

**Left to their Own Devices:
Exploring Primary Teacher Experiences of Teaching Online During the COVID-
19 School Closures.**

Marino Institute of Education

Christina Dolphin

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Supervisor: Dr. Jennifer Hynes

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme leading to the award of the degree of Professional Master of Education, is entirely my own work and has not been taken from the work of others, save to the extent that such work has been cited and acknowledged within the text of my work. I further declare that this dissertation has not been submitted as an exercise for a degree at this Institute and any other Institution or University. I agree that the Marino Institute of Education library may lend or copy the thesis, in hard or soft copy, upon request.

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Date: 7th May, 2021.

Abstract

There is an international consensus that Information and Communications Technology (ICT) has the potential to enhance teaching and learning in schools, and when supported by a constructivist pedagogy, can engage students in higher-order thinking. In recent years, digital learning skills are being considered more important in primary education for their ability to prepare children to be active citizens in an increasingly digital world. The primary aim of this study was to contribute to current understanding of ICT integration in Irish primary schools by exploring teacher experiences of teaching online during the COVID-19 pandemic school closures. A qualitative approach was adopted in which convenience sampling was used to identify eight primary school teachers who were working during the school closures. Semi-structured interviews were used as the data collection tool, with thematic analysis being chosen as the method for analysing interviews. Findings suggested that teachers faced many challenges during the school closures. Firstly, they experienced external barriers to teaching online such as a lack of time to prepare, a digital divide, and difficulties around student engagement. Secondly, many experienced pressures such as having to create a new way of teaching with limited ICT skills, and pressure from parents and social media to teach in a particular way. Finally, teachers experienced challenges in using constructivist pedagogies while teaching online, particularly in terms of facilitating learning through play and interaction. Throughout these challenges, one source of support mentioned frequently was collaboration within schools. Teachers expressed mixed opinions on whether their experiences would help them to better integrate ICT in the classroom. Potential reasons for this include: (a) the emergency nature of the teaching, particularly during the first school closure; (b) lack of skills needed to integrate ICT meaningfully; and (c) an

increased appreciation of the importance of social interaction for primary school children.

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List of Abbreviations

COVID-19	Coronavirus Disease 2019
CPD	Continuing Professional Development
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
ICT	Information and Communications Technology
NCCA	National Council for Curriculum and Assessment
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
TA	Thematic Analysis
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHO	World Health Organisation

Chapter 1: Introduction

Research Rationale

I was drawn to the topic of ICT in education through a module that I took last semester called ‘Creative Technologies for Teaching and Learning’. As someone with reasonable ICT skills, I was surprised how much I enjoyed the module and how simple it was to create resources for the classroom using digital tools and platforms—once you know what’s out there and are given a little guidance on how to use them. I began to wonder if many teachers knew about the resources that were available to them online and what their experiences were of using ICT for teaching and learning. From personal experience, it seemed that ICT resources and skill levels vary greatly between schools, and even between classrooms within schools. While reading policy documents on ICT integration into education, I was struck by just how challenging it must be to create ICT policies at a national level given these large variances, and wondered if anything could be learned from focusing in on personal teacher experiences. At the time of choosing dissertation topics, the first Coronavirus Disease 19 (COVID-19) school closure had already taken place, where teachers worldwide were forced to pivot to teaching online. In our increasingly digital world, and with the addition of a global pandemic, it seemed to me that it was crucial to document teachers’ experiences of this unprecedented time and take from it any lessons that we can, in order to help to better integrate ICT into the classroom going forward.

Aim of Research

The overall aim of this research is to contribute to contemporary understanding of ICT integration in Irish primary schools by exploring teacher experiences of teaching online during the COVID-19 pandemic school closures. There is an international

consensus that ICT has the potential to enhance teaching and learning in schools, and, when supported by constructivist pedagogical strategies, can engage students in higher-order thinking so that they can become active constructors of knowledge (Schleicher, 2020; Department of Education and Skills [DES], 2015; United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2011; Lim, 2007). Digital literacy is increasingly being perceived as a crucial part of education in order to prepare children to become active “global citizens” who can “participate fully in society and the economy” (DES, 2015, p. 12) . However, meaningful integration of ICT into classrooms has proven challenging, both in Ireland and internationally (Organisation for Economic Co-operation and Development [OECD], 2015; DES, 2015; McGarr & Johnston, 2019; Marcus-Quinn, Hourigan, & McCoy, 2019; Schleicher, 2020). As a result, during the COVID-19 school closures of 2020 and 2021, many teachers worldwide had to reach far beyond their comfort zones or any digital learning plans that might have been in place in their schools, in order to pivot fully to digital teaching and learning.

Looking at the Irish context within which my research lies, the beginning of the COVID-19 crisis coincided with the final year of the current five-year Digital Strategy for Schools (2015-2020) (DES, 2015). A recurring theme in this strategy is the consensus that schools are often unclear as to what meaningful ICT integration might look like and that there is a need for more concrete examples of how it can be done in the Irish context. Simultaneously, the primary school curriculum is currently under review, with plans to include “being a digital learner” as one of its seven key competencies (National Council for Curriculum and Assessment [NCCA], 2020, p. 7). With these documents due to be renewed at a time when the educational world has undergone such a huge shift to digital learning, research in this area is important as it

could give valuable insights into teacher experiences of using ICT to teach online. Never before has primary school teaching relied so heavily upon digital technologies. Perhaps teachers have found meaningful ways of integrating ICT into teaching that could be held up as concrete examples of best practice? Or perhaps, by exploring teacher experiences, needs and shortcomings in our current approaches to ICT integration in education could be identified and addressed. Considering the above research motivations and aims, the questions underpinning this dissertation are:

1. What were Irish primary school teacher experiences of teaching online during the COVID-19 school closures?
2. Can these experiences help us to better integrate ICT into the classroom going forward?

Research Approach

As this study aims to explore teacher experiences of a particular moment in time, it is underpinned by a constructivist-interpretivist approach, which strives for an understanding of the world through the realities that are constructed by the research participants (Ponterotto, 2005). As this approach is generally better suited to qualitative analysis, it was decided that qualitative methods that utilised semi-structured interviews as the research tool would best suit the aims of this study. Thematic analysis was chosen as the method of data analysis, which is discussed in more detail in Chapter 3.

Layout of Dissertation

This dissertation is comprised of five chapters, including this introductory one. Chapter two situates the research in the context of the relevant literature pertaining to ICT integration into education. It presents a critical analysis of the literature according to three themes: “Digital Inequalities”, “Teacher skills, Continuing Professional Development (CPD) and Collaboration”, and “Policy vs Practice: Towards a

Constructivist Approach to ICT”. Chapter three outlines the methodology by giving a detailed account of the chosen research design and processes, including any ethical considerations that were made, and discussing limitations. The fourth chapter presents and discusses the findings of the data analysis, focusing on three key themes that emerged from the interviews: “External Barriers to Online Teaching”, “Sources of Support and Pressure” and “Adapting Teaching Methodologies”. The fifth chapter gives a conclusion and a critique of the findings and presents the recommendations.

Chapter 2: Literature Review

This chapter aims to contextualise the research within the literature by identifying recent themes in the development of ICT integration in education, and focusing on how these themes might have manifested themselves during the recent climate of the COVID-19 pandemic school closures. As research directly pertaining to the school closures is still in its early stages, it combines themes emerging from the initial but limited literature available on the COVID-19 school closures with previously established themes in the literature around ICT integration in primary schools. Most of the literature review was conducted prior to data collection in order to focus the researcher on key issues that might be worth investigating in the interviews. The chapter will begin by giving a brief overview of the development of the COVID-19 pandemic and how it impacted on Irish primary schools. It will then explore three major themes evident in the literature: (a) Digital inequalities and how they have been exacerbated by the COVID-19 school closures; (b) teacher skills, CPD and collaboration; and finally, (c) developments in Irish policy and practice towards a constructivist approach to ICT integration.

Background

In December 2019, an outbreak of a newly discovered coronavirus was reported in Wuhan, China, which leads to COVID-19 caused by severe acute respiratory syndrome (SAR-CoV-2). It was declared a public health emergency by the World Health Organisation (WHO) by the end of January 2020, before being declared a pandemic on the 11th of March 2020 (Burke & Dempsey, 2020). To date (7th May, 2021), there have been over 156 million cases reported worldwide, with 251,474 cases reported in Ireland (John Hopkins University, 2021). In an effort to contain the spread of COVID-19, schools were closed worldwide, with UNESCO reporting school

closures across 193 countries on March 31st 2020 (as cited in O’Keefe & McNally, 2021). The Irish government announced that all preschools, schools, and higher education institutions would close with effect from 6pm on the 12th of March, 2020. Initially, it was intended that schools would be closed until the 29th of March only; however this was later extended to the 19th April (Doyle, 2020; Burke & Dempsey, 2020) and eventually to the end of the school year. A second school closure was announced over the Christmas holidays of 2020. The Christmas break was extended and this was followed by another period of school closures from January 11th to February 12th, 2021. A phased reopening of schools occurred between February and April, with youngest students returning first. Due to the unprecedented nature of the school closures, school communities were given very little time to prepare, leaving the educational world to navigate a challenge never faced before. Anecdotally, teachers and parents scrambled to pull together resources and materials in order to transition to distance learning overnight.

Digital Inequalities

Digital inequality refers to “differences in the material, cultural and cognitive resources required to make good use of [ICT]” (OECD, 2015, p. 123). One theme that has emerged from the literature is the exacerbation of the “digital divide” due to the pivot to distance learning in light of the COVID-19 pandemic (Doyle, 2020; Moss et al., 2020; Flack, Walker, Bickerstaff, & Margetts, 2020; Rasmitadila et al., 2020; Burke & Dempsey, 2020; Hall et al., 2020). The term “digital divide”, as it pertains to education, refers to the “disparities in access to and proficiency in [ICT], particularly between socio-economically advantaged and disadvantaged children, and between rural and urban residents” (OECD, 2015, p. 124). Several authors have made the distinction between access *to* ICT and proficiency *in the use of* ICT in education (OECD, 2015;

Hall et al., 2020; Marcus-Quinn et al., 2019). Hall et al. (2020) uses the terms “digital divide” and “digital use divide”, to distinguish them. For the purposes of this dissertation, I will use the latter terms used by Hall et al. (2020) throughout this dissertation.

Focusing on the Irish context, Doyle (2020) describes why school closures might lead to the widening of inequalities in education. She argues that, “[a]lthough schools do not fully close socioeconomic gaps in children’s skills, they are effective in reducing the magnitude” (Doyle, 2020, p. 2). However, as a result of school closures, children no longer had equal access to resources within their classroom, and there was a high level of variability in parent’s ability to provide necessary resources at home (Doyle, 2020). Burke and Dempsey’s *Covid-19 Practice in Primary Schools in Ireland* report, which conducted a survey on 2,808 primary school leaders across the country one week after the first school closure, also acknowledges the presence of the digital divide in Ireland. The survey results have “highlighted a clear digital divide (hardware, software, & technological skills) that exists across schools in Ireland, reinforcing the social inequalities of our society” (Burke & Dempsey, 2020, p. 12). A follow-up report conducted in April found that teachers were still struggling with the digital divide in their communities (Burke & Dempsey, 2020a).

Ireland is not alone in its struggle with digital inequalities. In a study on the perceptions of primary schools teachers of online learning in Indonesia during the COVID-19 pandemic (Rasmitadila et al., 2020), one of the challenges mentioned was that not all students have access to technological devices, particularly those with a lower socioeconomic background. Flack et al. (2020) conducted a survey of teacher experiences with distance learning during school closures in New Zealand and Australia, with results revealing that students attending the least advantaged schools

were more adversely affected by the pivot to online learning than others, “particularly through a lack of access to technology and reliable internet connectivity” (p. 4).

Similarly, concerns were raised in the UK (Moss et al., 2020) over the short amount of time that students from disadvantaged communities were studying for each day.

Authors have highlighted how the school closures exacerbated the digital use divide not only among students, but also among teachers: “Many schools have access to the internet and devices but a lack of support/training has left teachers (and parents who are taking on the responsibility of education at home) often underprepared, and particularly in using technology beyond solely presentational modes” (Hall et al., 2020, p. 440). Furthermore, a report by the OECD describes how the COVID-19 health crisis pushed teachers “to adapt to new pedagogical concepts and modes of delivery of teaching for which they may not have been trained” (Schleicher, 2020, p. 4), highlighting the importance of teacher learning to ensure that teachers have up-to-date knowledge and skills to meet the demands of our fast-changing society. International research suggests that the teachers who were the most engaged and who coped the best with the transition to remote teaching were those who had prior experience with remote instruction (Jelińska & Paradowski, 2021). One recommendation made by Mc Garr and McDonagh (2021) is for a focus on pre-service teachers’ digital competence and digital technology use as a means of better responding to the digital needs of student teachers. Perhaps this could help to provide the next generation of teachers with a solid baseline of digital skills going forward, and ensure that they are better prepared for integrating ICT into the classroom and for situations such as emergency school closures.

Teacher Skills, CPD and Collaboration.

As noted by Rashid et al. (2016), teacher learning predominantly occurs through CPD programmes that introduce specific knowledge and skills to teachers during seminars or workshops led by experts. In the Irish context, a key element of implementing the Digital Strategy for Schools was “a focus on teacher professional development” (McGarr & McDonagh, 2021, p. 115). However, teacher learning also occurs through a variety of informal methods, which are not often explored in the literature. Rashid et al. (2016) argues that this underexplored area of teacher CPD should not be ignored, as research has shown that “teachers learn more through informal learning in their work place rather than in professional initial teacher education programmes” (p. 76).

In Ireland, seven years prior to the pandemic, the ICT Census reported that just over half of respondents had undertaken formal CPD in some key areas of ICT (Cosgrove et al., 2014a, p. 28). The most frequent comments made by primary school teachers in relation to barriers to digital technology use in schools included insufficient ICT resources in classrooms or schools, as well as teachers’ limited proficiency in the use of ICT. Lack of time for CPD related to ICT integration and for the preparation of ICT resources for lessons was also mentioned. Since the time of this survey, recent research would suggest that educators worldwide may look to online platforms such as social media, crowdsourcing, and Open Educational Resources (OERs) as “a more affordable way of accessing professional learning” (Sturm & Quaynore, 2020, p. 26; Ganapathy, Wei, Vighnarajah, & Jong, 2015; Donlon, Costello, & Brown, 2020). It has been noted by primary teachers in Ireland that social media was relied upon during the scramble to get resources together when the school closures were announced on March 12th of this year (Delaney, 2020), with many educators using Padlet walls, Twitter posts and other such platforms for curating and sharing primary school materials, such as

those created by Ciara Reilly (Reilly, 2020) and Sorcha Browne Byrne (Browne Byrne, 2021). However, Burke and Dempsey's research (2020) suggests that the pivot to online learning led to a fear of comparison and competition between teachers and schools. One quote from a school leader captures this: *"Huge confusion, pressure to be immediately skilled in new areas. Competition and pressure between teachers. Social media hype. Lack of direction from leader groups DES"* (Burke & Dempsey, 2020, p. 248). Perhaps there is a need to establish a "culture of collaboration" between teachers and/or schools first, to avoid negative competition, or hesitancy around sharing or using resources developed by other people (Ganapathy et al., 2020, p. 65).

Another common theme in the literature is the importance of collaboration, which could alleviate pressure on individual teachers during such unprecedented times (Rasmitadila et al., 2020; Burke & Dempsey, 2020), and allow teachers to be "more effective in their learning and response" Eهران et al. (2021, p. 70). Rasmitadila et al. (2020, p. 105) suggest that "education must be viewed as collaborative community effort" among all stakeholders in order to ensure the efficacy of digital learning so that no students fall behind. This view is important, as it acknowledges that digital learning relies on many factors that are outside of the teachers' control, such as parental support, the digital literacy of the parents and children involved, and policies in place at school and national levels.

Policy vs Practice: Towards a Constructivist Approach to ICT

Ireland has had policies in place regarding technology in education since 1997. According to McGarr and Johnston (2019), the first phase of this policy (1997 to 2003) was very much focused on catching up with other European countries, often written with a "sense of urgency" and a "reactionary tone" (p. 17). The current policy documents no longer contain that urgent tone, which McGarr and Johnston believe

suggests that Ireland perceives itself as being “on level footing with its international counterparts” in terms of ICT integration within schools. However, data from the OECD (2015) suggest that the availability of technology in Irish schools is “average by international comparison but below average in terms of its educational use” (OECD, 2015; as cited in McGarr & Johnston, 2019, p. 17). Thus, it appears that the digital *use* divide is an ongoing issue in Ireland, despite an increase in ICT resources in recent decades.

According to McGarr and Johnston (2019, p. 16) the most recent document, the Digital Strategy for Schools (2015-2020), reflects a “degree of pedagogical maturity” that was not present in earlier documents. A key theme underpinning this document and the subsequent Digital Learning Framework is the presence of a “constructivist pedagogical orientation”, which aims to actively involve students in constructing knowledge through the use of ICT (DES, 2015, p. 8; DES, 2018, p. 1). Constructivist theories have long been associated with education and cognitive development, for example, those of Jean Piaget (1896 -1980), Lev Vygotsky (1896-1934) and Jerome Bruner (1915 - 2016). Features of constructivist approaches include engagement with prior understanding of the learner, the learner being actively involved in the learning process, opportunities for learners to make decisions which will impact the subsequent course of the learning activity, and “a high level of interaction and exchange of ideas between learners” (DES, 2015, p. 21). The idea of using ICT in this way has been evident in international literature for some time, with research in education showing that ICT, in tandem with the necessary pedagogical strategies, can engage students in higher-order thinking (Lim, 2007). At the time of writing, the Digital Strategy for Schools has lapsed, and a draft is being written for a new primary curriculum framework that includes “being a digital learner” as one of its seven key competencies

(NCCA, 2020, p. 7). There is a clear constructivist pedagogy underpinning the attributes of a digital learner, such as “collaborating with others through digital technology” and engaging in “content creation, problem-solving and creativity using digital technology” (NCCA, 2020, p. 10), emphasising the focus on ICT use rather than on access to ICT.

Despite policy efforts to guide effective pedagogical use of technology in Irish schools, the literature suggests that there is a lack of clarity around what meaningful ICT integration might look like, as well as “a huge gap in the rhetoric of ICT in schools and the practice of ICT in schools” (McGarr & Johnson, 2019; as cited in Marcus-Quinn et al., 2019, p. 768). This lack of clarity was particularly noticeable in the midst of the COVID-19 school closures. One theme that emerged from the survey conducted by Burke and Dempsey (2020) was that “there is a general call from all these data for guidance, guidelines, clarity from DES” (p. 242). This was reiterated in the follow-up report, in which many respondents were critical of the clack of guidelines from the DES, and the authors reported a tension “between the need for clarity and the recognition that circumstances can change” (Burke & Dempsey, 2020a, p. 8). Before the pandemic, Marcus-Quinn et al. (2019) argued that policy and practice should be evidence-based, by drawing on feedback from teachers. In addition, the authors suggested that this need not be a top-down process—that perhaps ICT policy could be developed organically, in a way that facilitates schools learning from each other’s experiences. This approach seems even more relevant in light of the COVID-19 school closures, when teachers and schools were given very broad instructions from the DES to guide their practice, and had to scramble to suddenly create new ways of working in order to teach remotely.

Conclusion

In summary, this literature review has outlined the context for exploring Irish primary teacher experiences of teaching online during the COVID-19 pandemic. It has shed light on themes that have emerged in the development of ICT integration in education and on how these themes might have manifested themselves in the recent climate of the COVID-19 school closures. The research points to a general consensus around the existence of a digital divide, and how this might be hindering efforts to ensure equitable access to education for all. In relation to teacher skills, the literature highlights how teachers generally felt underprepared for the pivot to teaching online, and felt hindered by their own limited knowledge of ICT use in education. Although some schools might have provided formal CPD for teachers, it appears that many teachers engaged in informal CPD through the use of social media and digital platforms, or by collaborating with other teachers in order to teach themselves the skills they needed. Developments in policy around ICT integration in Ireland highlight a shift away from the question of merely providing technological infrastructure to schools, and towards a constructivist approach to integrating ICT into teaching and learning. Research undertaken prior to and during the COVID-19 school closures reveals a lack of clarity around what effective ICT integration might look like. These emerging themes have formed the basis of the semi-structured interview questions (see Appendix B), thus a deductive approach to question formulation was taken, which is outlined in the following chapter.

Chapter 3: Methodology

This chapter describes the methodology adopted for the research project. It begins by discussing the reasons for the chosen research design and explains the researcher positionality. Next, it describes the research sample, the data collection process, and any ethical considerations that were made. Finally, it explains the data analysis process step-by-step, and concludes with a brief discussion of limitations.

Research Design

The research approach used was a qualitative one, for its ability “to provide an in-depth understanding of the world as seen through the eyes of the people being studied” (Wilmot, 2005, p. 1). According to Given (2008), qualitative approaches are often employed to “explore new phenomena and to capture individuals’ thoughts, feelings, or interpretations of meaning and process” (p. xxix). As the purpose of this research is to gather teacher experiences during such unprecedented circumstances, a qualitative method was deemed appropriate. Since the COVID-19 pandemic is ongoing at the time of writing, research is still emerging in this area. Most of the research on this topic to date has been predominantly large-scale and quantitative in nature (Burke & Dempsey, 2020; Moss et al., 2020; Flack et al., 2020). This dissertation hopes that a small-scale, qualitative approach could complement and contribute to the existing literature in this area by providing a “thick description” (Geertz, 1973; as cited in Cohen, Manion, & Morrison, 2007, p. 21) of what was happening for teachers during this time, by getting closer to the participants than a quantitative approach would allow.

Research Paradigm

According to Filstead (1979; as cited in Ponterotto, 2005), a paradigm can be defined as a “set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organized study of that world” (p. 127). The paradigm chosen by the researcher guides the philosophical assumptions made by the researcher, as well as the choice of tools, instruments, and methods used in the study. Ponterotto (2005) identifies four paradigms, which have been adapted from the schema of Guba and Lincoln (1994): positivism, post-positivism, constructivism-interpretivism and critical theory. This research adopts a constructivist-interpretivist paradigm, which aims for an understanding of “lived experiences” (*Erlebnis*) from the point of view of those who live them day-to-day (Schwandt, 2004, 2000; as cited in Ponterotto, 2005, p. 129). Constructivists believe that reality is constructed in the minds of individuals, rather than existing externally. Having its roots in Kant’s *Critique of Pure Reason* (1781/1966), one of the central tenets of constructivist thinking is that “you cannot partition out an objective reality from the person (research participant) who is experiencing, processing, and labelling the reality...in other words, reality is constructed by the actor (e.g. research participant)” (Ponterotto, 2005, p. 129). Another defining characteristic of constructivism is the importance of the interaction between researcher and participant, as it is through this interaction that deeper meaning is uncovered.

Research Sample

The population defined for this study is primary school teachers in Ireland who were working during the time of the COVID-19 school closures of 2020. The sample population for this study consisted of eight primary school teachers (five female and three male) who were working in a primary school setting when the schools closed on March 12th, 2020. Figure 1 (p. 17) illustrates participant demographics, showing that of

those interviewed, seven were also working during the latest school closures of January and February 2021 (one was on maternity leave). Seven out of the eight participants interviewed were working in a mainstream classroom setting. The remaining participant is a teaching principal who had placed himself in a support teaching role throughout the two school closures. Three of the eight teachers were working in schools that served disadvantaged communities for at least one school closure. All participants were working in the greater Dublin area, with one school being considered a rural school.

Table 1

Participant Demographics

<u>Participant No.</u>	<u>Position</u>	<u>Gender</u>	<u>Class in School Closure 1</u>	<u>Class in School Closure 2</u>	<u>School Type</u>	<u>Location</u>
1	Mainstream Class Teacher	Female	Junior Infants	Senior Infants	DEIS Band 1 Gaelscoil	Dublin
2	Mainstream Class Teacher	Male	5 th class	2 nd class	English-medium, non-DEIS. Switched to English-medium DEIS Band 1 in September 2020.	Dublin
3	Mainstream Class Teacher	Female	4 th class	On Maternity leave	DEIS Band 1 Gaelscoil	Dublin
4	Teaching Principal	Male	Support teaching role/IT support	Support teaching role/IT support	English-medium, non-DEIS	Rural
5	Mainstream Class Teacher	Male	2 nd class	2 nd class	English-medium multi-denominational, non-DEIS	Dublin
6	Mainstream Class Teacher	Female	Junior Infants	2 nd class	Gaelscoil, non-DEIS	Dublin
7	Mainstream Class Teacher	Female	3 rd class	4 th class	English-medium school, non-DEIS	Dublin
8	Mainstream Class Teacher	Female	Junior Infants	Junior Infants	Gaelscoil, non-DEIS	Dublin

Note: DEIS (Delivering Equality of Opportunity in Schools) is a national programme launched by the DES in 2005 aimed at addressing the educational needs of children from disadvantaged communities. As DEIS schools are situated in disadvantaged areas, all schools participating in DEIS receive a range of additional supports. For more information on DEIS, please see: <https://www.education.ie/en/schools-colleges/services/deis-delivering-equality-of-opportunity-in-schools/>

Although the sample size of this research project is small, Cohen et al. (2007) note that in qualitative research, this is common due to the costs of this type of research in terms of time, money, number of researchers, and resources (p. 102). A non-probability sample was selected due to the small-scale nature of this study (Cohen, 2007). Convenience sampling was chosen as the most appropriate form of non-probability sampling, given the time constraints of this research project. Seven of the participants were known to the researcher, three of them as work colleagues, and the other four through mutual friends. The remaining participant was referred by one of the other participants.

Data Collection

Semi-structured interviews were used as the data collection instrument, to allow the researcher to follow particular themes of interest that emerged from the literature review, but also to give the participant freedom to lead the discussion at times if they wished to do so. According to Cohen et al. (2007), some benefits of the semi-structured interview include that it gives the participant the opportunity “to raise and pursue issues and matters that might not have been included in a pre-devised schedule” and to “project their own ways of defining the world” (p. 182).

A schedule was prepared that was sufficiently open-ended to allow for questions to be reordered and digressions to be made (Cohen, 2007, p. 182). The questions and prompts that were chosen for the schedule were formulated from themes that emerged in the literature review, thus a deductive approach was taken to question formulation. Interview questions are included in Appendix B. Although there are conflicting opinions regarding when one should engage in the literature relevant to the analysis (Braun & Clarke, 2006), it was decided that conducting the majority of the literature review prior to data collection and analysis would enhance both the collection and

analysis of data, by focusing the researcher on key issues that might be worth investigating in the interviews and by sensitising the researcher to more subtle features of the collected data (Tuckett, 2005; as cited in Braun & Clarke, 2006, p. 86).

Potential participants were contacted initially by text and asked if they would be interested in participating in the research. If interested, a date and time for the interview was subsequently set up. As the interviews were conducted via Zoom, the researcher sent a Zoom link to each participant via email, with an information letter and a consent form attached for them to sign and return digitally. Interviews took place between January 13th and February 8th, 2021, which spanned from the first to the final week of the second school closure, before the phased reopening began. Each of the eight participants was interviewed using the semi-structured interview schedule. The duration of interviews was between 25 and 45 minutes.

Ethics and Other Considerations

Ethical approval for this research project was granted by the Marino Ethics in Research Committee. It was decided that interviews would be audio recorded rather than video recorded to protect the privacy of the teachers. Interviews were recorded on a password-protected device without attaching the name of the participant to the audio files. Audio files were named Participant 1 through 8 so that they could be distinguished by the researcher. These files were subsequently used by the researcher to transcribe the interviews into Word documents on a password-protected laptop. The interviews were anonymised by removing any identifying features from the transcriptions.

One issue that was taken into account when preparing the interview schedule was that ICT usage varies significantly between one school community and the next, often depending on factors that are outside of teachers' control, as well as their personal

interest and experience in the area. Thus, consideration was given to the way in which questions were asked, as it was anticipated that some teachers might have had negative experiences of teaching online where supports simply weren't in place for them or for their students, or perhaps a lack of ICT skills or infrastructure made the situation very stressful for them. Topics were approached in a sensitive way to avoid making a participant feel guilty or uncomfortable if this was the case. Questions were phrased in a non-judgemental manner, and open-ended questions were used to allow the participant to speak freely about their experiences.

Data Analysis

The chosen method for data analysis was Thematic Analysis (TA), a method that is commonly used in qualitative research to identify, analyse, and report patterns or themes within data (Braun & Clarke, 2006). The process involves searching for certain patterns across the entire data set. One advantage of this approach is its accessibility. Braun and Clarke (2006) describe TA as a foundational, accessible form of qualitative analysis, as it does not require the level of technical and theoretical knowledge of other approaches such as grounded theory. Another advantage of taking a TA approach is its flexibility. TA is not bound to any particular theoretical framework; however, it is important that the theoretical position of the research be made clear, as this is often left unstated (Braun & Clarke, 2006, p. 81). One of the limitations of TA is that, in the absence of clear and concise guidelines, it can lack rigour, and has received criticism for being an "anything goes" approach (p. 78). Thus, Braun and Clarke (2006) believe that in order to use TA effectively, one must "strike a balance between demarcating thematic analysis clearly...and ensuring flexibility in relation to how it is used, so that it does not become limited and constrained, and lose one of its key advantages" (p. 78). Braun and Clarke (2006) have created a six-phase guide for TA to assist researchers in

doing TA in a way that is theoretically and methodologically sound (p. 78). This six-phase guide was followed to conduct the research.

Phase one of analysis began during the transcription process, where patterns of meaning were observed by the researcher and written down for future reference (Braun & Clarke, 2006, p. 87). The data were then actively read so that the researcher could become familiar with all aspects of the data, and begin to identify patterns of meaning.

Phase two involved the production of initial codes from the data, in order to organise the data into meaningful groups. Boyatzis defines codes as “the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon” (1998, p. 63; as cited in Braun & Clarke, 2006, p. 88). According to Braun and Clarke (2006), approaches to coding can vary, depending on whether the themes are more “data-driven” or “theory-driven” (p. 88). As the questions for these interviews were formulated based on themes in the literature review, a theory-driven approach to coding was utilised. Coding was done manually by highlighting the codes in different colours, and by using “comments” on Microsoft Word to write in specific words and additional thoughts (see Appendix C). Once the data extracts were coded, they were then collated together within each code by copying extracts of data from the individual transcripts and pasting them into a new Word document under headings that represented each code.

During phase three, the focus shifted from codes to the broader level of themes. Codes were sorted into potential themes by considering how different codes might combine to form an overarching theme (Braun & Clarke, 2006, p. 89). See Appendix D for samples of codes being grouped into themes. A mind map was also used to aid this process (see Appendix E).

Phase four involved the reviewing and refinement of the set of themes (Braun & Clarke, 2006, p. 91). At this stage, it became apparent that certain themes were not significant enough to be included, and that some themes could be merged into each other. There were two levels of reviewing and refining themes. Level one involved reviewing all of the coded extracts under each theme to consider if they appeared to form a coherent pattern. Level 2 involved considering if the themes accurately reflected the meanings evident in the entire data set. After these refinements, the final themes were clear, and the overall story of how they fitted together was beginning to emerge. A final mind map was created to illustrate this story (see Chapter 4).

The fifth phase involved changing the names of the various themes in order to capture the “essence” of what each theme was about (Braun & Clarke, 2006, p. 92). Phase six comprised the final write-up of the findings of this multi-stage analysis. In order to preserve the word count, some quotes were paraphrased to enable the researcher to tell the story of the research as succinctly and accurately as possible. However, extended illustrative quotes were included in Appendix G to ensure validity and transparency of the analysis and discussion.

Limitations

As with all research approaches, the qualitative approach has its limitations. Although it meant that a deeper understanding of the social context of school closures could be explored, one limitation is that the findings cannot be as readily extended to wider populations with the same degree of certainty as with the findings of a quantitative approach (Atieno, 2009). Another limitation of this approach was time. Given the time constraints of the project, convenience sampling was used, which led to all participants being based in the greater Dublin area. Thus, the parameters of generalisability in this sample are again limited, as experiences might be very different

for those living in more rural or isolated areas of Ireland. Finally, potential limitations of Thematic Analysis include its potential to be lacking in rigour, and that the broad scope for analysis can be paralysing for the researcher in terms of deciding which themes best represent the data set in its entirety (Braun & Clarke, 2006). In order to avoid these common pitfalls, Braun and Clarke's six-step process was followed to aid the researcher in maintaining rigour and focus.

Chapter 4: Analysis and Discussion

This chapter presents the findings of the analysis, giving insight into the experiences of primary school teachers of teaching online throughout the COVID-19 pandemic school closures. The analysis suggested that there were three main themes that captured the experiences of teachers during this time: “External Barriers to Online Teaching”, “Sources of Support and Pressure”, and “Adapting Teaching Methodologies”. Each theme comprises of subthemes, and illustrative quotes are provided to support their construction (for extended illustrative quotes, please see Appendix G). Additionally, existing literature, as presented in Chapter 2, is discussed in relation to each theme. Finally, the conclusion discusses these findings in relation to the research questions. Figure 1 shows the final thematic map, illustrating the themes and their subthemes, with arrows between themes to indicate their inter-relatedness.

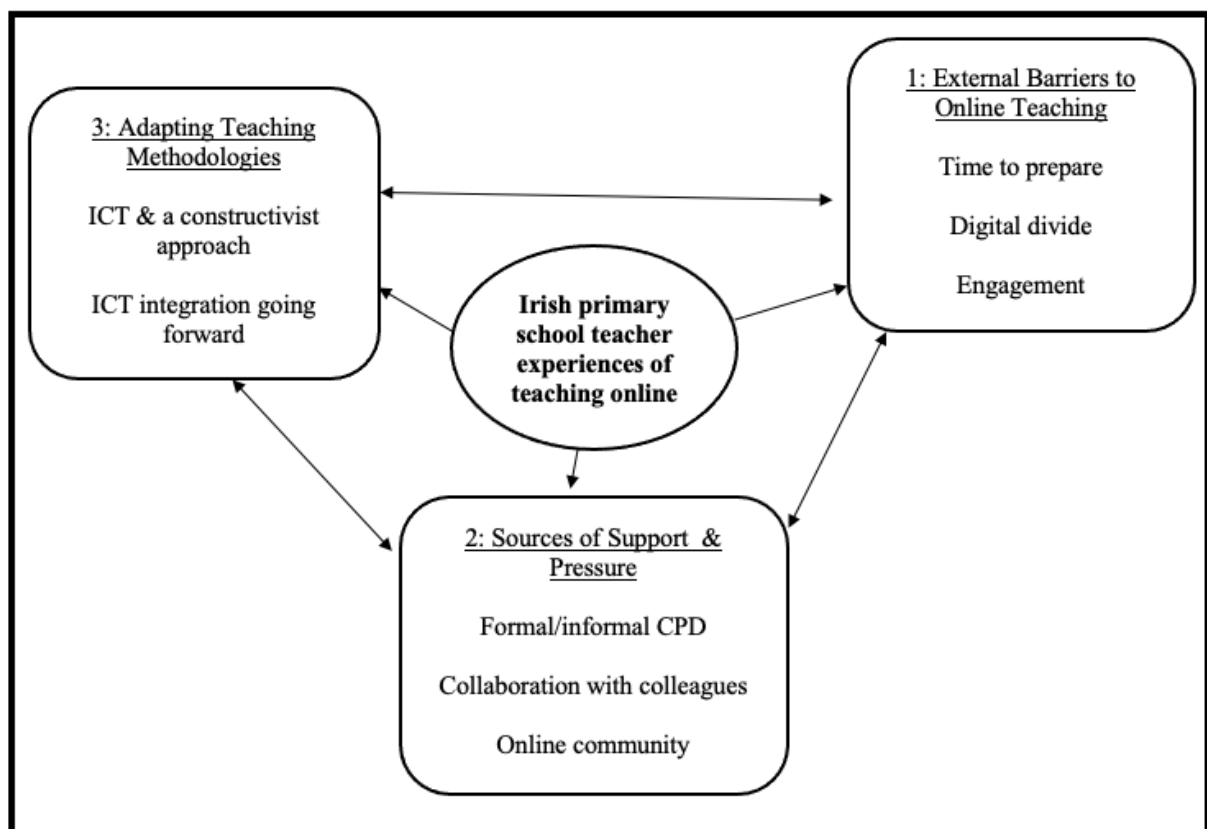


Figure 1. Final thematic map.

Theme 1: External Barriers to Online Teaching

Participants described the pivot to online teaching as complex, with several of barriers to overcome before they could even get to the teaching. Many of these barriers were perceived as being imposed from outside, thus were named “external barriers”. The three external barriers that seemed most prominent in the data were: “Time to prepare”, “Digital divide” and “Engagement”.

Time to prepare. Teachers described the school closures of March 2020 as a complete shock, with a lack of preparedness at many levels. Participant 5 suggested some reasons for teachers being so unprepared: *“As teaching professionals, and as a school, as a body of professionals, I think that our resource and our skill level [...] was actually quite lacking. To no fault of probably our own.”* Participant 1 described a similar shock and lack of preparedness in her school: *“We had no plan in place, no website ready to go, no experience with teaching online, we hadn’t a clue really”*. Participant 5 suggested that the unpreparedness stemmed from a lack of direction or foresight coming from senior management: *“The department...should have foreseen this might have taken place at some stage...”*. The literature supports this viewpoint, with a lack of clear guidelines coming from the DES appearing as a recurring theme in both Burke and Dempsey reports (2020; 2020a). Even prior to COVID-19, literature on ICT integration in schools has often mentioned a lack of clarity in policy documents in terms of what ICT integration should look like (McGarr & Johnson, 2019; Marcus-Quinn et al., 2019). Furthermore, Participant 5 noted that Irish teachers are lagging behind other countries in terms of ICT skills. Interestingly, he did not mention a lack of ICT resources. Research carried out in Ireland supports this, suggesting the prevalence of a digital *use* divide Irish schools (Marcus-Quinn et al., 2019; Hall et al., 2020). Other literature also noted the need for more skill development in the use of ICT in Irish

schools (OECD, 2015; Cosgrove, 2014a; Marcus-Quinn et al., 2019), with McGarr and McDonagh (2021) arguing for more of a focus on ICT competence in initial teacher education. International research by the OECD suggests that teachers in many countries were in a similar position, and that teachers worldwide were pushed to adapt very quickly, particularly in countries that were lacking skills or infrastructure (Schleicher, 2020).

When participants were asked if they thought they had the ICT skills required for the sudden pivot to digital learning, responses were mixed (see Appendix F). Although the majority of participants felt that they had reasonable ICT skills going into the school closures (P2, P3, P4, P5, P8), it was evident that the switch to online learning took a huge amount of time for teachers. Those with weaker ICT skills reported simple tasks taking much longer than they should have (P1), whereas those with stronger ICT skills reported spending extra time and energy trying to figure out new platforms (P2, P6, P8), and trying to help those in their school who weren't as technologically literate (P4 and P5). Only one participant (P4) reported that his school was able to "*hit the ground running*". Participant 4, a teaching principal of a rural school who is passionate about integrating technology into education, described how only one tuition day was lost in their school as the school had been using Google Classroom for six months before the school closure in March 2020. As a result, it appeared that there was more clarity in terms of how the school would approach teaching online, and time could be used wisely by staff to prepare. This is similar to the findings of Jelińska and Paradowski (2021), who noted that those who coped best with the transition were those who had more experience of remote instruction going into the pandemic.

Digital divide. A large amount of the previous literature in relation to the COVID-19 school closures suggests that the educational disadvantage experienced by those from lower socio-economic groups has been exacerbated by the pivot to online learning (Doyle, 2020; Moss et al., 2020; Flack et al., 2020; Rasmitadila et al., 2020, Burke & Dempsey, 2020; Hall et al., 2020; Schleicher, 2020). This is often referred to as the “digital divide” (OECD, 2015), and its presence was evident in interviews, particularly when speaking to the teachers who worked in DEIS schools. Participant 3 highlighted the lack of access to appropriate devices for children: *“We had parents trying to access everything on mobile phones”*, and also how some families *“were obviously just struggling to stay alive, education was really not on their list of priorities at all”*. Participant 1, who works in a DEIS Band 1 Gaelscoil and brought the same class on from Junior Infants to Senior Infants, described how academic progression had been delayed as a result of the school closures. They had to start again with letter sounds, and the learning of English was delayed a month. In addition, she noted: *“there were bad habits, bad pencil grips, just...messy work”* that developed during school closures. Insights given by Participant 1 and 3 are supported by the literature, with research carried out in the UK suggesting that “the majority of those teaching in schools serving disadvantaged communities feel that lockdown will have had a significant impact on academic progression” (Moss et al., 2020, p. 10). Doyle (2020) suggests that there is evidence of this in the Irish setting. These findings suggest that, although the conversation around ICT integration in Ireland has shifted from providing basic infrastructure to developing ICT skills, a lack of resources remains a problem among the most disadvantaged communities. In addition to widening the gap between those who are economically advantaged and disadvantaged, some participants noted how the school closures were also widening the gap between the more able and the less able

students—another aspect of the digital divide which was evident in the literature (Flack et al., 2020; Burke & Dempsey, 2020). For example, Participant 6, who was teaching second class in a non-DEIS school noticed that *“the really intelligent kids...they kind of went ahead and they were fine. But the weaker kids just dropped [...] so there’s a huge gap in the class, it’s like teaching first and third class at the same time!”*

Engagement. Participants mentioned issues with student engagement, particularly during the first lockdown. These issues appeared to have stemmed from a lack of parental involvement for various reasons, such as stress, lack of ICT skills, lack of time, and pressures from work. This was particularly problematic in DEIS schools, but teachers working in non-DEIS schools also reported struggling with engagement. Participant 1 (DEIS) described how only five out of 45 Junior Infants students engaged with Google Classroom. Participant 5 (non-DEIS) mentioned how, in the first three weeks, there were only six out of 25 students engaging online. This increased after Easter, due to *“a lot of support to parents, which the school provided, in documents of how to interact, and how to get the work, and how to access the work”*. By June, 23 out of 25 were engaging. Recently emerging literature supports these experiences of difficulties around engagement (Burke & Dempsey, 2020; Burke & Dempsey, 2020a; Doyle, 2020; Rasmitadila et al., 2020; Moss et al., 2020). In Participant 1’s experiences, the solution that seemed most appropriate was sending out physical resources to the children, to avoid leaving the most disadvantaged behind. This suggests that the face-to-face physical classroom may be more conducive to creating equality of opportunity for children to engage in the work, as reported by Doyle (2020). For Participant 5’s school, the solution was to increase communication between parents, the principal, and teachers. Other participants also mentioned a need for this in order to improve student engagement (P2, P7, P8). This suggests that communication between

stakeholders is crucial in order to engage primary school students in effective online learning (Rasmitada et al., 2020; Eهران et al., 2021).

Theme 2: Sources of Support and Pressure

Formal and informal CPD. When asked about any CPD in relation to ICT integration that they might have engaged in, five out of eight participants said that they had not received any CPD in this area (P1, P2, P3, P6, P8). The ICT Census report in 2013 indicated that just over half of respondents had undertaken formal CPD in some key areas of ICT, thus these findings are slightly lower than expected (Cosgrove et al., 2014a). Of the remaining three participants, one described her CPD as not being relevant for online learning (P7). Thus, it seems that there was generally a lack of support in terms of relevant CPD for these teachers. Participant 5 had taken part in an ICT course that he considered relevant. However, he commented that, although this course was helpful, most of his digital skills had come from *“life experience”*. Many participants described engaging in various types of informal CPD in order to learn how to teach remotely at such short notice. For example, Participant 3 was able to ask her husband, who *“is really into digital learning”* and he could show her *“exactly what to do”*. Similarly, Participant 6 *“YouTubed a lot and tried to figure it”*, and learned a bit from her sister who is also a primary school teacher, because *“her school actually showed them a lot”*. She added that her IT skills are *“not too bad”*, so she *“just kind of figured it out”*. The increasing prevalence of informal CPD has been noted in the literature (Rashid et al., 2016; Sturm & Quaynore, 2020; Donlon et al., 2020). Interestingly, two teachers mentioned having had an option to engage in CPD relating to ICT, but choosing not to. This could suggest a lack of interest in ICT, leading to so few people choosing to engage in CPD in this area. It could also suggest that informal

learning is taking the place of formal learning in ICT, with more resources and information being shared widely online.

Collaboration with colleagues. All participants in a mainstream teaching role mentioned collaborating with at least one other teacher, and viewed this as a source of support. Teachers mentioned how it helped to lighten the workload, and that teachers were able to help one another come to grips with the new technology. Participant 7 “*worked with the other teachers to kind of figure stuff out*”, which involved Zoom sessions to troubleshoot. Participant 5 worked in a similar way within his team. Participant 2, who moved schools in September 2020, described how a good culture of collaboration in both schools was very helpful. By working together teachers could “*lighten the load*” and collaborate in “*planning and getting all that stuff out there*”. Similar findings were observed by Rasmitadila et al. (2020) in a study in Indonesia. Similarly, Ehran et al. (2021) noted that “the existence of collaborative support networks” was one external condition that seemed particularly relevant for teacher agency during the school closures (p. 70).

The available literature on COVID-19 in Ireland found that the increased teamwork amongst Irish teachers was viewed as a positive outcome of the COVID-19 school closures (Hall et al., 2020; Burke & Dempsey, 2020). In the absence of clear directions coming from the DES, it appears that teachers worked together to create a bottom-up approach for managing emergency remote teaching, with teachers learning through trial and error, and from each other’s experiences. This is similar to the idea posed by Marcus-Quinn et al. (2019), that ICT policy could be developed organically, with teachers learning from each other.

Online community. Although international literature suggests that teachers often use social media platforms such as Twitter and Facebook as informal sources of

support for teaching (Sturm & Quaynore, 2020; Donlon et al., 2020), participants in this study reported very little use of these platforms for support during school closures. Only Participant 4, who is a principal with an interest in ICT, appeared to be aware of an online community of teachers sharing ICT-related resources: “*yeah, there was absolutely, there was a huge drive to...help other teachers, other educators*”. He noted that his staff would not be aware of this, but that he would share links with them. Most participants mentioned that they had used Instagram to follow other teachers, but not for ICT-related ideas. For example, Participant 1, who uses Instagram, thought that the information being shared there was “*Not so much techy, [...] I haven’t found many things that are helpful in that way.*” Similarly, Participant 3 would use Instagram for art ideas, but did not recall finding support on digital teaching during school closures there. She added that she “*kind of switched off*” from social media: “*it was kind of like, sink or swim, don’t look at anyone else, just do your own thing, kind of?*” This could indicate that ideas being shared on social media can create pressure on teachers. Participants 4 and 5 also referred to pressure. Participant 4 mentioned that “*there was a certain amount of pressure to keep up with the Jones’s, both institutionally and individually*”. Participant 5 was aware of pressure coming from social media, observing that it “*stressed teachers out*”. Both he and Participant 4 suggested that part of the reason for the feelings of competition and comparison between schools was due to the lack of clear guidelines from the DES. For example, Participant 5 suggested that, “*as a result of the Department being very, I suppose...broad with their expectations of home learning, it was the schools’ and the teachers’ interpretations of it that it came down to [...]*”, which left teachers and schools open to comparison, with many parents comparing the approaches of local schools to one another. Burke and Dempsey’s research supports this finding, with a “fear of competition and comparison between

schools and teachers” emerging as a common theme (2020, p. 18). It would appear that, although Irish teachers have embraced a collaborative approach to teaching in their schools, this culture of collaboration has not quite extended to other schools, or to the online community. Research suggests that a culture of online collaboration between schools would need to be established first in order to facilitate a more positive online culture of sharing resources (Ganapathy et al., 2020).

Theme 3: Adapting Teaching Methodologies

ICT and a constructivist approach. The lapsed Digital Strategy for Schools (DES, 2015) and the draft for a new primary curriculum (NCCA, 2020) endeavour to integrate ICT into teaching and learning through constructivist pedagogies. When teachers were asked about constructivist methodologies during school closures (such as active learning, inquiry-based learning, collaborative learning), most found that it was certainly possible to engage children in these types of learning online, but that they were not quite as effective as in the classroom. Participant 7 found it *“harder to know you’re doing it right”* online compared to in the classroom where she can *“walk around and ask questions, and you can see that they’re testing things out”*. Participant 2 described how, if he was teaching the subject “area” in maths, he would have groups of children make a meter square out of newspaper and then have them measure the area of the hall with it. With remote learning, he believed that this type of collaborative learning is not the same. Although you can give the children activities to try on their own, as noted by Participant 7, *“it’s hard to know that they’ve done it, that they’ve figured it out, what learning has happened, or has Daddy just done it”*. Many of the teachers gave examples like this where they were using technology to try to recreate what is usually done in the traditional classroom. Interestingly, there was very little description of active learning taking place online, where ICT was being used directly to

engage students in these types of learning. Previous research supports this, by reporting that many teachers worldwide were using ICT to present information to a class rather than to directly engage children in higher-order thinking due to a lack of teacher ICT skills (Moss et al., 2020). Thus, as aforementioned, the problem around ICT integration is not necessarily a lack of infrastructure, but a lack of skills needed in order to utilise ICT effectively (McGarr & Johnston, 2019; Marcus-Quinn et al., 2019).

One core aspect of constructivist pedagogy that proved challenging to foster online was learning through interaction with others. Participant 8, whose teaching style focuses on play and interaction, described how she attempted to recreate the dialogue that the Junior Infants would have in the classroom through using puppets to “*do a little sketch*” in which the puppets make mistakes or do “*silly things*” so that the children can learn from that, “*in the same way that kids would learn from each other in a classroom*”. The lack of interaction with others and the fact that children were missing out on this was also noted by Participants 2, 6 and 7, and appeared in the literature (Burke & Dempsey, 2020; Moss et al., 2020). In a study on play in early childhood classrooms in Ireland during the pandemic, O’Keefe and McNally found that 82% of teachers recommended play strategies to parents during remote learning, and 99% of teachers intended to use play as a teaching methodology once schools reopened (2021, p. 79).

ICT integration going forward. Participants expressed mixed views on whether the skills and experiences learned during the school closures would help with the integration of ICT into teaching and learning going forward. Participant 6 strongly felt that the skills she had learned would not be of use: “*all we’re doing on SeeSaw is recording videos of ourselves teaching, which is what we do in school, sending on links to pages which they can print off, which I do in school*”. It appears that her experience

of online learning was that it was a less efficient way of doing classroom work.

Participant 8 expressed similar views to this. Notwithstanding, Participant 7 thought that some aspects of teaching and learning might change, for example, how homework or projects work: *“So it might be a case of, we’re not sending home books as much anymore”* and putting work on SeeSaw instead. She also added that she thinks *“the way we communicate with parents will evolve”*. However, like Participant 6, she believed that the core work done in the classroom would not change much, as she thought *“the kids should be talking to each other more when it comes to school”*. Participant 3 suggests that perhaps there will be more of *“a willingness from teachers to engage in ICT”* because *“every teacher and student in the country has been given a complete crash course in this”*, and teachers are no longer afraid of using technology.

Literature that emerged after the first school closure emphasised that the teaching and learning that occurred can be more aptly described as “emergency remote teaching” rather than as “online learning”, and that the difference between the two should be understood when evaluating teaching and learning during the COVID-19 pandemic (Hodges et al., 2020; Hall et al., 2020). This might explain why teachers felt that their online teaching skills might not add to the face-to-face classroom experience. Furthermore, the general pedagogical approach across interviews was that teachers were using technology to recreate the traditional classroom for the children at home, rather than using technology to engage children in online active learning tasks. Hall et al. (2020) suggests that “developing these activities require from teachers specific pedagogical-, content- and technological knowledge and skills” (p. 439). It appears that perhaps Irish teachers are lacking these skills, which could be another reason for teachers feeling that their experiences might not be useful in the classroom going forward. Finally, it is worth noting that these teacher experiences emphasise how

crucial in-person interaction is at primary school level. Having experienced teaching without social interaction, teachers might be less eager to focus on ICT integration upon return to the classroom and more eager to encourage children to learn through interacting with each other. This finding aligns with those emerging in the literature, with Moss et al. (2020) and O’Keefe and McNally (2021) finding that teachers plan to focus on the social and emotional development of children upon return to the classroom.

Conclusion

From the thematic analysis of data gathered, it appears that most teachers experienced a number of challenges when faced with emergency remote learning. These included barriers that were outside of their control, such as the lack of time to prepare, the presence of a digital divide, and difficulties around student and parent engagement. Challenges also included pressures such as setting up a new way of working at such short notice with no clear guidelines, relying on informal CPD and lacking ICT skills to figure out new platforms, and pressure from parents and social media to teach in a particular way. Despite these pressures, teachers found collaborating with colleagues to be a great support during this stressful time. Finally, teachers experienced challenges in adapting their teaching methodologies for remote learning, for example, using constructivist pedagogical approaches became much more challenging, particularly in terms of facilitating learning through play and interaction with others.

Teachers expressed mixed opinions about whether their experiences would help them to integrate ICT into the classroom going forward, although most felt that the experiences would not be that helpful. Potential reasons identified for this include: (a) the emergency nature of the teaching that occurred, particularly in the initial phases of lockdown; (b) a lack of skills needed to integrate ICT meaningfully rather than using it

to present information; and (c) an increased appreciation for how important social interaction is for primary school children's learning and development.

Chapter 5: Conclusion

This research has illustrated the complex, multi-faceted nature of teaching online during the COVID-19 school closures. It has contributed to the research field by providing a thick description of the context within which the COVID-19 school closures occurred in Ireland. This study sought to provide answers to the research questions:

1. What were Irish primary school teacher experiences of teaching online during the COVID-19 school closures?
2. Can these experiences help us to better integrate ICT into the classroom going forward?

In relation to the first question, the findings show that teachers experienced many challenges when shifting to teaching online during the COVID-19 school closures. This research has shed light on external barriers faced by teachers, such as a lack of time to prepare, the digital divide, and struggles around parental and student engagement. It described sources of support and pressure mentioned by teachers throughout the interviews, and highlighted how much teachers relied upon colleagues in order to embark on the steep learning curve involved in setting up a new way of working. It illustrated teacher attitudes towards formal and informal CPD, as well as their attitudes towards sharing and sourcing resources through the online community of teachers. It explored the ways in which teachers engaged children in active learning digitally, describing how teachers used their classroom skills to recreate in-classroom learning at home as best as they could. Finally, it captured teachers' opinions on how irreplaceable face-to-face learning is for children, particularly in the younger classes, in order to learn through play and social interaction with one another.

In relation to the second question, emergency remote teaching is quite different to how teachers would engage with ICT in the face-to-face classroom, which must be taken into account when drawing conclusions from this study. The research illustrates how many teachers acquired new skillsets throughout the school closures, thus it is reasonable to assume that perhaps this will make it easier to integrate ICT into the classroom going forward for some teachers. However, it appears that, due to the reasons aforementioned in the conclusion of Chapter 4, many teachers believed that their experience would not in fact help them to integrate ICT into the classroom. Although this was unexpected and perhaps disappointing that teachers have not found their experiences useful, these findings offer valuable insights into where teachers are at in terms of their skill level and attitudes to ICT integration in the classroom. Research like this could be a useful starting point for deciding on the next steps towards ICT integration in Irish primary schools, now that the Digital Strategy for Schools has lapsed, and the new curriculum aims to include “being an digital learner” as a key competency (NCCA, 2020, p. 7). With regards to finding examples of best practice, although some participants illustrated creative ways of integrating ICT into the learning, it would be difficult to hold any particular method up as exemplary considering how each teacher had a different set of challenges to face, supports in place, and personal ICT competency levels upon which they could draw.

Recommendations

Due to the small sample size of this study, its generalisability is limited. However, there is a potential for transferability, thus recommendations made here so that the reader can make transferability judgements. The findings of this study suggest that the lapsed Digital Strategy for Schools was overly ambitious in its vision to integrate ICT in line with a constructivist pedagogy, given the current level of ICT

skills amongst stakeholders. Thus, one recommendation for effectively integrating ICT into the classroom would be to focus on teacher, parent, and student ICT skills in order to better prepare school communities for meaningful ICT integration. Another thread that ran through the interviews was how helpful collaboration was. Therefore, a recommendation to school leadership would be to encourage collaboration among staff members. In terms of inter-school support, there appears to be more of a culture of comparison and competition between Irish schools at present. Thus, another recommendation would be to build relationships with other schools, either locally or online. This could help to establish more of a climate of sharing and collaboration between schools, which might encourage a bottom-up approach to ICT integration, where schools can learn from each other's experiences (Marcus-Quinn et al., 2019).

Recommendations for Future Research

As discussed in Chapter 3, one major limitation of this study was time. Future studies could employ a different sampling method and a larger sample size that would allow for increased generalisability of the findings. Further, there were many points of interest that arose in this study that were left unexplored. For example, it would be interesting to explore other aspects of teachers' experiences, such as their wellbeing, or to explore teacher collaboration during the school closures in more depth. It would also be interesting to focus on particular subjects to explore how they could be effectively taught through the use of ICT. Another avenue of interest could be to focus on teacher experiences with particular age groups, such as senior classes or early years classes, as the findings from the interviews suggest that digital learning was less beneficial for younger classes. Finally, if done on a larger scale, and in tandem with quantitative analysis, perhaps research like this could help to guide the creation policy documents that are evidence-based, that more accurately reflect where Irish teachers are at in terms

of ICT skills, and what they need in order to effectively integrate ICT into the classroom.

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egies for qualitative social research With particular reference to the Office
for National Statistics' Qualitative Respondent Register

Appendices

Appendix A: Letter of Consent to Teachers

Date: _____

Dear Teacher,

I am writing to ask for your help with a qualitative study that investigates teacher experiences of pivoting to digital teaching and learning during the COVID-19 school closures. The research project involves interviewing teachers about their experiences of teaching during this unprecedented time, what digital tools and platforms they used, what challenges teachers faced and how they might have overcome them. I hope that the findings of the study will contribute to the research on how to meaningfully integrate Information and Communications Technology (ICT) into teaching, learning and assessment going forward.

The interview would be conducted in person, by video call, or over the phone, depending on your preferences and on the COVID-19 restrictions at the time. The interview would last approximately 35 to 40 minutes and be audio-recorded on a password-protected device.

I hope you will be willing to participate because your experiences and perceptions are important and a valued part of the study. Your participation will remain strictly confidential. After the interview has been conducted, it will be transcribed from the audio recording. Your name will not be attached to the transcription, and every effort will be made to omit any possible identifying details from said transcription (such as the mentioning of names, schools, etc). The audio file will be kept in a secure location without your name attached to it and will not be submitted with the dissertation. Once the study is completed, the audio recording will be destroyed.

You are welcome to discontinue participation in the study at any time, should you wish to do so. To indicate your agreement to participate in the study, please sign the form (below).

Should you have any further questions regarding your participation, please contact me at cdolphinme19@momail.mie.ie. You may also contact my supervisor for the project, Dr. Jennifer Hynes, at hynesje@tcd.ie.

This study has been considered from an ethical perspective by the Marino ethics in research committee.

Yours faithfully,

(Researcher)

You will be given a copy of this information to keep for your records.

Statement of Consent:

I consent to participate in the above study by being interviewed, and to have the interview audio recorded. I have read information letter, and I understand the nature of the project, and how my data will be utilised for the purposes of this project. I have been made aware that I am welcome to discontinue participation in the study at any time. I have been provided with the contact details of the researcher and supervisor should I have any additional questions in relation to this research.

Signature: _____

Date: _____

Signature of Researcher: _____

Date: _____

Appendix B: Interview Questions

1. Could you tell me a bit about what class you were teaching last year, when the schools were closed for the first time? (age, size, location, SES)
 - a. Would you have used ICT much in your teaching and learning, pre-COVID-19?
 - b. Would your school have had a digital learning plan in place?
2. When schools were closed for the first time on March 13th, 2020, it all happened without any notice. What was your initial response as a teacher?
3. As it became apparent that schools would remain shut until the summer, and that a ‘new normal’ way of teaching had to be established, what became the new normal for you? (Both school closures if applicable)
 - a. Which digital tools and platforms did you use, and how?
 - b. Was there a whole-school approach?
 - c. Was there a collaborative aspect to it?
4. What barriers did you face in teaching online?
 - a. Personal knowledge of digital tools, platforms, and how to teach using them?
 - b. Any supports from other teachers/principal?
 - c. Students/Parent: Were there issues around engagement? What/why?
5. As you know, the primary school curriculum encourages a constructivist pedagogy, focusing on child-centred, active learning, group work, student inquiry, etc. In your experience, was it easy to use technology to teach in these ways?

6. Obviously, this emergency online teaching is something that us teachers were never trained for. Did you feel that you had the ICT skills required to pivot to online teaching?
 - a. Did you engage in any formal CPD in relation to ICT in the classroom?
 - b. Informal CPD—Did you use Twitter, Pinterest, Instagram, Padlet walls to upskill?
7. Now we find ourselves in a similar situation once more. Is there anything different about your approach and/or your school's approach this time around, having had the experience of last year?
8. Do you think there is anything that we have learned from these lockdowns that might help us to better integrate ICT going forward?

Appendix C: Sample of Initial Coding

Participant 1 Interview — Last Modified: 5 April

Design Layout References Mailings Review View Tell me

12 A⁺ A⁻ Aa A₀

Normal No Spacing Heading 1 Heading 2 Title Subtitle Styles Pane

fallback one was Ulster, which we don't use so, I wanted Connaught Irish. So, even doing that, I was talking to another teacher, and she tried as well. And just, the amount of time we spent just trying to do that, and actually we couldn't even do it, so I had to put the link up, and put the instructions up on how to do it. And I've got Senior Infants now, so, a lot of what we're trying to put up online is stuff that I know that they can do on their own, without having to have a parent there all the time, so they could no longer do that on their own. It was just a game, but, they needed help then and they had to outline it, and I know that'll turn some of the parents off doing it, so even just something as basic as that. It just, there's so many hurdles to it...so, it's...I would be lacking in skills that I probably need for this.

I: Yeah, that sounds like such a waste of valuable teacher time to be just trying to figure out a link issue

P1: [Laughs] I'd say it took about two hours just for such a small thing, and then it's just a link put up on Google Classrooms, and [laughs] no one has any idea that you've put so much time into it, and it looks like it just took, like thirty seconds [laughs]

I: [Laughs] Oh no! That sounds like such a pain! And...what other kind of barriers would you have faced in setting up, say, a "new normal" way of teaching, back in March?

P1: A huge barrier for us now, was because we are a Gaelscoil, just how much stuff to put up in Irish and how much stuff to put up in English, and we found out that by sending...so in Junior Infants we hadn't done any English work with the kids yet, so we were just trying to do stuff with the kids in Irish, but the parents didn't have the Irish to do it, so that was difficult as well. And then, trying to put up as many things as possible, but knowing that the majority of parents don't have a printer...[internet cut out]...and then there were some websites...so a lot of our children would have been working on phones and tablets, so some of the websites like *Léigh Leat* only worked on a laptop so—they've changed that since—but in March it wouldn't work on a phone or on any other device. It was only laptop compatible, I don't know why, I don't know anything about that stuff. But it's changed since, but even stuff like, so all of our phonics would have been there, so I...tried...so I had them up on my computer, and I was trying to record them onto my phone, so that I could put the recording from my phone onto the website, again, which is a huge time-wasting activity because I've

Christina Dolphin
Difficulties of independent learning in junior classes

Christina Dolphin
Barrier: parent's Irish

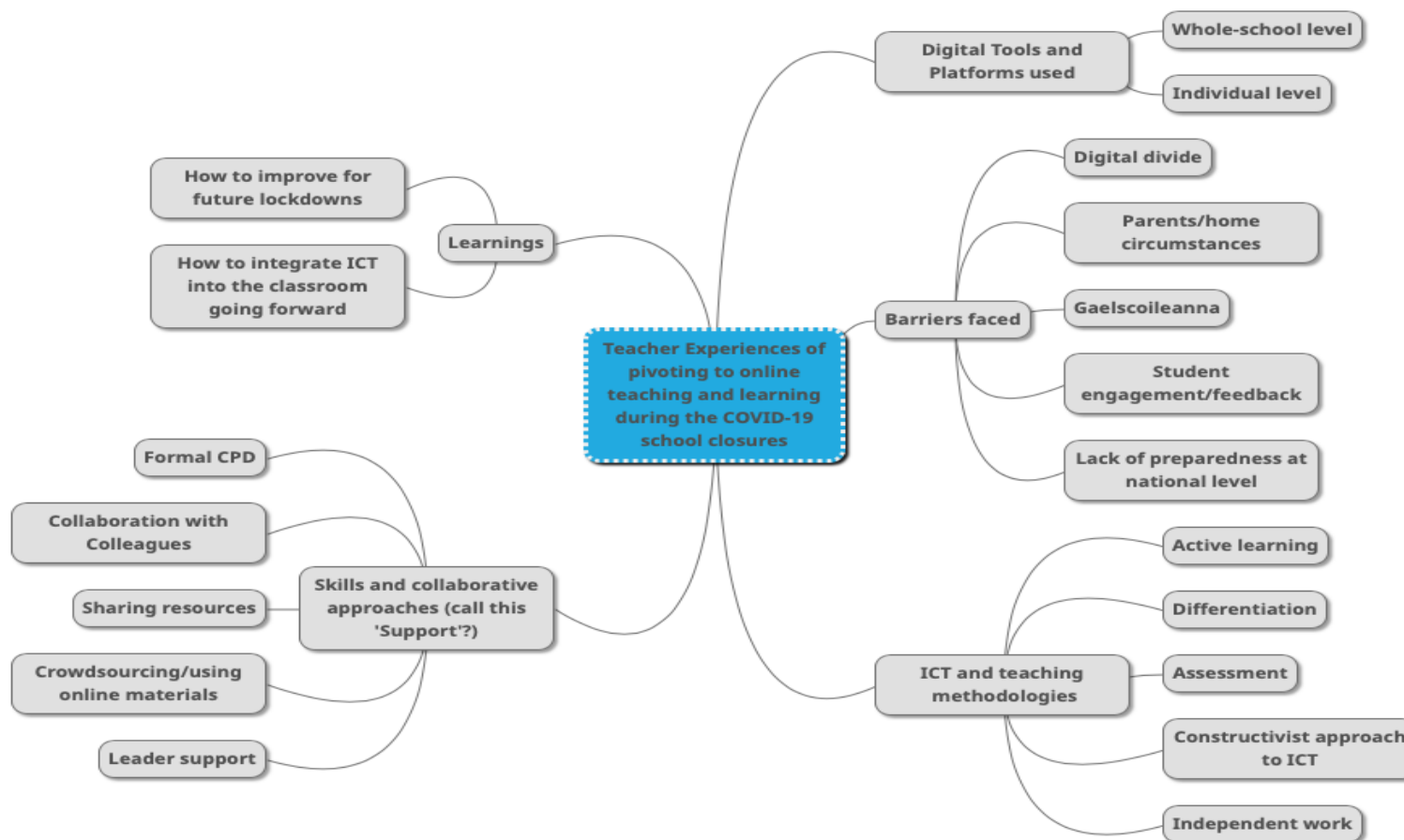
Christina Dolphin
Barrier: time (when lacking skills to use ICT in an efficient way that makes things faster)

Appendix D: Sample of Grouping Codes into Themes

Illustrative Quote	Code	Theme
<p>P5: <i>“My initial response was one of shock! [laughs] The reason I say shock was, we weren’t prepared for this. As teaching professionals, and as a school, as a body of professionals, I think that our resource and our skill level in dealing with what happened was actually quite lacking. To no fault of probably our own. The department might have...or should have foreseen this might have...taken place at some stage, because it seemed like in other jurisdictions I am aware of...like say particularly in America and even in Europe, some of those schools adapted quite quickly into remote learning because they would have been upskilled in...those areas prior to COVID-19 taking place. So, yeah, definitely shock. Thankfully, I was in a school where there was five of us within a stream, and why I say that that was important is because we were straight away able to work within our unit and work, I suppose together, collaboratively, to try and navigate our way as best as we could, and to support one another, because really and truly, it was very difficult...”</i></p>	Lack of preparedness, no time to prepare	Barriers faced by teachers
	Skills, resources	Barriers/Supports or lack of support?
	Collaboration viewed as positive	Supports
	Management at level of teams of teachers	Supports
<p>P2: [...] <i>“I mean, you can definitely send tasks like that to do with kids, but it’s hard to go send them a big massive project kind of thing. You know you can send them experiments as well, like that in science, but then you don’t really know...some of them do do it...but then [laughs], there’s a lot of...I think the amount of things, if you were looking at the ratio of thing I’ve sent out to do per student versus students who have sent a thing back per topic, you know, the ratio is very heavily weighted towards the former I think, because you get so few responses back, and you get few responses back in my experience of this no matter how much you harp on about it, because really it’s down to...you could be shouting into the wind really because you do not know what the setup is at home, and there are some kids who will have their things set</i></p>	Adapting active learning/problem-solving for online: not quite the same	Teaching Methodologies
	Lack of engagement/feedback from students	Barrier (external barrier?)
	Difficulties for parents	Barrier (external)

<p><i>up and only they will see it, there are some kids and parents that say, ‘must do that’, but sure parents are under pressure anyway so you can’t really be holding it against them, and then you’ve disadvantaged kids where you don’t know what’s going on. So,...yeah. Hard to get the feedback.”</i></p>	<p>engaging/home situation</p>	<p>Barrier (external)</p>
<p>I: <i>“Yeah, I’d say so. And I suppose, going into it, did you feel you had the skills for it? I know as teachers, emergency online teaching isn’t really—or wasn’t part of the training. Did you feel like you had the skills to just do it from the start?”</i></p>	<p>Digital Divide: Disadvantaged children engaging less</p> <p>Skills/Lack of time to prepare</p>	<p>Barrier</p>
<p>P2: <i>“Yes, but we had no time to prepare.”</i></p>		

Appendix E: Initial Mindmap of Themes



Appendix F: Participant's ICT Skills

<i>Participant's ICT skills</i>	
Participant	Response to question about if participants felt they had the ICT skills required going into the pandemic
1	<i>"No, probably not. Even just the basic computer skills."</i>
2	<i>"Yeah, because I'm fairly, I'm reasonably tech literate, as in I can go in and learn how Dojo or SeeSaw or Google Classroom goes, I mean, there's always the scrambling around, but once you use the thing, you know, they're fairly user-friendly as well"</i>
3	<i>"So, they'd be pretty good in general? So I wasn't too phased [...]"</i>
4	<i>"I grew up with it. There was always a computer at home. There was always a mobile phone. It was just...a part of our lives. And It always has been"</i>
5	<i>"Yeah...luckily, it's one of the skillsets I have, using ICT, computers, I'm very open to it"</i>
6	<i>"To be honest, no, because we weren't shown anything, like, we were just like, learn it, so you just had to figure out yourself, kind of sink or swim I suppose really"</i>
7	<i>"At first no, no I really didn't, I felt kind of, like I definitely had the skills to make the plan and send it home"</i>
8	<i>"Yeah, enough to get by, and SeeSaw is very user-friendly, thankfully. And I just learned as I went along!"</i>

Appendix G: Illustrative Quotes

Theme & Subtheme	Illustrative Quotes
Theme 1: External Barriers to Online Teaching	
Time to prepare	<p>P5: <i>“My initial response was one of shock! [laughs] We weren’t prepared for this. As teaching professionals, and as a school, as a body of professionals, I think that our resource and our skill level in dealing with what happened was actually quite lacking. To no fault of probably our own. The Department [of Education and Skills]...should have foreseen this might have taken place at some stage...because it seemed like in other jurisdictions I am aware of...like say particularly in America and even in Europe, some of those schools adapted quite quickly into remote learning because they would have been upskilled in...those areas prior to COVID-19 taking place.”</i></p> <p>P1: <i>“Yeah, no there was nothing in place. We had all heard of COVID at the time, but we had absolutely no idea that the schools were going to close, there was no indication at all [...] So we had no plan in place, no website ready to go, no experience with teaching online, we hadn’t a clue really.”</i></p>

P4: *“We only lost one day of tuition unlike other schools who lost up to a week or ten days. When we moved online, first of all, we had already engaged with...using an online platform from the previous October, so the staff and pupils were reasonably au fait with that” [...]*

Digital divide

P3: *“So, we had families who had no internet access, families who had no devices. Families who both parents were front-line workers and doing alternative shifts [...] We had parents trying to access everything on mobile phones. You know, trying to access pdfs and access games, and like, it’s just, it’s not set up for mobiles really? [...] And...yeah, we had a lot of families, who were obviously just struggling to stay alive, education was really not on their list of priorities at all.”*

P1: *“Yeah, like, as much as we put the sounds up on the Google Classrooms, we just felt that we had to go back to the start [...] so...like we’ve gotten most of the way through the Irish alphabet, but we still haven’t finished it? And we’re supposed to be starting English now this month [...] We always start [English] in January in senior infants. But, the learning of English will be delayed a month now as well. And yeah, there were bad habits, bad pencil grips, just...messy work, children who obviously, as long as they finished their work it didn’t matter how messy it was.”*

P6: *“I noticed the really intelligent kids, they just, they kind of when ahead and they were fine. But the weaker kids just dropped. A lot of them, so there’s a huge gap in the class, it’s like teaching first and third class at the same time!”*

Engagement

P1: *“Yeah, so that was 5 out of 45, for whatever reason, we were finding it very difficult to engage with the students over the online platform. It was easier to do it sending home the written work [...] we sent home crayons, pencils, scissors glue, everything that they need for the work we were sending. So they could sit at the table, pick up their pack, and independently work on whatever it was that they were working on.”*

P5: *“I had a class last year of 25 [...]. Initially, in the first three weeks, I had 6 people engaging online. After Easter, and after a lot of support to parents, which the school provided, in documents of how to interact, and how to get the work, and how to access the work and all that stuff like that [...] all that information was sent out on the schools’ behalf, and with phone call engagement from me for the ones that weren’t engaging online, that went up to 20 initially. And by the start of June, we were up to 23 out of the 25, getting back on a daily basis. So it did go up, but it took a long time now, and a lot of support.”*

Theme 2: Sources of Support and Pressure

Formal and informal CPD

P3: *“I’m incredibly lucky that my husband is really into digital learning, and any question I had, he had a solution for it, and he could show me exactly what to do.”*

P6: *“[...] I YouTubed a lot and tried to figure it out myself, and my sister who’s a primary school teacher, her school actually showed them a lot, so I kind of learned a bit from her to be honest. And then I’m not too bad on IT myself, so I just kind of figured it out as I went along.”*

P7: *“I worked with the other teachers to kind of figure stuff out. So we’d be calling each other on Zoom and trying something out and saying ‘Can you see this thing behind me?’, ‘How do I work this out?’ [...] So some of us met up online [...] or rang each other and talked each other through it, so it’s all about learning together.”*

Collaboration with colleagues

P5: *“Thankfully, I was in a school where there was five of us within a stream, [...] because we were straight away able to work within our unit and work, I suppose together, collaboratively, to try and*

navigate our way as best as we could, and to support one another, because really and truly, it was very difficult...on a management level to support everyone within the staff, so it actually had to be filtered down into teams [...] While our situation at the time was stressful, and...was hard to grapple at times, we did have the support of one another, and we straightaway set up Zoom meetings once a week to see how we were getting on, planning together, creating communal resources, and that all, I suppose, helped, in terms of the facilitation initially of the online learning.”

P2: “I kind of did have a good sense in both schools [...] that there’s a strong kind of team ethos...and that...when it came to collaborating, that was something that was very helpful, that was very strong, and...there’s a number of us working together to kind of lighten the load in terms of planning and getting all that stuff out there as well.”

Online community

P4: “The staff: no. Me: yes. I would be quite aware of the...major figures in the Irish primary school tech world, [names omitted]. So, kind of, a lot of the stuff they were putting out, or they were sharing, I would link the staff to...did they use it? Rarely. [...] But yeah, there was absolutely, there was a huge drive to...help other teachers, other educators.”

P1: *“Not Twitter, but Instagram, yeah, I would. Like I’d follow a few different teachers on Instagram and see what they’re doing [...] Not so much techy, no, there’s not much, or well, I haven’t found many things that are...helpful in that way.”*

P3: *“In general, I would have followed a lot of other teachers on Instagram for art ideas, and project ideas. I don’t recall getting many tips on digital teaching during the lockdown from Instagram, to be honest.”*

P4: *“There was a certain amount of pressure to keep up with the Jones’s, both institutionally and individually. But, you know, it was important as educators to kind of cut out that noise, and just say, look, we as a staff have made a decision that this is how we are doing this, and we are sticking to that. And there seems to be a lot of pressure this time around from parents out there...kind of looking at the school down the road, or looking at what the cousins are doing, and putting pressure on their own schools to either provide a particular kind of content, or to engage in a particular way, and that’s just not for everybody. There’s no blanket plan for this. The Department had every*

opportunity to create one, but all they did in Circular 74/2020 was say, you must have something. It's up to you."

P5: "Yeah, social media definitely did play a big part in [...] the evolution of teaching and learning practices and methodologies over the past number of years, but particularly over the COVID period. It also stressed teachers out [...] I do know people that were getting very ...quoting such and such was doing this, 'I saw this on Instagram', 'I saw this vlogger doing this'[...], and as a result of the Department being very, I suppose...broad with their expectations of home learning, it was the schools' and the teachers' interpretations of it that it came down to in terms of how you would actually roll it out and facilitate it. And that caused its own problems. Because then teachers were suspect to being compared to one another. Schools were then starting to be compared to one another as well, and, well, x school down the road is doing Zoom, live lessons, whereas y school is uploading work once a week."

Theme 3: Adapting Teaching Methodologies

ICT and a constructivist approach

P7: "It's harder to know you're doing it right [online]. But, when you're in the classroom, ...say you're doing forces in science [...] I have these little plastic spools for threading, and I would just

give them a load of wool and some sticks and some bits and pieces, and I'd be like, 'Make me a pully' [...] You can just set it up and walk around and ask questions, and you can see that they're testing things out, they can see what someone else is doing. Whereas when they're at home, you can tell them they could make something, you can challenge them, [...] but it's hard to know that they've done it, that they've figured it out, what learning has happened, or has Daddy just done it."

P2: "I suppose it did effect how you were doing things. If you think of a topic like maths, [...] I'm thinking of area...I've done a thing before where groups of kids use newspaper to build a meter square, and then we kind of put them all together to measure an area of the hall. That kind of learning, I mean, you can definitely send tasks like that to do [...] You can send them experiments as well, like in science, but then you don't really know...some of them do do it...but then [laughs] [...]"

P8: "Yeah, you can do a little sketch, you know [...] I've been doing a lot of puppets in the videos, where I ask them [the puppets] to do something, and they do the wrong thing, or...puppets making mistakes or doing silly things. Children learning from that. In the same way that kids would learn

from each other in a classroom. I'm trying to recreate that dialogue that would happen in a classroom, but..[laughs]."

ICT integration going forward

P6: *"Well, all we're doing on SeeSaw is recording videos of ourselves teaching, which is what we do in school, sending on links to pages which they can print off, which I do in school, [...] sending on websites, which I show the kids in class, so a lot of it is what I do in the class, already, so it's literally like [...] you just need...if you're there physically with them, it's better."*

P7: *"It might change how homework works. It might change how projects work [...] So it might be a case of, we're not sending home books as much anymore [...] like especially with things like SeeSaw, like you can get kids to practice their sounds in a completely different way than sending home a book. [...] I think the way we communicate with parents will evolve [...] So I think it will change...not schoolwork, because I don't think we're there yet, and I think the kids should be talking to each other more when it comes to school, but it might change homework."*

P3: *"I think every teacher and every student in the country has been given a complete crash course in this, and I think it's only a good thing, and going forward that, you know, teachers in particular*

are, I don't think, going to be scared of it anymore. [...] I imagine there'll be a willingness from teachers to engage in ICT more in the classroom than there was before the pandemic."

Appendix H: Digital Tools used by Participants

Digital platforms, tools and websites used by teachers

Participant Number	In Use Prior to School Closures	Whole-school platforms used during school closures	Additional resources used during school closures
1	Léighleat.ie, Séideán Sí, Instagram, Twinkl, Cosmic Kids Yoga, Kids Box	Google Classroom	None mentioned
2	Computer room in school, SeeSaw	School 1: SeeSaw School 2: Google Classroom, ClassDojo	Padlet
3	Twinkl, CCEA, Instagram, YouTube	Google Classroom	Zoom, Kahoot, Camscanner, Chromebook and stylus.
4	Google Classroom, Chromebooks, Twinkl, tes.co.uk, Scoilnet	Google Classroom	Home School Hub, Cula4
5	iPads, Kahoot, Beebots, Aladdin	Aladdin Connect	iMovie
6	Microsoft Word, PowerPoint, MovieMaker, Jollyphonics, YouTube, Séideán Sí	Initially, Padlet. Then SeeSaw (junior classes), Google Classroom (senior classes)	Zoom
7	Class Dojo, iPads, WhatsApp.	ClassDojo	Screen Record, Google Drive
8	None mentioned	SeeSaw, Zoom	PowerPoint
