decade of Healthy Ageing in the summer of 2020, collaborating with global partners for the last decade of the SDGs. The WHO considers healthy ageing as “the process of developing and maintaining the functional ability that enables wellbeing in older age” (World Health Organization, 2020b). Functional ability is considered a person’s ability to “meet their basic needs; learn, grow and make decisions; be mobile; build and maintain relationships; and contribute to society” (World Health Organization, 2020a para. 4). Diversity and inequity are key considerations in that there is no typical older person and no standard method of maintaining functional ability.

The plan of action for the Decade of Healthy Ageing (2020-2030) is the second action plan of the WHO global strategy on ageing and health and builds on the first action plan arising from the UN Madrid International Plan on Ageing (World Health Organization, 2020c). Two SDGs are relevant to this study and present the following implications for healthy ageing (p. 7):

Goal 3: Good health and well-being - Healthy ageing means that older people contribute to society longer, with opportunities for good health at all stages of life, universal health coverage and integrated, people-centred, transforming health and social systems rather than systems based only on disease.

Goal 4: Quality Education - Healthy ageing requires life-long learning, enabling older people to do what they value, retain the ability to make decisions and preserve their purpose, identity and independence. It requires literacy, skill

training and barrier-free participation, including in digital skills.

The WHO Global Network for Age-friendly Cities and Communities (GNAFCC) was established in 2010 and Ireland has a number of cities and towns registered in the network. Coordinated by Meath County Council as a shared service for all counties, the network promotes health and capacity amongst older adults, enabling them to keep doing things they value. Amongst its aims, the network of cities and communities (World Health Organization, 2018, p. 1):

- recognize the wide range of capacities and resources among older people;
- anticipate and respond flexibly to ageing-related needs and preferences;
- respect older people’s decisions and lifestyle choices;
- reduce inequities;
- protect those who are most vulnerable; and
- promote older people’s inclusion in and contribution to all areas of community life.

2.2.4 Organisation for Economic Co-operation and Development (OECD)

Established in 1961, with Ireland as a founding member, the international organisation OECD works with governments, policy-makers and individuals to shape policies “that foster prosperity, equality, opportunity and well-being for all” (OECD, 2022, para. 1).

Ireland continues to actively participate, both as a recipient of high-quality analysis and

policy advice and as a contributor to international economic policy.

In 2011/2012 and again in 2014/2015, the OECD collected survey data on adult skills from participating countries for its Programme for the International Assessment of Adult Competencies (PIAAC) (OECD, 2016). The PIAAC survey assesses skills in three domains amongst adults aged 16-65 years: literacy, numeracy and problem-solving in technology-rich environments. These are all skills considered to be necessary for “fully integrating and participating in the labour market, education and training, and social and civic life” (OECD, 2016, p. 20). The problem-solving skill requires the use of digital technologies to communicate, obtain information and to perform practical tasks (OECD, 2013). The OECD recognised the importance of an ageing society to be able to adapt to changes in digital technologies, and that policy makers concerned with lifelong learning should understand the relationship between age and skills proficiency (OECD, 2013). The data for Ireland from the 2012 survey showed adults in the age range 55-65 years score lower at the higher proficiency levels (2 and 3) of problem-solving in a technology-rich environment than all the countries surveyed with the exception of Poland and Estonia (OECD, 2013). With these data, it is reasonable to expect an action plan from Ireland prior to the second PIAAC cycle in 2022-3 to address the low proficiency levels. I was unable to find any evidence of such a plan that would result in a higher score in the next PIAAC cycle. The results of PIAAC Cycle 2 are expected in 2024 (Central Statistics Office, 2021c). With caution being expressed by some researchers in relation to large-scale surveys of this nature (Boyadjieva & Ilieva-Trichkova, 2021; Rubenson, 2019), it may be prudent for Ireland to establish an interim measurement of proficiency at more frequent intervals to assess and monitor progress.

The Going Digital project, launched by the OECD in 2017, is designed to support policy

makers in understanding the digital transformation and to help shape a better digital future (OECD, 2021a). The 2019 publication from Phase 1 of the project, *Going Digital: Shaping Policies, Saving Lives*, offers a set of guidelines in chapter 9 to develop a digital transformation strategy from establishing an approach and articulating a vision to successfully implementing the strategy (OECD, 2019). A recommendation of the strategy is to ensure that everyone is included (p. 3):

Empower people with the skills needed to succeed in a digital economy and society. Get ready for a massive training challenge, fundamentally rethink education systems, foster foundational skills and life-long learning, address concerns around emerging forms of work, and improve social protection to ensure that no one is left behind.

The development of these policies recognises the need for a whole-of-government approach to digital transformation that includes all citizens and the OECD notes that only a few countries are promoting such an approach (OECD, 2017).

2.2.5 World Economic Forum (WEF)

Further to these international organisations, the WEF has multinational organisations with an economic presence in Ireland amongst its global partners. These include Apple, Google, Intel, and Microsoft. As the international organisation for public-private co-operation, the WEF engages with leaders around the globe to address issues of strategic concern across economy and society.

The WEF has a dedicated Global Future Council on Healthy Ageing and Longevity

whose aim is to support and provide leadership action to the Decade of Healthy Ageing (World Economic Forum, 2021). Further, the Council aims “to inform and drive action and impact for issues affecting older adults by engaging stakeholders to shape conversations, identify and scale up good practices required to better respond, and transform the experience of older adults to help them thrive” (Decade of Healthy Ageing: The Platform, 2021, para. 2).

2.2.6 What this all means for Irish policy

The Government of Ireland recognises the importance of the achievement of the SDGs by 2030. It maintains an SDG policy map and matrix to map Ireland’s progress of the goals and their targets (Department of the Environment, 2021). For SDG4, Quality Education, responsibility for and progress towards the targets 4.6 and 4.7 (set out in sub-section 2.3.1.1) is addressed in a number of separate policies and government departments (Department of the Environment, Climate and Communications, 2021).

In 2013, prior to the establishment of the SDGs, the National Positive Ageing Strategy for Ireland set out a vision statement (Department of Health, 2013, p. 3):

Ireland will be a society for all ages that celebrates and prepares properly for individual and population ageing. It will enable and support all ages and older people to enjoy physical and mental health and wellbeing to their full potential. It will promote and respect older people’s engagement in economic, social, cultural, community and family life, and foster better solidarity between generations. It will be a society in which the equality, independence, participation, care, self-fulfilment and dignity of older people are pursued at all

times.

A key output from the strategy is the Healthy Ireland Framework for Improved Health and Wellbeing, 2013 to 2025 (Department of Health, 2013). In this framework, Healthy Ireland set out to address priority areas including education and lifelong learning, volunteering, social participation, and safety and security (Department of Health, 2013, p. 9).

Taking a whole-of-government approach towards achievement of the SDGs, there is a lead department (in most cases concerning SDG4 this is the Department of Education) and a stakeholder department tasked with the implementation of the policy to achieve the specific target. The policies and key objectives relevant to older adults and lifelong learning in targets 4.6 and 4.7 are presented in Table 2.3.

Stakeholder Department	Relevant National Policy	National Policy Key Objective
Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)	The National Strategy on Education for Sustainable Development in Ireland 2014-2020	“Ensure that education contributes to sustainable development by equipping learners with the relevant knowledge, the key dispositions and skills and the values that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future” (Department of Education, 2021, p. 16).

Stakeholder Department	Relevant National Policy	National Policy Key Objective
Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)	Adult Literacy for Life: 10-year Adult Literacy, Numeracy and Digital Literacy Strategy	“This whole-of-society strategy aims to equip all adults with the literacy skills they need. It is a key step in achieving Ireland’s goal of a fully inclusive and equitable society and economy” (Department of Further and Higher Education, Research, Innovation and Science, 2021a, p. 7).
Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)	National Skills Strategy 2025	Objective 4 states: “People across Ireland will engage more in lifelong learning” (Department of Further and Higher Education, Research, Innovation and Science, 2021b, p. 10).
Department of Rural and Community Development (DRCD)	Our Public Libraries 2022: Inspiring, Connecting and Empowering Communities	Commitment 3 of the current Public Library Strategy is: “Provide opportunities for all users to engage in lifelong learning through the delivery of services developed in collaboration with national and local partners” (Department of Rural and Community Development, 2019, p. 2). It also states that “The library can contribute significantly to the lifelong learning aspirations of users through the provision of both formal and self-guided courses” (Department of Rural and Community Development, 2019, p. 2).

Stakeholder Department	Relevant National Policy	National Policy Key Objective
Department of the Taoiseach	Harnessing Digital: The Digital Ireland Framework	“Our goal is to be a digital leader at the heart of European and global digital developments, building on the progress and adaptability demonstrated across society during the pandemic” (Department of the Taoiseach, 2022, p. 2). Further, it states that “Digital technologies can make the lives of all our citizens better through the creation of new job opportunities and new ways of working; greater and more equitable access to personal, social and civic opportunities; and improved accessible government services for everyone” (Department of the Taoiseach, 2022, p. 3).

Table 2.3 Policy and key objective mapping for SDG targets 4.6 and 4.7. Source: Department of the Environment, Climate and Communications, 2021

The key objectives of each of these policies are clearly stated. The means of achieving the stated policy objectives in the timeframe to 2030 is less clear. A brief review of each of these policies in the context of this study’s topic as a snapshot in December 2022 is now presented.

The National Strategy on Education for Sustainable Development in Ireland 2014-2020

produced an interim report in 2018 that made one reference to lifelong learning and in the context of funding to “embed lifelong learning at the heart of Irish higher education provision” (Department of Education, 2021, p. 24). Key achievements listed in the

interim report all relate to formal education, from curriculum development to teacher education.

In June 2022, a report on the outcomes of a public consultation process from 2021 was published. It recognised that education for sustainable development (ESD) extends beyond formal education systems, constituting “a lifelong learning and education strategy, spanning from early learning and care to higher education and research and extending into non-formal and informal learning spaces in the community” (Department of Education, 2021, p. 3). It should be noted that at the halfway period to 2030 (by which time the SDGs are to be achieved), there is little evidence of implementation of the ESD strategy in local communities.

Adult Literacy for Life - the 10-year Adult Literacy, Numeracy and Digital Literacy Strategy was published in 2021. It included digital literacy and skills that had not been included in previous adult literacy and numeracy strategies despite the recognition by OECD in 2009 that problem-solving in technology-rich environments “rely on the same core cognitive processes” as literacy and numeracy (PIAAC Expert Group in Problem Solving in Technology-Rich Environments, 2009, p. 14). The strategy lists 12 aspects of day-to-day life required to be functionally literate. Of these, eight refer to using technology and online services (Department of Further and Higher Education, Research, Innovation and Science, 2021a). The strategy also recognises that individuals prefer informal learning to develop literacy skills and that pathways for individual learners must be provided.

The National Skills Strategy 2025, published in 2016 for the period up to 2025, has as one of its objectives, to focus on “skills development opportunities that are relevant to

the needs of learners, society and the economy” (Department of Further and Higher Education, Research, Innovation and Science, 2021b, para. 2). It specifically calls for the engagement of more people in lifelong learning across the country.

A government body with an important role in meeting the needs of lifelong learning is the public library. In its policy document published in 2019, Our Public Libraries 2022: Inspiring, Connecting and Empowering Communities, states support for “lifelong learning opportunities and establishing the library as the key place for accessing reliable and authoritative information” (Department of Rural and Community Development, 2019, p. 5) It reports that lifelong learning is for all ages, and presents the following statistics (p. 27):

By end of 2014, the Irish participation rate in lifelong learning was 7.3% among adults aged between 25 and 64. The EU has set a benchmark for adults aged between 25 and 64 of 15% lifelong learning participation by 2020.

It is worth noting that at both national and EU level, the age range targeted for participation in lifelong learning is 25 to 64 years, coinciding with the general age range of the working population. This is somewhat at odds with the goal of lifelong learning available to all ages. Lifelong learning measurement covers formal and non-formal learning only; there is no integration of informal learning: “The share of 25-64-year-old adults in Ireland who had participated in formal and/or non-formal learning activities in the preceding four weeks” (SOLAS, 2022, p. 1).

The long-awaited update to the first National Digital Strategy in 2013 (Department of the Taoiseach, 2020) was published in 2022. In Harnessing Digital: The Digital Ireland Framework, dimension 3 relates to skills and includes the target of 80% of the

population achieving basic digital skills by 2030, in line with the EU target (Department of the Taoiseach, 2022). To support this target, the strategy sets out a workstream to “Deliver Digital Skills for Society, to enable all cohorts to engage with digitalisation” (Department of the Taoiseach, 2022, p. 4).

Ireland, because of its tenured membership of key international organisations, can avail of a variety of policies and shared support services to promote the development of lifelong learning for all, thereby contributing to the achievement of SDG4 - Quality Education - by 2030. In section 2.2, I have drawn on documents that include policy frameworks and reports that outline the support available to Ireland to design and implement suitable policies and strategies surrounding lifelong learning, and active and healthy ageing. I conclude the section with a review of five selected policies that together provide a framework to promote opportunities for lifelong learning towards and beyond 2030. With the exception of the public libraries, there is little evidence of converting the framework into actions for the benefit of older lifelong learners.

2.3 Lifelong learning

The terms lifelong education and lifelong learning have been in use since the 1960s, with the UNESCO Institute for Education (UIE) journal, *International Review of Education*, hosting special issues and articles over the years. Earlier, an article containing adult education in the title was published in the 1931/1932 issue, on the topic of providing workers with access to various types of education (Tuijnman & Boström, 2002). While lifelong learning as a practice may have been around for a long time, the term itself became more prevalent from the 1970s (Aspin et al., 2012; London,

2011). As a concept, lifelong learning has increased in prominence in educational policies and practices since the 1960s, gaining more attention from the mid-1990s on a variety of levels. These include national governments, organisations and institutions, international bodies such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organisation for Economic Co-operation and Development (OECD) (Aspin et al., 2012; Boström, 2003). Eurostat, the statistical office of the European Union (EU), offers a definition of lifelong learning aligning with the scope of this study that considers lifelong learning that takes place across the entire life course:

Lifelong learning encompasses all learning activities undertaken throughout life with the aim of improving knowledge, skills, and competences, within personal, civic, social, or employment-related perspectives. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural or sporting activities (Eurostat, 2021d).

Starting in the 1970s, UNESCO commissioned two key reports, the Faure report in 1972 (Faure et al., 1972) and the Delors report in 1996 (Delors, 1996). These reports emphasised the importance of a learning society and the essential role that learning fulfils for both the individual and society. Further, as Singh (2015) described, “by the mid-1990s, a clear shift emerged from the term ‘lifelong education’ to ‘lifelong learning’, putting the emphasis on learner needs and individual choice” (2015, p. 18). Billett (2010, 2018) distinguished lifelong learning from lifelong education. He described learning as something that we do, all the time, and across the life course, hence lifelong learning. This differs from lifelong education that deals with the formal provision of learning by education and workplace institutions. Billett argued that

effective lifelong learning is socially shaped and cannot be taught in education institutions; that everyday experiences and activities all contribute to lifelong learning (Billett, 2010, 2018). Others noted the shift in terminology from education to learning that reflects an intended focus on the learner and away from the teacher (Biesta, 2006; Rogers, 2014). Biesta further contended that the shift in terminology away from adult education towards lifelong learning no longer represents “learning as a right”, instead, “learning as a duty” (2005, p. 688).

More recently, Biesta and others commented on the focus shift of a learning society towards a learning economy, from “learning to be” to “learning to be productive and employable” (2006, p. 170). Cited in Boström and Schmidt-Hertha (2017), Hasan describes the criteria of a lifelong learning society as motivation to engage in formal and informal learning throughout one’s lifetime, access to opportunities for such learning, and incentives to take up such opportunities. Aspin and Chapman presented three different purposes of lifelong learning, “for economic progress and development; for personal development and fulfilment; for social inclusiveness and democratic understanding and activity” (2000, p. 17).

In 2001, the EU referred to lifelong learning encompassing formal, non-formal and informal components, highlighting objectives of learning such as personal fulfilment, social inclusion and active citizenship, in addition to employment-related objectives (European Commission, 2001). This communication, Making a European Area of Lifelong Learning a Reality, set out the Commission’s definition of a number of key terms (European Commission, 2001, pp. 32-33):

Formal learning: Learning typically provided by an education or training

institution, structured (in terms of learning objectives, learning time or learning support) and leading to certification. Formal learning is intentional from the learner's perspective.

Non-formal learning: Learning that is not provided by an education or training institution and typically does not lead to certification. It is, however, structured (in terms of learning objectives, learning time or learning support). Non-formal learning is intentional from the learner's perspective.

Informal learning: Learning resulting from daily life activities related to work, family or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional but in most cases it is non-intentional (or incidental/random).

The separation of the two concepts, lifelong education and lifelong learning, is less clear when represented in a variety of policy documents where the focus is on adult education in formal and non-formal environments. Examples include the OECD (2021b), the EC (2000) and Irish government policy (Department of Education, 2000). In the 2021 Skills Outlook for Ireland, the OECD (2021b, p. 1) said of lifelong learning:

Now more than ever, supporting people in learning throughout their lives, and equipping them with solid skills that they can use fully and effectively at work and in society, is key to ensuring that both individuals and society thrive in this increasingly complex, interconnected and changing world. Lifelong learning is key for individuals to adapt and succeed in labour markets and societies.

Although the document acknowledged the role for non-formal and informal learning amongst adults, it measured engagement in terms of structured learning opportunities that are available to adults up to the age of 65 years. Learning purposes for personal development and fulfilment, social inclusiveness, democratic understanding and activity have less focus from a measurement perspective by those termed supra-national organisations - UNESCO, OECD and EU (Biesta, 2006).

2.3.1 Measuring adult literacies and lifelong learning

Literacies have traditionally been measured along a continuum, as opposed to a binary 'literate' or 'non-literate' (Hanemann, 2015). In Ireland, adult literacies are measured by the Central Statistics Office (CSO), most recently through the instrument Programme for the International Assessment of Adult Competencies (PIAAC). The instrument measures literacy, numeracy and problem-solving in technology-rich environments, skills deemed necessary by the OECD to participate in the workforce, education and training, and social and civic life. While neither all adults, that is, those over the age of 65 years, are included in this measure, nor is literacy development through some informal modes of learning, for example family and social networks. There is, however, a role to be played at individual level (micro), group level (meso) and government level (macro) (Boeren, 2019).

In a Memorandum on Lifelong Learning published in 2000, the EC recognised the nature of lifelong learning as “a seamless continuum from cradle to grave” (European Commission, 2000, p. 7). The management theorist, Peter Drucker, is accredited with the quote “what is measured is managed” (Klaus, 2015, p. 81). The question therefore arises,

how is lifelong learning measured in the EU, and in Ireland, as a member state?

Following the Canadian Composite Learning Index (CLI) (Canadian Council on Learning, 2010), a statistical model (the European Lifelong Learning Indicators (ELLI-Index)), was created to measure lifelong learning amongst the member states of the EU (Saisana, 2010). Based on the Delors Report's four pillars of learning (learning to know, learning to do, learning to live together and learning to be) (Delors, 1996) the aim of the ELLI-Index Europe was "a first step towards making lifelong and life-wide learning more tangible and measurable" (Hoskins et al., 2010, p. 6). The composite index was designed to calculate a single measure of lifelong and life-wide learning² across 36 variables within the four pillars or dimensions (Saisana, 2010). These variables covered a wide range of learning activities including many that occur in an informal environment, for example, in the 'learning to live' pillar: meeting with friends, relatives or colleagues; involvement in work for voluntary or charitable organisations. In the 'learning to be' pillar these included: attendance at cinema; museums/galleries; personal use of Internet (Saisana, 2010). Activities in the 'learning to know' pillar related mostly to formal education and training. Activities in the 'learning to do' pillar related mostly to learning in and for the workplace. The ELLI-Index results showed "a high linear relationship between lifelong learning conditions and the economic and social well-being in EU Member States" (Saisana, 2010, p. 27). The author noted that this excluded Ireland, owing to 20% missing data in the 'learning to know' pillar. In her report to the

² Whereas the *lifelong* perspective spans a person's life from cradle to grave, the *life-wide* perspective takes into consideration the whole spectrum of learning contexts (formal, non-formal, informal) a person comes into contact with during her/his life. Source: Rubenson, K. (2019). Assessing the status of lifelong learning: Issues with composite indexes and surveys on participation. *International Review of Education*, 65(2), 295-317. <https://doi.org/10.1007/s11159-019-09768-3>

Joint Research Centre of the European Commission, Saisana commented that the ELLI-Index was built on a sound statistical foundation and made some suggestions for future refinement (Saisana, 2010). Rubenson commented on the strength of the index with its focus away from merely an economic perspective, to include social benefits; however, he questioned the value of a composite score to present a country's overall status of lifelong learning (Rubenson, 2019).

The classification of informal learning in the EU is limited to activities that are intentional and classified as taught learning (coaching or informal tuition, guided visits) or non-taught learning (self-learning, learning-group, practice, non-guided visits) (Eurostat, 2021a). This standard for the classification of learning activities was updated and published in 2016 (Eurostat, 2016a) and aligns with the International Standard Classification of Education (ISCED) published by the UNESCO Institute for Statistics in 2011 (UNESCO Institute for Statistics, 2011). The focus of ISCED is on qualifications that are formally recognised. It does not include informal, random, or incidental learning. ISCED (UNESCO Institute for Statistics, 2011, p. 80) defines informal learning as:

Forms of learning that are intentional or deliberate but are not institutionalised. It is consequently less organized and structured than either formal or non-formal education. Informal learning may include learning activities that occur in the family, workplace, local community and daily life, on a self-directed, family-directed or socially-directed basis.

The focus on the intentional, deliberate nature, as opposed to incidental or random learning, was picked up on by the Eurostat 2016 classification of learning activities (CLA) in its measurement methodology. The CLA recognises that while learning may

occur as a result of an activity, in the absence of intention to learn, any learning that happens is a by-product. Eurostat offers two criteria that distinguish a learning activity from a non-learning activity (Eurostat, 2016a, p. 10) that also apply to informal learning:

the learning activity must be intentional (as opposed to random learning), so the act has a predetermined purpose; the learning activity is organised in some way, including by the learner him-/herself; it typically involves the transfer of information in a broader sense (messages, ideas, knowledge, strategies).

2.3.1.1 Sustainable Development Goal 4 - Quality Education

In 2015, the United Nations published the Sustainable Development Goals (SDGs) to be achieved by 2030. Amongst the goals was number 4, Quality Education, to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations Department of Economic and Social Affairs, 2015). While the goal is important in itself, Quality Education also acts as an important interaction with the other goals (Boeren, 2019). Target 4.6 set out that “by 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy” and indicator 4.6.1 stated the “percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex” (United Nations Department of Economic and Social Affairs, 2015). It is noteworthy that while the goal referred to “opportunities for all”, target 4.6 referred to “a substantial proportion of adults” and indicator 4.6.1 referred to a “percentage of population in a given age group”.

Hanemann argued in 2019 that literacy and numeracy must be tackled in order to “potentially have a transformative effect on the achievement of the SDGs” (p. 251) and

that this is still a long way off. Additionally, there is no single definition of literacy (Hanemann, 2015). In Ireland, an example is the 10-year Adult Literacy for Life policy launched in 2021, when digital literacy was appended to the original literacy and numeracy strategy (Department of Further and Higher Education, Research, Innovation and Science, 2021a), potentially adding a layer of complexity to the measurement of these literacies and to the measurement of SDG4 achievement.

2.3.2 Informal learning

Formal and non-formal learning are structured forms that are both intended and planned. Informal learning on the other hand is less structured and may take many forms that Rogers considered as “multiple informal learnings” (Rogers, 2014, p. 17). These are ‘self-directed learning’ involving intentional and deliberate action on the part of the learner; ‘incidental learning’ that occurs when the learner is engaged in some task that produces additional learning of some sort; and ‘unintentional learning’ that comes about from everyday experiences and is almost certainly unplanned (Rogers, 2014, pp. 17-18). Self-directed informal learning and collective informal learning are forms that take place without the involvement of a teacher or external curriculum (Livingstone, 2006). Learning in everyday life (Lave, 2012, 2019) occurs in a variety of ways for older adults. It may be intentional or incidental in nature, at home or outside the home, amongst family, friends, or community. Everyday life learning is lifelong learning.

Rogers (2014) set out the nature of informal learning and cited works that refer to an on-going process of learning throughout the life course, commenting that “everybody is

learning during the course of their lives” (Rogers, 2014, p. 34). He further noted three forces in particular that promote informal learning (p. 34):

- a) First, we learn unconsciously as we enter new roles (adolescent, student, parent, property holder, worker, member of community, retired etc) or as we interpret old roles in new ways (one generation of parent is different from the previous generation).
- b) Secondly, as our socio-cultural context changes (for example, with economic changes and the introduction of new technologies), so too we learn and change.
- c) And thirdly, as our individual interests change over time, so again we learn new things both consciously and tacitly.

Informal learning, therefore, has a wider reach and scope than formal and non-formal modes of learning. A challenge is that while often relevant and useful for both the individual and society, informal learning can be invisible (Villalba-García, 2021).

In Ireland, lifelong learning is the measure of adults in the age range of 25-64 years who had participated in formal and/or non-formal learning activities in the preceding four weeks (SOLAS, 2022). It does not include informal learning activities as defined by CLA or ISCED. In the fourth quarter of 2021, the lifelong learning participation rate was 13% (SOLAS, 2022). It may be argued that this measure is not a true representation of lifelong learning or life-wide learning. Rather, it is a measure of formal and non-formal adult education and training (Eurostat, 2021d). Lifelong learning data are collected in the EU by three surveys: the Adult Education Survey (AES), the Continuing Vocational Training Survey (CVTS) and the Labour Force Survey (EU-LFS) with data on informal

learning only collected by the AES (Eurostat, 2021a). In 2016, when the AES was last administered, the participation rate in all six learning forms in the 55-64-year-old age group in Ireland was 54.8%, comparable to the EU average across the 28 member states at that time. The form, learning from a family member, friend, or colleague, recorded 19.1% of participants in this age group, lower than the EU average of 22.8%. Results for all six forms of informal learning are included in Table 2.4 (Eurostat, 2021b).

Form of learning (2016)	Ireland percentage	EU percentage
1 Learning from a family member, friend, or colleague	19.1%	22.3%
2 Learning by using printed material	30.2%	33.0%
3 Learning by using computers	40.9%	35.2%
4 Learning through television/radio/video	19.0%	27.5%
5 Learning by guided tours of museums, historical/natural/industrial sites	11.5%	15.8%
6 Learning by visiting learning centres (including libraries)	10.7%	9.8%
Total participation rate in informal learning	54.8%	55.4%

Table 2.4 Participation rate in informal learning by learning form and age cohort 55-64 years. Source: Eurostat 2021b

While adults may be interested in learning about subjects through the use of digital technologies or about technologies and devices themselves, Fleming (2011) cited

Knowles's work on andragogy, who pointed to its fourth assumption, that "the orientation of the adult to learning that is problem-centered rather than subject-centered. Adults usually wish to solve problems or discuss topics and questions rather than study a subject systematically" (London, 2011, p. 35). Informal learning may be a solution to such problem-based learning.

2.3.2.1 Informal and incidental learning versus intentional learning

The development of a theory of informal and incidental learning is attributed to Marsick and Watkins, in their 1990 text referring to the workplace and republished in 2015 (Marsick & Watkins, 2015). Definitions of informal learning from the literature are considered as "predominantly experiential and non-institutional" (Marsick & Watkins, 2015, p. 7). Intentional learning is defined as "learning that is motivated by intentions and is goal directed" (Blumschein, 2012, p. 1600), something a learner sets out to do. The term incidental learning is generally agreed upon by authors as "learning which occurs as a byproduct of something else" (Marsick & Watkins, 2015, p. 12). The distinction from intentional learning is clearly described: "Informal and incidental learning take place wherever people have the need, motivation, and opportunity for learning" (Marsick & Watkins, 2001, p. 28).

2.3.3 Peer learning

Following the analysis of survey and interview data in this study, and given a serendipitous outcome arising, some literature relating to peer learning was reviewed. The term peer learning can have different meanings in different contexts, for example

in higher education, where “students learn with and from each other without the immediate intervention of a teacher” (Boud et al., 1999, pp. 413-414), adults learning in a professional development environment (Guldborg, 2008), employees learning from each other in the workplace (Marsick & Watkins, 2015), or situated learning across a variety of settings (Lave & Wenger, 1991). In the context of this study, Topping’s definition of peer learning is appropriate: “active helping and supporting among status equals or matched companions” (2005, p. 631).

Peer learning is not new. Xie, in a study with data collected from 2004 (Xie, 2007), found that “students of the OldKids computer classes widely agree that learning from age peers is a very effective way for them to learn about computers” (p. 439). The study also found that “learning from their age peers who are ‘one or a half step ahead’ is an effective (and enjoyable) way of learning to use computers and the Internet” (p. 444). The facilitation of the learning process is an important aspect to consider since it provides empowerment of the learning process to the learner. Later, in the second decade of the 21st century, Xie found that peer learning as a collaborative, social process, might also be as important as the learning outcome itself (Xie, 2011). In the last ten years, as use of mobile digital devices has become more ubiquitous, it has become more important than ever for older adults to keep up with the changes that a new smartphone or tablet device brings in order to engage in digital economy and digital society. Collaborative learning experiences were found to be a theme of informal learning amongst older adults (Jin et al., 2019; Sayago et al., 2013). Recent research found peer support amongst older adults to be an important source of learning about digital media, with people they usually already know (Hunsaker et al., 2020) including household partners (Marler & Hargittai, 2022), and noting the importance of social

support (Han & Nam, 2021; Rasi et al., 2021).

In the context of the three forms of intergenerational learning, peer learning is likely to involve learning together or learning from one another, potentially both. It can take place from a young age in a formal environment, for example, a school classroom, a non-formal learning environment, amongst friends involved in organised activities (for example, scouts), or an informal environment (for example, at home amongst siblings). Learning from peers can thus extend into adulthood, at university level (Boud & Cohen, 2014; Boud et al., 1999) or through organised learning, for example through the University of the Third Age (U3A) (Formosa, 2014). In a 2005 review of trends in peer learning, Topping found that peer tutoring involving specific roles, and cooperative learning involving small groups, were the two forms of peer learning most researched (Topping, 2005). Less is known about peer learning that occurs informally, which may be intentional or incidental, amongst adults generally and older adults specifically, outside of a formal or non-formal learning environment.

2.3.3.1 Peer learning and digital skills

Within family households that include children of school-going age, there is increased motivation to use digital technologies (Korupp & Szydlik, 2005; van Dijk, 2019). Less is known about motivation in households consisting of older partners in a relationship, with no other family members in residence. In 2015, a study of 53 older adults in the Netherlands found that in a number of cases one of the spouses in a household initiated the purchase of a digital device. In four cases this was the wife, and the husbands may not have encouraged the purchase or subsequently did not use the device, although coming into contact with it when purchased (Luijkx et al., 2015). Another study

examined the unofficial proxy role that ‘close others’, often spouses in a shared household, play in relation to online banking services (Latulipe et al., 2022). This indicates that informal peer learning may not feature in such households where one partner lacks motivation to develop digital skills.

Outside of family households, non-formal modes of learning are most prevalent for digital skills development amongst older adults in Ireland. A study by Woodward et al. (2013) found that a peer tutor model had outcomes at least the same as an instructor-led model of learning (Woodward et al., 2013). In a recent study of older adult learners and peer tutors, researchers found that peer tutoring on a non-formal programme of digital skills resulted in participants learning from and helping each other (Pihlainen et al., 2021).

In a survey by Friemel (2016) of more than 1,100 participants over the age of 65 years in Switzerland, the top three settings selected for learning how to use the Internet were: “support at home by family and friends; initiative with adolescents as coach; peer-mentoring among seniors” (p. 322). Earlier research reported the role of peer learning and processes of informal learning to develop digital literacy skill amongst older adults (Han & Nam, 2021; Schmidt-Hertha & Strobel-Dümer, 2014). Thus, in the digital age where the use of mobile devices is more ubiquitous and technology is to be kept up with rather than learned once, there is a role for informal learning that involves peer learning and supportive learning environments. Rogoff’s community-of-learners model (1994) uses a participation theory in which she argues “both mature members of the community and less mature members are conceived as active; no role has all the responsibility for knowing or directing, and no role is by definition passive” (Rogoff, 1994, p. 213). In their Technology in Later Life (TILL) study examining the impacts of

digital technologies on the lives of older adults in urban and rural settings in the United Kingdom and Canada, Marston et al. (2019) recommended the creation of a peer support network to assist older adults in their use of new technologies (Marston et al., 2019).

Hunsaker et al. (2020) in their study of peer support for digital technologies amongst older adults, found a few instances of bidirectional or mutual support that occurred between husbands and wives within a household and amongst friends outside the household environment. They concluded that older adults “have the potential to play a critical role in digital media support that may be more acceptable to their peers than help from other age groups” (Hunsaker et al., 2020, p. 18) and suggested further investigation into how this might be achieved.

In section 2.3 and its sub-sections, I have reviewed literature that concerns lifelong learning related to RQ1 and RQ1.1. In section 2.4 and its sub-sections, I review literature that concerns intergenerational learning and peer learning directly related to RQ2 and RQ2.1.

2.4 Intergenerational learning

Intergenerational learning (IGL) is a concept closely related to lifelong learning and has two important features. First, the intergenerational transmission of knowledge and skills in both directions. Second, it affords the opportunity “for generations to learn more about each other, to understand perspectives of other generations without necessarily adopting them” (Boström & Schmidt-Hertha, 2017, p. 1). Bottery (2016)

commented that IGL is not a new concept having “been around for as long as human beings have been” (p. 10).

Traditionally, an important element of learning within families with knowledge passed down through the generations (Cortellesi & Kernan, 2016; Rogoff, 2003; Stephan, 2020), IGL subsequently developed as a concept applicable to learning across generations outside of the family unit. In a 1996 review of the literature on IGL, Gadsden and Hall noted that “intergenerational learning may include more than the family, although families create an obvious intergenerational connection” (Gadsden & Hall, 1996, p. 6). IGL can be differentiated by three forms, namely, “learning about one another, learning from one another, and learning together”, terms attributed to Siebert and Seidel cited in Schmidt-Hertha et al. (2014, p. 148). Formosa attributes four key principles to achieve good practice in older adult learning to Mercken (2010), also cited in Schmidt-Hertha et al. (2014) – empowerment, competence development, social participation, and integration, and offers the following example (p. 15):

When one learns something doors are opened and new possibilities present themselves. Teaching someone to use the Internet, for example, is more than simply passing on a skill. The ability to use the Internet empowers the student by giving him or her easy access to information increases their self-confidence, reinforces their autonomy, helps them to remain active as long as possible.

The terms ‘intergeneration’ and ‘intergenerational’ refer generically to that which exists or occurs between generations (Merriam-Webster, n.d.-e), while intergenerational learning (IGL) makes specific reference to learning that involves children and older generations (Kernan & Cortellesi, 2016; Seel, 2012). Amongst the characteristics of

successful IGL programmes published by an international group of IGL researchers following a workshop in 1999 was, “They can involve multiple generations but must include at least two nonadjacent and nonfamilial generations” (Hatton-Yeo, 2015, p. 283; Hatton-Yeo & Ohsako, 2000, p. 6). Recognition of the place for IGL programmes where learning occurs outside of the family more so than in the past is increasingly important in modern society (Newman & Hatton-Yeo, 2008).

2.4.1 What is a generation?

In general terms, a generation is considered to be a “a group of individuals born and living contemporaneously” (Merriam-Webster, n.d.-a). While there are no specific cut-off points for the generations living today, the Pew Research Center (Dimock, 2019) considers the following birth dates to be useful for generational analysis:

1928 - 1945: Silent Generation

1946 - 1964: Boomers

1965 - 1980: Generation X

1981 - 1996: Millennials

1997 - 2012: Generation Z

Within families, a parent-child relationship is considered to be an adjacent generation, whereas a grandparent-child relationship is considered to be a non-adjacent generation (Stephan, 2020). In sociological terms, these are considered descent-relationships (Kertzer, 1983). Outside the family, the use of terminology surrounding generations is

less clear. In his 1983 review of the literature, Kertzner noted the importance of generation as a life stage, not just an age group or birth cohort. Yet, the use of the term has caused confusion, as in this example:

Adamski (1980), in a study of Polish workers, compared the values of the younger “generation” with those of the older “generation”, distinguishing these simply by age. In finding that there were “significant differences between the generations”, the author offers us no means of knowing whether to attribute these differences to life-course effects or to permanent cohort characteristics. (p. 131)

Thus, evidence from the literature disputes the taxonomy of using generations or birth cohorts for analytical purposes. Glenn reported that in addition to chronological age the process of ageing comprises of three aspects: biological, psychological and social (1974, 1976). Further, cohort analysis usually requires comparison of at least two cohorts with one or more dependent variables at two or more time points (Glenn, 2005).

In terms of this study’s focus, an intergenerational relationship outside the family is considered to be between two persons whose ages are aligned to that of a parent or grandparent as one generation, and child or grandchild as the second generation. A relationship between two persons of a similar age and social grouping is considered to be a peer relationship. IGL can take place in the context of these informal relationships; however, it can also take place in a non-formal setting, for example, older adults teaching life skills to younger adults, for example, the scouting movement. The converse is also true with younger adults teaching digital skills to older adults through an organised training programme. A formal learning setting, for example a school,

traditionally involves IGL between the adult teacher and the students.

2.4.2 Generativity and reciprocity

Important to the concept of IGL are the constructs of generativity and reciprocity.

Erikson's lifespan development framework posits 8 stages of human development with stage 7 as generativity versus stagnation (Slater, 2003). Pratt (2013) presents generativity according to Erikson's framework (Erikson, 1963) cited in Pratt (2013, p. 97):

Generativity is the positive pole of adaptation during midlife. It represents an orientation toward care and concern for future generations as a way of leaving a legacy of the self. Yet not everyone is generative, either in earlier or later adulthood. Fostering generativity may be an important goal that we can readily pursue with appropriately designed programs across adulthood.

Within families, generativity was deemed to be a central characteristic of intergenerational value transmission, with more generative adults having a stronger influence on their children's and grandchildren's values (Pratt et al., 2008). Outside the family context, intergenerational programmes can promote generativity amongst generations (Pratt, 2013). In a less formal context, generativity can take place at a community level, through intergenerational practices such as volunteering activities, creating outputs through the activities of a "generative community" (Thomas & Tee, 2022, p. 266). Intergenerativity was developed as a concept to focus on the diversity of opinions across generations and backgrounds in order to implement change in communities and elsewhere (George et al., 2011; Whitehouse, 2018; Whitehouse, 2017).

The reciprocal nature of learning facilitated through an intergenerational exchange involves both parties benefitting from the experience. In 2008, Newman and Hatton-Yeo noted the components of reciprocity that can be considered to still hold true, “For the young learner: a transfer of traditions, values, and culture and life-time skills. For the older learner: a transfer of new values, insights about traditions, changing social structures and new technology” (Newman & Hatton-Yeo, 2008, p. 33). If the giver receives inherent benefits, this is considered to be reciprocal (Knight et al., 2014). This may also be true for certain programmes of intergenerational learning that are more formal in structure yet rely on volunteers to share their knowledge with learners. Outside of organised learning exchanges, informal learning can take place through shared common interests and the contribution of social relationships. The benefits of volunteerism and generativity to the mental health and well-being of older adults is well documented in the literature (Greenfield & Marks, 2004; Lum & Lightfoot, 2005; Morrow-Howell et al., 2003). However, less is known about its benefits to younger adults (Knight et al., 2014). One study that included an Irish context, collecting data from older Irish participants and younger Finnish participants, found that both sets of participants benefitted from their intergenerational friendship. The authors noted that friendships provide an important environment for informal learning (Korkiamäki & Elliott O’Dare, 2021).

Gosseries (2009) examined intergenerational reciprocity as a theory of justice and proposed three models. First, the double model that involves direct reciprocity between two parties. Second, the descending model that involves indirect reciprocity from person A to person B, and from person B to person C, considered the more standard of the two indirect models. Finally, the ascending model where person C owes something

to person B because person B transferred something to person A. Direct reciprocity is of interest in this study because of its value within the family environment. Indirect reciprocity is also of interest since its value can apply across three or more parties outwith the family environment, for example in communities or social networks (Gosseries, 2009).

2.4.3 Learnings of older adults from an intergenerational exchange

Learning and development continue throughout the life course and in that sense are culturally and socially bound (Rogoff, 2003; Vygotsky & Cole, 1978). In the context of a learning exchange between two parties from differing generations, adjacent or non-adjacent, there is an established history of learning within a family environment where parents and grandparents hand down their knowledge, skills and traditions to younger family members (Hoff, 2007). In more recent times, IGL takes place in wider social groups (Newman & Hatton-Yeo, 2008). The European Together Old and Young (TOY) project (Kernan & Cortellesi, 2016, para. 6) is an example of an organised form of learning that has as its vision an approach to IGL that:

brings young children (0-8) and older adults together to share experiences, have fun, learn from each other, and develop meaningful relationships.

Intergenerational Learning activities in TOY are friendly and informal social encounters, where children and adults can equally partake as the learner and the teacher).

As such, TOY does not fit the definition of informal learning but can certainly be considered non-formal using the earlier definition by Coombs and Ahmed (1974). In

today's digital society, IGL is often associated with older adults interested in learning about technology from younger generations to help bridge the age-based digital divide. Possessing the motivation to develop digital literacy skills is an important first step for the older adult. Reasons include social connection with others (Nowland et al., 2018), new forms for social interaction (Pihlainen et al., 2021), desire to learn (Tyler et al., 2020), and keeping up with younger generations (Costa et al., 2019).

In section 2.2 and its sub-sections I have reviewed literature directly related to RQ2 and RQ2.1 that concerns intergenerational learning and peer learning. In section 2.3 and its sub-sections I present a review literature relating to RQ3 and RQ3.1 on the topic of quality of life in later years.

2.5 Quality of later life

Successful ageing, a term offered by Rowe and Kahn (1987), comprises of “three main components: low probability of disease and disease-related disability, high cognitive and physical functional capacity, and active engagement with life” (p. 433). Active engagement is an important component with two forms selected by the authors, interpersonal relations, and productive activity, defined as, “interpersonal relations involve contacts and transactions with others, exchange of information, emotional support, and direct assistance. An activity is productive if it creates societal value, whether or not it is reimbursed” (Rowe & Kahn, 1987, pp. 433-434). Bowling and Dieppe critiqued Rowe and Kahn's model since it failed to consider the implications that “a disease-free older age is unrealistic for most people” (2005, p. 1549). They did, however, agree on the importance of social participation amongst other factors of

successful ageing.

A policy framework on active ageing was launched by the World Health Organization (WHO) at the Madrid Second United Nations World Assembly on Ageing in 2002 to promote discussion and formulate plans for “healthy and active ageing” (World Health Organization, 2002, p. 2). Active ageing was defined as “the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age” (World Health Organization, 2002, p. 12). It considered being active to mean not just being physically active but also to participating in social and economic life, along with cultural, spiritual and civic activities.

Healthy ageing builds on the earlier active ageing policy from the WHO and suggests a more inclusive approach to quality of life that extends to health beyond physical activity. In fact, the combined term, healthy and active ageing, brings together the components that Rowe and Kahn (1997) described in their term, successful ageing. The WHO launched a decade of healthy ageing (2020-2030) in support of all seventeen of the United Nations Sustainable Development Goals (SDGs) generally, with specific mention of the optimisation of health opportunities at all life stages, whereby older adults can live independently and participate in social and economic life (World Health Organization, 2020b). SDG3, Good Health and Well-Being, is considered by the WHO with the following implication, “Healthy ageing means that older people contribute to society longer, with opportunities for good health at all stages of life, universal health coverage and integrated, people-centred, transforming health and social systems rather than systems based only on disease” (World Health Organization, 2020b, p. 7). SDG4, Quality Education, presents another implication: “Healthy ageing requires life-long learning, enabling older people to do what they value, retain the ability to make

decisions and preserve their purpose, identity, and independence. It requires literacy, skill training and barrier-free participation, including in digital skills” (World Health Organization, 2020b, p. 7). Considered together, these goals contribute to successful, healthy, and active ageing. Researchers recognise the role that digital technologies can play in this regard and that attitude by older adults is generally positive (Neves et al., 2013); however, consideration of the diversity amongst this cohort must be made (Hargittai & Dobransky, 2017; Nguyen et al., 2020).

In Ireland, a national positive ageing strategy was launched in 2013 (Department of Health, 2013). Its vision (p. 3) set out that:

Ireland will be a society for all ages that celebrates and prepares properly for individual and population ageing. It will enable and support all ages and older people to enjoy physical and mental health and wellbeing to their full potential. It will promote and respect older people’s engagement in economic, social, cultural, community and family life, and foster better solidarity between generations. It will be a society in which the equality, independence, participation, care, self-fulfilment and dignity of older people are pursued at all times.

The vision is similar in context to previous definitions of successful ageing, active ageing, and healthy ageing. For the purpose of this study, in the context of SDG3 Good Health and Well-being, the term healthy ageing will be adopted, since we are currently in the decade of healthy ageing (2021-2030) (World Health Organization, 2020b).

2.5.1 Social participation

The concept of social participation does not have a clear definition in the literature generally (Douglas et al., 2017; Levasseur et al., 2010), or specifically pertaining to older adults (Aroogh & Shahboulaghi, 2020). For the purposes of this study, the definition offered by Levasseur et al., “a person’s involvement in activities that provide interactions with others in a society or a community” (2010, p. 2148), is the chosen term. Other researchers present differing terms, for example, Ang (2019) refers to formal social participation and informal social participation. In this study, the review of the literature relating to social participation will be loosely guided by three measurable concepts offered by Douglas et al. (2017): 1) social connections, 2) informal social participation, and 3) volunteering.

Developing over the past few decades, the construct social connectedness has an important place in the literature as a key determinant of well-being (Ang, 2019). It is linked to individual outcomes such as healthy ageing (Ashida & Heaney, 2008; Seeman et al., 2001), and has positive benefits to the individual and society through community participation and active citizenship (Connolly & O’Shea, 2015; Dury, 2020; Emlet & Mocerri, 2012; Gonzales et al., 2021). Conversely, a lack of social relationships and low levels of participation in social activities is considered a mark of social disconnectedness (Cornwell & Waite, 2009). Many definitions of social connectedness are presented by authors with no clear agreement (Dury, 2020; Kohli et al., 2009). Dury (2020) builds on the work of Lancee and Radl (Lancee & Radl, 2012) and uses the definition, “participation in social life, referring to the quantity and quality of relationships in social and associational networks” (Dury, 2020, p. 526). Distinction is made between formal connectedness and informal connectedness. Informal

connectedness represents interactions with family, friends and neighbours, while formal connectedness represents interactions arising from membership of a group or association (Dury, 2020). The use of the terms 'participation' and 'quality' in Dury's definition above provides us with better insight into distinguishing between a network of connections that might be numerous but potentially of lower quality, as opposed to relationships that have higher quality value. Lancee and Radl (2012) refer to similar descriptions of formal and informal 'participation' in place of 'connectedness' (Lancee & Radl, 2012). Douglas et al. (2017) present informal social participation as involving social activities with others and active membership of community groups for the purposes of personal enjoyment. Distinction too should be made in terms of social connectedness that is mediated by the Internet through, for example, networks of social media connections as opposed to traditional in-person or telephone communications with social networks including friends and family. Research has reported that individuals who have strong social connections to family, friends and community age more healthily than those with weak or no social connections (Cornwell & Waite, 2009; Pillemer & Glasgow, 2000; Ward et al., 2019).

Similar to the variety of definitions for the concepts above related to social participation, volunteering is known by a variety of terms including active citizenship, civic engagement, generativity, and volunteerism. Derived from research by Cnaan et al., (1996), the Encyclopedia of Gerontology and Population Aging offers a useful definition for 'Volunteering and Health Outcomes Among Older Adults' (Gonzales et al., 2021, p. 5374):

Formal volunteering is defined as an activity undertaken by an individual that is uncoerced, unpaid (or minimal compensation to offset costs), structured by an

organization, and directed toward a community concern (Cnaan, Handy, and Wadsworth 1996), whereas helping others not coordinated by an organization is referred to as informal volunteering.

Central to the ethos of volunteering, whether formal or informal, is that individuals engage in an activity for the benefit of others as well as the individual him or herself (Binder & Freytag, 2013; Meier & Stutzer, 2008; Shye, 2010; Ward et al., 2020), “contributing to better physical and mental well-being as well as overall quality of life” (McGarrigle et al., 2020, p. 6). Field (2005) noted the positive association between civic engagement and adult learning, whereby those who are active citizens tend also to be lifelong learners along with a beneficial mutual cycle between them. A review by Field and Tuckett in 2016 for the United Kingdom (UK) government’s Foresight Future of Skills and Lifelong Learning project, reported opportunities for informal learning in the community through social participation in, for example, a Men’s Shed, or with more formality, a self-help learning group such as U3A. In Ireland, the Men’s Shed movement has a strong membership throughout the country, contributing to the well-being of its members as well as learning skills (Lefkowich & Richardson, 2018).

My explanation and use of these concepts in the context of this study are summarised in Table 2.5.

Preferred term	Context	Explanation - how I use the term
Social connections	Informal	Connections we have with family and friends whom we regularly meet in-person, chat with on the telephone or through other Internet-mediated communications channels.
Social connectedness	Informal	See social connections.
	Non-formal	See social participation.
Social participation	Non-formal	Participation in community or interest groups with others through an organised channel, often a club or organisation requiring membership and offering organised activities.
Volunteering	Informal	Giving of one's time with no remuneration for the benefit of others in an informal environment, for example, helping out a neighbour or friend.
Volunteering	Formal	Giving of one's time with no remuneration for the benefit of others in a structured environment, for example, a charity or community organisation.

Table 2.5 Social participation terms and their context in this study

2.5.2 Social capital and learning

Social capital is described by the OECD as the facilitation of co-operation within and across groups through shared norms and values (OECD, 2020a). The concept of social capital has been interpreted in many ways by theorists, most notably Bourdieu (1986), Coleman (1988), Portes (2000), and Putnam (2000). In the context of this study, social capital can contribute to connectedness and well-being in a variety of ways, including an individual's network of social ties and civic participation (Neves, 2013). Three types of social capital were offered by Field (2005, p. 34) in the context of their effects on lifelong learning:

Bonding – dense but bounded networks, homogeneity of membership, high levels of reciprocity and trust, exclusion of outsiders.

Bridging – loose and open-ended networks, heterogeneity of membership, shared norms and common goals, levels of trust and reciprocity may be more limited.

Linking – loose and open-ended networks, variety of membership, shared norms and common goals, levels of trust and reciprocity may be circumscribed by competing demands.

These distinctions are useful since they help us to look at the differences in kinds of social relationships and their quality. Quality matters as much as the number or kind of social relationships an individual may have. Wong and Waite (2016) suggested that while more research is required, in the context of healthy ageing, “stressful and demanding social relationships may be just as harmful as supportive relationships are beneficial” (p. 358). Recent research from The Irish Longitudinal Study on Ageing

(TILDA) involving older urban and rural-based participants in Ireland, pointed to the quality of relationships along with the importance of social networks and interpersonal relationships in terms of quality of life measures (Ward et al., 2020).

Each of these elements of social capital, whether informal social connections, non-formal social participation or volunteering of any nature, through bonding, bridging or linking, in its own way contributes to an individual's lifelong learning (Field, 2005). In 2012, Field recommended policy makers consider a number of priorities for older adult learning, including opportunities for learning and development of social capital, opportunities to engage in physical activity appropriate to age, promoting technology as a means of learning and social participation (2012b).

Boulton-Lewis and Buys (2015) distinguished choices between learning for pleasure or leisure and learning for purpose or relevance. Their list of reasons for learning is presented in Figure 2.1.

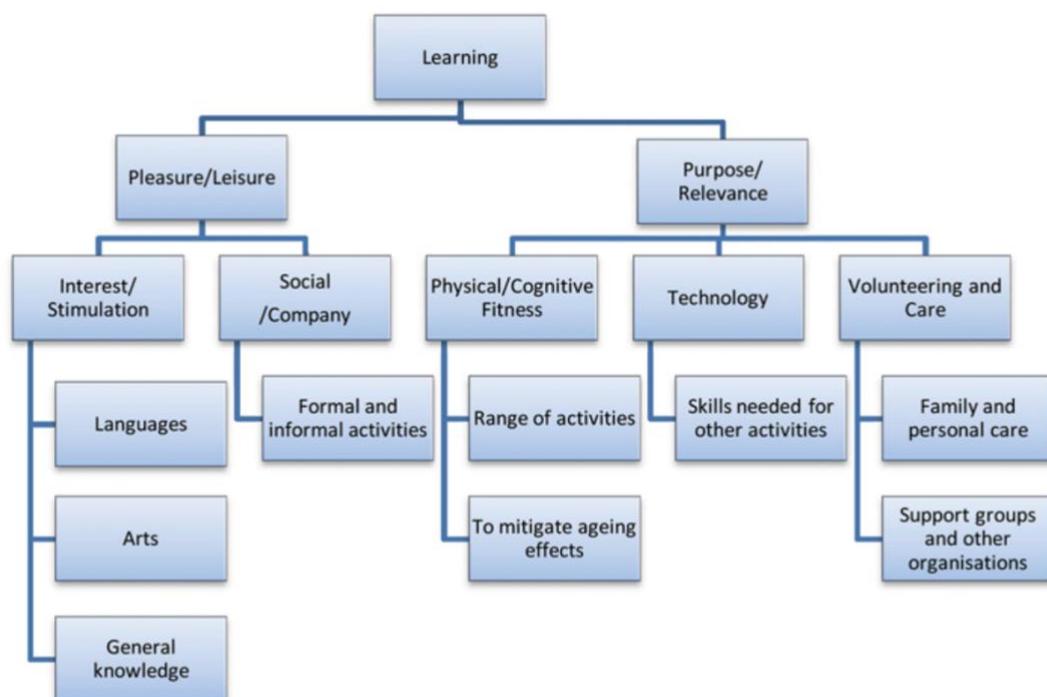


Figure 2.1 Reasons for learning extracted from Boulton-Lewis & Buys, 2015, p. 761.

Social connections, social participation and volunteering all appear in this list of reasons for learning, and can be formal, non-formal or informal. Engagement in learning is therefore an important part of well-being in later life (Boulton-Lewis, 2010; Field, 2012b; Formosa, 2021a).

2.5.3 Digital engagement impacts to quality to life

A useful definition of digital participation by Seifert & Rössel (2019, p. 1) is presented as follows:

the active involvement in digital society through the use of modern ICT, such as the Internet. This participation includes access to not only the Internet but also various online services and content. Non-participation in the digital world could lead to a feeling of social exclusion, whereas a feeling of social inclusion may be induced by having access to the Internet as well as the willingness and skills to use it.

A report by the Good Things Foundation in the UK emphasised earlier research where there are close ties between digital exclusion and social exclusion. It noted that “digital inclusion works best when it recognises and reflects individual needs, and helps people achieve outcomes that are relevant to their lives” (French et al., 2019, p. 10). In a survey of over one thousand adults aged 65 years and older in Switzerland, when asked how useful the Internet was for coping with everyday situations, over half responded positively (Seifert & Schelling, 2018). Everyday situations changed significantly for

many when, in 2020, the world was impacted by the COVID-19 pandemic. For many, digital exclusion led to social exclusion amongst older adults (Seifert, 2020) as Seifert et al. described “a double burden of exclusion” (2021, p. 99).

The impact of digital engagement on various aspects of the well-being of older adults has been the subject of research for some time. In 1998-1999, Kraut et al. (2002) found a shift in their follow-up longitudinal study such that participants “generally experienced positive effects of using the Internet on communication, social involvement, and well-being” (p. 2). This compared with negative effects reported by new Internet users in an earlier study between 1995 and 1996 (Kraut et al., 1998). In their review of recent literature on social media use and well-being amongst older adults, Cotten et al. (2022) concluded that the quality of life of older adults can be enhanced through contact with social connections using social media; however, more longitudinal studies are required. Maintaining social connections through telephone conversations remains the default communications channel for many older adults. Others engage with richer communications channels, for example video calling, that are usually mediated by the Internet (for example FaceTime and WhatsApp).

2.5.3.1 Digital economy, digital society

As economy and society become increasingly digitalised, digital engagement is increasingly required. Digital economy is a complex term to define. The OECD recognises such complexity and offers the following definition in its 2020 Report for the G20 Digital Economy Task Force (OECD, 2020b, p. 34):

The Digital Economy incorporates all economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital

technologies, digital infrastructure, digital services, and data. It refers to all producers and consumers, including government, that are utilising these digital inputs in their economic activities.

This definition was adopted by Lynn et al. (2022) in their Irish text on digital towns (Lynn, Rosati, Conway, Curran, Fox, & O’Gorman, 2022, p. 3). Also referred to as the Internet of Everything, digital society has been defined as that “whose social structures and activities, to a greater or lesser extent, are organized around digital information networks that connect people, processes, things, data, and networks” (Lynn et al., 2018, p. 52).

The dimensions and sub-dimensions of the composite Digital Economy and Society Index (DESI) are aligned to the EU targets for the Digital Decade (European Commission, 2022a). Ranked fifth overall in 2022 amongst 27 EU member states, Ireland rankings for each of the dimensions are third (human capital), sixth (connectivity), seventh (integration of digital technology) and sixth (digital public services) (European Commission, 2022b). The Irish government is proud of this progress, having improved each year from tenth place ranking in 2017 (Department of Enterprise, Trade and Employment, 2022). In its 2022 updated National Digital Strategy, Harnessing Digital, ambitious targets are set out, aligned to the EU targets for 2030, and an ambition for Ireland to be a digital leader (Department of the Taoiseach, 2022). Guided by four dimensions, digital transformation of business, digital infrastructure, skills, and digitalisation of public services, there is a clear focus on development of the digital economy, reflected in three of the four dimensions. Supported by the related workstream: “Deliver Digital Skills for Society, to enable all cohorts to engage with digitalisation” (Department of the Taoiseach, 2022, p. 4) the ambition is clear. As a

composite index, the DESI plays an important role for EU member states to track their performance as a digital economy and society as a whole. However, when considering the digitalisation of society, recent research noted that despite their important role and the work undertaken by volunteers, civil society organisations “are rarely included in indices seeking to measure digital progress in society” (Lynn, Rosati, Conway, Curran, Fox, & O’Gorman, 2022, p. 91).

2.5.4 Digital disengagement - a choice

In the years prior to the COVID-19 pandemic, more older adults in Ireland were beginning to access the Internet. Eurostat data indicated that 33% in the age cohort 65 to 74 years had never accessed the Internet in 2019, compared with 55% in 2018 (Eurostat, 2022c). No data were available on Internet usage for the cohort aged 75 years and older until 2021. The EU announced its Digital Decade to 2030 in 2021 that encompasses a set of rights and principles for digital citizenship: “people at the centre, freedom of choice; safety and security; solidarity and inclusion; participation; sustainability” (European Commission, 2021a).

Research has found that barriers to digital engagement include motivational indifference in that the Internet is perceived as having no relevance (Köttl et al., 2021), practical limitations in terms of learning effort and difficulty of use, difficulties with interpersonal learning supports and costs associated with getting online and being supported (Friemel, 2016; Lee et al., 2011; Selwyn et al., 2003). A summary of many international surveys identifying reasons for non-use of computers and the Internet over time listed the top two most important reasons by respondents as “I do not want it

(not interested)” and “I do not need it (not useful)” (van Dijk, 2019, p. 36). van Dijk terms these people as “want-nots” in addition to “have-nots” (van Dijk, 2005, p. 35). Research from the Pew Internet and American Life project in 2002 found that 52% of their sample of 910 Americans indicated that they “didn’t want or need the Internet” (Lenhart et al., 2003, p. 10) with older people in this group of non-users. It found that, in general, non-users agreed that the Internet was beneficial in terms of connecting people and easily finding information. However, the disadvantages outweigh the advantages for this group who fear “that the Internet is a dangerous place, that its cost is beyond their reach, that its content holds little of meaning for them, and that they do not want to waste precious time online” (Lenhart et al., 2003, p. 13). In 2013, a further study by the Pew Research Centre found that 15% of American adults did not use the Internet or email. Of these, 34% said that the Internet “is just not relevant to them... they are not interested, do not want to use it, or have no need for it” (Zickuhr, 2013, p. 2).

Use and non-use of the Internet is not a simple either/or. Researchers define these values differently, for example, Friemel considered those who used the Internet at least once in the past 6 months as onliners, with those having been online less frequently or never as offliners (Friemel, 2016). Research by Seifert and Schelling (2016, 2018), on the other hand, presents these terms as a binary onliner/offliner to describe Internet use and non-use by older adults. Earlier, the Pew Internet and American Life Project presented a spectrum of users and non-users (Lenhart et al., 2003, p. 19):

Net Evaders – 20% of non-users. These are non-users who live in households that have Internet connections and in which other family members go online from home.

Net Dropouts – 17% of non-users, with some overlap with Net Evaders. These non-users were once online. They stopped and have not gone back.

The Truly Unconnected – 69% of non-users. These are people who live completely apart from the Internet. They are those who have never used the Internet before and who do not live with or often even know many Internet users.

Types of users who are online were categorised as “Intermittent users” (Lenhart et al., 2003, p. 19), “Continuous users” and “Home broadband users” (van Dijk, 2005, p. 32).

Selwyn (2006) presented groups of users with three levels of distinction: ‘absolute’ non-users who reported never having used a computer, similar to Net Evaders; ‘lapsed’ users who did have a computer but not used in the last 12 months, similar to Net Dropouts; and ‘apparent users’ who make minimal use of computers (Selwyn, 2006), may also be termed ‘low users’. A little earlier, in 2002, Wyatt (2002) offered four categories of non-user: “resisters, rejecters, the excluded and the expelled” (p. 36). Resisters and rejectors mirror the categories of absolute and lapsed, individuals who exercised choice to be a non-user. Excluded and expelled users differ since they were not able to exercise choice that would allow them to gain access or maintain access to the Internet for various reasons including cost.

The question of the proxy user should also be considered. Proxy Internet users are those who engage in online services and applications on behalf of other adults who may have limited engagement with the Internet (Selwyn et al., 2016) or no engagement at all (Selwyn, 2006). Proxy activities tend to involve interactions and transactions with organisations and institutions (Selwyn et al., 2016). Proxy users are often younger

family members but may also be partners or friends, depended on by older adults “to help them out for a variety of activities that they do not feel comfortable or able to do themselves” (Helsper, 2009, p. 30). The role of the proxy user differs from that of the warm expert, a term coined by Bakardjieva to describe “an Internet/computer technology expert in the professional sense or simply in a relative sense compared with the less knowledgeable other” (2005, p. 99). Olsson and Viscovi further define warm experts as “nonprofessional persons who help more inexperienced users to come to terms with digital devices and services” (2018, p. 326). The key difference is the learning aspect of the interaction, with the warm user through co-use rather than the transactional function undertaken by the proxy user. Of course, the roles of warm expert and proxy user can be performed by the same person, particularly in a family environment. There is a risk, therefore, that a warm expert might become a proxy user (Dolničar et al., 2018; Hänninen et al., 2021), and take on the functions intended to be transferred by means of a learning exchange with the older adult.

In a small study involving 15 interview participants, Gallistl et al. (2021) found that while describing themselves as non-users of the Internet, many “engaged quite regularly with diverse digital technologies” (p. 4). Instead of looking at technology in terms of use and non-use, they consider the wider ‘technology practice’ that involves not just use or non-use but, for example, learning more about a device or technology, discussing it with others, deciding whether or not to try it out. These technology practices were placed into four bundles: avoidance practices, including alternative methods to digital technologies; usage practices, including proxy use; appropriation practices, including learning from warm experts; and subjectivation practices, including feelings of isolation as a result of digital exclusion (Gallistl et al., 2021). Drawing on

Bourdieu's theory of practice (Bourdieu, 1977), Beckman et al. offer a definition of technology practice as "more than the use of the technology, but also encompasses the social and cultural relations, systems and structures, and the meaning the practice has in the individual's life" (2018, p. 198).

2.5.5 Social participation and digital engagement in later life

Social isolation and loneliness are associated with poorer quality of life and measures of well-being (Ward et al., 2019). Data collected by TILDA researchers in 2018 (Wave 5) found that amongst participants in Ireland over the age of 70 years, representing 48% of the population in this age cohort based on 2016 census data, 60% enjoyed regular social and leisure activities, 47% volunteered in the last year and 17% volunteered weekly (McGarrigle et al., 2020). This is consistent with previous waves of collected data reporting that "volunteering and other forms of social participation are important components of successful ageing" (Ward et al., 2018, p. 48). These types of activities benefit both the individual (Rowe & Kahn, 1987) and others in society (Morrow-Howell et al., 2009). Social isolation, however, is a very real issue in Ireland. TILDA measures social isolation using the established Berkman-Syme Social Network Index (SNI) that captures four types of social connection to arrive at a measure ranging from isolated to integrated. These are marital status, close ties with family and friends, membership of a church group, and membership of voluntary organisations (Berkman & Syme, 1979). Reported by Ward et al. (2019), average social isolation scores amongst TILDA participants improved between the ages of 50 and 68 years, after which they deteriorated.

Social connectedness mediated by the Internet can be of benefit to older adults whose network of social ties reduces in later life. In a study using 2012 survey data from 1,620 Americans over the age of 50 years, researchers found that use of social network sites, for example Facebook, contributed to feelings of social connectedness with friends. As a result of the ageing process, when social connections become fewer, the use of social network sites can be beneficial to maintain social connectedness (Yu et al., 2016). In more recent studies using data from European older adults up to age 74 years, after which no data were available, researchers found that social network sites may have a positive impact on quality of life since they afford opportunity to maintain existing social connections and make new ones (Gaia et al., 2021; Sala et al., 2022). In a review of 26 studies published between 2019 and 2021, Cotten et al. (2022) cautioned that research gaps in methodology and content must be bridged before concluding that use of social media and social network sites has a positive overall effect on older adults. In Ireland, data collected in the first two quarters of 2021 indicated that 45% of Internet users aged 60 to 74 years used social network sites as a means of communication (Central Statistics Office, 2021a).

Informal social connections with family and friends can take place through digital media aside from social network sites. In 2021, access to the Internet through a mobile or smartphone was, at 89%, the most used device by adults in Ireland in the age cohort 60 to 74 years. Sixty-two per-cent used a laptop, followed by 47% who used a tablet (Central Statistics Office, 2021b). In terms of the types of activities mediated by the Internet, the results for the 60-to-74-year age cohort in order of usage in 2021 were: sending and receiving email (87%); finding information on goods and services (86%); instant messaging (74%); reading or downloading online news (74%); Internet

telephoning/video calls including FaceTime and Skype (70%); and Internet banking (70%) (Central Statistics Office, 2021a). No data were presented for those aged 75 years and older.

In addition to informal social connections, non-formal social participation should be considered. This type of participation includes organisations, clubs and classes, and is typically associated with in-person activity, espousing the richness of this type of social medium (Daft & Lengel, 1984). Cues that exist in in-person communications, for example body language, facial expression and gestures, are reduced in other types of communication including traditional telephone as well as media facilitated through the Internet (Yuan et al., 2015). Older adults who did not grow up with the Internet, termed “physical natives” (Ball et al., 2017, p. 1167) value in-person social interactions while acknowledging the benefits of telephone and Internet for communications with social ties physically distant from them. Wilson et al. (2021) note that technology acts as a supplementary tool to face-to-face communication, not a replacement. There are many varieties of groups and associations that provide social participation opportunities for older adults. In Ireland, two examples of such associations are Active Retirement Ireland and the University of the Third Age (U3A), coordinated by Age Action Ireland. U3A exists in different guises across many countries. The movement originated in France in the 1970s following legislation to make universities responsible for lifelong education directed towards retired citizens. Countries that followed took other approaches to U3A, including dependence entirely on volunteers and independent of universities, and in the case of Britain, a self-help model based on mutual reciprocity (Formosa, 2014). In Ireland, U3A groups organise their own activities, including talks on a variety of topics, cultural activities including visits to museums as well as physical

activities such as Tai Chi and walking (Age Action, 2022). Indeed, the focus is as much on the social aspects of the learning environment, for example meeting people, as it is about learning. Further, researchers (Bunyan & Jordan, 2005, p. 278) reported in a 2005 study that:

The U3A in Ireland provides a platform for older people to share their life experiences and their variety of skills and talents with each other. It is a comfortable, safe environment that encourages learning at an appropriate pace, using methods suited to the needs of the individuals involved.

During the COVID-19 pandemic, U3A groups in Ireland and their equivalents suspended activities for the most part, with some centrally organised webinars with expert speakers facilitated over the Zoom platform in 2021. Over twenty years earlier, U3A online emerged as an idea between U3A leaders in Australia, New Zealand, and the United Kingdom in 1997. The goal was to share resources and extend activities to older adults who were isolated (Swindell, 2002). The initiative to deliver courses to participants who interacted via email and an electronic forum was successful in its three years of operation between 1999 and 2001, demonstrating that such programmes “can make a considerable difference to the lives of isolated people in particular” (Swindell, 2002, p. 428). Later research noted that a limitation of U3A online was its lack of assessment of the digital skills of its participants, supposing that by registering via email, participants had the necessary skills to complete the course (Formosa, 2021b). In his study of Maltese U3A participants during the COVID-19 pandemic period, Formosa (2021b) found that this shortcoming persisted two decades later by failing to pre-screen for Internet access and digital skills to engage online.

In section 2.3 and its sub-sections, guided by RQ3 and sub-questions RQ3.1 and RQ3.2 I have presented a review of literature pertaining to quality of life in later years.

2.6 Identifying the research gap

In this chapter, I explored literature for a number of areas from the perspective of older adults that relate specifically to my study: lifelong and intergenerational learning in non-formal and informal environments, quality of life in later years, social participation, and digital engagement. I found that participation in society contributes to quality of life and general well-being of older adults. Such participation can be considered an important component of lifelong learning and is not distinct from it. Digital engagement for those interested has the potential to further improve quality of life; however, for many, these skills must be developed and maintained.

In Ireland, programmes of formal and non-formal learning to enhance digital skills are generally classroom based. Intrafamilial support is useful to those with younger generation family members but this is not an option available to all. A participant in a Finnish/Irish comparative study of a non-formal learning environment, when asked what would make using technology easier, responded: “get yourself a granddaughter!” (Pirhonen et al., 2020, p. 7). While considerable literature exists in relation to the experiences of formal intergenerational programmes for example, Bjursell (2015), Carlo and Bonifacio (2020), Dauenhauer et al. (2018), Johnston (2018), Pstross et al. (2017), Strom and Strom (2000), and Tam (2014), there appear to be relatively fewer studies in relation to informal and non-formal learning experiences between generations for example Freeman et al. (2020), Stephan (2020), and Strom and Strom (2012). Only two,

Korkiamäki and Elliott O'Dare (2021), and Pirhonen et al. (2020) refer to Ireland specifically.

The intersection between both intergenerational and peer relationships, and non-formal and informal modes of lifelong learning in Ireland has yet to be fully explored. In Northern Ireland, Lynn Johnston's work with the organisation Linking Generations, "develops, supports, and facilitates all-age connections in a variety of spaces for a variety of purposes" (Sánchez et al., 2018, p. 4). It contributes to the building of age-friendly communities (Johnston, 2018). In Ireland, Anne Fitzpatrick's work on IGL focusses on the early education sector (Fitzpatrick, 2019). She has cited earlier research suggesting that "the perception of older adults in society has been changing in recent decades, with a new emphasis on older adults as not only *beings* but also *becomings*" [emphasis added] (Fitzpatrick, 2019, p. 45). Literature searches have not proved fruitful in locating sources that explore IGL and peer learning in informal and non-formal settings to support specifically the digital literacy needs of older adults in Ireland. This study proposes to bridge this gap in an Irish context, the title of which is presented as *Ireland and the lifelong learning curve: The intergenerational contribution to digital literacy for life*. The overarching question this thesis seeks to address asks: *To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal-lifelong learning exchanges amongst older adults in Ireland?*

Chapter 3 : Research design

In this chapter, I outline my approach to the design of the study, beginning with my philosophical standpoints about knowledge (section 3.1) and my position as a researcher (section 3.2). This is followed by the research questions of interest to the study (section 3.3). I argue the feasibility of a case study approach (section 3.4) followed by my approach to participant sampling (section 3.5). I outline the strategies employed to collect and analyse the data and argue my choice of a mixed methods design approach to data collection and analysis (sections 3.6 and 3.7). I consider the ethics associated with the study (section 3.8) along with potential limitations and weaknesses (section 3.9) before providing a summary in section 3.10.

3.1 Epistemological and ontological orientation

“If ontology is about what we may know, then epistemology is about how we come to know what we know” (Grix, 2019, p. 57). Along the ontological continuum, my general position is one of interpretivism, “used to identify approaches to social science that share particular ontological and epistemological assumptions” (Blaikie, 2004, p. 509). The topic of interest to this study aligns with my interpretivist personal perspective since I seek to find meaning in social reality and consider my own values and beliefs to have an important role to play in the research process. This presents two axiological challenges to be mindful of. Firstly, the researcher is part of what is being researched, and secondly, the interpretations of the researcher are key to the research contribution. Interpretive research, closely associated with qualitative research, takes the position

that there are multiple interpretations of a single event (Merriam & Tisdell, 2016). This study aimed to interpret experiences shared by participants through a process of empirical data collection aligning with my social constructivist epistemological position. I consider knowledge to be socially constructed by learners in a variety of social contexts and subscribe to the concept of social constructivism as the role of others in an individual's construction of knowledge (Adams, 2007; Shepard, 2000; Vygotsky & Cole, 1978). In the context of this study, data collected from survey responses and interviews were framed by the concepts of learning together and learning from one another, two of the three forms of IGL. This approach facilitated the converging of multiple meanings that might be understood by the study participants.-

3.2 Researcher position

I am a lifelong learner, subscribing to Jarvis's definition, "a lifetime phenomenon through which the person develops and becomes more experienced" cited in Aspin et al. (2012, p. 111). I have for many years been involved in a variety of volunteering activities with and for older adults, such as helping them to access public services through online and offline channels, as a "warm expert" (Bakardjieva, 2005, p. 99), sharing knowledge, tips and tricks about their Apple devices, sharing stories while working side-by-side at community Tidy Towns activities, and being a daily 'friendly caller' to a woman in her eighties, living alone in an isolated location. Thus, I am also an intergenerational learner, engaging with older adults to learn from one another, learn about one another and learn together (Schmidt-Hertha et al., 2014). I have been a reflexive practitioner in my professional life across industry and teaching practice. As a

researcher, I consider my reflexive practice to inform my researcher position (Holmes, 2020). As an older adult and lifelong learner, myself, I gained deeper understanding of this position through the research process of my study. A reflexive approach suggests that, rather than trying to eliminate their effect, researchers should acknowledge and disclose their selves in their work, aiming to understand their influence on and in the research process. These personal experiences enabled the formulation of study propositions to guide the research (Yin, 2018). Yin, cited in Baxter and Jack (2008), likens propositions in qualitative research to hypotheses in quantitative research and considers propositions useful to guide the research process.

This study sought to explore, describe, and understand the experiences of two different groups, onliners who use the Internet, and offliners who do not. It aimed to contribute to the knowledge area of IGL in an Irish context with a view to potentially informing future Irish government policy in the areas of digital literacy specifically and lifelong learning generally amongst older adults. To this extent, it is a qualitative study and is underpinned by research paradigms of both interpretivism and pragmatism. Goldkuhl (2012) concluded that for qualitative research into information systems (QRIS), interpretivism and pragmatism can be combined, with one being the base paradigm and the other being the supporting paradigm. The position of the researcher determines which approach is adopted: “an interpretive stance aiming for understanding that is appreciated for being interesting, or a pragmatist stance aiming for constructive knowledge that is appreciated for being useful in action” (Goldkuhl, 2012, p. 144). Pragmatism focusses on practical implications and has as its starting point the statement of the problem (Hammersley, 2004; McCaslin, 2008). For Charles S. Peirce, understood to be the founder of pragmatism, inquiry is made into a problem arising

from experience (Hammersley, 2004). Considering this study from a stance of pragmatism supported by one of interpretivism, and my personal experiences outlined above, I state the research problem thus: older adults in Ireland without the necessary digital literacy skills to engage in society are at risk of poorer quality of life than those with such skills. I therefore come to this research study with a practical problem-solving attitude (McCaslin, 2008).

Morgan (Morgan, 2014a) points out that inquiry is a specific term used within pragmatism and builds on Dewey's 5 steps of problem-solving using inquiry (see Figure 3.1).

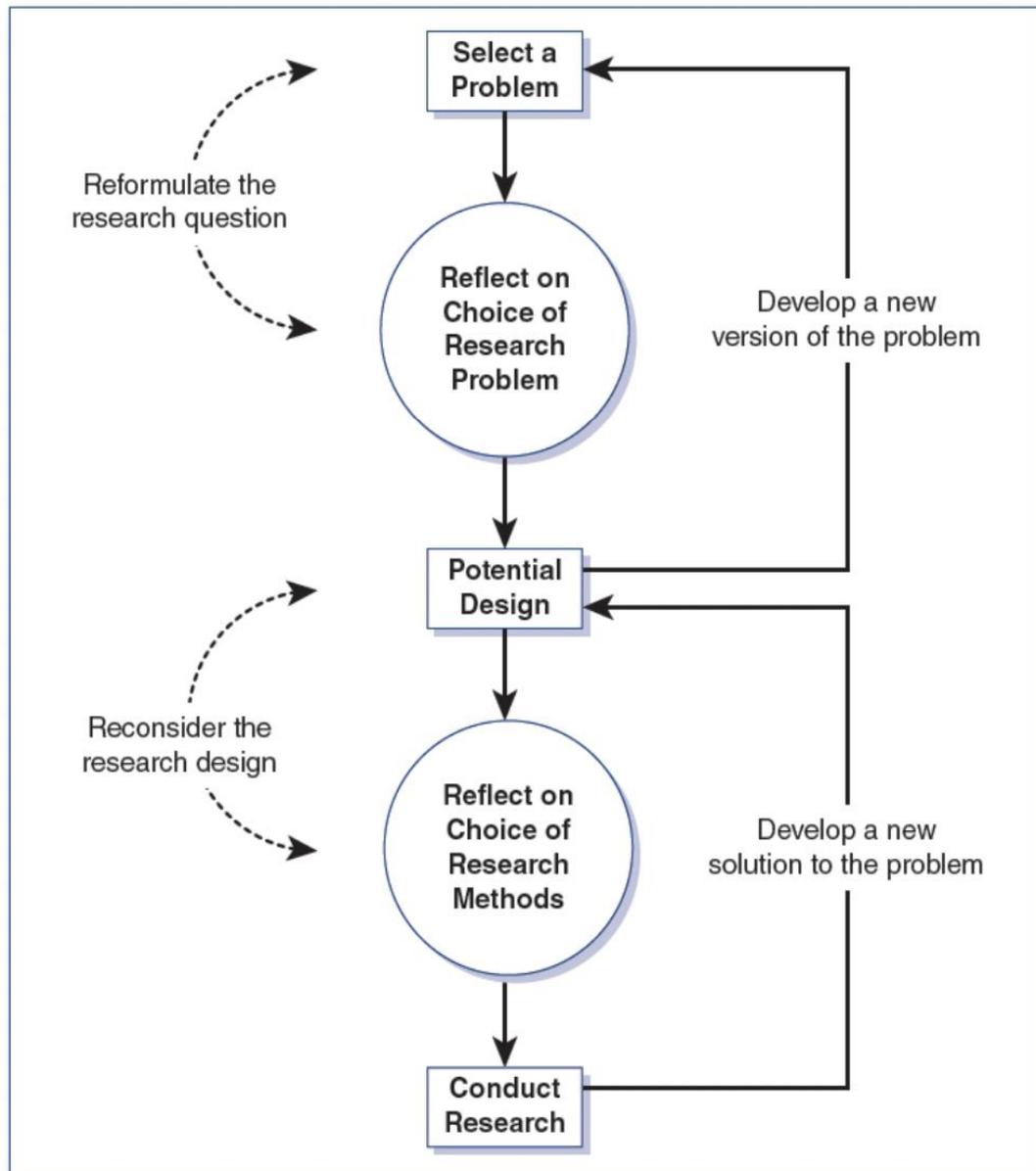


Figure 3.1 Morgan's Dynamic Application of Dewey's Model of Inquiry (Morgan, 2014b, p. 33)

Engagement in reflexivity by the researcher is important in step 2 (reflect on choice of research problem) and step 4 (reflect on choice of research methods). This process enables the researcher to make the appropriate choices between the problem to be researched and the methods of undertaking the research (Kaushik & Walsh, 2019).

3.3 Research questions

As introduced in section 1.2 the overarching research question this study asked is:

To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges amongst older adults in Ireland?

This question is broken down into feasible sub-questions, to be answered as part of this study:

RQ1 What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all?

RQ1.1 How has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?

RQ2 How do informal and non-formal learning exchanges through uses of digital technologies across generations contribute to adult lifelong learning at all ages?

RQ2.1 What have been the learnings of older adults as a result of an intergenerational exchange?

RQ3 What are the perceived impacts to personal quality of later life by being connected in a digital world?

RQ3.1 In what ways do perceived impacts of digital engagement contribute to

positive and negative quality of life?

RQ3.2 What are the impacts of digital engagement on older adults' levels of social participation?

3.4 Case study approach

The nature of this study was exploratory, described by Yin whereby “the intervention being evaluated has no clear, single set of outcomes” cited in Baxter and Jack (2008, p. 548). In this study, I considered a case study appropriate as a research design within which particular methods of data collection are applied, specifically mixed methods using an online survey and interviews.

Focus elements of a case study differ by authors including Yin (2003), Stake (2006), and Wolcott (2009). Merriam and Tisdell (2016) note that “the unit of analysis, not the topic of investigation, characterises a case study” (p. 38). Tight (2017) further explains, “the unit of analysis is the reason why you choose to study a particular case or cases; it is what you are focussing on trying to understand within the case” (p. 155). As Merriam and Tisdell (2016) note, “A case study is an in-depth description and analysis of a bounded system” (p. 37). Denscombe (2010) specifies the need for distinct boundaries in case study research that are clearly explained by the researcher. Details of selecting the sample from these two bounded cases are presented in section 3.5. In this study, the bounded system consists of two units of analysis, the group of onliners and the group of offliners, who form the central elements of this research. While the literature presented a variety of Internet users along a spectrum between onliner and offliner, the degree of

separation is best explained in terms of these two bounded units.

According to Creswell (2008, 2014), a mixed methods design involves the inclusion of both qualitative and quantitative approaches in a study, thus mixing them. This approach aligned with my pragmatic standpoint, where I seek a suitable research design that matches my motivation for the research and the procedures I use to complete the research (Morgan, 2014a). This study collected data using the following mixed methods: online survey, video interview, telephone interview, and in-person interview.

3.5 Participant sampling

This study was concerned with older adult populations in Ireland for whom baseline Eurostat data were available. Previous empirical research undertaken of digital habits amongst older adults has ranged in age from 45 years upwards (Hunsaker & Hargittai, 2018). For this study, survey and interview data were collected from older adults in the age groups 55-64 years, 65-74 years and over 75 years. The sample consisted of representatives from each of the bounded cases, onliners and offliners.

Purposive sampling (Morse, 2004) of onliners was planned through: 1) groups and associations in Ireland with older adults amongst its members, and 2) community groups in Cork city and county that I interact with as part of my volunteering activity. Further details of my sampling approach are presented in Table 3.1. Details of these organisations from their websites are included below the table as footnotes.

Group name	Rationale for selection	Primary contact method(s)
Active Retirement Ireland ³	National association with members ranging from 50 to over 100 years. Local associations all over Ireland are run by volunteers to serve the interests of members.	Email
Age Action Ireland ⁴	National organisation that advocates for age equality with a vision for “a society that enables all older people to participate and to live full, independent lives.” It also coordinates University of the Third Age (U3A) activities for its members.	Email and organisation contact
Age & Opportunity Ireland ⁵	National organisation that aims “to provide opportunities for older people to be more active; more visible; more creative; more connected; more often.” They offer a variety of programmes designed to “empower people to be the agents of their own lives.”	Email

³ <https://activeirl.ie/ari-mission/>

⁴ <https://www.ageaction.ie/about-us>

⁵ <https://ageandopportunity.ie/about-age-and-opportunity/>

Group name	Rationale for selection	Primary contact method(s)
Age Friendly Ireland ⁶	A shared service function of all local authorities on behalf of the government of Ireland, Meath County Council coordinates the national Age Friendly Cities and Counties Programme within the WHO framework.	Email
Alone Ireland ⁷	National organisation with volunteers who conduct and provide practical supports to older people, visits, and phone calls, linking older people into social activity and being a companion.	Email
Cork City Partnership ⁸	Amongst other supports offered by this Cork-based organisation, the Friendly Call programme aims “to tackle isolation and loneliness among older people, those with physical and mental disabilities and those who are socially isolated.”	Email and organisation contact

⁶ <https://agefriendlyireland.ie/category/about-us/about-the-programme/>

⁷ <https://alone.ie/about-us/>

⁸ <https://corkcitypartnership.ie/>

Group name	Rationale for selection	Primary contact method(s)
Irish Men's Shed Association ⁹	National organisation funded by the government of Ireland to support community-based projects where men come together "to learn, share skills and make long-lasting friendships."	Email and telephone
National Tidy Towns ¹⁰	National movement with local organisations and individuals "who every day take some action, large or small, to improve their local environment." An annual competition is coordinated by a dedicated team on behalf of the Government of Ireland.	Email
Public Participation Network (PPN) ¹¹	Coordinated by each local authority, the PPN offers a structure that brings together community groups to enable citizens to have their voice heard regarding government decisions affecting their local community.	Email

⁹ <https://menssheds.ie/what-we-do/>

¹⁰ <https://www.tidytowns.ie/about-us/spirit-of-tidytowns/>

¹¹ <https://www.gov.ie/en/policy-information/b59ee9-community-network-groups/>

Group name	Rationale for selection	Primary contact method(s)
University of Limerick (UL) ¹²	Following a successful recruitment campaign in 2020 for another study that focussed on students, staff and students of UL were invited to share my call for participants with eligible family and friends.	Email

Table 3.1 Sampling approach

A participant information sheet was distributed through direct and indirect channels to administrators of these groups in July 2021. The information sheet included a link to an informed consent form, followed by a Qualtrics survey with a mixture of questions to initially explore participant digital experiences that may have been shaped by the COVID-19 pandemic. It was hoped that 50-100 participants would be recruited to complete the survey. At the end of the survey, participants were invited to an optional follow-up direct interview to further explore themes arising from the initial survey data. It was hoped that 12-20 participants would complete direct interviews through any of the following communications media: online video or audio, telephone, or in-person subject to public health guidance around the COVID-19 pandemic.

Purposive sampling of offliners was anticipated to be more challenging since they would not have access to the online survey. Since it was not possible to anticipate how many might be recruited, it was hoped that between one-quarter and one-third of the total interview participants would be made up of offliners.

¹² <https://www.ul.ie/courses/about-ul>

3.6 Data collection

To answer the research questions of interest to this study, Table 3.2 outlines the data collection approach.

Method	Reason for using	Linked RQs	Instrument
Online survey with closed and open-ended questions	To examine the digital and technological experiences of older adults and a self-assessment of quality of life (QoL) using the CASP-19 scale	RQ2 RQ3	Data requirements table - see Appendix A
Video or telephone semi-structured interview, in-person interview subject to public health guidelines	To explore more in-depth practices of older adults who are digitally connected	RQ2 RQ3	Interview guide - see Appendix B
Telephone semi-structured interview	To explore the experiences of older adults who are not digitally connected	RQ2 RQ3	Interview guide - see Appendix B

Table 3.2 Mapping of data collection methods to research questions

3.6.1 Survey

RQ2 was concerned with the experiences of older adults in terms of lifelong learning and intergenerational learning. RQ3 focussed on the question of quality of life in later years and the impacts of digital engagement and disengagement on quality of life (QoL). Both these questions (section 3.3) involved a mixed methods approach to collect data using the following methods: online survey, video interview, telephone interview, and in-person interview.

An online survey design was employed to examine the digital and technological experiences of older adults and to gain an overview of their engagement in community groups and activities. Once consent was collected, participants were asked for their age range and only those who indicated their age as being 55 years or older were enabled to continue with the survey. The first block of questions collected participant attribute data. The second block presented questions relevant to RQ2 and the third block presented questions related to RQ3. A scale for self-assessment was included in each of these latter two blocks. Block 2 self-assessment related to digital skills and confidence. Block 3 self-assessment related to quality of life. A data requirements table mapped the survey questions to RQs and variables of interest (Appendix A).

My search for an existing scale to self-assess digital skills and confidence proved unsuccessful. At the annual conference of the British Society of Gerontology, hosted online in 2021 by Lancaster University, I attended a presentation given by Dr Deborah Morgan of Swansea University. Dr Morgan advised that she too was unsuccessful in locating a scale and devised a short survey of 13 statements that she kindly shared with me to leverage for this study. This was not a validated scale; nonetheless, 11

statements were selected as appropriate to include in the survey. Options to select for each statement were based on a 5-point Likert scale from 'Strongly agree' to 'Strongly disagree'. Table 3.3 presents the statements and identifies those relevant to this study for inclusion along with my rationale for excluding two statements. The sub-scale column indicates whether the statement refers to digital skills or digital confidence.

Ref	Statement	Sub-scale	Selected for survey inclusion
1	I can make phone calls and video calls online	Digital skills	Yes
2	I can communicate with family and friends using email and other messaging apps	Digital skills	Yes
3	I can set up an email	Digital skills	No - since the participant uses email
4	I know how to access the Internet	Digital skills	Yes
5	I can download an app	Digital skills	Yes
6	I know how to navigate around the screen	Digital skills	No - since the participant uses a digital device
7	I understand how to keep myself safe online	Digital skills	Yes

Ref	Statement	Sub-scale	Selected for survey inclusion
8	I need help with setting up my device	Digital skills	Yes
9	I use my digital device frequently	Digital confidence	Yes
10	I am confident using my device	Digital confidence	Yes
11	I am confident I know what to do if I get stuck	Digital confidence	Yes
12	I worry I might break it (or get stuck)	Digital confidence	Yes
13	I am confident I can find what I need when using my device	Digital confidence	Yes

Table 3.3 Digital skills and confidence statements

The CASP-19 assessment scale measures quality of life in later years and consists of 19 statements across 4 domains of need: control, autonomy, self-realisation, and pleasure.

Hyde et al. (2003) presented the following description of each of these domains:

Control is understood as the ability to actively intervene in one's environment (Patrick et al., 1993). **Autonomy** is defined as the right of an individual to be free from the unwanted interference of others (Patrick et al., 1993). **Self-realisation** and **pleasure** capture the active and reflexive processes of being human (Giddens, 1990; Turner, 1995). Further, "quality of life is seen as the satisfaction of these needs" (Hyde et al., 2003, p. 187). From a possible 19 statements, seven were selected to provide an overview of participants' attitudes across the domains, since a full-scale self-assessment was not considered necessary for this study. All 19 are listed in Table 3.4

with rationale included for each of the 7 selected. Options to select for each statement were 'Often', 'Sometimes', 'Not often', and 'Never'.

Item	Statement	Sub-scale	Selected for survey inclusion
1	My age prevents me from doing the things I would like to	Control 1	No
2	I feel that what happens to me is out of my control	Control 2	No
3	I feel free to plan for the future	Control 3	Yes - reflects the participant's future outlook
4	I feel left out of things	Control 4	No
5	I can do the things I want to do	Autonomy 1	Yes - reflects the participant's view of independence and choice
6	Family responsibilities prevent me from doing what I want to do	Autonomy 2	No
7	I feel that I can please myself what I do	Autonomy 3	Yes - reflects the participant's view of independence and choice
8	My health stops me from doing	Autonomy 4	No

Item	Statement	Sub-scale	Selected for survey inclusion
	things I want to do		
9	Shortage of money stops me from doing the things I want to do	Autonomy 5	No
10	I look forward to each day	Pleasure 1	No
11	I feel that my life has meaning	Pleasure 2	No
12	I enjoy the things that I do	Pleasure 3	Yes - reflects the participant's general enjoyment of life
13	I enjoy being in the company of others	Pleasure 4	Yes - reflects the participant's general enjoyment of life
14	On balance, I look back on my life with a sense of happiness	Pleasure 5	No
15	I feel full of energy these days	Self-realisation 1	No
16	I choose to do things that I have never done before	Self-realisation 2	No
17	I am satisfied with the way my life has turned out	Self-realisation 3	No

Item	Statement	Sub-scale	Selected for survey inclusion
18	I feel that life is full of opportunities	Self-realisation 4	Yes - reflects the participant's future outlook
19	I feel that the future looks good for me	Self-realisation 5	Yes - reflects the participant's future outlook

Table 3.4 CASP-19 statements

A pilot survey was distributed to members of a panel from the Centre for Ageing Research (C4AR) at Lancaster University for the purposes of soliciting feedback on the clarity of the questions. It offered a free text option at the end of the survey for respondents to offer their thoughts. Forty-six respondents completed the survey, 32 of whom offered constructive and, for the most part, actionable feedback. This resulted in significant improvements to some questions and the overall quality of the survey. The pilot survey was closed after one week and updates were made to the final survey for subsequent distribution.

3.6.2 Interviews

An interview guide (Appendix B) was designed for each of the two groups of participants: those who are digitally connected (onliners), and those who are not (offliners).

The onliner interview was piloted for clarity of questions and the time taken. Pilot

interview one was conducted on 1 August 2021 and lasted 24 minutes in duration. It was conducted via telephone and recorded in two ways. Firstly, the transcribe feature in Microsoft Word (for the web) was used, and secondly, as a backup, the Voice Memos app on an iPad. As soon as the interview was over, the Voice Memo file was moved to Lancaster University OneDrive and deleted from the iPad. Pilot interview two was conducted on 3 August 2021 using the meeting feature on Microsoft Teams. The interview was conducted with the same participant, on this occasion to test the functionality of sending and accessing the meeting link (via message or email) through the interviewee's iPad device.

The offliner interview was piloted for clarity of the questions and the time taken. It took place in-person on 8 August 2021, since COVID-19 public health guidelines allowed for this. It differed from the onliner interview since it was the first opportunity to collect the participant's demographic data. Further, the offliner interview included reading through the CASP-19 statements and the participant selecting from one of the options, 'Sometimes', 'Often', 'Not often', or 'Never'. This proved to be somewhat cumbersome for the participant who was uncomfortable with selecting an option for some of the statements.

A period of review and reflection followed the pilot interviews. The onliner interview was shorter in duration than expected, in part due to the participant data already collected through the survey instrument. A review of the interview guide identified opportunities for more in-depth exploration of the themes and the guide was updated accordingly. With regard to the offliner interview and the fact that the pilot participant was known to me, I took the decision to remove the CASP-19 statements from the interview guide. Instead, and to avoid participant discomfort, I decided to explore an

alternative, less formal means of collecting participants' general outlook on and attitude to life. Both interview guides are included in Appendix B.

Interview participants were assigned a pseudonym from the top 40 male names and top 40 female names listed in the 1911 census (Central Statistics Office, 2016) since this was the closest census date to the birth dates of many of the participants with data published online.

3.7 Data analysis

Data were collected in this study by instruments set out in section 3.6 of this chapter.

The process of analysing the data is set out in the sub-sections that follow.

3.7.1 Survey

The survey had two purposes: first, to provide an overview of a number of variables of interest in this study (see data requirements table in Appendix A); second, to provide a background to the more in-depth exploration of the themes with onliner interview participants.

All data collected from the survey participants were collated directly in Qualtrics. This included baseline demographic data, participation in and motivation for lifelong learning, both classroom-based and online. Responses to questions around digital skills and confidence, support for digital skills and quality of life self-assessment were exported to Microsoft Excel for further analysis. Since there were only two open-ended

questions I chose not to use NVivo for further analysis, instead exploring their responses with those who subsequently participated in interview.

The findings from the survey as they relate to RQ2, RQ3 and sub-questions are presented in section 4.1.

3.7.2 Interviews

A reflexive thematic approach was initially considered for data analysis using Braun and Clarke's 6-step process (Braun & Clarke, 2006, 2019). An inductive approach to analysing the interviews was considered since it relies on an absence or limited conceptual underpinning. A number of concepts were considered at the outset as having potential to underpin the research (Figure 3.2); however, from the interview analysis and development of memos, none had developed as a dominant analytic framework.

inferencing. Reichertz (2019) considers abduction to be both “sensible and scientific as a form of inference” and notes, that “abduction is intended to help social research, or rather social researchers, to be able to make new discoveries in a logically and methodologically ordered way” (Reichertz, 2019, p. 216). Surprise and serendipity are elements associated with abduction (Bryant, 2017; Bryant & Charmaz, 2007, 2019). As the data analysis progressed, I became aware of a serendipitous finding from the interviews that I had not considered when initially developing my research questions.

The practice of reflexivity and memo-writing became central to both the interview data collection and analysis process, before and after each interview. Mruck and Mey (2007) reiterate Charmaz’s emphasis on the need for a reflexive stance when relating to research participants and conducting the research. The practice of memo-writing after each interview was important and the interview schedule was planned to allow for a period of reflection and writing a memo. This usually coincided with the transcription of the interview. Using NVivo, these memos, along with their related interview transcripts, underwent an initial round of coding. Codes were initially assigned to an inbox of codes (see Figure 3.3).

✓ ● 2 - INBOX OF CODES	2	7
● Independence	3	10
● Change, adoption, adapting	8	15
● Stress	2	4
● Personal development (and lack of)	7	13
● Fear	5	5
● Intergeneration	9	28
● Ageism	4	4
● Purposes for use (and traditional options)	15	53
● Familiarity with device or OS	4	6
● Intrageneration	10	22
● Communications technology	18	56
● Volunteering and Community	14	81
● Employment	11	35
● Keyboard skills	7	12
● Online course - free text	2	95
● Ease of use (and lack of)	5	14
● Privacy and Security	17	79
● Go Online	6	20
● Online learning	10	33
● Digital skills and confidence	10	62
● Urban Rural divide	5	11
● Motivation (and lack of)	13	34
● Getting Started and progressing	12	50
● BYOD	4	10
● COVID-19	18	60
● Cradle to grave	4	8
● Midliner	3	9

Figure 3.3 List of initial codes

In parallel, reflexive codes were labelled as ‘good quotes’, ‘interesting’, ‘noteworthy’, or ‘unsure’. All codes were later revisited with the cycle of focussed coding and reassigned to the appropriate research question. This list is depicted in Figure 3.4.

▼ ● 1 - RESEARCH QUESTIONS		2	4	13 Oct 2021
▶ ● RQ1 POLICY DOC RESEARCH		44	546	20 Jul 2021
▼ ● RQ2 LIFELONG LEARNING and IGL		10	50	13 Oct 2021
● Cradle to grave (lifelong learni...		15	21	13 Oct 2021
● Employment related learning		19	51	22 Oct 2021
● Keyboard skills		13	19	22 Oct 2021
● Online learning		11	120	16 Oct 2021
● Personal development (and la...		11	14	23 Oct 2021
● RQ2 Formal Learning		5	12	26 Oct 2021
● RQ2 Forms of IGL		6	15	31 Dec 2021
● RQ2 Informal Learning		28	85	22 Oct 2021
● RQ2 Non-formal Learning		1	2	18 Apr 2022
▶ ● RQ2.1 IGL (older)		0	0	13 Oct 2021
▶ ● RQ2.2 IGL (younger)		3	4	27 Oct 2021
▼ ● RQ3 QUALITY OF LIFE		16	31	13 Oct 2021
▶ ● RQ3 Active and healthy agein...		19	44	10 Dec 2020
▶ ● RQ3.1 Negative impacts of digi...		8	9	27 Oct 2021
● RQ3.1 Positive impacts of digi...		23	40	27 Oct 2021
▶ ● RQ3.2 Digital Engagement		3	4	13 Jan 2022
▶ ● RQ3.2 Social Participation		0	0	13 Jan 2022
▼ ● 3 - REFLEXIVE CODES		0	0	13 Oct 2021
● Good Quotes		19	27	13 Oct 2021
● Interesting		5	10	13 Oct 2021
● Noteworthy		9	11	30 Oct 2021
● Unsure		5	7	23 Oct 2021
▼ ● 5 - RETIRED OR UNUSED		0	0	13 Jan 2022
● 2 - INBOX OF CODES		0	0	13 Oct 2021

Figure 3.4 List of focussed codes aligned to research questions

The exported codebooks from NVivo are available for review in Appendix D. The initial codebook relates to all three RQs. The focussed codebook relates to RQ2 and RQ3 interview data.

The findings from the interviews as they relate to RQ2, RQ3 and sub-questions are presented in section 4.2.

3.8 Ethical and risk considerations

Throughout 2021, the situation regarding COVID-19 in Ireland continued to be an ethical factor to be considered in the design of this study. In-person interviews were originally planned to collect data from a sample of participants who were not engaged in the digital world (offliners). Owing to the uncertain nature that surrounded COVID-19 during this time, video and telephone interviews were selected in place of in-person interviews. In August 2021, when interviews were being scheduled, public health restrictions were partially lifted, allowing for 4 of the 20 interviews at the request of the participants to take place in-person (the offliner pilot participant and three onliner participants). Guided by Stephens et al. (2018) on collecting qualitative data with older people, none of the participants were considered vulnerable and all were able to provide consent on their own behalf to participate in this study.

Four noteworthy ethical steps listed below were taken during the process of conducting interviews to address ethical concerns that I thought might arise. I was keen to spot any indicators of participant discomfort and to address these by gently reframing a question or to sensitively explore responses that were difficult for some, such as the quality of life impacts of living alone following the death of a partner or spouse. Being in this position myself I was able to empathise and share my experiences to put the participant at ease.

First, of the 13 onliner interviews, four participants were known to me. In the case of offliner interviews, one participant was known to me. With these five participants (twenty per cent of the sample interviewed) I reiterated my role as the researcher in this

study and the importance of setting any personal relationships aside. They were informed that anonymity and confidentiality of their data would follow the same process as for all participants.

Second, for the onliner interviews, I reminded participants of the study information to which they consented which accompanied the survey, and separately asked for their consent to be interviewed.

Third, the nineteenth interview, with an offliner participant, was conducted by telephone. I found it a challenge for the first ten minutes of the interview to build a rapport with him. He answered the structured questions with closed responses for the most part. After the tenth minute, when I described the concept of lifelong learning, he started talking about his various roles in community groups and volunteering work, including participation in an annual city-wide intergenerational quiz.

Finally, at the end of each interview, I asked participants if they wished to receive a transcript of the interview. Where the response was affirmative I either emailed or printed and posted a copy of the transcript to them and was ready to respond to any points that were then raised by participants. As a result, one participant telephoned me requesting to remove a particular response from the transcript that she felt uncomfortable with in the event that it might be used as a quotation. From the perspective of the study the response was not relevant and therefore would have been excluded from subsequent data analysis.

3.8.1 Data management

Recorded survey data from Qualtrics, along with recorded and transcribed interview data using Microsoft Word, were stored in password-protected files on the University network using Microsoft OneDrive. A back-up recording of the interviews using the Voice Memos feature on my iPad was then deleted from the device. Data analysed using NVivo were held securely on my password protected and encrypted laptop hard drive, due to stability issues between NVivo and OneDrive. All data were backed up to a personal mobile hard drive using the Time Machine feature from the Apple Mac operating system. No party other than me as the researcher had access to these data. Once data analysis was complete, printed copies of memos and codes were scanned and secured on OneDrive. Printed copies were then destroyed.

Audio recordings of interviews will be securely deleted after publication of my thesis, but the anonymised transcribed recordings along with all survey data reports will be retained as a data record for 10 years. Guardianship of all data collected in this study is mine while at Lancaster University. When I have completed my programme, I will transfer guardianship to Lancaster University. The dataset will be submitted to the University's Pure data repository with an appropriate Creative Commons Licence from where it will be made available to future researchers.

3.9 Limitations and weaknesses of research design

A potential weakness stemmed from a possible imbalance between interviews conducted with onliners and offliners whereby it proved to be more difficult to interview members of one group over another.

In order to address general weaknesses that apply to qualitative research and case study research with particular reference to older adults, I read suitable texts, for example the SAGE Handbook of Qualitative Data Collection (Flick, 2018), and attended Lancaster University training programmes such as FASS637: Qualitative Research Interviews - Methods and Practice to support the robust design of my research. I participated in the online monthly student forums hosted by the Centre for Ageing Research (C4AR) at Lancaster University to learn from PhD researchers focussed on ageing. I engaged with the British Society of Gerontology through its annual conference and special interest groups.

3.10 Chapter summary

In this chapter, I argued my approach to the design of this research study, beginning with my philosophical standpoints about knowledge (sections 3.1 and 3.2). The research questions were presented (section 3.3) followed by the case study design approach (section 3.4) and the sampling approach for the study (section 3.5.)

I set out my approach to data collection in section 3.6. In sub-section 3.6.1, I set out my approach to survey data to examine the digital and technological experiences of older adults in RQ2 along a self-assessment of quality of life posed in RQ3 using the CASP-19 scale (Hyde, 2003). Sub-section 3.6.2 detailed my approach to interviews as a method of collecting data in relation to RQ2 and RQ3. First, to explore in more depth, the experiences of a representative sample of those onliners who completed the survey. Second, to explore the perspectives of offliners who are not Internet users. My approach to data analysis was set out in section 3.7 with sub-sections for each of the methods of

collection, online survey (3.7.1) and interviews (3.7.2).

In section 3.8, I considered the ethics associated with the study, both generally and specifically with regard to collecting data from older adults. Finally, in section 3.9, I considered potential limitations and weaknesses of my research design before summarising the chapter in section 3.10.

Chapter Four presents the findings of the strategies employed to collect the data across all three RQs.

Chapter 4 : Findings

Having presented a review of relevant policy documents pertaining to RQ1 (section 2.2), in this chapter I present findings from two sources of data (survey and interviews) that contribute to answering the remaining research questions of interest in this study, RQ2 and RQ3 together with their sub-questions. RQ2 concerns the roles of intergenerational learning and peer learning within the lifelong learning environment, with emphasis on the place for digital technologies. Findings related to non-formal learning experiences of participants were considered less relevant to the research questions than informal learning experiences, and peer learning experiences in particular, therefore, they feature minimally in the chapter. Survey and interview data were collected from older adults to address this research question. RQ3 is concerned with the impacts of digital technologies to quality of later life amongst older adults. Survey and interview data were also collected from older adults to address this research question. Findings from survey data are presented in section 4.1. Findings from interview data are presented in section 4.2.

All three research questions and related sub-questions are building blocks to answer the overarching question of interest in this study: *To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges amongst older adults in Ireland?*

4.1 Findings from survey data

This section presents findings from the survey data collected from participants between

July and September 2021 relevant to RQ2 and RQ3.

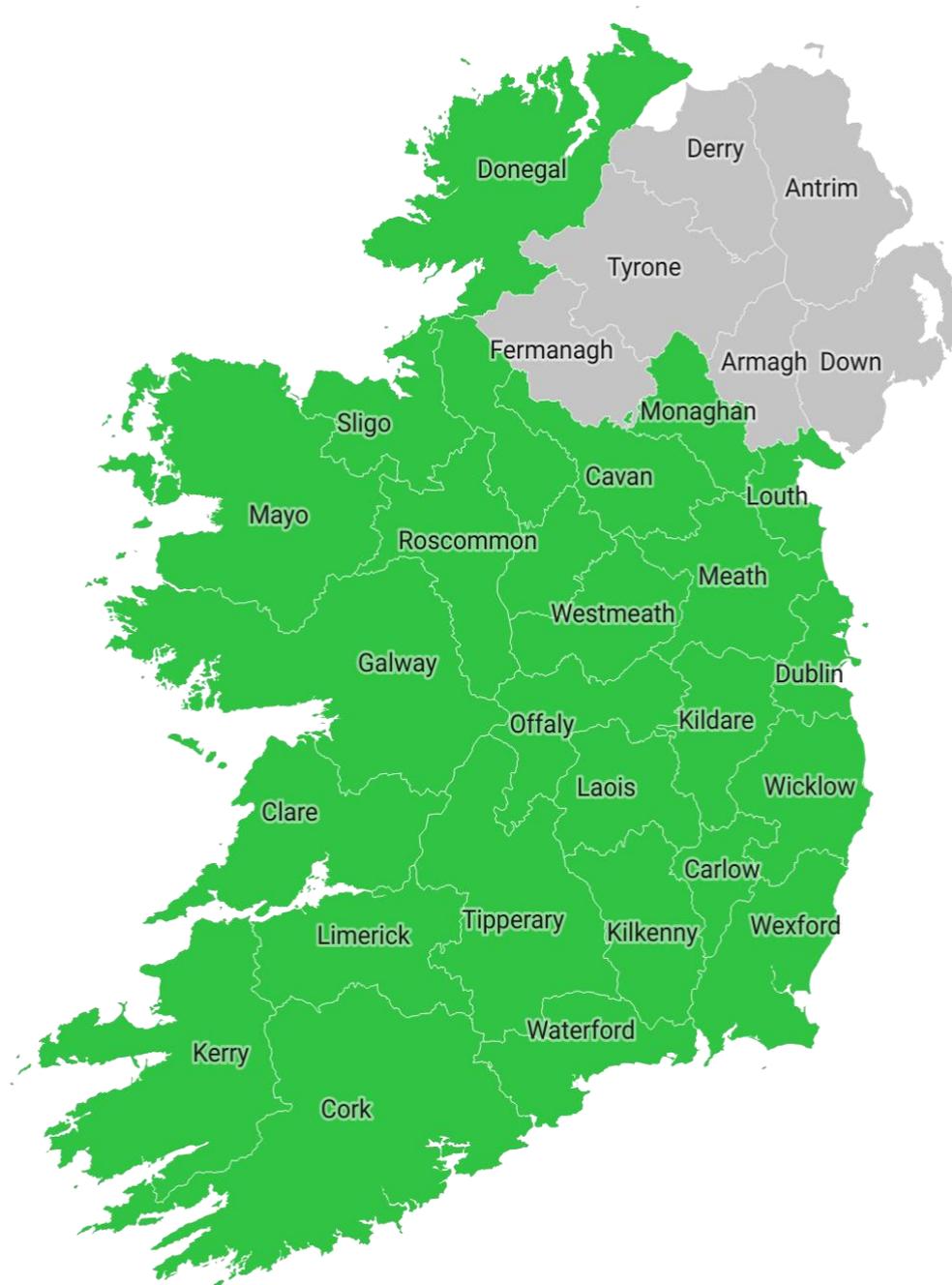
The purpose of the online survey was twofold: first, as a scoping exercise to gain insights to address the study's research questions from a representative sample of the population already engaged in the digital world; and second, as a recruitment exercise to invite interested participants to an interview to further share their experiences of being online. In this sense, the survey data acted as a background to the study with subsequent interviews exploring the research questions in greater detail.

The survey was open for a period of 12 weeks and closed on International Day of Older Persons, 1 October 2021. During that period, the details of the study and call for participants was viewed 498 times, of whom 106 provided consent and proceeded to access the survey. Questions were set to request a participant response, not force a response, hence some response totals were fewer than the total number of participants.

In sub-section 4.2.1, I present demographic data of the survey participants. This is followed by findings regarding RQ2 in sub-sections 4.2.2 to 4.2.4. I present survey data findings pertaining to RQ3 in sub-section 4.2.5. Findings from the survey are summarised in sub-section 4.2.6.

4.1.1 Survey participants

The island of Ireland is made up of 32 counties. Six of these are part of the United Kingdom, known as Northern Ireland, and the remaining 26 counties constitute the Republic of Ireland, known as Ireland (see Figure 4.1).



Created with Datawrapper

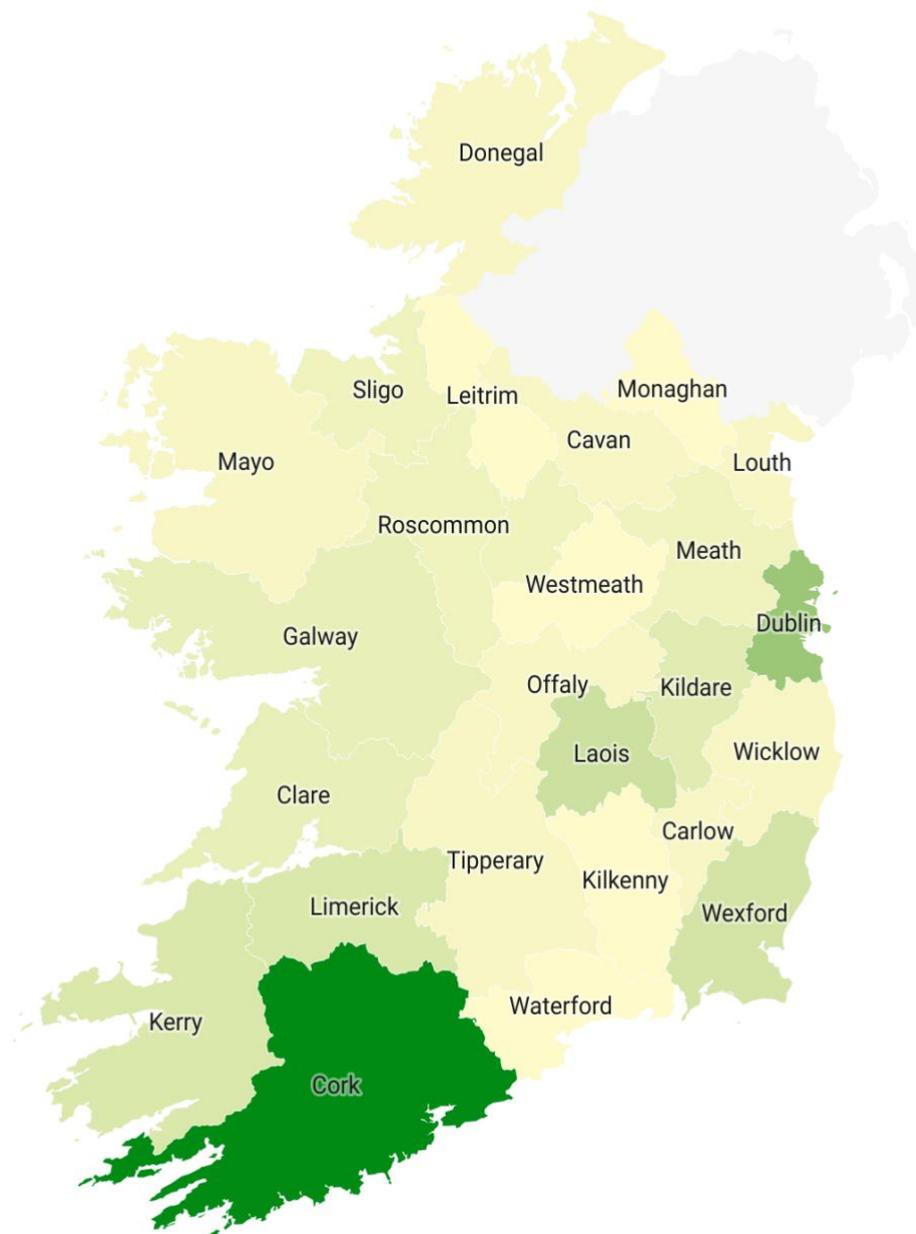
Figure 4.1 Counties of the island of Ireland

Twenty-one of the 26 counties were represented by 103 participants with 3 further participants residing outside of Ireland. Six participants indicated their age was not in the range 55 years or older or did not select an age range. The survey ended for these 6

participants leaving 100 who continued with the survey. Figure 4.2 is a visual depiction at county level for 96 participants who indicated their county of residence in Ireland. Cork had the highest number at 30, followed by Dublin (14), Laois (7) and Wexford (6).

Ireland 26 counties

Survey responses by county



Created with Datawrapper

Figure 4.2 Strength of participation by county

Attribute data for the 100 participants is presented as follows:

Gender: Females were in the majority of the sample with 64 in number. Males accounted for 36. All participants chose one of these options.

Age range: Forty-seven participants were in the age range 55-64 years followed by 39 in the age range 65-74 years, and 14 participants were aged 75 years or older.

Household status: Of the 96 responses to this question, 19 participants indicated that they lived alone. Fifty-one lived with one other person, over two-thirds of these being a partner or spouse. A third group of 26 participants lived with more than one other person. Corresponding percentages are depicted in Figure 4.3.

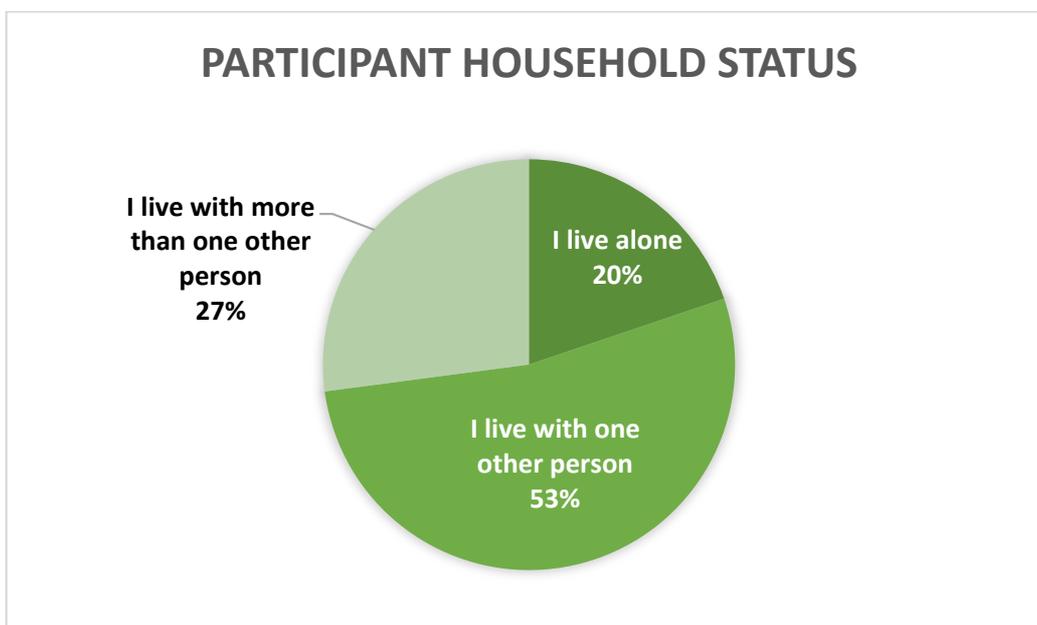


Figure 4.3 Household status of participants

In terms of the ages of the other members of the household (total number 101), over one-third (34) were aged 55 to 69 years followed by 25 in the age group 70 to 84 years.

This was expected, based on the 66 participants who indicated that they lived with a partner or spouse. The remaining age ranges of household members in descending order were 16 to 24 years with 15 in number, a further 12 in the age group 25 to 39 years, and 9 aged 40 to 54 years. Corresponding percentages are depicted in Figure 4.4. The line in the chart depicts approximately 60% of the household member ages, other than the participant, as between 55 and 84 years of age, indicating that household membership largely consists of the same familial generation (partner or spouse).

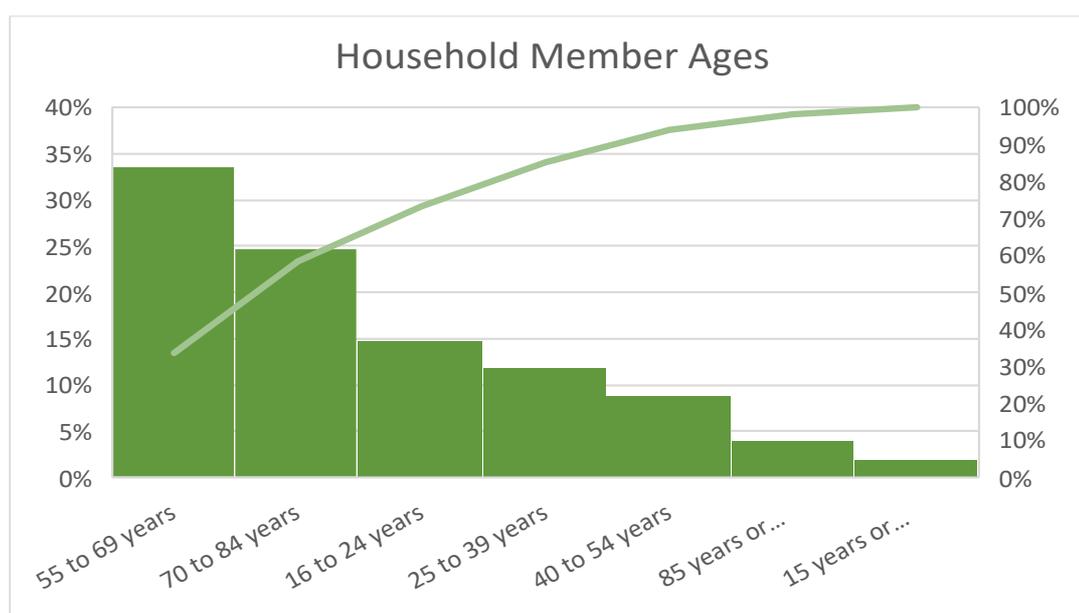


Figure 4.4 Age range of household members other than the participant

Formal education: The question asked for the highest level of formal education completed full-time or part-time, as distinct from the level at which they completed full-time education. The options were aligned to those used by the Central Statistics Office (CSO) for national census data collection. Ninety-six participants responded to this question.

Sixty participants were educated to university degree level. Twenty-four participants held a postgraduate diploma or degree, followed by 20 participants who were awarded

an honours bachelor's degree or professional qualification. An ordinary bachelor's degree or national diploma was held by 9 participants and 7 participants held a doctorate or higher award. At secondary level, 14 participants had completed the upper cycle and 10 left school following completion of the lower cycle. Between second and third level education, 4 participants indicated they were awarded a higher certificate, another 4 held a technical or vocational qualification and 2 completed an advanced certificate or apprenticeship. The final two participants completed their formal education at primary level. A visual representation of the corresponding percentages is depicted in Figure 4.5. The line in the chart depicts over 50% of participants as completing their formal education with an Honours Bachelor's Degree or Postgraduate Degree/Diploma.

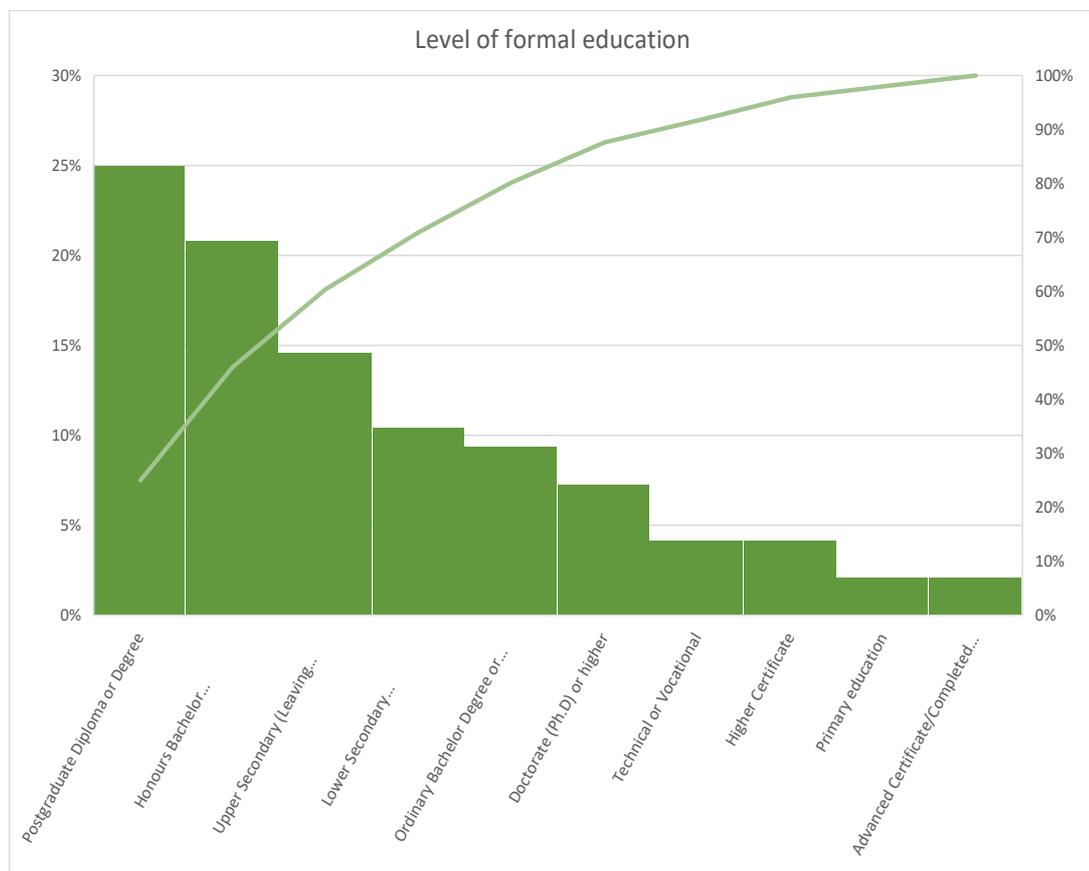


Figure 4.5 Level of formal education attained by participants

4.1.2 Lifelong learning in non-formal environments

Participants were asked if they completed any non-formal courses offered by a provider in an in-person environment. Examples suggested included an evening or adult education class or a learning event organised by a group to which they belonged. Of the 96 responses, 80 participants indicated a positive response. Four options were offered as to motivation for their participation. Two of these options referred to the social aspect offered by such a course and two participants as their motivator. Seventy-eight of the 80 participants indicated they liked learning new things or to keep their knowledge and skills updated.

In the period prior to the COVID-19 pandemic, 64 of the 95 participants who responded to the question indicated that they had engaged in an online course on a topic of interest to them. Reasons given by the 31 participants for not doing so included nine (29%) who expressed a preference for in-person classes, six (19%) preferred to independently explore and learn online. A further 5 (16%) expressed no interest in using technology for this purpose and the same percentage had not yet found an online course of interest. Two response options related to digital skills and confidence, and five participants felt they did not have, or were not confident of, their skills to participate in an online course. The final reason came from a participant who had only recently completed a degree and may not have had any interest in undertaking further study at the time.

Fifty-one participants representing 82% of those who had participated in an online course indicated satisfaction with the course, almost evenly split across 'Extremely

satisfied' and 'Somewhat satisfied'. From the comments provided by those who were 'Somewhat satisfied', it appears that in-person learning is a preferred mode by some. Reasons given by the seven participants who were dissatisfied included challenges with the technology and less opportunity to engage with tutors than with an in-person course. These data indicate that lifelong learning is important to participants in this study and while there is a role for online learning, in-person learning opportunities are also important.

4.1.3 Intergenerational support for digital skills

Family: Ninety-three participants responded to the question that asked if they had family members to support their use of digital devices, with 68 (73%) responding affirmatively. Forty-nine (65%) were supported by members of an adjacent generation (son/daughter and similar) and a further four participants by a grandchild (from a non-adjacent generation). Thirteen participants (17%) were supported by a partner or spouse with a further four in receipt of peer support from siblings, and the remainder from cousins.

When asked the age range of the family member they would most likely reach out to in the event of needing assistance with a digital device, one-quarter of the 80 participants indicated they would reach out to the person they think could provide the required support regardless of age. Twenty-two (28%) would reach out to a person in the age range 25 to 39 years, followed by 14 (18%) who would reach out to a family member in the age range 40 to 54 years. Twelve (15%) would reach out to someone aged 55 to 69 years. Less than 13% (12 participants) would reach out to someone aged 24 years or

younger with none in this group under the age of sixteen years.

Non-family: Ninety-one participants responded to the same question as family support, but this time were asked whether they could reach out to someone in the neighbourhood or community to help with their digital requirements. Forty-two participants (46%) responded affirmatively, 28 (31%) said they did not have anyone, and 21 (23%) were not sure. In this scenario with 62 responses, 32 participants (52%) indicated they would reach out to the person they thought could provide the required support regardless of age. Twelve (19%) would reach out to someone in the age range 55 to 69 years. This was followed by 8 (13%) who would reach out to someone aged 40 to 54 years for support. Five (8%) would reach out to a person in the age range 25 to 39 years, followed by 4 (6%) to someone aged between 70 and 84 years. One participant would reach out to someone aged 16 years and under and there were no responses for the age range 16 to 24 years.

The difference in support from family members and outwith the family indicates opportunity for improved support within the community for some participants. Since the survey design allowed participants to respond to the two questions regarding the existence of family and non-family support, the data cannot be analysed to determine whether the 54% who either had no outside family support or were unsure were included in the 73% who did have family support. Arising from this, I pursued this finding at interview with some participants to explore the non-family support theme (section 4.2).

4.1.4 Digital skills and confidence

Participants were asked to rate twelve statements on a 5-point Likert scale from 'Strongly agree' to 'Strongly disagree'. Between 86 and 89 participants responded to each statement. The modal statement level of agreement/disagreement and selected scale item are presented in Table 4.1 and present an overview of participants who consider themselves to be generally skilled and confident in their use of digital technologies and devices. The full list of results is available in Appendix E.

Statement	Level of agreement	Percentage	Responses #
1 I need help with setting up my device.	Strongly disagree	47.19%	89
2 I can make phone calls and video calls online.	Strongly agree	76.74%	86
3 I can communicate with family and friends using email.	Strongly agree	88.51%	87
4 I can communicate with family and friends using messaging Apps.	Strongly agree	81.82%	88
5 I know how to access the Internet.	Strongly agree	87.50%	88
6 I can download an App.	Strongly agree	78.65%	89

Statement	Level of agreement	Percentage	Responses #
7 I understand how to keep myself safe online.	Strongly agree	59.09%	88
8 I use my digital device frequently.	Strongly agree	84.09%	88
9 I am confident using my device.	Strongly agree	71.59%	88
10 I am confident I know what to do if I get stuck.	Strongly agree	41.86%	86
11 I worry I might break it.	Strongly disagree	67.05%	88
12 I am confident I can find what I need when using my device.	Strongly agree	67.42%	89

Table 4.1 Digital skills and confidence self-assessment

Highest levels of strong agreement related to statements 2, 3, 4, 5, 6 and 8.

4.1.5 Quality of life

Seven statements from the CASP-19 scale set out in sub-section 3.6.1 were included in the survey with options 'Often', 'Sometimes', 'Not often', 'Never' presented to participants. A score was calculated for each item with a maximum overall score of 21.

Table 4.2 presents the values for 'Often' and 'Sometimes' selected by participants. The

full list of results including 'Not often' and 'Never' is available in Appendix E.

CASP-19 number	CASP-19 statement	Often # (%)	Sometimes # (%)	Responses #
P3	I enjoy the things that I do.	77 (87%)	11 (12%)	89
P4	I enjoy being in the company of others.	59 (66%)	27 (30%)	89
A1	I can do the things I want to do.	64 (72%)	22 (25%)	89
A3	I feel that I can please myself what I do.	56 (63%)	31 (35%)	89
C3	I feel free to plan for the future.	56 (63%)	29 (33%)	89
SR4	I feel that life is full of opportunities.	53 (60%)	27 (31%)	88
SR5	I feel that the future looks good for me.	53 (60%)	31 (35%)	89

Table 4.2 CASP-19 self-assessment selected statements and results

Regarding group and community participation, volunteer work and communication with others, 88 participants responded to the question that asked if they participated in any community groups. Sixty-two of these (70%) indicated a positive response. Further, when asked if they were currently involved in any volunteering activity, 49 (56%) responded affirmatively with almost half of these (24

participants) talking to 6 or more people about volunteering-related issues at least once every two weeks.

4.1.6 Survey findings summary

In section 4.1, I have presented data from the study's survey participants, a well-educated sample of 100 onliners from the age of 55 years to over 75 years. Since the survey was online, it was expected that participants would consider themselves to be skilled and confident in their use of devices and technologies. Intergenerational support is evident for many, but from adjacent generations rather than non-adjacent generations. Peer support and learning within households, amongst other family members (for example, siblings and cousins), is also apparent. Outside the family and household environments, friends, neighbourhood and community members offer another source of informal peer learning related to digital skills and technologies. These data offer some background insights pertaining to RQ2 and RQ3 and facilitated further exploration amongst interview participants.

4.2 Findings from interview data

This section presents findings from the interviews conducted with 20 participants during August and September 2021 relative to RQ2 and RQ3 and their sub-questions. In sub-section 4.2.1, I present attribute data of the interview participants. This is followed by findings related to RQ2 in sub-sections 4.2.2 to 4.2.5. I present interview data findings pertaining to RQ3 in sub-sections 4.2.6 to 4.2.8.

The purpose of the interview was twofold: first, to explore in more depth some of the findings from their survey data with the participants; and second, to collect data from participants who do not use the Internet.

4.2.1 Interview participants

Twenty participants were interviewed for this study. Of these, 13 were selected from the final 55 number who indicated willingness at the end of the survey to participate in interview. The interviews were conducted in parallel to the survey being open and the 13 selected were the first to complete the survey and accept my invitation to be interviewed. An additional seven participants who identified as not being online were recruited through community channels and active retirement groups. One participant was involved in the research pilot. The second participant was made aware of my study by her daughter who had seen my call through the UL distribution list. Two participants were recruited directly from an organisation I volunteer with. Two more were recruited by an online interview participant from the membership of a local Active Retired group that she leads. The seventh participant telephoned me directly having heard about my study through Age Action Ireland. Key characteristics of the 20 participants are presented in Table 4.3.

Participant ID	Age range	Gender	Household status	Formal education level
Bridget	65-74	Female	Lives with spouse	Lower secondary
John	75+	Male	Lives with spouse	Upper secondary
Patrick	75+	Male	Lives with spouse and two adult children	Postgraduate degree
James	75+	Male	Lives with more than one other (including spouse)	Bachelor's degree
Michael	75+	Male	Lives alone	Primary
Margaret	65-74	Female	Lives alone	Bachelor's degree
Ellen	75+	Female	Lives with spouse	Lower secondary
Catherine	65-74	Female	Lives with spouse	Lower secondary
Annie	75+	Female	Lives alone	Primary
Elizabeth	75+	Female	Lives with spouse	Bachelor's degree

Participant ID	Age range	Gender	Household status	Formal education level
Julia	65-74	Female	Lives with spouse	Lower secondary
Sarah	65-74	Female	Lives with spouse (and adult son at the time of interview owing to COVID-19)	Upper secondary
Jane	65-74	Female	Lives with spouse	Upper secondary
Hannah	75+	Female	Lives alone	Lower secondary (+ commercial)
Johanna	65-74	Female	Lives alone	Higher certificate
Thomas	55-64	Male	Lives with spouse and two adult children	Postgraduate degree
Norah	75+	Female	Lives alone	Lower secondary (+ commercial)
Kathleen	75+	Female	Lives with granddaughter	Lower secondary (+ commercial)
William	65-74	Male	Lives with spouse and adult son	Primary

Participant ID	Age range	Gender	Household status	Formal education level
Alice	75+	Female	Lives alone	Lower secondary

Table 4.3 Characteristics of interview participants

RQ2 examines the role and contribution of intergenerational learning to lifelong learning for adults of all ages. Intergenerational learning for the participants in this study took on a variety of guises. Exchanges took place between the participant and spouse, between the participant and son or daughter, and between the participant and grandson or daughter. As such, three terms are central: intrageneration, adjacent generation and non-adjacent generation. In the context of this study, intrageneration refers to peers or spouses, assumed to be of similar age cohort. Adjacent generation refers to sons, daughters, nephews, nieces and similar. Non-adjacent generation refers to grandchildren for the most part. These terms are used to loosely describe the relationships of the participants and those with whom they engaged in a learning exchange. I did not set out to examine intragenerational or peer learning exchanges; nonetheless, interview participants shared their experiences at home and these are included in the presentation of findings.

4.2.2 Non-adjacent generation learning exchanges

For a 2020 module assignment paper (Flynn, 2020), I surveyed university students in the age group 18 to 25 years in Ireland, to find out how many of them supported older

family members with their digital communication skills during the COVID-19 lockdown in spring of that year. Since 56% of the 442 participants indicated that they did provide such assistance, I expected responses from this study to be similar. Instead, as the earlier survey data indicate in sub-section 4.1.3, only four of the 68 survey responses indicated support by a family member from a non-adjacent generation. This is mirrored in the interview data with only two of the 13 onliner participants reporting assistance from grandchildren as follows:

It's being foisted upon us, so you have to take it on board with the stress that all new learning and change brings with it, and especially if it comes because we're not used to reading icons and three dots that we can just press with the cursor and it will give us an answer with and then I said to gorgeous granddaughter of 17. What about so and so and so and so? And she said, "you two, just read what's on the screen, it's there." And that's a 17-year old's attitude to it. But we miss things and don't know what it is we're missing (Elizabeth).

The iPad was for Christmas and she just showed me the basic things, what to do, how to turn it on, turn it off and do this and do that and then she just put things up on the screen for me and that was it. If I have any problem or if I wanted to look up anything she'd do it for me, you see. She taxed my car now for instance, I mean online rather than I having to go into town to do it, you know? (Kathleen).

Sarah reported a different learning experience regarding her experience of home-schooling her 8-year-old grandson when the schools were closed in 2021 following public health directions:

I have a grandson living very near me and he was in first class and a sibling was ill in hospital and his mam had to stay with her. So, I was helping out and I was helping him do his homework. It was coming in on the phone and it was his dad's phone and we struggled a bit with that at times you know. But it was, the teacher was finding it hard as well. That's mostly what we used during lockdown, during that spell, doing the homework and then taking pictures and uploading it and getting it back to the teacher. Now that was something I had never done before and it took us a little while to get used to it. But that's kind of where we were during lockdown, I would have used technology helping [NAME] do his homework. We were both learning and you know it was amazing (Sarah).

By contrast, William misses the opportunity for his grandchildren to learn the skill of making matchstick models:

My grandkids used to help me, they'd be there now, and they'd say "Grandad, can I help you?" and I'd say "yeah, glue that matchstick now and hand it to me." But the phones have taken over all that. They don't even come up to see me making a model now.

The role of grandparent in Ireland is an important one in the family environment. Learning together, one of three forms of intergenerational learning (the other two forms being learning from one another; learning about one another) (Schmidt-Hertha et al., 2014) when applied to digital skills, may be an important opportunity for both generations to set the foundations of a learning exchange when children are younger.

4.2.3 Adjacent generation learning exchanges

Findings from the interview data indicated that more participants engaged with an adjacent generation, for example sons and daughters, in a learning exchange regarding ICT than with a non-adjacent generation. This aligns with findings reported in the survey data in sub-section 4.1.3. At the time data were collected, public health guidance was to work from home where possible and some participants had sons or daughters returning home to live and work as a result. Participants reported taking advantage of this for assistance with their digital devices:

But if I was doing a PowerPoint presentation and I had problems with the PowerPoint, I would say, “[DAUGHTER] come up here, I can’t move that photograph from there to there, would you do it for me?” “That’s it, Dad.” Now, I didn’t know how she did it, but as long as the photograph moved to that point, I didn’t care after that, you know (Patrick).

Well, at the moment, I have a son who’s working from home here. My younger son, and he’s 27 and he has to work from home. So, if there was any problem I’d have, I would go to him and he’d solve it for me in seconds and he is my go-to person (Sarah).

Unlike Patrick, Sarah was keen to learn from the experience for next time:

I want to learn how to do it. I don’t want to go back to (him) with the same problem again. You don’t learn anything by that you know. He says “Mam, watch here now, watch what I’m doing” and I do, but he would check on me to make sure I was watching what he was doing. So, I find that good.

Other participants sought assistance from close and more distant family members for a variety of reasons:

I have only the very basic phone, Sandra, I don't get photos. Phone calls and texts. That's all I want, but only for [DAUGHTER] showing me how to text, showing me how to receive texts, you know, I learned that way, but my needs are very basic on it (Annie).

Well, I like gadgets and I was talking to my cousin's child – he's about 40. He brought me a Bluetooth speaker one time and it was handy when I'd be taking down lecture notes and stuff like that. And then I said, oh yeah, because I've heard others having it and you can ask it anything (Catherine).

A single survey participant in the age range 55-64 years was interviewed since the target of 20 interview participants was reached from the older age cohorts in the required timeframe. Thomas commented on the different learnings he and his wife take from and provide to their adult daughter and son:

"Daddy, it's not working, please fix it." So, when the Wi-Fi goes down it's me who fixes it as opposed to one of them. There's almost an exact hardware software split. But even with the software if they have a question on PowerPoint, Access, Excel, Word, whatever. It's more likely that they would come to me. And again, in the early days for Facebook my daughter would have showed me how to set it up, how to post, how to do all of that. She would have talked through all of that to save me going through the Google side of things. So, it's primarily around the more modern software apps and the social media apps primarily where that intergenerational learning is occurring. On the flip

side, anything associated with hardware, hardware integration, technology, Wi-Fi, all that. That's primarily the other way around.

James also is the 'go to' person for his son in a reciprocal learning arrangement:

Around the house, well, I set up the distribution of the Wi-Fi and all that stuff around us. My son became enthusiastic about communication via wireless seven years ago. My oldest son, and he now is partner in the Internet distribution company. So, there's an exchange of information both ways there.

Outside of the digital sphere, participants spoke about learning within their family, from children and parents. Norah explained:

...and now still things that I can do like electrical work and everything. My father, everything that he would do, he taught us how to do it. And crosswords and books to read on, everything, and then he explained things.

The interview findings corroborate the survey data indicating that most of the interview participants turn to adult sons and daughters if they need support with technology or devices. A number share the same household and others live nearby. However, the opposite is also true where some adult sons and daughters turn to parents for support, a reciprocal arrangement. The type of support required by each generation tends to differ as the interview comments bear out.

4.2.4 Peer learning exchanges

Amongst the 12 interview participants who lived in a household with a spouse, five

females reported being the digital person in the household, since their spouses had little or no motivation to engage in any online activity, whether for social or economic purposes. Two of the five would locate information online that their spouses were interested in; as Sarah commented of her spouse who regularly asks her: “will you get me into such a thing and such a thing?” Both he and Bridget’s spouses are then able to repeat these steps for themselves since it is often the same few websites that they return to. In this scenario, the participants are warm experts for their spouses. The three other participants, by contrast, might be considered proxy users for their spouses when the need arises, generally taking care of all the household’s digital needs, managing utilities, booking travel, insurance and banking. All three agreed that this was not necessarily by choice, and they came to the digital role reluctantly, as Elizabeth continued: “it hasn’t been easy, but I’ve had to overcome it because [HUSBAND] wouldn’t, and so there have been benefits because I’m now coping with running the house and other things.”

Some participants interviewed who shared a household with a spouse or partner referred to learning something about technology from that person within the household environment. Given the age profile of the interview participants and their partners, this fits the parameters of a peer learning exchange. It may not always be successful, as indicated by this husband-and-wife dialogue:

Well, I learn from my wife. How to use an iPad I suppose and help me with a mobile phone. To do text messages. And we had quite a few arguments over them. A very impatient individual. How do I put it? I haven’t got the patience with her. And she hasn’t got the patience for teaching anybody (John).

I'd be trying to get things across, but they don't sink into some people's heads and I kind of lose my patience then. If he has any problems he'll come to me or he'll ask me to look it up (Bridget).

Other participants commented that their partners were not interested in technology and therefore the onus was on the participant to deal with necessary digital communications and interactions. Ellen commented about her husband and the new smart TV: "So, I took it home and I set it up and I'm reasonably practical. [HUSBAND] is totally useless on this sort of thing." Her husband is an artist. Elizabeth's husband is also a creative type who has no time for technology, as she explains:

I do everything for my husband. He's not afraid of doing new things. He's built a boat that he takes out on the water and sails. Well, it's not a sailing boat, it's a little motorboat that he fishes from and he built it from absolutely scratch, so it isn't as though he's given up on things, but he will not go near the computer or his phone.

In these two examples, the participants' partners have no interest in technology and are not limited by this since there is one household member who can manage their requirements. In a sense, they have chosen not to engage in the digital world and are not negatively impacted by this choice since they are not alone in their household.

Outside of the household, survey data indicated that seven of the 13 online interview participants had non-family members to support them with their use of digital devices as necessary. Participants spoke of helping their peers, either informally (friends, family) or through a non-formal programme of learning, rather than receiving assistance.

Catherine has the time to help out her friends but their devices are different from hers

and so she cannot:

Another point, I've got two friends about my age group who might be not as good as me with certain stuff. But they both got iPhones from their daughters or some family members. Anyhow, I can't help them and that's frustrating for me I'm so used to the Samsung. I don't know [the iPhone]. And I think they're at a loss because I'd be more around than their families are a lot of the time.

Michael recalled a friend who has a mobile telephone but doesn't know how to read text messages, or any interest in learning despite his offers to show her. If he meets her on the street she asks him "would you have a look at that? See what that is?" While initially unwilling to adopt technology, Michael reported subsequent progress:

And she's younger than me. She's 69 now, I think. I said "[NAME], I can't understand it." She's a retired nurse as well, not that she's an uneducated person, you know. I said, "I can't get it into my head that you would not want to be able to communicate." "I have a mobile phone, that'll do me", she responds. This is the new way if you want to attend meetings. She's been coming to my house now to attend some meetings here because she's very involved with [CHARITY NAME] and there's stuff online. Well then, I got to set it up and then when she was doing it she was comfortable.

Peer learning and digital skills exchanges in a non-formal environment for older adults in Ireland are mostly provided by the non-governmental organisation (NGO) sector. Age Action's Getting Started programme matches learner and volunteer tutor on a one-to-one basis. A collaboration between Alone and Active Retirement Ireland offers online and in-person digital skills training for older adults in small group settings. Both

programmes rely on volunteer tutors, often from younger generations; thus, there is opportunity to engage volunteer peer tutors. James, in this study, describes his experience as a volunteer tutor on a digital skills training programme some years back:

My best success was a man who definitely had fat fingers... much bigger than mine and he had great difficulty in hitting one key at a time on the keyboard. But by going straight down or using his little finger rather than whole hand he could manage. After four or five lessons, he went out and bought his own computer. He'd never touched a typewriter before that even, so I was really delighted. He was very happy that once he discovered what he could do on the computer and of course he set up his own email and he was off buying tickets and so on.

The programme ended in his area, and when it resumed some years later, James was invited back as a learner, not a tutor. He explains: "They weren't interested in me joining at all. They seemed to be wanting much younger people." Jane is very involved in her community and would get help from friends if there was something she wanted to learn and could not get the information herself. She offers an insight regarding those who do not have help at home whereby they can bring their device to the local library where a digital trainer from a non-profit organisation will provide support and facilitate learning.

Peer learning is an important foundation for many social and community groups, whether it involves going on trips and learning about places visited or having speakers at a social event on a variety of topics. As William commented: "Our group, we just go on walks, pitch and putt, outings to historic places, the barracks, forts, Fort Camden, we

take all that in. So, we're still learning, we're still learning about things that we didn't even know."

By its nature, intentional non-formal learning lends itself to measurement better than informal learning, whether intentional or incidental. Interview participants in this study reported learning interesting things about their digital devices that came about unexpectedly. For example, Bridget was being assisted by a peer generation family member to use the Files feature on her iPad. In the process of creating the document, she noted that the tutor, a cousin, was writing the date in numbers by swiping down on the relevant keys. So, to enter the date 17/08/2021 she swiped down on the letters qubpiwpwq. This was a complete surprise and something Bridget was unaware of, despite being an iPad user for many years. As far as she was concerned, this was a very useful discovery that came about incidentally rather than intentionally, albeit in a social environment. Outside of the home, with friends or in community and social settings, interview participants shared their experiences of learning from one another, intentionally and incidentally.

4.2.5 What this all means for lifelong learning

This research question (RQ2) set out to examine the intergenerational contribution to adult lifelong learning surrounding and with the aid of digital technologies. Data from interviews with participants indicate support for the survey findings whereby informal learning exchanges involving digital skills involve adjacent generation family members, followed by peer family members and lastly non-adjacent generation family members. Outside of both the family and household interactions the role of friends and peers is

an important one with participants teaching and learning from each other in an informal way. Non-formal teaching and learning in in-person class and community environments is a noteworthy source of knowledge sharing. A recurring interview finding was the number of participants who, when asked ‘what does lifelong learning mean to you?’, responded that it meant learning throughout the whole of their lifespan, that they never stop learning, from cradle to grave. Maintaining digital literacy and skills in the current age requires engagement in modes of lifelong learning. While formal and non-formal learning may have a role to play, this study finds that it is informal learning that lends itself commonly to maintaining digital literacy and skills.

4.2.6 Quality of life

The CASP-19 scale, summarised in sub-section 3.6.1, was designed to capture experiences related to quality of life in later years, both positive and negative. Interview participants who completed the survey rated themselves on 7 statements and their scores are presented in Table 4.4 in descending order with higher scores indicating better quality of life. Ratings were discussed during the interview where some participants provided further details for their selection. Other participants came across as very positive in their outlook and this question was not posed to them since they had a lot to share in the 45 to 60 minutes interview timeframe.

Participant	CASP-19 score (max 21, min 0)
Patrick	21

Participant	CASP-19 score (max 21, min 0)
Elizabeth	21
Julia	21
James	20
Catherine	20
Sarah	20
Thomas	19
Margaret	18
Ellen	18
Jane	18
Bridget	17
Michael	15
Johanna	15

Table 4.4 CASP-19 scores from 7 statements

Interview participants who were recruited outwith the survey and identified as offliners were not asked to rate themselves against each statement (sub-section 3.6.2). Instead, I included some questions to help ascertain their overall outlook on life, as either generally positive or generally negative. Examples of such outlooks are:

Yes, I have no problems. I have good health and I'm very independent and the

future looks very good for me (Annie).

Everything is going grand thank God. No, my attitude would be regardless of age, you just take every day as it comes. I would be positive. I wouldn't be negative about things at all (Kathleen).

I try and be as positive as I can. Sometimes I'm not as good, you know, and now since this lockdown I have very much kept myself to myself. Because I have nobody around. I mean my neighbour is out working and I have no family as such (Hannah).

Oh, it's negative, definitely (Alice).

The single interview participant who considered her quality of life to be negative overall was over 80 years of age, widowed and living alone, having nursed her husband through illness until his death a few years ago. A regular volunteer in her younger years, her social interaction these days is limited to weekly outings organised for older adults and she enjoys these tremendously. She was given a tablet device by the organisation during the COVID-19 pandemic lockdown but returned it citing lack of interest, instead relying on the telephone for staying in contact with family and friends. Her main grievance for being digitally disengaged related to the discounts offered by utility companies for paperless billing and direct debit, her preference being to receive her bills by post and making payment in her local post office.

4.2.7 Perceived impacts of digital engagement on quality of life

I considered 19 of the 20 interview participants in this study to have a positive outlook

on life. Being connected in a digital world was considered by participants to be largely positive, yet they were aware of the negative impacts that can result from digital engagement. In sub-sections 4.2.7.1 and 4.2.7.2, I present the positive and negative impacts of digital engagement, the subject of RQ3.1, as perceived by interview participants.

4.2.7.1 Perceived positive impacts

Participants who are digitally engaged considered technology to have mostly a positive impact on their quality of life for a variety of reasons including accessing information:

It has had a very good impact on quality. Simple little things like, my husband has health problems, with going to hospital. We were able to look up who his consultant was, different things like that and other information that I wanted to know. Just for information alone, it has been fantastic. Because it has sharpened my mind a little bit as well. Well, before it would be all phone calls, but now I'd find things out through the Internet, so it has kind of made me use my brain more I suppose (Bridget).

...and in other respects, it's opened up another world and that is good for us.

And it does make us keep being inquisitive and having our curiosity satisfied by having answers at the touch of a button (Elizabeth).

Communications and keeping in contact with family and friends were cited by a number of participants as a positive impact: "I've re-established contact with my cousin in Australia. Every now and again, yes, we have a video chat between us. It's usually Skype" (James). Patrick offered a similar experience:

Ever before COVID we were on WhatsApp. And before that we were on Skype. As you know, Skype seems to have disappeared now, but Skype because I have a brother in Sydney and a brother at that stage was in Ghana or somewhere, and I've a brother in London and I had a sister in France. So, it was the way of communication.

Engaging in classes online has been a positive impact for other participants:

And an upside for people of my age has been using Zoom. I've never used Zoom had we not had COVID, and now I do an exercise class four days a week that I started as one day and I've done writing and I do the Guardian, master classes and things like that if it takes my fancy, and that's been a real bonus, and that's why it was getting to you today. So that's a bonus (Elizabeth).

Another participant observed that while digital engagement is generally positive, some people are faced with challenges connecting to a group or meeting and this can have negative outcomes for the individual and others in the group as Johanna experienced:

I think COVID has been one of the best things by opening up the virtual area, however, there's a huge amount of people who are not computer literate and who rely on a son or a nephew or somebody to connect them. And the classes have been, let's say it's a two-hour group session, more than 30 minutes of that would be people logging on so that time is gone.

Digitally engaged participants are generally positive about their online experiences and have the skills and confidence to deal with negative experiences that arise. This might involve seeking advice from an intergenerational family member or friend. Interview

data support the survey findings on participants' digital skills and confidence findings overall, where participants are confident in many of the skills required for day-to-day use of the Internet.

4.2.7.2 Perceived negative impacts

This sub-section sets out the negative impacts of digital engagement perceived by onliners and offliners as bounded cases in this research study.

Most participants referred to the scam calls that were prevalent at the time of interview (August and September 2021) and persist in a variety of guises. If the telephone number was not one the caller recognised they would not answer it. Such a response may have negative consequences for example: "The time will come when we won't answer our phones. It could be an urgent call and if I don't know the number I'm going to ignore it" (Alice). For the most part the response was to hang up the call with a noteworthy exception reported by Ellen:

There seems to be constant calls at the moment, and we've had, I think 4 in the last few days. They've never actually answered when I've picked up the phone now and when I've tried dialling back it comes up as an invalid number every time, so I guess they're scams.

It was saying it was from the Internet services saying my Internet service will be cut within the next 24 hours. Please press 1 to sort this problem out. We know what they want to do but lucky enough, I don't have any online banking so it doesn't affect me. I just hang up (William).

The security of online banking was a concern to other participants:

But I still won't do banking online or go online. We have a bank branch we can visit locally at the moment. But they still send mail saying please switch to online banking, but we have no intention of doing it. We feel safer doing it the other way (Bridget).

Both participants felt that by not conducting their banking online they were at less risk of being scammed, as another participant commented: "It didn't because I don't do banking online or anything on my phone so I knew they couldn't get into accounts or anything" (Julia).

Those who engaged in some online shopping were more comfortable with the security offered by banks online:

I suppose there is the worry in terms of the financial side of things that you'll be scammed. We're with [BANK NAME] and it goes through all this security and you have to believe that it is a secure system because you're putting everything there. So, I frequently look at my accounts. I would look at my accounts at least once a week, just to see that there's nothing happening there. Yeah, you know that's my own feeling of security (Patrick).

I buy the odd thing online and I wouldn't be a big shopper. I still like to go into retail and feel something and feel the quality of it. I'm not a great one for buying, maybe something if I saw a bargain or something like that, but I wouldn't be a regular shopper online or anything like that. And my answer is, our chances of getting scammed are slim enough. We get so many warnings now too Sandra. You see something coming in there or he's saying and when we have the security on the laptop or the iPad. So, things have improved a lot in the

security online and that (Sarah).

Jane sums up the concerns of older members of her community in relation to the security of their bank accounts in general following the closure of the local bank branch:

And now we have to go through the post office so at least we have the post office in [TOWN] where they can still put in money, they can take out money. But it's not the same because older people are more worried about their money in the bank. And is it safe there and they like to reach the bank and see is it OK and I can understand where they're coming from because with all the fraud that's going on at the moment, you know, and they're very worried about that as well.

While scams and finances were highly commented on as negative impacts of digital engagement another participant commented that social media "sounds absolutely poisonous" (Ellen). Other participants are very conscious of their own security on social media and do not include personal details online: "I don't put anything up that people could you know, follow me, and there's nothing about me on the (Internet). Or on social media, no" (Norah).

The only thing is I don't have any details on it as regards my age. You know some people have their date of birth, everything, their telephone number even. I don't have anything at all. I don't even have an address or what schools I went to. I don't do anything like that and I don't have a photograph of myself. I'd make a comment on something, but that would be all, I'd never put anything up about myself on Facebook or anything (Julia).

Regardless, a family member contacted her to advise that her Facebook account may have been accessed by a third party. Catherine also had a similar experience:

Well, some guy once found out my Facebook password formula. The problem was that it was the word which is totally incidental and he texted me and kept saying “I know your password” and he named it. He said, “I can get into all your important things” and he threatened me. And I ignored the threats because I thought he’d get into it and it eventually faded off because I trusted the bank sources that he couldn’t get into that.

Stress was a factor that participants referred to in different contexts. Annie, who enjoys a full and busy life offline at the age of 79 years commented:

I just feel like, as I say, I think it’s great and I’ve granddaughters that can use it and I think it’s wonderful, but it’s not for me Sandra at this hour of my life. I couldn’t even stress myself to learn it. And you see, when you’re not a working person, it doesn’t, it’s not around you. If I was working, OK, I probably would have to but I don’t want the stress of having to learn and do all these things at this hour in my life.

Elizabeth and her husband set up a small business when they retired to Ireland from England and shared a stressful experience:

We did B&B because we thought we might need the money because of various things, and that was online and I thought I’d made a mistake and double booked. Honestly, my blood pressure must have been through the roof. It was really stressful and we just gave it up because [HUSBAND] said “I don’t want to

see you like this.” So, in that sense it actually isn’t good for us because we’re exceedingly healthy and exceedingly fit. But I’ve got high blood pressure and cholesterol. You don’t need it frankly. We don’t need it. We’ve worked for our lives. We really don’t need this.

Michael, at 80 years of age, is an advocate for the use of technology but acknowledged frustration: “So, got to try and convince people to embrace the change, but it can be frustrating just when you have captured how to do something and some other bloody thing comes in. It’s the same with the computer” (Michael).

Another participant, Margaret, weighs up the positive and negative with an example: “I think it makes your life an awful lot easier.” She continues:

If you look at the holidays that I can book online and that I can actually know it’s somewhere I want to go. And like years ago, well you would have gone into an agency and you didn’t know whether they knew what they were talking about or not, and you could end up anywhere. Which you can actually check everything up yourself and then go in if you want to, you know, but I mean you can do it. It just takes a long time.

The reference to time is also made by Elizabeth:

Well, we would have to actually read more, wouldn’t we? Books and things and read things up which is more time consuming. One can quickly Google something. We could Wikipedia something. I find it’s good to have that at your fingertips if you want it.

In RQ3.1, I considered responses from the 20 interview participants, amongst whom

there was widespread recognition that there are negative impacts to being digitally engaged. Some choose not to engage as a result, others are cautious in their Internet usage. Those who self-assessed as relatively skilled and confident (sub-section 4.2.4) demonstrated the care that they take to manage their digital lives. Others were comfortable to play around to fix an issue, but if successful, may not know what the fix was.

4.2.8 Social participation and digital engagement

Social participation is an important part of active, healthy and positive ageing and can take many forms. For the purposes of this research, three forms are considered: social connections that involve regular contact with family and friends; informal social participation involving engagement in social activities with others; and volunteering for the benefit of others in society (Douglas et al., 2017). This research question (RQ3.1) was interested in the extent to which digital engagement contributes to social participation of online participants and the social participation experiences of offline participants in this study.

4.2.8.1 Social connections

A number of participants connect with their social networks in-person and by telephone and do not feel the need for digital communications technologies to maintain these connections, for example, “we’ve got friends, we used to see them at the weekend” (Hannah) and “It’s the phone. During lockdown. I mean, I’d have been lost completely. I could honestly spend half the night on the phone chatting to people which I love

doing” (Julia). Annie reports an active social life:

Well, I had, I mean I still have, a very good life. I went to [CANARY ISLAND] on holidays four times a year. I went to my local pub inside in [CITY] every Saturday and Sunday night just to meet my friends, you know, great banter and then apart from going to [CANARY ISLAND] with [DAUGHTER] I think I’d have two weekends away with my other daughter, in Ireland, maybe Killarney or Donegal or somewhere, you know.

Some participants kept in touch with family and friends by video communications during the COVID-19 lockdowns but the telephone and messaging remained important communication tools:

Exactly, if I was on my own all that time. I would have interacted more by phone I think. I don’t think I’d be able to do Zoom, what to press and what to do. I’m very much afraid that I’ll do something wrong and I’ll disconnect the whole thing or something with the tablet (Kathleen).

It was lovely, it really was because we have a daughter in London as well. So, we were all on it together and to see the grandchildren as well, it was lovely. It kind of kept you going, you know, during the week you said, well, at least at the weekend I’ll see them, you know, maybe not in person, but it was lovely seeing them (Julia).

Julia prefers using the telephone and refers to limited use of Zoom once the lockdown periods ended: “No, not after lockdown. Actually, we did for a little bit for birthdays and things like that. And just for those days. But I would be on the phone to her every

night”.

4.2.8.2 Informal social participation

Participants did not mention digital engagement in social activities with others prior to the COVID-19 pandemic lockdowns. Many were engaged in a variety of in-person activities from community groups to non-formal classes and informal gatherings.

Participants referred to indoor bowling clubs, men’s groups, women’s groups, writer’s groups, Church groups, and Toastmasters. Active Retired groups offered a broad activity list for participants including singing, fitness, arts and crafts, and guest talks. All of these opportunities contributed to a positive quality of life for the interview participants.

When the pandemic struck, one participant suggested meeting with his group using Zoom and met with a negative response: “but nobody here knows how to use it” (James). Later on, this became possible as more of the committee members became experienced and slowly moved to meeting online. James continued: “And so the committee has been able to stay in touch with each other through Zoom”. Margaret, who was just about to retire from her job spoke of her introduction to Zoom through an intergenerational exchange at work:

Well, I never heard of Zoom before. I don’t think many people had heard of Zoom. One of the young girls at work came out and said we have a great way of keeping in touch (I work in disability services and we worked all through COVID but we had to do an awful lot of it online) with the service users and she said “I have a great way of getting in touch with them” and I said I never heard of that and even the IT guys said “No, we haven’t used that” and that was certainly

something that everybody just took to immediately and even our service users took to it. And we were able to get them little tablets, so we could have classes with them and do things with them, you know, so they all learned how to use tablets during COVID, so for them certainly going forward. It was very good.

With this newfound knowledge of Zoom Margaret was later able to participate in her local Tidy Towns committee work:

I think the fact that we, the core group, were able to keep in touch with each other and we just had Zoom meetings and things like that. We didn't start the Zoom meetings immediately, but we did when we realised it was going to go on.

Others' group activity was put on hold, for example:

Yes, that all stopped. We used to meet, at least we would try to meet every two weeks, to have something organised for every two weeks, so sometimes it might be only once a month. Yes, I loved that Sandra and I have a couple of friends around here and there was at least four of us that travelled together and we really have missed it big time (Sarah).

Then our other little meetings, [ORGANISATION NAME], which we take quite seriously. But the meetings were suspended. And we didn't have any Zoom meetings. It was a loss. But I must be honest. In a way, the pandemic suited me. It was a break. I was able to stay at home. I wasn't out at two or three meetings every week (she laughs). On a selfish basis I felt the breathing space was good. We had to stop visiting people. I think the loss to the community there, is still

there (Catherine).

So, the problem again with this particular writing group who liked to meet and who like to get together, there is nobody from the core group continued with that online setting. Because one, they were older, and two, the purpose of it was the gathering, the physically being in the space. The storytelling aspect of it, the camaraderie of clap on the back kind of thing so that fell down (Johanna).

Participants referred to the challenges faced with moving groups online. Referring to another writing group she's involved in, Johanna explained, "I think there's absolutely the fact that there was no training whatsoever. Pre-empt with a Teams meeting or a Zoom meeting, nobody knows how to raise their hand. They talk over each other."

4.2.8.3 Volunteering

Half of the interview participants also performed volunteering roles in some of their social groups as well as participating in them. For the most part, volunteering involved playing an organisational role of some form in the social and community groups they were involved in. Two participants had lead roles in the Older People's Council for their respective counties and acted as advocates for their peers and learned from interacting with other councils:

First thing that hit me was there was no age friendly parking spaces put into it (the new town park). They had all the recreation, encouraging older people to walk the park. They have the outdoor gym equipment, which was all geared towards older people. Those gyms were never meant for, you know, for to be putting a sort of a unit anywhere, they were meant to be put on walks (Michael).

That's just me. I'd be promoting what I think is good, you know, like Age Friendly programme, I think that's brilliant and the Older People's Council, they're all brilliant and a lot of people don't know anything about (Jane).

Michael spends a lot of time attending meetings online and has given presentations on behalf of his council to peer groups in locations such as Scotland and Canada. He sums up his attitude to volunteering simply: "I just like working with people to achieve things and that's what that programme is all about."

Jane also receives funding to spend 14 hours each week on projects in her community:

I work 14 hours a week so out of that 14 hours I can do whatever I like. It can be going up to the school supporting transition year or it can be meeting a group of girls about something that I'm working on, like I do the Garda Youth Award. And that that's a brilliant success. It's where young people are acknowledged for the work they're doing, and that takes a lot of time to do that.

Jane believes that undertaking a university level certificate in community work at the age of 55 years made a difference to her volunteering activity in the community and comments: "that really enlightened me and encouraged me and gave me a great idea of how I can come back and make our community a better place." While heavily involved in in-person volunteering activities, Jane recognises the role that technology plays:

Learning about Zoom, learning about Microsoft Teams, because if I wasn't able to do that today, I would not be having this conversation with you. I wouldn't be involved in the community as much as I would be, and I felt that as I was so involved in community work that I wanted to go a step further.

Other participants use technology comfortably as part of their volunteer roles:

I'm also involved with the Tidy Towns in [TOWN] and I do all of their planning and everything else about it. So, I spend a lot of time on the computer so that would be my motivation to use it (Margaret).

I suppose the volunteering is because I'm on the Greens committee on the Golf Club and when we were shut down it gave me a great facility because we were near it of course as well to get out and do all the stuff on the course. I mean I was driving the tractors, cutting the trees, fixing the greens. There were about eight of us that did it, so we socially distanced, and we kept in touch on WhatsApp (Patrick).

Some use technology to perform their roles only when it is necessary, particularly during the COVID-19 lockdown periods:

Well, I've ended up now on the senior board of management for [ORGANISATION]. We had two boards, the lower one is the fundraising section, so I've ended up on the senior board. So, they do emailing. We were zooming during the pandemic. And we actually only met about two or three times on Zoom, and we're actually meeting next Tuesday night now, but we physically have to meet (Catherine).

I'd use the phone, communicate through the phone, basically, because we have a split group. One group would be from 60 to say 70/75 by age group and then we have another group who would be from 75 to 90 so they wouldn't understand emails (Julia).

This research question (RQ3.2) considered the impacts of digital engagement on the levels of social participation by interview participants. In terms of maintaining social connections, the telephone is rated by many ahead of video calling and filled a gap during the COVID-19 pandemic when in-person contacts were restricted. Many are very involved in their community and enjoy in-person activities. Two participants in particular were negatively impacted by lockdown restrictions since they had no alternatives to replace the time lost with their social groups. In relation to volunteering, participants are involved in more than one voluntary organisation and while preferring in-person activity, most are able to navigate technology to bridge the in-person gap when the need arises. Regardless of the formality of the social groups participated in and volunteered with, the opportunity to learn informally amongst peers is evidenced from the interview data, both in-person and remotely with the aid of digital technologies.

4.2.9 What this all means for quality of life in later years

This research question (RQ3) set out to examine the perceived impacts to quality of later life of being connected in a world that is becoming increasingly digital. Data from interviews with 13 online participants indicated support for the survey findings summarised in sub-section 4.2.5. Many have busy social diaries that include volunteering and a variety of in-person events with family and friends. They are aware of the negative impacts of digital engagement and try to keep themselves safe such that their experiences are mostly positive. Informal learning through exchanges with adjacent generations and peers helps to maintain positive digital experiences. Amongst

the seven offliner participants, the COVID-19 pandemic lockdown periods curtailed their social activities and those living alone found this impactful since they were unable or unwilling to avail of an online alternative to connect with others and engage in society. Similarly, disengaged from the digital economy during this time, they struggled to conduct their usual business.

4.3 Chapter summary

In this chapter, I presented my findings relative to two of the three research questions (RQ2 and RQ3) and their sub-questions.

Survey data from 100 participants pertaining to RQ2 and RQ3 found that two-thirds of participants had engaged in online learning prior to the COVID-19 pandemic. Sixty-five per cent obtained any digital support they required from a member of an adjacent generation, for example, a son or daughter and only 5% from a non-adjacent generation family member, usually a grandchild. Seventeen per cent were supported by a spouse or partner. Social networks and community groups are important to participants with 80% involved in them. A smaller but significant number of participants at 56% are actively involved in volunteering.

Findings from interviews with 13 self-identified onliners and 7 offliners provided insights into RQ2 and RQ3 from their differing perspectives. Onliners were afforded the opportunity to share their experiences of digital engagement in more detail. Offliners, for the most part, present a positive outlook on life. While they do not consider themselves to be socially disadvantaged in their choice of digital disengagement, they

do feel excluded from an economy perspective as more services including banking and utilities are increasingly conducted online.

Chapter Five presents my discussion and analysis of these findings.

Chapter 5 : Discussion

At the outset of this study, I presented two working propositions (sub-section 1.1.1) that were used to guide the development of its research questions (sub-section 1.1.3). In this discussion chapter, I first present a vignette (section 5.1) to describe a slice of digital literacy life at each of three points on a continuum, onliner, offliner and midliner.

Vignettes are often used in qualitative research, for example, in interviews (Hughes, 2008; Jenkins et al., 2010) and in surveys (Finch, 1987) where hypothetical characters are put to the participants who are then invited to respond. In this study, I developed the vignettes following completion of data collection, offering a general description to inform the reader that these vignettes are representative of the interview data as a whole (Merriam & Tisdell, 2016). According to Erickson, general description “shows patterns of generalization within the case” cited in Fraser et al. (2012, p. 1464) and “may also be done in words” (p. 1465). This differs from particular description which, in this study, was represented by the interview participant quotes in section 4.3. The three vignettes were created following collection of interview data, to generally describe the diversity of older adults in a digitalised economy and society striving to achieve the SDGs by 2030, “pledging to leave no one behind” (United Nations General Assembly, 2015, p. 8).

Next, I examine each of the study’s RQs in turn across the data collected (Chapter 4) and the literature and policy documents reviewed (Chapter 2). In section 5.2, I examine RQ1 in the context of lifelong learning for all in a digital age. Section 5.3 examines intergenerational learning and explores the role of peer learning highlighted in the study’s findings. In section 5.4, I examine two contributors to quality of later life, social participation, and lifelong learning. I present a concept map that aims to depict the

contribution of peer learning to quality of later life through lifelong learning and through social participation. Finally, I summarise the key discussion points from this chapter and lay the foundation for the conclusions chapter.

5.1 Digital literacy vignettes

From the literature review, sub-section 2.5.4, we note a variety of terms presented by authors to describe Internet usage along the continuum between Seifert and Schelling's onliner/offliner binary (Lenhart et al., 2003; Seifert & Schelling, 2016; Selwyn, 2006; van Dijk, 2005; Wyatt et al., 2002). We are reminded also in sub-section 2.3.1 that traditional literacies are measured along a continuum as part of a continuous and lifelong learning process (Hanemann, 2015).

5.1.1 Onliner

Each morning, Oliver checks the news headlines from the national broadcaster on one of his digital devices. If he has a busy day ahead, this device will usually be his tablet. If a more leisurely day lies ahead, he will wake up his laptop. He tends to put it to sleep when finished using it rather than shut it down every night, not for any particular reason other than it is quicker to wake up rather than power up from shutdown. He does, however, restart it when software updates are required and he has this process automated to keep the laptop working as it should. Reading the news headlines, he learns of a road accident in County Galway where a sibling lives. He knows his sibling and partner are due to travel to Galway city that morning for a medical appointment,

about 90 minutes' drive from their home outside Clifden. The road accident has taken place on a national road, the N59, near Oughterard, the main road from Clifden to Galway. Two casualties, the bulletin reports, have been taken to University Hospital, Galway. Oliver's first reaction is to call his sibling's mobile telephone to find out if they are okay and not involved in the accident. However, his sibling does not have a smartphone or a device to use a traditional mobile telephone handsfree in the car, so Oliver sets that option aside. His sibling's partner also has a traditional mobile telephone, but may be driving; therefore, he considers it unsafe at that time to call. He contacts his nephew by WhatsApp message in order not to disturb him while working, informs him of the road accident and asks him to let him know when he hears from his parents. The nephew messages back to say that the hospital appointment is for the early afternoon and his parents are not due to travel until later in the morning. Oliver is relieved and continues his day, communicating by group message with fellow volunteers at the golf club as to the state of the 16th tee box hedgerow, and video-calling his daughter's family so he and his wife can catch up on the family news.

Without his digital devices, Oliver would likely have listened to a national news bulletin on the radio that would not have reported the road accident since no fatalities were recorded at that time. Living in a different part of the country, he would not have access to regional radio stations that may have reported it. In one sense, the lack of such information might be considered a good thing, in that there was nothing to be worried about. In another sense, had his family members been involved in the accident, then he may not have found out until much later or potentially not at all. He would continue his day making telephone calls to his fellow volunteers at the golf club and he would unlikely have spoken to his daughter since his wife would already have had a chat with

her.

5.1.2 Offliner

Oliver has a sister, Sheila, who lives alone in a city suburb since her husband died some years back. Now retired, she is actively involved in the community, sits on several voluntary group committees, participates in non-formal, in-person classes, and generally has an active social life. Sheila is highly independent and very proud to have a busy life in which digital technology and devices have no role. It is a nuisance that she can no longer just pop into her local motor tax office to renew her annual tax and must make an in-person appointment. However, Sheila feels that this is a better use of her time than trying to use the online portal. She has a traditional landline in her home that she uses for the majority of her telephone calls, and a mobile telephone for when she is out and about. Her first mobile telephone was given to her by one of her daughters, for her safety, and while Sheila found it cumbersome she understood the benefits of carrying one in the event of an emergency and for safety reasons. Her grandchildren started sending her text messages on the mobile telephone, so Sheila's daughter showed her how to read and send messages. She is comfortable with this level of digital communication and familiarity with the telephone; hence, she declined the offer of both a smartphone and a tablet from her daughters. Her life is busy, she is not interested in learning how to use them and feels she has no need for digital devices. Sheila is offline by choice and considers herself to have a very positive general quality of life.

Sheila's friend, Maggie, also lives alone but unlike Sheila, has no family and does not

get out much. Sheila visits and takes Maggie out in her car; they go for coffee or lunch and spend a few sociable hours together. Maggie's neighbour looks after her small grocery shopping needs and her dinner is delivered each weekday by the local community meals-on-wheels service. She visits the local post office weekly to collect her pension and pays her utility bills there. Maggie is aggrieved, however, that there are discounts for paperless bills and direct debit payments that she cannot avail of. If she needs to see her GP, a neighbour takes her. Maggie relies on her landline telephone for calls and it is also connected to her personal alarm from the Seniors Alert Scheme for older adults living alone. As someone with no exposure to digital technologies, Sheila is unaware of the benefits and drawbacks of using digital devices. She was offered a tablet by a community service during COVID-19 but gave it back since she did not know how to use it and as a result of successive lockdowns, could not get anyone to show her. Like Sheila, Maggie is offline by choice; however, unlike Sheila, considers her outlook on life to be negative, particularly so when her few social connections become more limited for any reason.

5.1.3 Midliner

Joseph is married to Jenny who is the digital person in their household. Jenny might prefer not to be but feels that it is necessary for one of them to be online to manage their day-to-day needs. This could involve Internet banking, managing utility bills, renewing insurance policies and motor tax, researching holidays, booking travel, or shopping. Joseph is happy to be digitally disengaged, as he calls it; however, every morning he picks up the tablet to which Jenny has added his fingerprint as a touch ID.

He goes to the nationwide deaths website (www.RIP.ie) to see who in the neighbourhood has died in the previous 24 hours. If there is a new entry, this contributes to their breakfast table conversation and he might ask Jenny to add their condolence message for the bereaved family on the website. Using this example, it is likely that Joseph is not as digitally disengaged as he claims to be. In fact, while perusing the deaths' website he might also have had a look at the weather app to see how his plans for the day might be impacted by the weather forecast.

5.1.4 Everyday example of the continuum

Many typologies of the Internet user have been developed over the years (Friemel, 2016; Petrovčič et al., 2022; Quan-Haase et al., 2018; Seifert & Schelling, 2016, 2018). Some were presented in sub-section 2.3.4. Individuals have a variety of uses for the Internet and some have no use at all. Data from this study present a variety of levels of digital skills and digital confidence that fit in with the participant's lifestyle in their later years. Figure 5.1 depicts a process of steps involved in getting a ticket to go to a local club match. In the old days, a supporter would just turn up at the gate, pay cash and be allowed through the turnstile. Today, a supporter who does not use the Internet may have a debit or credit card, but who does not transact online, and simply wants to go to the match, may find themselves not being allowed in simply because cash payment is not accepted. This example shows the impact of digital disengagement from online commercial transactions through an offliner supporter's social participation. The onliner and midliner supporters may prefer to pay by cash at the gate; however, the end to this traditional type of transaction means they must do some advance planning to

obtain a ticket using a card payment method. The offline supporter, without assistance, simply cannot go to the match.¹³

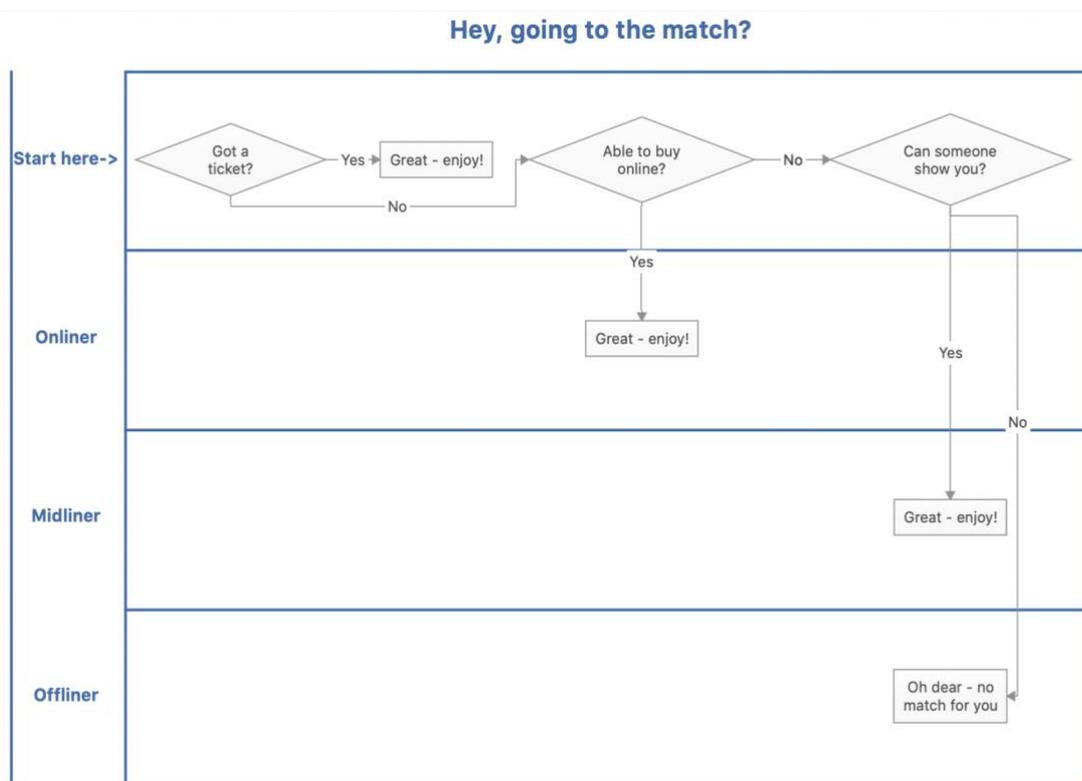


Figure 5.1 Going to the match?

5.2 Lifelong learning for all: Discussion of findings from policies review

relevant to RQ1 and sub-question

A review of selected policy documents set out in section 2.2 is now discussed in relation to RQ1 that considers Irish government policy in relation to promoting lifelong learning

¹³ On 28 September 2022, I raised this matter through a local radio station, C103, with Cork County GAA board who later responded positively in a statement to C103. Flynn, S. [@SandraEFlynn]. (2022b, 28 September 2022). Club Secretaries are in a position to download and sell tickets to their members in advance of championship games, especially those who have difficulty in purchasing online. Ends.Twitter.

opportunities for all, and RQ1.1 that considers digital policy as it relates to lifelong learning for older adults specifically.

5.2.1 Towards achieving Sustainable Development Goal 4

Education, training and lifelong learning is the first of twenty principles set out in the European Pillar of Social Rights Action Plan: “Everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market” (European Commission, 2021d, p. 44). Yet, in subsection 2.2.6, we found that Eurostat reports annually only on the age group of 25 to 64 years as participating in lifelong learning through adult education (Eurostat, 2016b). This is likely to include formal or non-formal but not informal modes of learning that are measured and reported on at 5-yearly intervals through the Adult Education Survey (Eurostat, 2021a).

Europe’s Digital Decade policy aligns with the UN SDGs to be achieved by 2030 (European Commission, 2021a). Irish government policy typically aligns with EU policy. In its 2022 strategy publication, *Harnessing Digital*, Irish government digital policy on the one hand purports to “support widespread digital literacy skills including through the implementation of the 10-year Adult Literacy for Life Strategy” (Department of the Taoiseach, 2022, p. 29), and on the other, proposes to “deliver digital skills for the entire labour market across all sectors including through embedding lifelong learning” (Department of the Taoiseach, 2022, p. 27). This finding emphasises the focus of Irish policy on digital skills development for the portion of the population either in, or

aiming to be in, the workforce. It aligns with literature reviewed in section 2.1 on the broader topic of lifelong learning that noted the shift in policies from ‘cradle to grave’ to focus instead on the labour market and economy (Biesta, 2006).

In its Policy Update on Ireland’s Implementation of the Sustainable Development Goal targets, October 2022, the principle of Leave No One Behind, a strategic objective, is not included in the department’s report on SDG4, only on SDG11 (Sustainable Cities and Communities) and SDG17 (Partnerships for the Goals) (Department of the Environment, Climate and Communications, 2022). Yet, SDG4 (Quality Education) aims to promote lifelong learning opportunities for all (United Nations Department of Economic and Social Affairs, 2015). Literature pertaining to the attainment of the SDGs generally is limited. In sub-section 2.3.1, I noted Hanemann’s findings on the lack of a definition of literacy (Hanemann, 2015) that also extends to digital literacy, along with the importance of literacy and numeracy generally to achieve the SDGs (Hanemann, 2019). The absence of a generally agreed definition of digital literacy can pose a challenge for policy makers to set and measure targets, with Ireland as an example stating in its digital framework, “a high level of digital literacy is required across society to enable all cohorts to engage with, and benefit from the digital transition” (Department of the Taoiseach, 2022, p. 26). Arguably, the translation of the strategic digital framework into achievable and measurable targets is unlikely to be successful without clarity of what high and low levels of digital literacy mean. In its 2021 report on Digital Inclusion in Ireland, the National and Economic Social Council (NESC) recognised the need to focus on older people for digital skills support (National Economic and Social Council, 2021, p. x), and recommended the use of the EU DigComp framework (Carretero Gomez et al., 2017) for the purposes of digital skills training. The NESC report also recognised that

unlike reading as a skill or literacy that once learned may easily be maintained, digital literacy is a process of continuous learning. I posit that such continuous or lifelong learning may benefit from improved support through modes of informal learning. Yet, informal learning does not feature in the policy documents for Ireland summarised in sub-section 2.2.6.

5.2.2 The digital dimension

Digital skills are emphasised for all citizens in the Digital Education Action Plan (DEAP) (European Commission, 2020). However, the literature reviewed in sub-section 2.1.4 indicated the shift in responsibility of adult learning from the state to the individual (Biesta, 2006; Rogers, 2014). Individuals may therefore learn in a manner of their own choosing, formally, non-formally or informally.

While there are targets set at EU and Ireland level to achieve basic digital skills amongst the population, these do not appear to extend to individuals aged 75 years and older (Eurostat, 2022b). By this age, many individuals have retired from the labour market; however, as indicated by the literature reviewed in sub-section 2.3.1, they are likely to be active in society at various levels including participation in social activities and volunteering. Such social capital activities contribute to lifelong learning as indicated in sub-section 2.3.2 (Boulton-Lewis & Buys, 2015; Field, 2005). The EC Green Paper on Ageing (European Commission, 2021e), in response to the requirements of an ageing population, acknowledges the concept of lifelong learning to help address the challenges of ageing. Sub-section 2.5.1 set out factors that contribute to quality of life amongst the ageing population and includes active engagement in society and social

participation (Rowe & Kahn, 1987; Rowe & Kahn, 1997).

There are sections of society generally, and amongst the older population in particular, that choose not to use the Internet and therefore have no need for digital skills. Access to essential services, along with education, training and lifelong learning, are two social rights (European Commission, 2021d), as set out in sub-section 2.2.1. Sub-section 2.5.4 indicates reasons stated in the literature for Internet non-use. However, the extent and pace of digitalisation in relation to the economy particularly means that those who choose to remain disengaged from digital life are at risk of being marginalised in many areas (examples are provided in the offliner vignette presented in sub-section 5.1.2, and Figure 5.1 in sub-section 5.1.4). Accommodating this choice by means of offline alternatives is not enshrined in any policies generally or pertaining to Ireland specifically. Therefore, in terms of economic life with commercial bodies seeking to transact their services only online, this choice may have negative consequences for the individual, for example, loss of discounts owing to non-use of paperless billing for utility services.

Interview data from this study indicate that some members of an older age cohort do not wish to engage with digitalisation. In this study, seven interview participants identified as being offline (sub-section 4.2.1). They belong to a society that has heretofore served them well without the intrusion of technology in their daily lives. As a result, those not included in the 80% target of at least basic digital skills by 2030 will be further marginalised from an increasingly digital world. For Ireland, it appears that government focus may favour a digital economy more than it favours a digital society. The purpose of developing digital skills is aimed to benefit the economy specifically rather than society generally. In sub-section 2.3.3, I offered a definition for each of

digital economy and digital society as distinct concepts and argued that offliners can participate in society without the need for digital engagement. Since the same cannot be said for the digital economy, I contend that these constructs should be measured separately rather than as a composite index. Considering the two distinct definitions, digital economy with its measures of core, narrow and broad, may be depicted as a subset of digital society as in Figure 5.2.

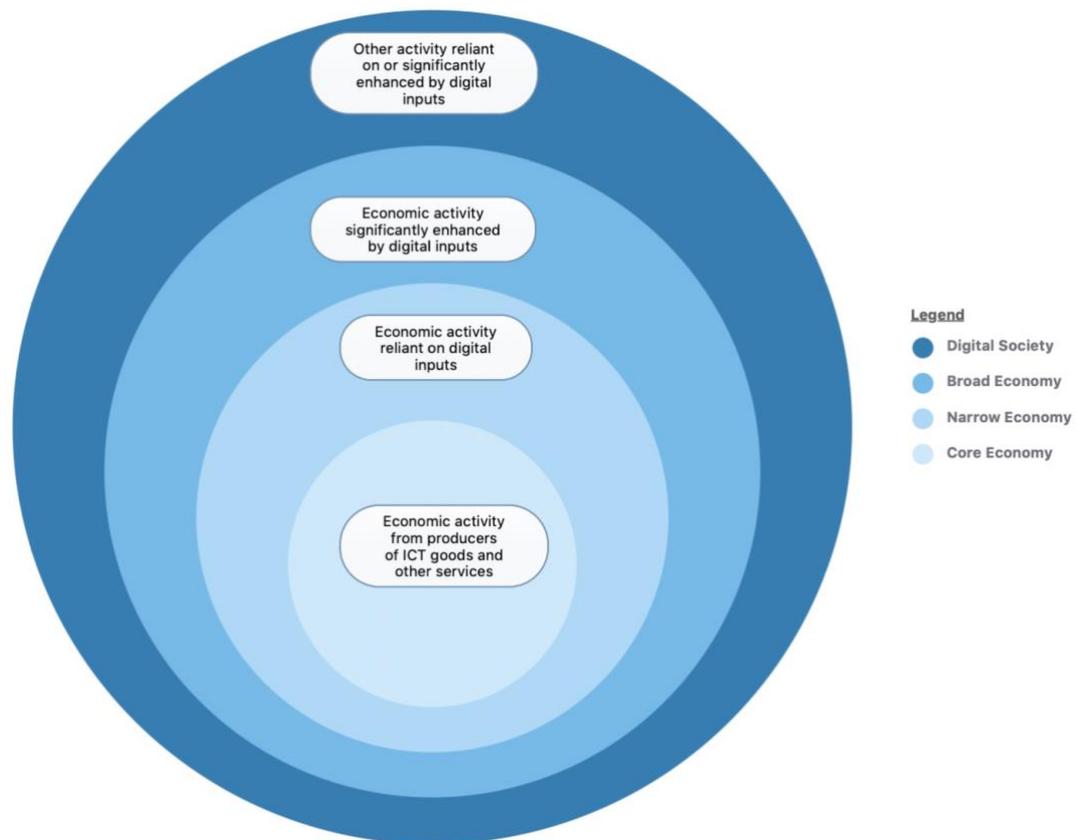


Figure 5.2 Digital Economy adapted from Bukht and Hees, 2017; Digital Society added by the author.

5.3 Lifelong and intergenerational learning: Discussion of findings from survey and interview data relevant to RQ2 and sub-questions

Findings from survey data set out in section 4.1 and interview data set out in section 4.2 are now discussed in relation to RQ2 concerning the contribution to adult lifelong learning of non-formal learning exchanges (sub-section 5.3.1) that take place using digital technologies. Then, interview data pertaining to older adult informal intergenerational learning in relation to RQ2.1 are discussed (sub-section 5.3.2). Finally in this section, sub-section 5.3.3 discusses peer learning findings that arose from interview data in this study.

5.3.1 The digital contribution to non-formal learning

Survey data collected on non-formal modes of learning indicated that of the 80 participants (83%) in this study who attended in-person classes, most did so in order to keep their knowledge and skills updated or to learn something new. Sixty-four of the 95 participants who responded to the question engaged in an online course prior to the COVID-19 pandemic. While most were satisfied with the experience, eight expressed dissatisfaction for reasons set out in sub-section 4.2.2. Thirty-one participants had no interest in taking classes online for reasons set out in sub-section 4.2.2. These data indicate the continued role for in-person classes as opportunities for lifelong learning. Online learning should not replace in-person classes, but rather supplement them for those interested in engaging in learning in this manner. The digital skills and competences that may be useful for some to engage in lifelong learning should not be a prerequisite for everyone. A policy of digital-by-default can only result in the

exclusion of some from lifelong learning opportunities.

In Ireland, non-formal learning exchanges involving technology and digital devices are usually held in classroom environments, on a one-to-few basis or one-to-one basis, through the EU-funded Digital Skills for Citizens Scheme (Department of the Environment, Climate and Communications, 2020). These exchanges involve learning about using devices and technologies, and further developing digital skills. They can involve members from different generations, for example, younger adults or students as volunteer tutors. Interview data from James, a participant in this study, suggests that reciprocal benefits can arise from one-to-one peer learning in a non-formal environment (sub-section 4.3.4) and that more can be done to encourage older tutors to volunteer. Peer learning is important to older adults (as presented in sub-section 2.1.5.1) and more might be done to encourage older tutors to volunteer.

Interview participants in this study who identified as offline had engaged in non-formal learning in the past, with those willing and able continuing to do so. Their motivation to learn aligns with at least one of the three purposes of lifelong learning set out by Aspin and Chapman (2000) in section 2.1 of the literature review.

5.3.2 Intergenerational learning and digital skills in an informal environment

Intergenerational learning (IGL) through organised programmes is often associated as occurring between children and older adults as indicated in the literature review (sub-section 2.2). When we think of the parties involved in IGL it is likely that we think about younger people (children and adolescents) and older people (grandparents in the family or older members of the community). These parties may be from non-adjacent

generations and represent an often-stereotypical image of IGL, with grandparents learning about digital technologies from younger family members, who in turn learn about what life was like 'in the old days'. Examples from this study are included in the interview findings (sub-section 4.3.2). Survey data were reported in sub-section 4.2.3.

The digital native is a term coined by Prensky (2001) to represent students of the time who grew up surrounded by and using technology. Therefore, it might be expected that it is members of this generation who can best support older generations with digital technologies. In this study, however, it was not the non-adjacent, younger generation members who grew up with technology that participants turned to for digital skills support. These data lend support to the debunked myth of the digital native (Bayne & Ross, 2011; Brown & Czerniewicz, 2010; Selwyn, 2009), originally proposed by Prensky (2001a, 2001b). A noteworthy finding from the survey data related to the number of participants indicating that they would reach out to the person they felt most suitable to help them: 20 (25%) in a family environment, and 32 (52%) outside the family environment, regardless of age.

Interview data were collected to extend the survey data further, in order to provide a richer picture of the survey data collected. RQ2.1 considered the learnings of older adults arising from an intergenerational exchange. Many of the interview participants reported in sub-section 4.2.3 turned to adult sons and daughters for assistance with digital devices and technologies. Only two sought assistance from grandchildren (sub-section 4.2.2), with one participant sharing a household with her granddaughter and the other participant having a granddaughter living close-by. Thus, the adjacent generation rather than the non-adjacent generation was involved in the learning exchange.

Further, some participants reported being unwilling to reach out to adult sons and

daughters who had busy lives and did not want to bother them. Outside the family environment, over 50% of participants in this study did not have anyone they could reach out to for assistance with digital technologies (31%) or were unsure (23%).

Organised IGL programmes aligning to characteristics reported in section 2.2 may have some benefit, such as those referenced in section 2.4.

5.3.3 Peer learning

Section 5.3 of the discussion has focussed up to this point on non-formal and intergenerational learning exchanges. However, a surprise finding arose from the interview data in relation to peer learning, both informal and non-formal, and was presented in sub-section 4.2.4. This was accompanied by a review of relevant literature in sub-section 2.3.3.

Learning exchanges within the same generation were the means by which a number of household members in this study learnt about and gained assistance with their digital devices. If a problem was not solved in this manner, then the next option was adult family members sharing the same household, followed by adult family members living outside the household, usually from an adjacent generation. The interview data indicate that there is opportunity for more peer digital skills learning exchanges outside of the household, informally amongst friends, and non-formally through community and volunteering programmes.

Figure 5.3 presents the forms of IGL that take place in formal and non-formal learning environments, based on my examination of the literature. Formal learning that takes place within a country's education system involves students learning from teachers and

engaging in a curriculum that is formally assessed and certified (Hager, 2012). Given the requirements of the curriculum, teachers are usually from different generations. Non-formal learning differs from formal learning as defined above but is generally considered to be organised in some way and can have learning objectives (OECD, 2010), for example, adult education courses. This mode of learning may involve students learning from tutors or instructors who may belong to a different generation or a similar generation. Students may also learn together and from each other, for example, based on their life experiences regarding the subject at hand; hence, peer learning.

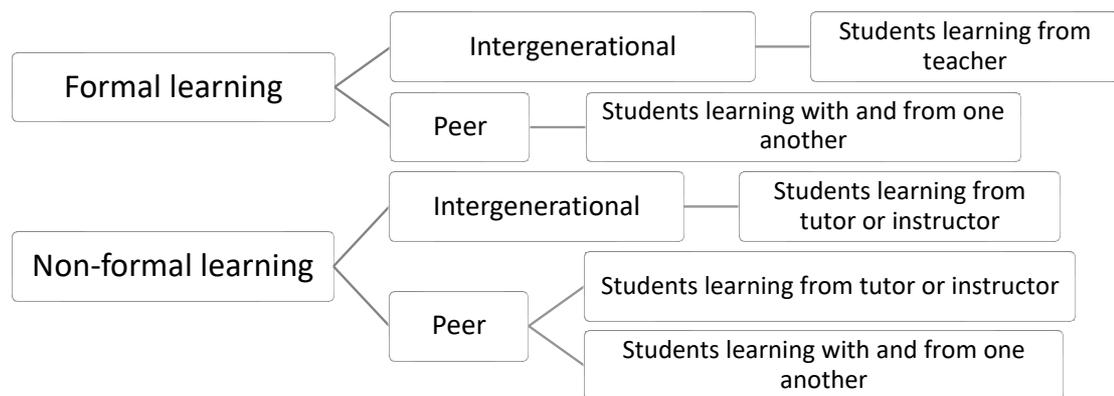


Figure 5.3 Forms of IGL and peer learning that take place within formal and non-formal modes of learning

Informal modes of learning may occur both intentionally and incidentally, but little is known about this type of informal learning outside the workplace (as reviewed in subsection 2.3.2.1). Informal learning is considered in some research to be non-intentional, thereby incidental in nature (CEDEFOP - European Centre for the Development of Vocational Training, 2014; OECD, 2010). Other research considers informal learning to be intentional (Blumschein, 2012), or incidental that occurs “as a byproduct of

something else” (Marsick & Watkins, 2015, p. 33). As reported by Field & Tuckett in 2016, there has been little study of incidental learning outside of the workplace. Based on experiences of interview participants in this study, support for informal learning, both intentional and incidental, is an area that could be useful for the development of digital skills amongst older adults.

Figure 5.4 depicts the three forms of IGL that can take place within an informal learning environment or exchange: learning together, learning from one another, and learning about one another’s generation. Interview data from this study presented in sub-section 4.2.4 indicate that informal learning opportunities amongst peers may be intentional and incidental and are a valuable source of learning about digital devices and technologies, both within the household environment and outwith.

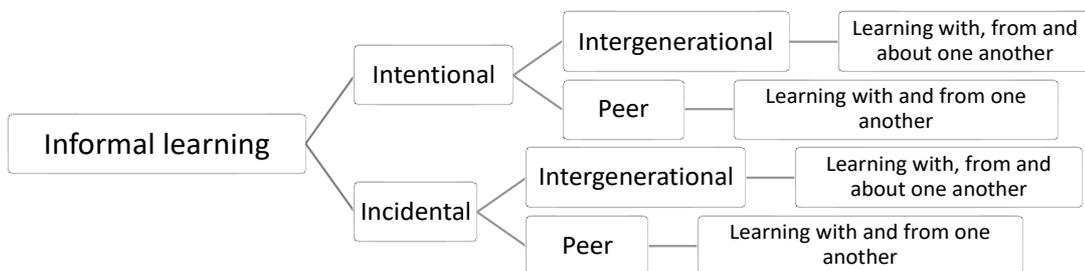


Figure 5.4 Forms of IGL and peer learning that take place within informal modes of learning

Table 5.1 depicts the concepts from Figures 5.3 and 5.4 in a linear format to show that peer learning is closely aligned to IGL in life-wide learning contexts, and that two forms of IGL (learning together and learning from one another) are also applicable to peer learning, a view heretofore under-researched.

Elements of lifelong learning		Intergenerational learning	Peer learning
<i>Life-wide learning contexts</i>	- Formal learning	✓	✓
	- Non-formal learning	✓	✓
	- Informal learning	✓	✓
	- Intentional learning	✓	✓
	- Incidental learning	✓	✓
<i>Forms of IGL</i>	- Learning together	✓	✓
	- Learning from one another	✓	✓
	- Learning about one another ¹⁴	✓	×

Table 5.1 Comparison of IGL and peer learning elements

Given the changing nature of digital literacy skills in today's society, and the variety of contexts in which such learning takes place, this study offers evidence suggesting that improved support structures for informal and non-formal intergenerational and peer learning may be beneficial for the digital skills development of older adults.

¹⁴ Learning about one another may take place in an individual context; however, for the purpose of this study, it is considered as learning about one another's generation and therefore is not relevant to peer (same generation) learning.

5.4 Quality of later life and digital engagement: Discussion of findings from survey and interview data relevant to RQ3 and sub-questions

This section of the discussion is concerned with the perceived impacts of the digital world to the quality of life of older adults. Findings relating to RQ3.1 examine these impacts, while those relating to RQ3.2 explore the impact of digital engagement and non-engagement on social participation, considered to be an important element of successful, positive, and healthy ageing.

5.4.1 Social participation and informal learning

Since learning is also a social activity for many interview participants, the social participation literature presented in sub-section 2.5.1 is relevant to this sub-section. In addition, volunteers in this study enjoy the social nature of volunteering. A number of interview participants in this study were heavily invested in their social activities and volunteering commitments, both separately and together (presented in sub-section 4.2.8). This aligns with literature reviewed in sub-section 2.5.1. In Table 2.5 I set out how I use terms related to social participation from the literature and their context in this study. Both survey data (sub-section 4.1.5) and interview data (sub-section 4.2.6) found that many participants were involved in social and community groups. Interview participants provided examples of informal learning from, for example, events with invited speakers or organised social outings to places of interest. Intentional learning occurs from tour guides about the places they choose to visit, and incidental learning from each other as regards what they know about these locations. Literature related to peer learning was considered in sub-section 2.3.3, noting that little research has been

undertaken regarding informal peer learning as described in the interview findings of this study. For offline participants in this study, learning and social participation often go hand-in-hand, and contribute positively to their quality of life. Field (2012a) suggests that we learn from our lives through everyday experiences such as “going about our work, caring for our family, encountering friends and neighbours, experiencing illness, enjoying sports and hobbies, or sitting around relaxing... We live and learn” (Field, 2012a, p. 176).

Findings from survey data set out in sub-section 4.1.5 were limited to a self-assessment of quality of life using a selection of seven statements from the CASP-19 scale (Hyde, 2003), and two questions that asked about social participation in community groups and participants’ involvement in volunteering activities. The community participation and volunteering survey data supported TILDA research set out in sub-section 2.5.2 establishing a foundation to be explored further with the study’s interview participants. Self-assessed quality of life scores completed in the survey for the 13 interview participants are presented in sub-section 4.2.6. All participants’ scores fell in the range 15 to 21, with zero as the possible lowest score and 21 as the highest. Quality of life was discussed with the seven interview participants who were not engaged online and also presented in sub-section 4.2.6. Given that digitalisation is rapidly taking hold of economic life, and to an extent the wider society, it is important to keep sight of those who do not engage in digital economy or society and not leave them behind.

Interview data from participants in sub-section 4.2.8 supported research pertaining to the social participation of older adults. The literature reviewed in sub-section 2.5.5 noted its importance to quality of life, with social participation covering a variety of areas including organised activities, learning events, informal social connections, and

volunteering. The interview data in sub-section 4.2.6 suggest that most participants are positive overall about their quality of life and have a positive outlook generally.

Interview participants who identified as offliners were also satisfied with their quality of life. They considered social participation to be a component of lifelong learning; however, for them, digital skills are not necessary to either social participation or lifelong learning. There was no evidence to suggest that the quality of life of offliners would be improved as a result of engagement with technology. They use the traditional telephone to keep in contact with family and friends. They read physical books for pleasure and learning. They participate in society through traditional in-person means; however, they are disadvantaged by not being able to engage with a digital-by-default economy that is becoming more and more prevalent.

5.4.2 Lifelong learning and social participation as pathways to quality of later life

As discussed earlier in sub-section 5.4.1, there is evidence of a relationship between the various types of social participation and informal peer learning. Peer learning and digital skills development was discussed in sub-section 5.3.3. The concept map in Figure 5.5 depicts two pathways that contribute to quality of later life, 1) lifelong learning, and 2) social participation.

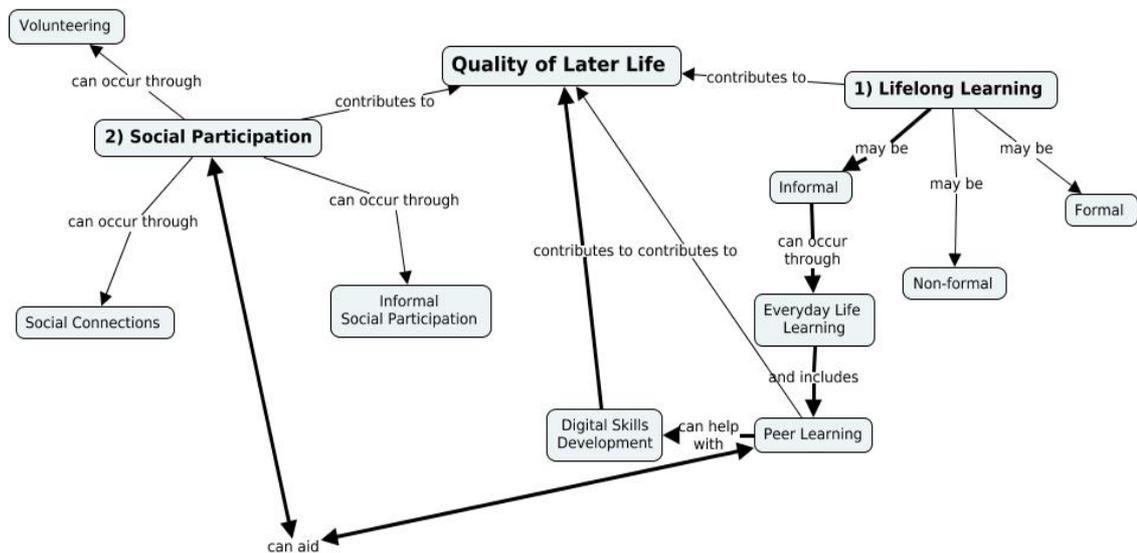


Figure 5.5 Pathways to quality of later life concept map

Increased levels of quality of later life may be attained through lifelong learning, social participation, or both. Looking at each of these pathways in turn, the literature is agreed on the importance of social participation as a contributor to quality of life in later years (section 2.3). Engagement in learning is another important contributor (sub-section 2.3.2). Less is known about the contribution of informal learning as a mode of lifelong learning to quality of later life. This study has shown that peer learning, both intentional and incidental, can take place amongst older adults in informal learning environments with regard to digital skills development, and thus contribute to quality of later life. This route is marked with heavy black lines in the concept map depicted in Figure 5.4. Starting on pathway 1, lifelong learning may be informal, can occur through everyday life learning that includes peer learning. Peer learning in turn can help with digital skills development and contributes to quality of later life. In Pathway 2, social participation can aid peer learning, including through informal connections and volunteering. The reverse can also hold, that peer learning can aid social participation and occur through means of social connections and volunteering. The consequent development of digital skills, aided by peer learning, then contributes to quality of later

life.

5.5 Chapter summary

In the case of RQ1 there are two factors that should be considered when discussing lifelong learning opportunities for all in the context of SDG4. First, lifelong learning is not measured amongst the entire population, and adult education, considered by the EU as synonymous with lifelong learning, is measured only between the ages of 25 and 64 years (Eurostat, 2022a). Second, while measurement of lifelong learning amongst children and young adults can take place in the formal learning environment, adult learning is measured for the most part through non-formal modes of learning, with limited measurement of informal learning.

Digital skills and lifelong learning are not routinely measured amongst older cohorts of the population, beyond 75 years of age in respect of digital skills (Eurostat, 2022b), beyond 65 years of age in respect of lifelong learning (Eurostat, 2021d). As a result, the needs of older adults to participate in digital economy and society are difficult to recognise, also quantify and address. I contend that participation in the digital economy is distinct from participation in digital society. In sub-section 2.2.1, I found that lifelong learning is an important contributor to economy and society. However, older adults wishing to engage in lifelong learning, particularly in non-formal and informal environments, can do so outwith the digital society. Finally, in the context of ageing, sub-section 2.2.1 noted that a thriving ageing society requires both healthy ageing and lifelong learning. By not measuring lifelong learning and digital skills from cradle to grave, I argue that it is not possible to determine the success of ageing society in Ireland.

Having considered the case of RQ2, based on data from this study, I posit that informal peer learning within generations is an important element of digital skills development amongst older adults and for which support structures, if provided, could yield positive results in terms of their digital skills development. Providers of digital skills training classes should be encouraged to recruit more peer generation tutors for learners who partake in this non-formal learning environment. A process of matching tutor with learner could take into consideration the preference of the learner to work with a peer or intergenerational tutor.

To answer RQ3, it was necessary to consider the perspectives of onliner and midliner participants on the one hand, and offliner participants on the other. For RQ3.1, I suggest that there is opportunity for peers to learn from each other about areas of digital life that might have negative impacts; for example, blocking scam call numbers from smartphones or sharing information on cookies settings that are appropriate to a user of a particular website. For RQ3.2, as the ageing population continues to grow world-wide, there may be opportunity for more engagement in virtual volunteering that can be further supported by peer learning. To this end, outcomes from RQ2 (peer learning exchanges) can contribute to positive digital impacts arising from RQ3 (social participation through digital engagement). An ageing generation that can rely more on itself and its own social capital resources including peers for digital skills development may result in an improved quality of life for more. Finally, consideration must be given to offliners who, while not engaged in the digital world, may engage in forms of lifelong learning and social participation. For offliners with low quality of life, as indicated by CASP-19 scores, efforts should be made to support their social connectedness, informally within the community or neighbourhood, and non-formally

through, for example, a voluntary organisation befriending service.

This study has found that informal learning through intergenerational and peer relationships is an important source of digital skills development amongst older adults in Ireland. Data collected indicate that for older adults, digital skills support, when required, is provided informally by adjacent generation family members, then peers amongst family and friends, and finally non-adjacent generation family members. It is generally accepted that non-adjacent generation family members assist older family generations, usually grandparents, with digital skills development. This study shows that informal peer exchanges amongst older adults is an important overlooked source of learning, yet country data for Ireland are not routinely collected specifically related to digital skills. Data are collected for general learning purposes through the Adult Education Survey (AES) at 5-yearly intervals and only for the age cohort 25 to 64 years. As a result, Irish policy focus is on non-formal modes of learning, usually in classroom environments. In the absence of data for informal modes of learning, the size of digital skills development and support from peers is difficult to ascertain.

The world's population is ageing rapidly. Economy and society are becoming increasingly digitalised. In 2022, almost half of the Irish population (45%) aged 75 years and older had never accessed the Internet (Central Statistics Office, 2022). Many wish to live their lives offline and this is their choice. For those engaged in digital economy and/or digital society, informal peer learning is a channel that should be measured and actively supported for the benefit of the provider and the receiver.

Chapter 6 : Conclusions

In the previous chapter, I discussed evidence from the literature relevant to this study's findings to present a variety of points related to each research question and sub-question. A number of points are highlighted:

1. A 'one size fits all' approach to engage individuals in using the Internet is not appropriate since everyone has a right to choose not to be online if they so wish (sub-sections 5.1.2 and 5.2.2).
2. Intergenerational learning should be distinguished between adjacent and non-adjacent generations. In this study, IGL largely took place between adjacent generation members. In other studies, IGL may be referred to generically but the study's focus is often on non-adjacent generations (sub-section 5.3.2).
3. In households consisting of a couple, one of the members may shoulder the responsibility for digital activity regarding online services, but this is not necessarily by choice (sub-section 5.3.3).
4. The importance of informal learning between peers, both intentional and incidental may be an undervalued area of support for digital skills amongst friends and community members (sub-section 5.3.3).
5. Social participation, interacting with others in a society or community, takes place in everyday life and thus contributes to lifelong learning (sub-section 5.4.1).
6. Digital economy and society is referred to in EU digital strategy documents as a

single term with an index (DESI) designed to measure progress of EU digital transformation (European Commission, 2022a). Distinguishing digital economy from digital society may have more value when considering digital literacy skills amongst older adults (sub-section 5.2.2).

In section 6.1 of this concluding chapter, I present a summary of my findings relative to each of the research questions. This is followed in section 6.2 by the contribution the study makes to knowledge and practice, with consideration given to the points highlighted above. Finally, I present a discussion of the implications of the study for research, policy, practice, and methodological implications (section 6.3), and the study's limitations (section 6.4).

6.1 Addressing the research questions

The research questions in this study (sub-section 1.1.3) were developed and guided by working propositions (sub-section.1.1.1). These propositions arose from my examination of published data by Eurostat and CSO Ireland regarding low levels of digital skills amongst older adults, and the efforts at many levels (government, NGO, commercial bodies) in Ireland to get more of the general population, especially older adults, online. Combined with the data referring to older adults who have never accessed the Internet (Central Statistics Office, 2021b; Eurostat, 2022c), there was potential to formulate the overarching research question at the centre of this study: *To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges amongst older adults in Ireland?* To answer the overarching question, I formulated three research questions, with supporting sub-

questions. I selected a case study approach with a bounded system of two units of analysis, those who engage in online activity (onliners) and those who do not (offliners). I used a mixed methods approach to data collection by means of an online survey, and interviews.

The sub-sections that follow summarise my conclusions in relation to this study's individual research questions.

6.1.1 Lifelong learning in an increasingly digitalised world

The first research question (RQ1) involved examination of selected policies and supporting documents to indicate ways in which a whole-of-government approach can translate recommendations and directives from the EU and other international organisations to policymaking at Irish national government level with both national and local authority level actions. RQ1 asked, what has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all?, and was explored through sub-question RQ1.1: how has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?

Owing to its nature, the measurement of lifelong learning is not a simple calculation or formula. In Ireland, the measure relates to adult learning in organised courses usually through non-formal offerings by the national Education and Training Boards (ETBI), for learners between the ages of 25 and 64 years (sub-section 2.2.6). Informal learning is also measured only for this age cohort of adults. Measurement does, however, include a variety of learning forms including learning from family and friends, by visiting a library,

reading printed materials, and using a computer (sub-section 2.3.2). In 2016, when data were last recorded, Ireland had a participation rate of 62% marginally ahead of the average for the 28 countries of the EU at that time (Eurostat, 2021b). Further, in their press release on these data, the CSO reported with a section heading that “Informal learning is a more popular choice than formal or non-formal educational activities” (Central Statistics Office, 2018, para. 5).

Informal learning opportunities for adults might be availed of at any age but are of particular benefit in later years, to both the learner and to society, despite not being measured beyond the age of 64 years. I have argued in sub-section 5.2.2 that lifelong learning is measured for the benefit of the economy rather than society, and therefore is not a true measure of lifelong learning for all adults.

The long-awaited updated digital strategy for Ireland published in 2022, *Harnessing Digital* (Department of the Taoiseach, 2022), refers to lifelong learning in the context of developing digital skills for the workforce. It focusses on the attainment of a level of digital skills for the general population of Ireland to engage with digitalisation (Department of the Taoiseach, 2022, p. 29). I conclude, therefore, that the responses to these research questions have thus far fallen considerably short of SDG4, “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” with particular shortcomings in relation to the latter part of the goal.

6.1.2 The intergenerational contribution to learning with and about digital technologies

The second research question (RQ2) was concerned with the contribution of intergenerational learning exchanges aided by technology to adults' lifelong learning, specifically asking: how do informal and non-formal learning exchanges through uses of digital technologies across generations contribute to adult lifelong learning at all ages? Following an earlier study that considered a related question from the perspective of young adults (Flynn, 2022a), this study involved examination of the question through the lens of older adults, asking in RQ2.1, what have been the learnings of older adults as a result of an intergenerational exchange?

Survey and interview data (sub-sections 4.1.3 and 4.2.3) overwhelmingly referred to intergenerational learning regarding digital skills as those between adjacent generations with very little arising from non-adjacent generational exchanges (sub-sections 4.1.3 and 4.2.2). Amongst the characteristics of successful IGL programmes published by an international group of IGL researchers following a workshop in 1999 was, "They can involve multiple generations but must include at least two nonadjacent and nonfamilial generations" (Hatton-Yeo, 2015, p. 283; Hatton-Yeo & Ohsako, 2000, p. 6). Such programmes are typically formal or non-formal in nature, and as such this characteristic is appropriate. In informal environments, within or outside the family, I believe it is appropriate to distinguish between adjacent and non-adjacent generations in any IGL exchange involving older adults particularly in relation to digital skills. The digital native label attached to today's young people was discussed briefly in sub-section 5.3.2 in terms of the lack of non-adjacent generational support to participants in this study.

The empirical findings in this study provide a new understanding of IGL in relation to development of digital skills amongst older adults. Younger adults can support older adults (through an intergenerational learning exchange) to develop and stay current with digital literacy skills (sub-section 4.1.3). However, instead of taking place primarily between non-adjacent generations (sub-section 4.2.2), for example grandchildren, in the context of this study, it is sons, daughters and other members of a younger adjacent generation (sub-section 4.2.3) who typically engage in such IGL exchanges.

It is recognised that IGL has a role to play within the area of lifelong learning “from the cradle to the grave” (Boström, 2014, p. 366), “fostering reciprocal learning relationships between people of all ages, promoting a greater understanding between generations” (Buffel et al., 2014, p. 1785). There are many forms of intergenerational relationships between participants, categorised as early years, the young, the mature, the elderly, and the infirm elderly (Bottery, 2016). Consequently, IGL that takes place amongst these participant categories, in formal, non-formal or informal environments could be classed as lifelong learning for both parties given the reciprocal nature of IGL. Gosseries’s direct model of reciprocity (sub-section 4.3.2) had better success amongst non-adjacent generations as evidenced in my earlier study (Flynn, 2022a) rather than adjacent generations in this study. Interview participants in this study were conscious of being a nuisance and bothering their busy adult children with their questions and cries for help. To them, digital skills support offered little, if anything, in the way of reciprocal benefits to their children, from the perspective of the parent (sub-section 4.3.3). However, this study provided some evidence of indirect reciprocity whereby learnings of older adults from adult sons and daughters could be shared with their peers (sub-section 4.3.4).

6.1.3 Digital skills in everyday life learning: a community-of-peer learners

The third and final research question in this study asked: what are the perceived impacts to personal quality of later life by being connected in a digital world? The question was examined through two sub-questions. RQ3.1 asked, in what ways do perceived impacts of digital engagement contribute to positive and negative quality of life? RQ3.2 asked, what are the impacts of digital engagement on older adults' levels of social participation?

Informal learning in everyday life activities is lifelong learning (sub-section 4.3.4).

Participants in this study wishing to develop their digital skills often did so through informal peer learning and preferred this over more formal learning environments since it specifically addressed their needs. There is also a social aspect of putting heads together with coffee over a digital device rather than sitting in a classroom of learners with different types of devices and differing needs (sub-section 5.3.3). In many ways, informal peer learning satisfies at least two of the three forms of IGL: learning together, learning from one another, and learning about one another.

Rogoff's community-of-learners model (1994) (sub-section 2.1.5.1) could be adopted to develop a community-of-peer learners that would involve informal learning from one another and learning together about digital skills, and to facilitate both intentional learning and incidental learning. The location should suit the needs of the community of learners, an everyday social environment, perhaps a community member's private residence, or in the public library by arrangement. "We live and learn" (Field, 2012a, p. 176). Field suggests that we learn from our lives through everyday experiences such as "going about our work, caring for our family, encountering friends and neighbours,

experiencing illness, enjoying sports and hobbies, or sitting around relaxing” (p. 176).

Social participation and lifelong learning are connected as set out in Figure 5.4; thus, contributing to quality of later life.

6.1.4 Answering the overarching research question

The overarching research question in this study asked:

To what extent, and how, can intergenerational relationships support the development of digital skills through informal and non-formal lifelong learning exchanges amongst older adults in Ireland?

Preceded by the answers to the three supporting RQs in sub-sections 6.1.1 to 6.1.3, it is now clear that intergenerational relationships did support the development of digital skills of older adults in participants involved in this study. The generations, however, are largely adjacent (sons and daughters) rather than non-adjacent (grandchildren) and these learning exchanges are informal. Non-formal learning exchanges also occur through services offered by the NGO sector to supporting digital skills development (sub-section 5.3.1). While there may be an intergenerational relationship between tutor and student(s), this study did not seek to examine it. Instead, the study focussed on informal learning and found that questions surrounding digital technologies were best addressed on an individual level, often from a family member but also from a friend or peer (sub-section 5.3.2). The study did not set out to examine peer learning; hence, the level of peer learning was a surprise finding that required discussion alongside intergenerational learning (sub-section 5.3.3). This study has found that lifelong learning is important to perceived positive quality of life amongst older adults (sub-

section 5.4.1). Digital skills are less important for some and do not factor whatsoever in the quality of life of others who choose not to digitally engage.

6.2 Contribution to knowledge and practice

The findings from this study make several contributions to the current literature. These are derived from highlighted points in the introduction to this chapter. First, there is a cohort of older adults who choose to remain offline (seven interview participants in this study) and engage in lifelong learning through traditional, non-digital means (sub-sections 4.1.2 and 5.1.2). Second, the terms 'intergenerational' and 'intergenerational learning' should not be used as generic terms since the reciprocal element differs between adjacent and non-adjacent participants in a learning exchange (sub-sections 4.1.3, 4.2.2 and 4.2.3). Third, where the household consisting of a couple is considered to be online, little is known about the partner who may act as proxy user, official or unofficial in matters relating to digital economy (sub-section 4.2.4). Fourth, informal peer relations amongst older adults who know each other is a useful mode of digital skills development (sub-section 4.2.4). Fifth, forms of social participation (sub-section 4.2.8) contribute to improved quality of life amongst older adults. Lifelong learning is also a contributor. Since social participation can aid informal peer learning, it follows that social participation is a component of lifelong learning (sub-section 5.4.1 and Figure 5.4). Sixth, individuals may engage in the digital economy and/or digital society, yet participation is measured by a single index - the DESI (sub-section 5.2.2).

The findings also contribute in several ways to our understanding of informal learning amongst older adults and provide a basis for further research in the area of peer

learning. In sub-section 5.4.1, I argued that relationships, community participation and collaboration all have an important role to play in relation to peer learning generally, and development of digital skills specifically. This thesis has provided a deeper insight into the concept of intergenerational learning that may occur between adjacent or non-adjacent generations. It offers insights into how and why older adults develop their digital skills through relationships with their peers. The study lays the groundwork for future research into informal peer learning, both intentional and incidental, in Ireland and beyond.

6.3 Implications for research, policy, and practice

6.3.1 Research

This study has been about learning, in particular lifelong learning, as it pertains to adults. Its focus has been the digital skills of older adults and has found that while adjacent generation IGL has a strong role to play, so too does informal peer learning that may be either intentional or incidental. Building informal learning communities requires the facilitation of relationships and removal of barriers to such relationships (Marsick, 2009). In a social environment, amongst a community-of-peer learners, these relationships are often already established. The situation for the learning to take place may also be informal and flexible. Further, the public library may be offered as a situated space for individual members of the community to come together and learn from and with their peers. Research into peer learning in informal community environments for older adults is scarcely addressed in the literature (Fitzpatrick, 2019), yet it is here that much later life learning takes place. In an age when new and

improved digital skills are required on a continuous basis to maintain digital literacy, I have argued that the concept of peer learning in informal environments has an important role to play in the lives of older adults to engage in both digital economy and digital society.

6.3.2 Policy

Government policy in Ireland is largely guided by the country's membership of the EU. Data are collected at member state level by the national statistics office (CSO) and reported to Eurostat, whose mission is "to provide high quality statistics and data on Europe" (Eurostat, n.d., para. 2). CSO and Eurostat data have acted as a baseline for many of the variables of interest to this study and have guided Irish government policy at many levels. In order for policy to be updated, it is helpful to record and publish baseline data. This study has identified a number of areas where published data can help inform future policy and research, specifically, data relating to digital skills and Internet use of adults at all ages, clearly distinguishing measures of lifelong learning and informal learning from adult education and adult learning. The world's population is ageing and Ireland is no different in this respect. The population growth of the age cohort 65 years and over between the ten years 2011 and 2021 was 40% (Eurostat, 2021c). In 2015, 44% of all individuals in Ireland had basic or above basic digital skills, while in 2021 that figure improved to 70% (Eurostat, 2022d). These figures exclude individuals aged 15 years and under, and 75 years and older and therefore are open to be misconstrued. Based on these data, the target of 80% of adults to have at least basic digital skills by 2030 can potentially be achieved; however, adults aged 75 years and

older are excluded from the measurement. While most may be retired from the workforce by this age, many still contribute to society through social activities and volunteering, as examples. Policies of lifelong learning, including informal learning, should also be updated to include adults of all ages, that is, to the grave.

Digital economy and society measures may be of more value if decoupled from one another. Economy is intricately entwined with market and labour forces, whereas society encompasses all of these, including digital economy and digital society. Both these in turn contribute to an overall society to which older adults of all ages continue to contribute. While digital rights are important to all, so too are the social rights of being involved in society in a manner that is not considered digital; that is, traditional society.

6.3.3 Practice

Digital skills development for adults in Ireland is over-reliant on the government-provided ETBI service and NGO sector for classroom-based learning and ironically, online learning. Since these have measurements of attendance and completion in place, they are in receipt of EU funding, for example, through the Digital Skills for Citizens Scheme. This study has shown, however, that processes of informal learning, both intergenerational and amongst peers, are more beneficial to many. This extends beyond learning and development of digital skills to wider benefits of lifelong learning, in turn improving quality of later life.

Measurement of informal learning is currently limited to 5-yearly intervals of data collection, the latest available being 2016, and from individuals aged 25 to 64 years

(Eurostat, 2021a, 2022a). The six forms of informal learning (Table 2.4) are appropriate to a variety of topics of interest. In this sense, widening opportunities for adult learning already exist, and should be measured to include all adults and at more frequent intervals. Location of peer learning exchanges may or may not be important, but the public library is an option, along with a home environment or a café. Recent national strategies have redefined the traditional role of public libraries in Ireland to become social spaces for the local community (Department of Rural and Community Development, 2019) and their offerings should be promoted further at a local level. There is opportunity to practice the values the public library espouses, as a resource at the heart of the community, available to all.

The contribution of older adults to society, by means of volunteering activity and community participation, is hugely beneficial in a reciprocal manner. Older adults' quality of life improves across a number of measures including CASP (control, autonomy, self-realisation, and pleasure). Society benefits immeasurably from their participation and contribution, and older adults should be encouraged to engage in volunteering and social participation (Ward et al., 2018).

Those who choose not to go online and remain digitally disengaged (offliners) or go online to a limited extent, usually for a specific purpose (midliners) should be facilitated to transact their business in a non-digital manner or by formal process of proxy use by a trusted party or close other. Failure to address the needs of these individuals will potentially result in marginalisation from aspects of economy and society.

6.3.4 Methodological implications

In the technological age we live in, researchers can be forgiven for thinking that all interview data can be collected via a digital medium. For many research studies it can, and this opens up tremendous opportunities to gain access to participants that might never be possible in an in-person environment. For other research studies, the COVID-19 pandemic was a disruptor for planned in-person interviews for a considerable period of time. In my case, I did not have the luxury of being able to interview participants who identified as an offliner through Microsoft Teams, as I was able to do with the onliner participants. I considered the available options. I could wait until public health guidelines considered it safe to interview participants in person; however, this would delay data collection for an unknown period of time and potentially put my project schedule at risk. Alternatively, I could improvise and use the technologies available to me and decided to pursue this option. It is worth noting that I had not conducted a pilot interview using the combination of technologies, but for the most part they worked well. The process involved Microsoft Word to capture the interview audio through its Transcribe feature; my iPhone set to speaker mode for the interview and placed next to my MacBook Air; my iPad with Voice Memo feature set to record the interview in the event of Microsoft Word failing for any reason. There was one occasion when this process had to be set up in a hurry. I telephoned a participant to arrange a day and time for interview. As it happened, she was free to do the interview there and then so I had to quickly set everything up. Fortunately, the interviewee was patient while I set up the MacBook Air and iPad to record and the interview went well. I found my paper copy of the interview guide an essential resource to all interviews that I conducted regardless of communications medium.

6.4 Limitations and directions for future research

The limitations of a research project may provide future research directions (Creswell, 2012). For this study, I advance a number of limitations.

First, interpretation of the data may not be exempt from my subjectivity as an older adult and other researchers may have interpreted the dataset differently.

Second, the interview participants represented the two bounded cases in this study, 13 onliners and seven offliners. Since three of the offliners transpired to be low Internet users (midliners) more data from offliners may have added value to the findings.

Third, the serendipitous outcome of learning and developing digital skills informally from peers might have taken the study in a different direction had it been identified as a focus area at the outset of the study.

Finally, I would have liked to interview more participants in the age group 55 to 64 years. The one parent I interviewed in this group offered insights into how he and his young adult children support each other across differing technologies (sub-section 4.2.3). Studies of older adults and technology have used a variety of lower ages for participant data, some as low as 50 and one of 45 years of age (Hunsaker & Hargittai, 2018). I believe more interviews with the 'younger old' would provide another perspective on intergenerational learning.

Notwithstanding the relatively limited sample, this research offers valuable insights into the field of informal learning, an important component of lifelong learning, both within generations (peer learning) and across generations (intergenerational learning).

6.4.1 Future research

Research into IGL heretofore has focussed largely on formal and non-formal learning contexts, often around programmes of learning. This study's contribution pertains to the importance of informal learning environments across adjacent generations and peer relationships for the development of digital skills amongst older adults.

Future research might consider a broader sample that includes more offliner interview participants, to investigate ways to maintain their contributions to and participation in economy and society that are not digitally based. Consideration might also be given to examine ways in which informal learning opportunities might be designed to support older adults in their own home.

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Appendices

Appendix A: Data requirements table

DATA REQUIREMENTS TABLE (Saunders et al., 2016)

Research Question/Objective: To what extent, and how, can intergenerational relationships support informal and non-formal lifelong learning through uses of digital technologies in Ireland?

Working title: Ireland and the lifelong learning curve: The intergenerational contribution to digital literacy for life.

Type of Research: A mixture of demographic, opinion and behavioural variables will be used to collect the necessary data.

- Factual or demographic eg. age and gender
- Attitude and opinion variables that respondents may need to think about before answering.
- Behaviour and event variables about what people did or what happened in the past, now or in the future.

Initial RQs	Confirmed RQs (post peer/tutor feedback and data collection)	Confirmed sub-RQs (post peer/tutor feedback and data collection)
<p>RQ1 – What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal (SDG4) of promoting lifelong learning opportunities for all?</p> <p>RQ2 – How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to lifelong learning at all ages?</p> <p>RQ3 - What are the perceived impacts to personal quality of later life by being connected in a digital world?</p>	<p>RQ1 – What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal (SDG4) of promoting lifelong learning opportunities for all?</p> <p>RQ2 – How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to lifelong learning at all ages?</p> <p>RQ3 - What are the perceived impacts to personal quality of later life by being connected in a digital world?</p>	<p>RQ1.1 How has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?</p> <p>RQ2.1 What have been the learnings of older adults as a result of an intergenerational exchange?</p> <p>RQ3.1 In what ways do these perceived impacts contribute to positive and negative quality of life?</p> <p>RQ3.2 What are the impacts of digital engagement on older adults’ levels of social participation?</p>

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
Questions about the participant	Demographic	Range / Scale / Open-ended etc.		Qualtrics #	
What is your age range?	Demographic	Range of values mirroring Eurostat data	Not applicable	Q1	Baseline demographic data
What is your gender?	Demographic	Range of values (male, female, other, prefer not to say)	Not applicable	Q2	Baseline demographic data
In what county in Ireland do you reside?	Demographic	Dropdown Ireland county list	Not applicable	Q3	Baseline demographic data. Data to be collected from respondents outside Ireland for potential future study.

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
Do you live in an urban area (city, town with population over 1,500) or rural area (village, townland area with population under 1,500)?	Demographic	Select from urban or rural	Social isolation	Q4	CSO defines urban as towns and cities with a population of 1.500 and over; rural is a population of under 1.500.
How many other person(s) live in your household?	Demographic	Select from I live alone / with one other / with more than one other	Social isolation	Q5	Baseline demographic data
If living with other person(s), please select their age group(s)	Demographic	65 years or older / 45 to 64 years / 25 to 44 years / 24 years or younger	Intergenerational	Q5.1	New: To determine whether same generation, adjacent or non-adjacent. Not particularly scientific but if opened to select all that apply I should be able to do some correlation.

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
What is the highest level of formal education you completed?	Demographic	Range of values (left formal education after primary, secondary school, higher education, further education)	Not applicable	Q6	Baseline demographic data. Eurostat: qol_educ_ea Changed this to mirror CSO 2016 census question.
If higher education, then ask about the life stage at which the participant undertook higher ed.	Demographic	Full-time student after leaving secondary school / Part-time mature student / Other (please briefly explain).	Formal learning or lifelong learning		Response to pilot feedback: Open University part-time distance degree as a mature student. This is addressed by the change in Q6 to include full- or part-time.

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
Questions related to RQ2, RQ3 and sub questions	Mix of variables	Range / Scale / Open-ended etc.		RQ → Qualtrics #	
Since leaving formal education have you completed any non-formal learning courses organised by a provider in a classroom environment? Examples might be an adult education evening class, a course leading to a certificate in first aid, language skills etc. or organised learning by for example U3A, Active Retirement group.	Event	Select from Yes / No / Do not recall?	Non-formal learning	RQ2 → Q8	Provide explanation of non-formal from Coombs & Ahmed: “any organized , systematic, educational activity carried on outside the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children.” <i>Response to pilot feedback: U3A type courses are organised so can also be classed as non-formal.</i>

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
If yes, what motivated you to participate in any of these courses? Please select one from the list below that most closely matches your motivation.	Attitude	I like learning new things / I like to keep my knowledge on a topic updated / I like to keep my skills up to date / I like meeting new people / I like the social aspect of meeting people I know	Non-formal learning	RQ2 → Q8.2	
Prior to the pandemic in 2020, did you ever participate in an online course using a computer, laptop or tablet? Examples might be learning a language or a new topic of interest.	Event	Yes / No / Don't know	Motivation	RQ2 → Q9	

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
If no, please select one from the list that most closely matches your reason for not participating in an online course.	Attitude	I don't use technology / I prefer in-person classes / I would be interested but don't know how / I would be interested but don't have the confidence	Non-formal learning	RQ2 → Q9.1	
If yes, How satisfied were you with the experience of participating in an online course?	Attitude	Add in a suitable scale and an open ended comment box.	Motivation	RQ2 → Q9.2	
If 'I would be interested but don't know how' is selected then go to Q10	Attitude		Non-formal learning	RQ2 → Q9.3	

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
If 'I would be interested but don't have the confidence' is selected then go to Q10.	Attitude		Motivation and barriers	RQ2 → Q9.4	
If necessary, do you have family members who could support your interest in technology? Children, grandchildren....	Demographic	Yes / No / Don't know	Non-formal learning	RQ2 → Q10	
If yes, what is the age range of the family member you would most likely reach out to for support?	Demographic	Age ranges based on Eurostat data - 15 and under to 75 and older	Informal learning	RQ2 → Q10.1	
If no, and when necessary, do you have friends in the neighbourhood or community groups who could support your interest in technology?				RQ2 → Q10.2	

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
If yes, what is the age range of the person from the neighbourhood or community most likely to support your interest in technology?			Intergenerational learning	RQ2 → Q10.3	
Thinking about your use of a computer, laptop, tablet or other digital device, how much do you agree or disagree with the following statements?	Attitude	5-point Likert scale - agree / somewhat agree /neither agree nor disagree / somewhat disagree / disagree		RQ2 → Q11	
<i>I need help with setting up my device.</i>			Digital skills		
<i>I can make phone calls and video calls online.</i>			Digital skills		

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
<i>I can communicate with family and friends using email.</i>			Digital skills		
<i>I can communicate with family and friends using messaging Apps.</i>			Digital skills		
<i>I know how to access the Internet.</i>			Digital skills		
<i>I can download an app.</i>			Digital skills		
<i>I understand how to keep myself safe online.</i>			Digital skills		
<i>I use my digital device frequently.</i>			Digital confidence		
<i>I am confident using my device.</i>			Digital confidence		
<i>I am confident I know what to do if I get stuck.</i>			Digital confidence		

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
<i>I worry I might break it.</i>			Digital confidence		
<i>I am confident I can find what I need when using my device.</i>			Digital confidence		
CASP-19 self-assessment	Attitude	CASP-19 scoring properties: Often / Sometimes / Not often / Never See https://casp19.com/casp-scoring-and-properties/ for breakdown	Quality of Life	RQ3 → Q12	The CASP-19 scale was designed to cover the active and beneficial experiences of later life... The scale is composed of 4 sub-scales, the initials of which make up the acronym: Control, Autonomy, Self-Realization and Pleasure. Source: https://casp19.com/background
<i>I enjoy the things that I do.</i>		3 - 2 - 1 - 0			Pleasure domain - P3

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
<i>I enjoy being in the company of others.</i>		3 - 2 - 1 - 0			Pleasure domain - P4
<i>I can do the things I want to do.</i>		3 - 2 - 1 - 0			Autonomy domain - A1
<i>I feel that I can please myself what I do.</i>		3 - 2 - 1 - 0			Autonomy domain - A3
<i>I feel free to plan for the future.</i>		3 - 2 - 1 - 0			Control domain - C3
<i>I feel that life is full of opportunities.</i>		3 - 2 - 1 - 0			Self-realisation - SR4
<i>I feel that the future looks good for me.</i>		3 - 2 - 1 - 0			Self-realisation - SR5
Do you participate in any groups, such as a senior centre, social or work group, religious-connected group, self-help group, or charity, public service, or community group?		0 [] No 1 [] Yes 9 [] Unknown	Social participation	RQ3 → Q13	From Social Network Index (Berkman & Syme, 1979)

Investigative Questions - the questions that you need to answer in order to address each RQ satisfactorily	Variables required	Detail in which data is measured	Relation to theory and key concepts in the literature	Check measurement question included in data collection instrument	Notes
Are you currently involved in regular volunteer work?		Yes/No	Social participation	RQ3 → Q14	From https://www.midss.org/sites/default/files/social_network_index.pdf
How many people involved in this volunteer work do you talk to about volunteering-related issues at least once every 2 weeks?		___0 ___1 ___2 ___3 ___4 ___5 ___6 ___7 or more	Social participation	RQ3 → Q15	From https://www.midss.org/sites/default/files/social_network_index.pdf
Thank you for your interest in my study up to this point. If you live in Ireland would you be interested in participating in a telephone or video interview with me to share more detail about your experiences?		Yes (enter email address or telephone number) or No (survey ends)		Q16	

Appendix B: Interview guides

Interview Guide A – Onliners

1. Researcher preparation

Review the data collected from onliners through survey instrument.

Identify themes to pursue during online interviews and map to RQs.

Contact participants with participant info sheet and consent form.

Coordinate schedule of interviews agreeable to participants.

Advise the length of time the interview is expected to take (45 minutes).

2. Interview consent

Read out the consent sheet contents and ask for participant's consent along with consent to electronic recording (Microsoft Teams audio only or audio and video).

3. Demographic data

Explain the anonymity of data captured in the survey and ask for the following, mirroring survey (see data requirements table) questions 1 through 7: Age range;

gender; Irish county of residence; urban or rural area; live alone or with other(s); highest level of formal education; age of completing formal education.

4. Semi-structured interview themes

RQ2: How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to lifelong learning at all ages?

- Can you tell me a little about your experience of technology? For example, how long you have been using it, what you use and for what purposes? [Computer (desktop or laptop), tablet or iPad, smart phone...]
- Tell me a little about how you found the experience of getting started with technology? [Daunted, took it in my stride, excited...]
- What was your motivation to start using technology?
- What would you say is your primary motivation today to keep using technology?
- How would you rate your digital literacy skills? [e.g., skilled, manage to do what I need]
- Have you ever attended any classes to support your digital skills? If yes, tell me a little more about the classes. If no, ask why not?
- Have you learned from family members or friends to support your digital skills? [Explore who these are and their age ranges]
- How do you get technical support when you need it, e.g., something happens to your device that prevents it from working the way you want it to? [As above, exploration into family support and age ranges; friends or community support and age ranges if known]
- How does availing of technical support in this manner make you feel? Why do you think this is the case?

RQ3: What are the perceived impacts to personal quality of later life by being connected in a digital world? RQ3.1 In what ways do these perceived impacts contribute to positive and negative quality of life?

- Do you think your use and experience of technology has had a positive impact on your quality of life? If yes, tell me a little about this.

- Do you think your use and experience of technology has had a negative impact on your quality of life? If yes, tell me a little about this. How did this negative experience make you feel? Would the negative experience prevent you from using technology for similar purposes going forward? [Tease out examples such as a shopping experience that did not meet expected requirements]
- Would you describe your experience of using technology overall as positive or negative in terms of your quality of life?

RQ3.2 What are the impacts of digital engagement on older adults' levels of social participation?

- Before the COVID-19 pandemic last year (2020) did you use technology (other than the telephone) to stay in touch with family and friends?
 - If yes, what technologies? How did your use support your social interactions? With community groups activity, for example, before the pandemic did you attend meetings and gatherings in person? How has this been for you during the lockdown periods since last year?
 - If no, since the COVID-19 pandemic have you tried any technologies to stay in touch with family and friends? Explore the experience if yes. If no, ask why this was the case.
- How has being digitally connected contributed to your quality of life generally? [Perhaps offer a scale of 1 to 10 with 1 being a negative contribution and 10 being a very positive contribution]

5. Closeout and thank you

- Advise the participant that the interview is now at an end and thank them for their time.
- Advise the participant that the recording has now been stopped and close the call.

*Interview guide B – Offliners***1. Researcher preparation**

Review the literature pertaining to older adults classed as offliners.

Identify themes to pursue during telephone interviews and map to RQs.

Contact potential participants by telephone. Explain the purpose of the study outlined in the participant info sheet. Send PIS and consent form by post for signature.

Coordinate schedule of interviews agreeable to participants.

Advise the length of time the interview is expected to take (45 minutes).

2. Interview consent

Read out the consent sheet contents and ask for participant's consent along with consent to electronic recording (Microsoft Teams audio).

3. Demographic data

Survey questions 1 through 7 from data requirements table: age range; gender; Irish county of residence; urban or rural area; live alone or with other(s); highest level of formal education; age of completing formal education; non-formal learning courses in a classroom environment.

4. Semi-structured interview themes

RQ2: How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to lifelong learning at all ages?

- If yes to 7, explore the types of non-formal learning undertaken. If no, ask why - perhaps lack of interest, time, etc.? If yes, request examples of types of learning. [the idea is to explore learning and education over the lifespan, unrelated to technology]
- What about informal learning exchanges? [Explain what is meant by this term and give examples, e.g., learning within families, community groups, neighbours...]
- Would you consider yourself to be a lifelong learner? Please explain reasons for your yes/no response.
- Can you tell me a little about your experience of technology? Have you ever tried out a smartphone, tablet, or computer? If yes, explore why these devices are not used.

What was your motivation to try out technology?

Did you have any support, for example, family members, when you were trying it out?

- If no, have you never tried out any of these devices? Ask why this was the case.

RQ3: What are the perceived impacts to personal quality of later life by being connected in a digital world?

- How has not using technology impacted your quality of life? [May need to qualify this to distinguish between during lockdown and outside of lockdown periods]

RQ3.1 In what ways do these perceived impacts contribute to positive and negative quality of life?

- If impact to QoL has been negative, explore examples and how these might be converted to positive impacts.
- If impact to QoL has been positive, explore participant's attitude to technology, for example, is it generally a bad thing? Why?
- If no impact, or no change, explore how the participant accesses services that are increasingly online, for example, banking...

RQ3.2 What are the impacts of digital engagement on older adults' levels of social participation?

- Before the Covid-19 pandemic last year (2020), how often would you visit or be visited by family and friends? [in a typical week]
- How often would you telephone or be telephoned by family and friends? [in a typical week]
- What types of social activities did you engage in before the pandemic?
- Has this changed since the pandemic and if so, in what way?
- Do you feel socially isolated as a result of the pandemic?
- If yes, would you consider using any digital technology to help address this isolation?

5. Closeout and thank you

- Advise the participant that the interview is now at an end and thank them for their time.
- Advise the participant that the recording has now been stopped and close the call.

Appendix C: Policy documents table

Search term = digital strategy

#	Document title	Document publication date	Document url
1	NESC Report 154 - Digital Inclusion in Ireland: Connectivity, Devices & Skills	2 June 2021	https://www.gov.ie/en/press-release/1f6f7-nesc-report-154-digital-inclusion-in-ireland-connectivity-devices-skills/
2	Minister launches public consultation on 10-year Literacy, Numeracy and Digital Literacy Strategy	13 November 2020	https://www.gov.ie/en/press-release/9f05e-minister-harris-launches-public-consultation-on-10-year-literacy-numeracy-and-digital-literacy-strategy/
3	Minister Harris addresses OECD Skills Summit on need for strong policy responses to COVID-19 pandemic	9 October 2020	https://www.gov.ie/en/press-release/22c17-minister-harris-addresses-oecd-skills-summit-on-need-for-strong-policy-responses-to-covid-19-pandemic/
4	National Digital Strategy	17 June 2020	https://www.gov.ie/en/publication/f4a16b-national-digital-strategy/

#	Document title	Document publication date	Document url
5	EU Digital frontrunner countries meet in Amsterdam to discuss our digital future	15 April 2019	https://www.gov.ie/en/press-release/4aa366-eu-digital-frontrunner-countries-meet-in-amsterdam-to-discuss-our-di/
6	Projects Funded under the Digital Innovation Programme 2018	31 January 2019	https://www.gov.ie/en/publication/381ed8-digital-innovation-programme-2018-funded-projects/
7	Minister of State O'Donovan participates in discussion on digital government services	20 November 2018	https://www.gov.ie/en/press-release/61c1e7-minister-of-state-odonovan-participates-in-discussion-on-digital-gov/
8	Government seeks views on Ireland's Digital Strategy	22 October 2018	https://www.gov.ie/en/press-release/69baa0-government-seeks-views-on-irelands-digital-strategy/

Search term = digital policy

#	Document title	Document publication date	Document url
9	Government makes digital transformation a priority for the Public Service in 2020	27 December 2019	https://www.gov.ie/en/press-release/cd7882-government-makes-digital-transformation-a-priority-for-the-public-se/

Search term = digital literacy

#	Document title	Document publication date	Document url
10	Minister Harris's Address at the National Adult Literacy Agency (NALA) AGM	24 April 2021	https://www.gov.ie/en/speech/c5700-minister-harris-address-at-the-national-adult-literacy-agency-nala-agm/
11	Department of Further and Higher Education, Research, Innovation and Science	8 September 2021	https://www.gov.ie/en/publication/655a4-adult-literacy-for-life-a-10-year-literacy-strategy/

#	Document title	Document publication date	Document url
12	NALA – the National Adult and Literacy Agency	December 2020	https://www.nala.ie/publications/nala-submission-to-the-10-year-adult-literacy-numeracy-and-digital-literacy-strategy-for-ireland/
13	AONTAS – the Adult Voice of Learning	22 December 2020	https://www.aontas.com/knowledge/blog/aontas-submission-to-solas-public-consultation-on-the-10-year-adult-literacy,-numeracy-and-digital-literacy-strategy-for-ireland

Search term = older people; older adults; elderly

#	Document title	Document publication date	Document url
14	Keeping active	28 April 2021	https://www.gov.ie/en/publication/16d3c-keeping-active/
15	How you can volunteer	3 April 2020	https://www.gov.ie/en/publication/2bd8ba-how-can-i-volunteer/

#	Document title	Document publication date	Document url
16	Government launches initiative to phone older people to check on wellbeing during COVID-19 crisis	2 April 2020	https://www.gov.ie/en/press-release/eb8344-govt-launches-initiative-to-phone-older-people-to-check-on-wellbeing/
17	EU Funds - Education, Training and Lifelong Learning	2 January 2020	https://www.gov.ie/en/publication/e7be9-eu-funds-education-training-and-lifelong-learning/
18	Retired and Older People	18 December 2019	https://www.gov.ie/en/publication/4f4a73-retired-and-older-people-booklet/
19	3rd National Positive Ageing Stakeholder Forum launched today	21 November 2019	https://www.gov.ie/en/press-release/f1845d-3rd-national-positive-ageing-stakeholder-forum-launched-today/
20	Minister Daly announces €1 million for community and voluntary organisations to improve community services for older persons	4 November 2019	https://www.gov.ie/en/press-release/151c4a-minister-daly-announces-1m-for-community-and-voluntary-organisations/

#	Document title	Document publication date	Document url
21	Budget 2020 - Speech Minister of State for Community Development, Natural Resources and Digital Development, Thursday October 10 2019	10 October 2019	https://www.gov.ie/en/speech/a62e51-budget-2020-speech-minister-of-state-for-community-development-natur/
22	Positive Ageing Indicators 2018	4 June 2019	https://www.gov.ie/en/publication/0e84e9-positive-ageing-indicators-2018/
23	Minister for Health speaks at National Convention of Older Person's Councils	9 November 2018	https://www.gov.ie/en/press-release/1f27aa-minister-for-health-speaks-at-national-convention-of-older-persons-c/
24	Minister for Mental Health and Older People addresses National Convention of Older Person's Councils	8 November 2018	https://www.gov.ie/en/press-release/3b0fcf-minister-for-mental-health-and-older-people-addresses-national-conve/
25	Positive Ageing 2016: National Indicators Report	4 November 2016	https://www.gov.ie/en/publication/b57a18-positive-ageing-2016-national-indicators-report/

#	Document title	Document publication date	Document url
26	National Positive Ageing Strategy	30 April 2013	https://www.gov.ie/en/publication/737780-national-positive-ageing-strategy/
27	The official launch of the National Council of Ageing and Older People publications “An Age Friendly Society: A Position Document” and “Planning for an Ageing Population: Strategic Considerations”	14 June 2005	https://www.gov.ie/en/speech/b79aac-the-official-launch-of-the-national-council-of-ageing-and-older-peop/
28	Age Action Ireland Seminar “Older People and Poverty: Past, Present and Future”	13 June 2005	https://www.gov.ie/en/speech/5124d7-age-action-ireland-seminar-older-people-and-poverty-past-present-and/
29	Young and Old: Teacher’s Guide - Promoting a Positive Attitude to Ageing and Older People	20 June 2000	https://www.gov.ie/en/publication/1ea7ff-young-and-old-teachers-guide-promoting-a-positive-attitude-to-ageing/

Search term = lifelong learning

#	Document title	Document publication date	Document url
30	Ireland's National Skills Strategy	10 June 2021	https://www.gov.ie/en/publication/69fd2-irelands-national-skills-strategy-2025-irelands-future/
31	Learning for Life: White Paper on Adult Education July 2000	3 July 2020	https://www.gov.ie/en/publication/26c15-learning-for-life-white-paper-on-adult-education-july-2000/
32	Lifelong Learning Report 2017	21 September 2017	https://www.gov.ie/en/publication/c7350-lifelong-learning-report-2017/
33	Lifelong Learning among Adults in Ireland, Quarter 4 2015	29 July 2016	https://www.gov.ie/en/publication/3dd0d-lifelong-learning-among-adults-in-ireland-quarter-4-2015/
34	Lifelong Learning among Adults in Ireland, Quarter 4 2014	6 May 2015	https://www.gov.ie/en/publication/6e39e-lifelong-learning-among-adults-in-ireland-quarter-4-2014/

Appendix D: NVivo codebook

Initial codebook

Folder and Name		Description	Files
Nodes	1 - RESEARCH QUESTIONS	Top level code for data specific to proposal RQs RQ1 What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all? RQ2 How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to adult lifelong learning at all ages? RQ3 What are the perceived impacts to personal quality of later life by being connected in a digital world?	2
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH	Policy documents that relate to RQ1: look out for duplicate codes that emerge from survey and interview data. RQ1 What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all? RQ1.1 How has Irish government digital policy been applied to promote lifelong learning opportunities for older adults specifically?	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\0 - TO BE CODED	Placeholder for content that should be coded but not yet sure how. Different from 'interesting' node.	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\1 - INTERESTING	Node to capture items that are interesting but not yet clear how to code.	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Connectivity and broadband	While my research does not focus on broadband it is an enabler of digital... so setting it up as a code for now.	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Digital citizenship	Node covering rights and principles of digital citizenship as a framework	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Digital services	Node to capture content including digital public services, health services etc.	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Digital skills	Node for documentary research - RQ1	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Healthy ageing	Code for all content referring to healthy ageing. Not sure yet about well-being and quality of life. For now, if I come across them, code them here.	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Lifelong learning	Node for documentary research - RQ1	37
Nodes	1 - RESEARCH QUESTIONS\RQ1 POLICY DOC RESEARCH\RQ1 Urban Rural divide	This code may appear with broadband but separating it for now and may be aggregated later.	37
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING	'Lumping' code for interview data that is relevant to lifelong learning.	12
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING\RQ2 Intergenerational Learning	Code for interview data that is relevant to intergenerational learning (part of lifelong learning).	2
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE	'Lumping' code for interview data that is relevant to quality of life including health, wellbeing, happiness.	12
Nodes	2 - INBOX OF CODES	Placeholder for emerging codes that do not appear to relate directly to the RQs initially.	2

Folder and Name		Description	Files
Nodes	2 - INBOX OF CODES\Access	Code to capture MO's experiences particularly in relation to accessing courses. She refers to fitting into a box. May recode later but keeping as is for now.	1
Nodes	2 - INBOX OF CODES\Adjacent generation	Initial code to distinguish adjacent from non-adjacent generation when coding support activities. May move the code to a better location in due course.	15
Nodes	2 - INBOX OF CODES\Ageism	Code to capture participant experiences of ageism, intended or unintended.	2
Nodes	2 - INBOX OF CODES\Being marginalised, left out	Code to capture participants comments on the consequences of not being online. Related to Go Online code.	3
Nodes	2 - INBOX OF CODES\BYOD	Bring Your Own Device - ease of portability and mobility.	3
Nodes	2 - INBOX OF CODES\Change, adoption, adapting	Not quite sure what to call this code but it refers to participant comments about being too late to adopt technology or adapt to change brought about by technology. This may be related to ease of use but is at a more philosophical level.	5
Nodes	2 - INBOX OF CODES\Choice	Code to capture primarily offliners' comments on being 'forced' to transact online (MG) or being 'told what to do' (MLT) MG refers to this as 'producer capture'.	2
Nodes	2 - INBOX OF CODES\Communications technology	Code to capture participants experiences of digital communications, text, audio, video	13
Nodes	2 - INBOX OF CODES\Cost	Code to capture participants mentions to costs associated with being online. It wasn't a question I specifically asked (and probably should have), so useful to caption where it is mentioned.	1
Nodes	2 - INBOX OF CODES\COVID-19	Preparing the interview files for Nvivo there are quite a few references to COVID so a code may prove useful.	14
Nodes	2 - INBOX OF CODES\Cradle to grave	This term has been used by a couple of participants when explaining what lifelong learning means to them. Keeping it as a separate code for now but should relate to lifelong learning.	4
Nodes	2 - INBOX OF CODES\Digital skills and confidence	Code to capture participants comments on their skills and confidence. These may be broken out later if necessary.	9
Nodes	2 - INBOX OF CODES\Ease of use (and lack of)	Code to capture participants experiences of different devices in terms of their usability and ease of use. Differs from BYOD that has a separate code. Additionally, using this code to capture where business transactions are not easy to use and not well supported.	5
Nodes	2 - INBOX OF CODES\Employment	Code to capture participant comments of employment, work, work experience. Relate to learning perhaps.	9
Nodes	2 - INBOX OF CODES\Familiarity with device or OS	Code to capture participants comments on comfort and familiarity with a device and reluctance to change.	4
Nodes	2 - INBOX OF CODES\Fear	Code to capture participants comments of being afraid of technology, or breaking it etc. Or of comments regarding young people's lack of fear.	4
Nodes	2 - INBOX OF CODES\Getting Started and progressing	Code to capture how long ago participants started using technology and progression over the years.	12
Nodes	2 - INBOX OF CODES\Go Online	Code to capture participant experiences of being direct online to perform any transactions, especially during and since COVID-19. Also including direction to technology e.g., bank machines, credit card payments etc.	4
Nodes	2 - INBOX OF CODES\In-person learning and teaching	Code to capture participants experiences of in-person learning for any type of course or one-to-one support etc. This may change later. Some participants have taught as well so using this code to capture those comments for now.	15
Nodes	2 - INBOX OF CODES\Independence	Initially this code is to capture the offliner experience of independence being compromised due to lockdown restrictions and not being interested in online transactions.	1
Nodes	2 - INBOX OF CODES\Informal Learning	Code to capture any participant thoughts on learning exchanges in the workplace, voluntary organisations that are	6

Folder and Name		Description	Files
		informal in nature. For now, also including personal learning and troubleshooting but may recode later.	
Nodes	2 - INBOX OF CODES\Intergeneration	Code to represent participants experiences with younger generations where adjacent and non-adjacent is not known.	5
Nodes	2 - INBOX OF CODES\Intragegeneration	Code to capture participant experiences of support and learning with for example friends of their own generation.	10
Nodes	2 - INBOX OF CODES\Keyboard skills	Code to capture participant comments on learning to type, keyboard skills, secretarial courses etc.	4
Nodes	2 - INBOX OF CODES\Midliner	Term given to those who do not fit Seifert & Schelling's description of onliner or offliner. Working definition is someone who accesses the Internet for news or information but does not perform transactions online e.g., banking or shopping.	2
Nodes	2 - INBOX OF CODES\Motivation (and lack of)	Code to capture participant motivation and use for digital devices. May change the name in info gets more specific.	11
Nodes	2 - INBOX OF CODES\Non-adjacent generation	Initial code to distinguish adjacent from non-adjacent generation when coding support activities. May move the code to a better location in due course.	8
Nodes	2 - INBOX OF CODES\Online course - free text		2
Nodes	2 - INBOX OF CODES\Online learning	Code to capture participants thoughts on online learning, whether they have tried it or not.	10
Nodes	2 - INBOX OF CODES\Personal development (and lack of)	Code to capture MO's experience but look back over other interviews and consider adding code to applicable content. Also, lack of personal development owing to say children being on their phones and not able to carry out a conversation.	4
Nodes	2 - INBOX OF CODES\Privacy and Security	Code to capture participants comments about their personal data privacy and security in an online world.	12
Nodes	2 - INBOX OF CODES\Purposes for use (and traditional options)	Code to capture purposes that participants use technology for e.g., news, information, communications, banking, shopping, services. For now, also lump in participants experiences of traditional interactions for above.	12
Nodes	2 - INBOX OF CODES\RQ3 Digital and Social Inclusion	RQ3.2 To what extent does digital inclusion contribute to social inclusion in later life? Also use for human interaction in transactions for now.	4
Nodes	2 - INBOX OF CODES\Stress	Code to capture mentions by participants of stress, stressful in the context of their use/non-use of technology.	2
Nodes	2 - INBOX OF CODES\Urban Rural divide	Code to capture any data relating to urban/rural divide, perhaps social connectedness, mobility, news, and information etc.	5
Nodes	2 - INBOX OF CODES\Volunteering and Community	Code to capture participant comments in relation to volunteering and community work.	10
Nodes	3 - REFLEXIVE CODES	Interesting comments to ponder further including good quotes.	2
Nodes	3 - REFLEXIVE CODES\Good Quotes	Participant quotes that might be of value to include.	4
Nodes	3 - REFLEXIVE CODES\Interesting	Not sure what these comments mean but at first pass they seem interesting and worthy of further review.	12
Nodes	3 - REFLEXIVE CODES\Unsure	Code for participant comments that do not fall into any existing category and may or may not be of interest to this study.	3

Focussed codebook

Folder and Name		Description	Files
Nodes	1 - RESEARCH QUESTIONS	Top level code for data specific to proposal RQs RQ1 What has been the contribution of Irish government digital policy to the achievement of the sustainable development goal, SDG4, of promoting lifelong learning opportunities for all? RQ2 How do informal and non-formal learning exchanges through uses of digital technologies across the generations contribute to adult lifelong	2

Folder and Name		Description	Files
		learning at all ages? RQ3 What are the perceived impacts to personal quality of later life by being connected in a digital world?	
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL	'Lumping' code for interview data that is relevant to lifelong learning. Also includes some literature on the background that I first read in late 2020. 03.01.2022 - appending IGL to this code so that the literature is all in one place.	10
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\Cradle to grave (lifelong learning)	This term has been used by a couple of participants when explaining what lifelong learning means to them. Keeping it as a separate code for now but should relate to lifelong learning. 15.01.2022 Appended lifelong learning to recode content from top level RQ2 node.	15
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\Employment related learning	Code to capture participant comments of employment, work, work experience. Relate to learning perhaps.	19
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and	Code to capture participant comments on learning to type, keyboard skills, secretarial courses etc.	13
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\Online learning	Code to capture participants thoughts on online learning, whether they have tried it or not. 15.01.2022 - Think about 'intentionality' of digital engagement required for online learning.	11
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\Personal development (and lack of)	Code to capture MO's experience but look back over other interviews and consider adding code to applicable content. Recoded to Unsure for now: Also, lack of personal development owing to say children being on their phones and not able to carry out a conversation.	11
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2 Formal Learning	Coombs & Ahmed definition even if undertaken in later life for example returning to university since this is a different undertaking to a short course. Cited in Bostrom (2003) Formal education: "the highly institutionalised, chronologically graded and hierarchically structured "education system", spanning lower primary school and the upper reaches of the university." (ibid., p.8)	5
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2 Forms of IGL	"In order to apply a heuristic concept of different modes of intergenerational learning, Siebert and Seidel (1990) propose to differentiate three forms, namely learning from each other, learning together, and learning about one another. The central criterion here is the nature of the interaction in the learning process." Schmidt-Hertha et al. 2014, p. 148	6
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2 Informal Learning	Informal education: "the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment – at home, at work, at play; from the example and the attitudes of the family and friends; from travel, reading newspapers and books or by listening to the radio or viewing films or television." (ibid., p.8) For now, also including personal learning and troubleshooting but may recode later. 16.02.2022 - moving code higher.	28
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2 Non-formal Learning	Creating this new node to help with lit review content and structure.	1

Folder and Name		Description	Files
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)	Code for interview data that is relevant to intergenerational learning (part of lifelong learning). Focuses on what the participant as older adult learned from younger adult (or child as appropriate). 03.01.22 - Need to reslice with adjacent/non-adjacent codes since there's no new interview data coded here. Perhaps move those codes under here?	0
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\Adjacent Generation Learning	Initial code to distinguish adjacent from non-adjacent generation when coding support activities. May move the code to a better location in due course. 03.01.22 Moved code to sit beneath RQ2.1 and renamed to Adjacent Generation Learning	28
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\Home interaction	Code created during interview memo coding that has its origins in a supervisor comment in June 2021: "At the moment, through the RQs, you are identifying 'older' and 'younger' and looking at their interactions. If you want to take the wider range and consider it from a 'home interaction' perspective, it is certainly possible, but it could involve a much wider analysis and probably involve a wider data set." 14.01.2022 - See also Intrageneration code and place at RQ2 top level.	10
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\Intergeneration	Code to represent participants experiences with younger generations where adjacent and non-adjacent is not known.	17
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\Intrageneration	Code to capture participant experiences of support and learning with for example friends of their own generation. Perhaps group this with home interaction with partners rather than intergenerations.	14
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\Non-adjacent Generation Learning	Initial code to distinguish adjacent from non-adjacent generation when coding support activities. May move the code to a better location in due course. 03.01.22 Moved code to sit beneath RQ2.1 and renamed to Non-adjacent Generation Learning	11
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\RQ2 Non-formal Learning	Coombs & Ahmed (1974) Nonformal education: "any organized, systematic, educational activity carried on outside the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children." (ibid., p.8)	26
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\RQ2 Non-formal Learning\BYOD	Bring Your Own Device - ease of portability and mobility.	6
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\RQ2 Non-formal Teaching	Code updated and mirrors non-formal learning since some participants have also taught in a non-formal environment e.g., ETB, adult ed, not a community group organised event, speaker etc.	8
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.1 IGL (older)\RQ2 Non-formal Teaching\Ageism	Code to capture participant experiences of ageism, intended or unintended.	6
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.2 IGL (younger)	Code for interview data that is relevant to intergenerational learning (part of lifelong learning). Data is from module four study last year along with participant experiences from this study.	3
Nodes	1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.2 IGL	07.01.2022 - New code to capture participant comments on younger people's communication skills and lack of personal development.	5

Folder and Name	Description	Files
(younger)\Communication skills (and lack of)		
Nodes 1 - RESEARCH QUESTIONS\RQ2 LIFELONG LEARNING and IGL\RQ2.2 IGL (younger)\Module Four	Placeholder code for anything that came through in my module four study that may be of value.	5
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE	'Lumping' code for interview data that is relevant to quality of life including health, wellbeing, happiness. 03.01.2022- Recoding interview content to codes sitting underneath as appropriate, keeping this one for literature as much as possible, similar approach to RQ2. 02.02.2022 - Using this code for details of CASP-19 choices.	16
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3 Active and healthy ageing (+ positive ageing)	This appears in many policy documents at worldwide level e.g., WHO, UN, World Economic Forum and also at country level e.g., HSE Ireland. Changing to A&HA based on EU EIP. Also includes positive ageing, now a deleted node.	19
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3 Active and healthy ageing (+ positive ageing)\Change, adoption, adapting	Not quite sure what to call this code but it refers to participant comments about being too late to adopt technology or adapt to change brought about by technology. This may be related to ease of use but is at a more philosophical level.	19
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital	RQ3.1 In what way do these perceived impacts contribute to (positive and) negative quality of life? Sub-codes for stress and frustration. 31.01.2022 - Reviewing code for patterns that might be worthy of additional sub-codes.	8
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\A - Digital skills and confidence	Code to capture participants comments on their skills and confidence. These may be broken out later if necessary. 14.01.2022 - The self-assessment Qs came from Deborah Morgan at BSG conference in July and therefore are not mapped to any RQ... RQ2.1 I think. Use A prefix to link with Privacy and Security code.	22
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\A - Privacy and Security	Code to capture participants comments about their personal data privacy and security in an online world. Use A prefix to link with Digital skills and confidence code.	29
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\A - Scams and fraud	New code under RQ3.1 Negative impacts of digital. Many participants referred to phone and email scams so useful to capture them in this code. Of course, it is possible to be scammed through a traditional telephone so think about this. This differs from the Privacy and Security code but look at them together and see if there are different stories to tell.	13
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Always on	New code under RQ3.1 Negative impacts of digital. Thinking of always being available/online/never switching off etc.	1
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Cost	New code to support RQ3.1 Negative impacts of digital. Refers to cost of being digitally connected.	1
Nodes 1 - RESEARCH QUESTIONS\RQ3 QUALITY OF	New code that might be better placed elsewhere but for now its purpose is to help categorise RQ3.1 Negative impacts of digital.	3

Folder and Name	Description	Files
	LIFE\RQ3.1 Negative impacts of digital\Discomfort	
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Frustration As I work my way through focused coding and write memos on each initial code I know that the word frustration has come up a few times already so creating this code.	6
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Lack of human interaction New code under RQ3.1 Negative impacts of digital.	2
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Non-verbal cues New code under RQ3.1 for participants referring to the issues surrounding non-verbal cues etc.	1
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Negative impacts of digital\Stress Code to capture mentions by participants of stress, stressful in the context of their use/non-use of technology.	3
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.1 Positive impacts of digital RQ3.1 In what way do these perceived impacts contribute to positive (and negative) quality of life?	23
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement Node supporting new RQ3.2: What are the impacts of digital engagement on older adults' levels of social participation?	3
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\B - Getting Started and progressing Code to capture how long ago participants started using technology and progression over the years. 14.01.2022 - aligns with Ease of use and Familiarity so try and retire those codes and use this one instead. Place at top level of RQ2 for now. 15.01.2022 - Use B prefix to link codes Motivation, Purposes for use and Getting Started.	18
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\B - Motivation (and lack of) Code to capture participant motivation and use for digital devices. May change the name if info gets more specific. 15.01.2022 - Use B prefix to link codes Motivation, Purposes for use and Getting Started.	28
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\B - Purposes for use (and traditional options) Code to capture purposes that participants use technology for e.g., news, information, communications, banking, shopping, services. For now, also lump in participants experiences of traditional interactions for above. 15.01.2022 - Use B prefix to link codes Motivation, Purposes for use and Getting Started.	27
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\Choice and opting out Need to find supporting literature around my take on digital exclusion - will offliners do? whether by choice? Also, to capture participants comments on the consequences of not being online i.e., being marginalised.	10
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\Go Online Code to capture participant experiences of being directed (forced) online to perform any transactions, especially during and since COVID-19. Also including direction to technology e.g., bank machines, credit card payments etc.	9
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\Independence Initially this code is to capture the offliner experience of independence being compromised due to lockdown restrictions and not being interested in online transactions.	6
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\Offliner Term given to those who do not fit Seifert & Schelling's description of onliner or offliner.	6

Folder and Name		Description	Files
	LIFE\RQ3.2 Digital Engagement\Midliner	Working definition is someone who accesses the Internet for news or information but does not perform transactions online e.g., banking or shopping.	
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Digital Engagement\Offliner	I didn't have a code up to this point but feel it is useful to start thinking about participants (and those they refer to) as offliners, similar approach to midliners code.	15
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Social Participation	Node supporting new RQ3.2: What are the impacts of digital engagement on older adults' levels of social participation? "Three concepts of social participation (i.e., social connections, informal social participation and volunteering) were defined, their measurement instruments described and evidence of their associations with health explored." Douglas et al. (2017)	0
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Social Participation\RQ3.2 a) Social connections	Douglas et al. (2017): Other terms for social connections include social network,19 social integration,17 social embeddedness 20 and human companionships.18 Social connections are typically measured by asking individuals to report the number of people they are connected with, and the number of monthly face-to-face and telephone contacts they have had with each... Having regular interactions and being involved in diverse types of ties has a positive effect on health.21,22	8
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Social Participation\RQ3.2 b) Informal social participation	Douglas et al. (2017): Informal social participation includes activities that people engage in with others for personal enjoyment. It has been defined as participation in social activities and socialisation with others.40 Other definitions emphasise the ability of an individual to take advantage of opportunities for social interaction.41 This aspect of social participation has also been referred to as social engagement.40–42	18
Nodes	1 - RESEARCH QUESTIONS\RQ3 QUALITY OF LIFE\RQ3.2 Social Participation\RQ3.2 c) Volunteering	Douglas et al. (2017): Volunteering includes activities that people engage in for the benefit of others to whom they owe no obligation.57 It has been defined as an activity in the context of a community organisation with a name and explicit purposes.16 Such behaviour has also been referred to as civic engagement 13 or formal social participation.16	23
Nodes	3 - REFLEXIVE CODES	Interesting comments to ponder further including good quotes.	0
Nodes	3 - REFLEXIVE CODES\Good Quotes	Participant quotes that might be of value to include.	19
Nodes	3 - REFLEXIVE CODES\Interesting	Not sure what these comments mean but at first pass they seem interesting and worthy of further review.	5
Nodes	3 - REFLEXIVE CODES\Noteworthy	Created to denote important comments for further reflection..	9
Nodes	3 - REFLEXIVE CODES\Unsure	Code for participant comments that do not fall into any existing category and may or may not be of interest to this study.	5

Appendix E: Survey self-assessment results

Digital skills and confidence

#	Question	Strongly disagree % (#)	Somewhat disagree % (#)	Neither agree nor disagree % (#)	Somewhat agree % (#)	Strongly agree % (#)	Total responses
1	I need help with setting up my device.	47.19% (42)	12.36% (11)	2.25% (2)	21.35% (19)	16.85% (15)	89
2	I can make phone calls and video calls online.	3.49% (3)	6.98% (6)	3.49% (3)	9.30% (8)	76.74% (66)	86
3	I can communicate with family and friends using email.	4.60% (4)	0.00% (0)	0.00% (0)	6.90% (6)	88.51% (77)	87
4	I can communicate with family and friends using messaging Apps.	1.14% (1)	5.68% (5)	2.27% (2)	9.09% (8)	81.82% (72)	88
5	I know how to access the Internet.	2.27% (2)	1.14% (1)	0.00% (0)	9.09% (8)	87.50% (77)	88
6	I can download an App.	4.49% (4)	4.49% (4)	3.37% (3)	8.99% (8)	78.65% (70)	89
7	I understand how to keep myself safe online.	6.82% (6)	4.55% (4)	5.68% (5)	23.86% (21)	59.09% (52)	88
8	I use my digital device frequently.	3.41% (3)	0.00% (0)	2.27% (2)	10.23% (9)	84.09% (74)	88
9	I am confident using my device.	3.41% (3)	3.41% (3)	4.55% (4)	17.05% (15)	71.59% (63)	88
10	I am confident I know what to do if I get stuck.	8.14% (7)	11.63% (10)	9.30% (8)	29.07% (25)	41.86% (36)	86
11	I worry I might break it.	67.05% (59)	15.91% (14)	9.09% (8)	4.55% (4)	3.41% (3)	88
12	I am confident I can find what I need when using my device.	1.12% (1)	6.74% (6)	6.74% (6)	17.98% (16)	67.42% (60)	89

Quality of life

#	Question	Often % (#)	Sometimes % (#)	Not often % (#)	Never % (#)	Total responses
1	I enjoy the things that I do.	86.52% (77)	12.36% (11)	1.12% (1)	0.00% (0)	89
2	I enjoy being in the company of others.	66.29% (59)	30.34% (27)	2.25% (2)	1.12% (1)	89
3	I can do the things I want to do.	71.91% (64)	24.72% (22)	3.37% (3)	0.00% (0)	89
4	I feel that I can please myself what I do.	62.92% (56)	34.83% (31)	2.25% (2)	0.00% (0)	89
5	I feel free to plan for the future.	62.92% (56)	32.58% (29)	4.49% (4)	0.00% (0)	89
6	I feel that life is full of opportunities.	60.23% (53)	30.68% (27)	7.95% (7)	1.14% (1)	88
7	I feel that the future looks good for me.	59.55% (53)	34.83% (31)	5.62% (5)	0.00% (0)	89