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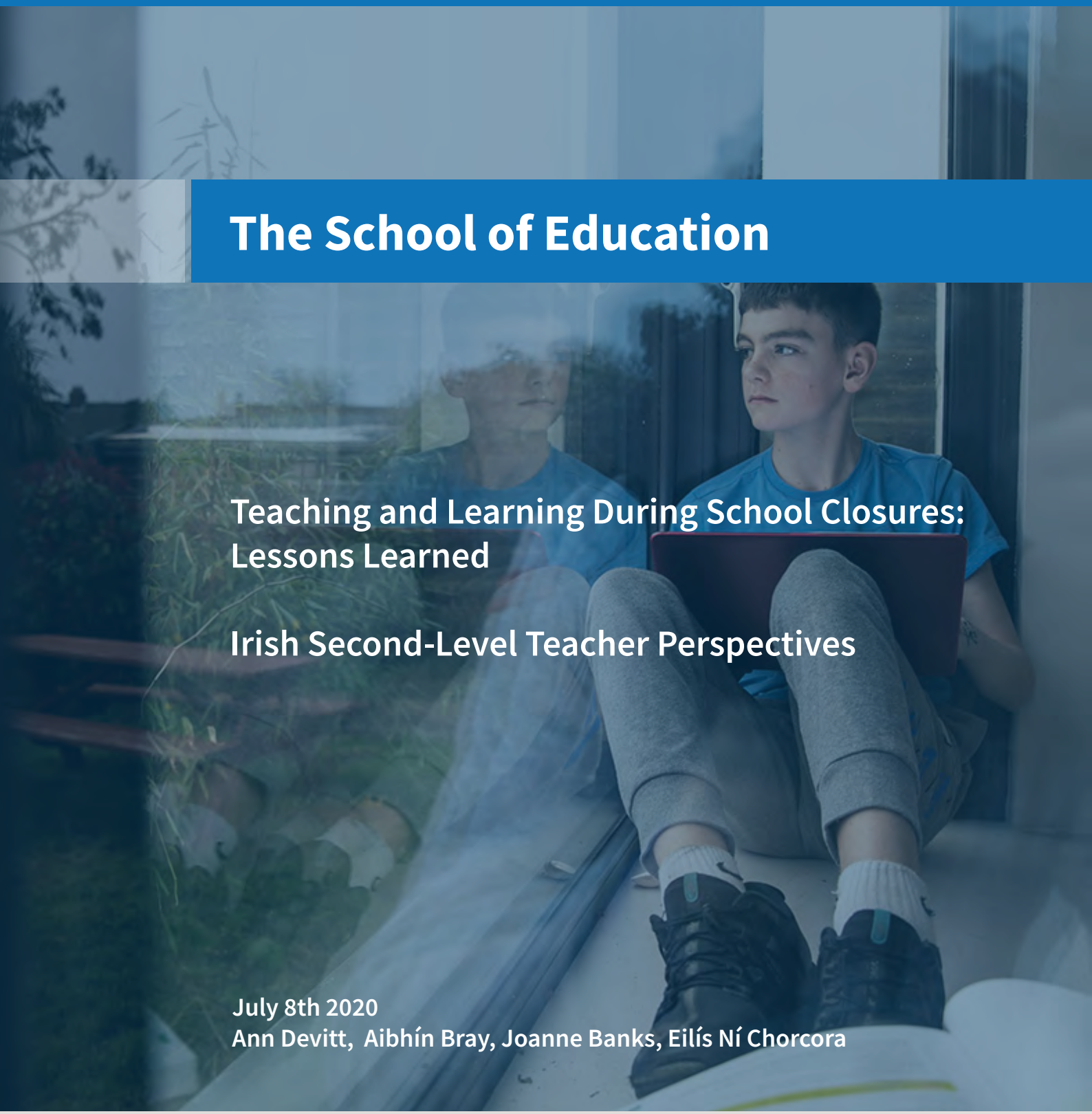

The School of Education

Teaching and Learning During School Closures: Lessons Learned

Irish Second-Level Teacher Perspectives

July 8th 2020

Ann Devitt, Aibhín Bray, Joanne Banks, Eilís Ní Chorcora

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This report was compiled by Ann Devitt, Aibhín Bray and Joanne Banks in the School of Education, Trinity College and Eilís Ní Chorcora in Trinity Access from data gathered in cooperation with Trinity Access. It is the first of a series of reports on the impact of Covid-19 school closures on education in Ireland. Two further reports are currently being prepared which focus on school closures from the perspective of parents and students.

Sincere thanks to all the teachers who kindly gave up their time to respond to this important survey about their experiences of teaching and learning during the Covid-19 school closures.

Partners & Contributors

Trinity Access (TA) aims to transform the education system, through work at student, school and system-level, so that every young person can reach their full potential. Their mission is to work in partnership across the education sector with students, teachers, families, communities and businesses to widen access and participation at third-level of under-represented groups. The TA schools programme breaks down barriers by partnering with schools to develop strong 'college going cultures' and innovative approaches to teaching and learning through three 'core practices': Pathways to College, Mentoring and Leadership in Learning.

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Abbreviations

CPD	Continuous Professional Development
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
ET	Educate Together
ETB	Education and Training Board
NEPS	National Educational Psychological Service
NPHET	National Public Health Emergency Team
OECD	Organisation for Economic Co-operation and Development
PDST	Professional Development Service for Teachers
SNA	Special Needs Assistant
TA	Trinity Access
TY	Transition Year
UDL	Universal Design for Learning
VLE	Virtual Learning Environment

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Executive Summary

Irish pre-schools, primary, second-level schools and further and higher education settings closed on 12 March 2020 based on advice from the National Public Health Emergency Team (NPHET) as part of the government's efforts to contain the spread of Covid-19. This report provides an analysis of teaching and learning during school closures from the perspective of a representative sample of teachers working in second-level schools. Given their centrality in engaging and providing continuity of learning for students, it is essential for policy development that the perspectives of teachers are captured, and their experiences of online teaching understood. The survey sought their personal views around the barriers to effective communication and engagement with students in addition to their experience of using different approaches to teaching and learning during this time. Taking a solution-focused approach, the survey also asked teachers about their own capacity and ability to teach from home and what supports they view as important to ensuring meaningful engagement across all groups of students as school resumes and in any future school closures.

Key Findings

1. Student Engagement during Covid-19

- Overall, levels of student engagement with learning during school closures was medium-high, with 79 per cent of teachers reporting engagement from more than 30 per cent of their students.
- Teachers in **DEIS schools were almost 3 times more likely to report low engagement** from their students compared to those in non-DEIS settings.
- The most significant barriers are **lack of interest**, **lack of support** in the home and a **lack of access to devices**, with all of these barriers significantly more prevalent in DEIS settings.
- Teachers who reported low **self-efficacy** (level of belief in one's capacity to exert control over motivations, behaviours, and environment) were more likely to report lower levels of student engagement.

- The **mode of delivery** of teaching and learning was associated and students' levels of engagement with more interactive and collaborative approaches to teaching and learning impacting positively on levels of student engagement.

2. Teaching and learning during Covid-19

- There is a predominance of **asynchronous** (not happening together in real time)**, transactional modes of communication** with students with some, but **relatively little live, synchronous (happening live in real time) interaction**.
- There is evidence of teachers using **a wide range of means to engage with students**, including the post and phone calls in DEIS schools in particular.
- The practices associated with supporting key skills of creativity and communication have increased during the school closures with **teachers offering multiple modes of engagement and representation to learners**.
- There has been a substantial **decrease in practices to minimise distractions** and threats in the online context across all school types.
- **Nearly 20 per cent of teachers report not having fostered collaboration** among their learners during school closures and over 50 per cent report a decrease in this practice since school closures.
- **Practices to foster collaboration, support scaffolding and choice in learning** were predictive of higher student engagement across school contexts.
- **In DEIS schools,** the practices related to **promoting learner motivation** are also predictive of student engagement.

3. Teacher supports and professional development

- Schools that did not take **a coordinated approach** to the move online have lower levels of online collaboration between colleagues and lower reported student engagement with online education.

- Teachers in **non-DEIS schools were more likely to report that a whole-school approach** was taken in the transition from traditional, in-school education to online learning.
- **Support from colleagues** was also important and teachers particularly used this as a source for advice around technology but also as a way in which to share ideas and teaching approaches.
- Teachers found **in-school supports and social media** such as Facebook, Twitter and Instagram useful sources of information for continuing their teaching online.
- Teachers who engaged in Continuous Professional Development during school closures **opted for courses and webinars to do with technology, wellbeing and SEN**.
- When asked what supports and professional development would be needed to continue online learning, teachers called for support in relation to meaningful integration of technology and **pedagogy for online teaching and learning** rather than how to use the technology itself.

4. Policy Recommendations

System-Level Recommendations

Model of Best Practice

1 **Distil all existing evidence in order to establish a model of best practice for school management for future planning.** It is recommended that the DES collate and distil guidance and evidence for best practice in Ireland in the move online into a coherent set of guidelines for schools.

Professional Development

2 **Prioritise CPD in relation to practices that will enhance and develop student engagement**. The provision of professional development that supports and enhances interactive and collaborative practices should be encouraged. Such

practices have been shown to have a positive impact on student engagement, and teachers are actively seeking support in this area.

3 **Provide school-based contextualised professional development for teachers:** In terms of sources of support, those from within the school were highest rated, and teachers who identified higher levels of collaboration between colleagues were more likely to report higher levels of engagement from their students. This should be capitalised on through the provision of support to develop communities of practice.

Devices and Infrastructure

4 **Address digital poverty.** Expand on existing governmental measures to address digital poverty,[1] and explore others, such as the Tech2Students[2] initiative, that offer potential structures that could be implemented at system level.

5 **Address school IT infrastructure.** It is essential to ensure that all schools have reliable and GDPR compliant systems that allow for information transfer and collaboration.

School- and Educator-level Recommendations

Future Planning

6 Articulate a **contingency plan for future closures** that draws on DES guidelines and on individual, school-based reflections on the Covid-19 school closures. Use this to draft a whole-school approach for any future closures.

Social Context

7 **Prioritise re-establishing the social context for learning whether online or face-to-face.** Developing and maintaining a social presence for both teachers and learners is essential for sustaining student engagement. It is critical to re-establish positive relationships for learning between teachers and students, supported by interactive and collaborative pedagogies.

[1] https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/PR20-04-22.html

[2] A collaborative initiative between Trinity Access. Camara and the ESB: https://www.tcd.ie/trinityaccess/tech2students/.

1 Introduction

On 12 March 2020, the Irish government announced that all pre-schools, primary and second-level schools and further and higher education settings were required to close in order to minimise the spread of Covid-19. Based on the advice of the National Public Health Emergency Team (NPHET), schools were asked to 'continue to plan lessons and, where possible, provide online resources for students or online lessons where schools are equipped to do so' (DES, 2020a). Initially, the closures were to last for two weeks until 29 March, but this was soon extended, and schools remained closed until the summer break. The sudden nature of the announcement and the implications for students, particularly those in exam years (Junior Certificate and Leaving Certificate), required a dramatic change in every aspect of teaching and learning. At the time of writing, a vaccine for the Covid-19 virus had not yet been developed. With no indication of virus eradication, next year's learning environment remains uncertain and there is a possibility that students may have to do all or part of their learning remotely once more.

The purpose of this report is to examine the extraordinary change in teaching and learning during school closures from the perspective of second-level teachers in Ireland. Using findings from a survey of over 700 second-level teachers, the report provides a platform for a crucial voice in the continuation of education for students during this time. The survey sought information about three aspects of remote teaching and learning based on the following research questions:

- What factors impacted online student engagement during school closures?
- What teaching and learning strategies worked in engaging students at home?
- What supports are required for effective remote teaching and learning?

By analysing the insights of teachers at this point in time, this report provides important insights into what worked for teachers and students alike. The findings will not only be

important in planning for any future lockdowns due to the Covid-19 pandemic, but also for education more generally where there is evidence that certain teaching strategies adopted during this time improved student engagement in the learning process as a whole.

This chapter places the findings of the teacher survey in the context of recent debates about the impact of the Covid-19 pandemic and school closures on education. Section 1.1 focuses on the response of the Department of Education and Skills to this unprecedented period in Irish education and provides an overview of policy and guidance in the weeks following the school closure announcement. Sections 1.2 to 1.5 examine literature published since the beginning of lockdown on three main areas including: school closures and educational disadvantage, teaching and learning online; and teacher supports and professional development during school closures.

1. 1 Guidance from the Department of Education and Skills

In the weeks following the school closure announcement, the Department of Education and Skills issued a series of guidance documents, statements and circulars for school principals, teachers, parents and students. For many, the most pressing information related to students due to complete state exams (DES, 2020b; DES, 2020c; DES, 2020d). Specifically, as regards the state examinations, the decision to cancel the Junior Certificate was communicated on 10 April and to use calculated grades for Leaving Certificate on 8 May. Given the extent to which existing international research was stressing the impact of school closures on vulnerable groups of students such as those from disadvantaged backgrounds and those with disabilities, specific guidelines were published for the continued education of students with 'special educational needs' in mainstream schools and those at risk of educational disadvantage (DES, 2020e; DES, 2020f). Guidelines for schools on students' mental health and wellbeing were also published by the Department of Education and Skills and the National Educational Psychological Service (NEPS) (DES, 2020g). Specific measures were provided to support students at risk of educational disadvantage (DES, 2020h). For example, the government's School Meals Programme funding was continued during the extended closures.

Furthermore, schools were asked to make 'make school devices available' for students who could not access their online education due to lack of devices at home. Furthermore, on 20 April, the government provided substantial investment for devices for learners[3]. Schools were also advised to make resources such as books and photocopied material available to students who required them (DES, 2020i).

1. 2 Student engagement during Covid-19 school closures

The COVID-19 pandemic appears to have 'amplified and reinforced the digital, social, emotional, cultural and economic inequalities' that many students and their families were already facing (CEDEFOP, 2020). The decision by most countries to close schools meant that learning was to take place remotely and in students' homes. Before school closures, there was already an attainment gap between students from different socio-economic backgrounds. Research consistently shows how household income and family environment are major determinants of children's academic achievement in normal circumstances (Byrne and Smyth, 2011). By applying this theory to families during school closures, the ability to access different economic, cultural and social capitals by different social class groups (Bourdieu, 1977, 1984) is perhaps now all the more relevant. In Ireland, the national longitudinal study of children, the 'Growing Up in Ireland' study, has consistently shown how student attitudes towards, and performance in the education system is influenced by factors such as social class, income and maternal education (GUI, 2016). A number of research reports published in Ireland, the UK and the Netherlands since the beginning of the pandemic have highlighted how school closures have drastically worsened existing economic and educational inequalities for children living in poverty and from disadvantaged backgrounds (Elliot Major and Machin, 2020; Eyles et al., 2020; Bol, 2020; Doyle, 2020; Vignoles and Burgess, 2020; Mohan et al., 2020). These studies are essential if we are to understand the impact of school closures on students who were already vulnerable in school due to living in poverty or being socio-economically disadvantaged, having a disability, living in care, or those experiencing school exclusion. In addition to child and family circumstances, the research presented

[3] https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/PR20-04-22.html

herein highlights broader teacher and school-level factors influencing the extent to which student engagement in remote learning is taking place.

The research undertaken since the beginning of the Covid-19 lockdown has generally sought to identify barriers to learning at home for students and their parents. While some studies have highlighted issues around students having a lack of suitable physical study space (Sutton Trust, 2020; Doyle, 2020) much of the research published has focused on the 'digital divide' and found that by moving to online teaching and learning, the 'education gap' is widened between students with access to digital resources and internet access and those with none (Andrew et al., 2020; Mohan et al., 2020; Sutton Trust, 2020). UK research undertaken during the lockdown found that almost a quarter of students have 'little or no IT access at home' (NFER, 2020, p. iii). Using data on those accessing 'Free School Meals' as a measure of disadvantage, Green (2020) found similar results with one in five children eligible for the scheme having no access to a computer at home. In the Netherlands, Bol (2020) identifies large gaps in how children have learned during school closures, highlighting stark differences between different social groups, with children from more economically advantaged backgrounds found to have greater access to resources (such as computers) at home. In Ireland, research also highlighted how students from socio-economically disadvantaged backgrounds experience barriers in accessing digital technologies and broadband (Mohan et al., 2020). Focusing on school type, Cullinane and Montacute (2020) found that teachers working in the most deprived schools reported that more than a third of their students did not have adequate access to devices for learning at home compared to just 2 per cent of students in affluent areas.

Student engagement also appears to vary by school type. Based on the views of school leaders and teachers, NFER (2020) found that engagement was lower in the most deprived schools in the UK. The findings suggest that teachers in these schools are in contact with fewer students and feel that fewer of their parents are engaged. In the NFER study, teachers reported being in contact with 60 per cent of their students but that just over 40 per cent returned the 'last piece of set work' they set (p. ii). Cullinane and Montacute

(2020) noted differences in the level of engagement across different school contexts with 50 per cent of teachers in private schools reporting they are receiving more than three-quarters of work back, compared with 8 per cent in the least advantaged state schools (p.1). Furthermore, in the UK, Green (2020) noted differences in the type of engagement between public and private schools.

1. 3 Modes of engagement with students during Covid-19

Green (2020, p.2) suggests that the majority of schools are engaging in daily or weekly communication consisting of 'assignments, worksheets and watching videos' with students being given two pieces of this kind of work each day. The use of more active learning approaches such as online classes, videoconferencing, recorded online lessons and live chats appears to be socially stratified, with research by Cullinane and Montacute (2020) highlighting how students in private schools are more than twice as likely to use recorded online classes compared to students in state schools. They also found that just under a quarter of students were taking part in recorded online lessons every day but that middle class students are more likely to engage in these classes compared to their working-class peers (30 per cent compared to 16 per cent respectively). Green (2020) also noted that private schools are more likely to provide daily, live, online lessons compared to state schools. He also found that teachers working in private schools were more likely to check students work and almost all students in private schools had access to a computer at home. In the Netherlands, Bol (2020) found clear differences in the level of engagement between academic and vocational schools with far greater engagement between schools and students in academic tracks.

The type of virtual learning environment (VLE) or online platform being used by the school also appears to have an impact, with greater engagement reported by schools using VLE, as opposed to the school website, to inform pupils about learning activities. Furthermore, schools delivering learning content to pupils through online conversations or activities that involve consolidating previous learning or revising have higher pupil engagement levels and an increased probability of having highly engaged disadvantaged pupils (NFER, 2020). Cullinane and Montacute (2020) noted differences by school type in the use of

online platforms with 60 per cent of private schools and 37 per cent of state schools in affluent areas having a dedicated online platform in place to receive work, compared to just 23 per cent of the most deprived schools.

1. 4 Maintaining key skills when learning online

This research examines the extent to which the development of such key skills has been maintained through the move to online teaching and learning. While there is no agreed definition of key skills, many international groups, educationalists and organisations have called for educational reform and for students to learn 'key skills' or '21st century skills' in response to a rapidly changing and evolving society and to support individuals in their work, citizenship, and self-actualisation (Dede, 2010; NCCA, 2011). Junior Cycle reform in Ireland has sought to integrate the development of key skills across the curriculum. These key skills have been selected to empower young people to think critically, communicate effectively and work collaboratively while also supporting students in learning how to take responsibility for their own learning (NCCA, 2014)[4]. The skills are relevant to all subjects and so development and integration of them require an innovative approach to teaching and learning. NCCA guidelines emphasise how students need to encounter the various skills in different ways and through different contexts, throughout each school day.

While some argue that the move online might be the catalyst to create new and more effective ways in which to develop these non-tangible skills, others suggest that online learning is more suited to the development of traditional academic skills and rote learning (Li and Lalani, 2020). This report explores which of the key skills were well addressed during school closures and which were not (section 4. 2).

This study used Universal Design for Learning as the framework for examining teaching and learning practices. Developed by the Center for Applied Special Technology (CAST) in

[4] The six key skills that are integrated across the Junior Cycle are Managing Myself, Staying Well, Communicating, Being Creative, Working with Others, and Managing Information and Thinking (NCCA, 2014).

the United States, the Universal Design for Learning framework builds upon architectural and product design concepts of universal design to ensure an end result that meets the needs for the greatest diversity of individuals (CAST, 2018). Universal Design for Learning extends the concept to teaching and learning where the varied needs of all students are anticipated and the curriculum, pedagogy and assessment are specifically designed to facilitate access (Moherek Sopko, 2008). Using this model, barriers for students are eliminated during the initial designs rather than at a later point when individual adaptations may then be necessary (Chandler, Zaloudek and Carlson, 2017; Rose and Meyer, 2006). Internationally and in Ireland, UDL is mainly associated with practices in higher education but it is also evident in the further education sector (Quirke and MacCarthy, 2020). In Ireland, UDL is also specifically mentioned in the early years' curriculum, Aistear (NCCA, 2009) and the new Junior Cycle Framework (NCCA, 2014). UDL principles are designed to encompass the WHY, the WHAT and the HOW of learning and the pedagogical practices associated with achieving equitable access for all learners across different learning settings (CAST, 2018). The UDL framework offers a lens to explore pedagogical practices in a manner which is agnostic to the context of learning and acknowledges the uniqueness of contexts and learners (Rose et al., 2002). This study is an opportunity to examine the principles of UDL within the context of Irish second-level instruction during school closures.

Dickinson and Gronseth (2020) have examined the extent to which closures during the pandemic have increased the application of Universal Design for Learning (UDL) principles in higher education. UDL and, in particular, the increased use of digital technology by schools, provides greater flexibility in the way information is presented to students, in the way students respond or demonstrate knowledge and skills, and in the way students are engaged. Through the adoption of alternative modes of communication, more flexible approaches to the curriculum and great choice and autonomy in assessment, education has become more inclusive for some students and many barriers to learning have been removed (Dickinson and Gronseth, 2020).

1. 5 Teacher capacity and support during Covid-19

Teacher professional development builds on existing knowledge to allow teachers access up-to-date knowledge and practices which are needed for them to be effective (Starkey et al., 2009). Research by McMillian, McConnell and O'Sullivan (2016) which outlines what factors motivate teachers to engage in continuous professional development (CPD) found that while personal factors (career motivation, personal growth) and school factors (peer feedback, school policy) were important, the most influential factor was compulsory CPD. When Covid-19 disrupted the Irish education system, learning moved online, and teachers were left to teach in a manner for which they had received no formal training. Decisions on whether or not to engage with CPD was left up to the individual school or teacher. Teachers were advised to source online resources through scoilnet.ie, webwise.ie and the Professional Development Service for Teachers (PDST) websites, which would provide them with resources and materials for the transition to remote education.

Research since school closures has highlighted issues around teacher confidence and capacity to work from home. In a UK study, between 66 per cent and 75 per cent of teachers surveyed rated their ability to offer remote learning support to pupils as 'good or very good' but acknowledged that certain aspects of the curriculum were not being covered including core curriculum subjects (NFER, 2020). In Australia and New Zealand nearly equal numbers of teachers said they were either 'confident' or 'not confident' about the efficacy of online learning with 80 per cent of teachers reporting that they believed students would be in need of extra instructional support once schools re-opened. Teachers found it difficult to best adapt their teaching practices for digital schooling and approximately 40 per cent reported being only 'somewhat confident' or 'not at all confident' in their school's ability to cater for students' learning needs online (Flack et al., 2020).

The role of school leadership, and in particular a whole-school approach to moving education online, has emerged as a key factor in supporting teachers, and thus improving student engagement. NFER (2020) found, for example, that 90 per cent of senior leaders

said they provided a whole-school approach to teachers transitioning to online learning in their schools. Teachers working in these school contexts can access guidance around the type and amount of work set as well as feedback to pupils on the work they submitted (Lucas, Nelson and Sims, 2020). This study examines teachers' support structures and sense of self-efficacy during school closures in Ireland. It provides a unique insight into the professional development and supports teachers found useful and highlights what they feel is required given the uncertainty around education in the near future.

1. 6 Outline of the report

Chapter 2 outlines the methodology used in the research. Chapter 3 focuses on student engagement with a particular focus on the barriers to engagement for students attending schools with designated disadvantaged status. Chapter 4 examines the impact of school closures on teaching and learning and highlights teaching approaches used across different school contexts. Chapter 5 provides insights into the teachers own experiences of moving to education online. This chapter also examines the view of teachers in what supports are required both now and in the future. Chapter 6 provides a summary of the findings of the report and highlights policy implications stemming from its findings.

2 Methodology

This chapter sets out the methodology for the study and the characteristics of the participant sample. The descriptive, statistical and qualitative analysis processes are also outlined.

2. 1 Questionnaire design

A survey of teachers in primary and second-level schools in Ireland was carried out between Wednesday 3rd and Friday 19th June 2020. The survey was conducted by a self-completion questionnaire online, using the Qualtrics survey tool. The focus of this report is on the data gathered from second-level teachers. The primary school data will be used in a later report.

The 15-minute, anonymous survey examined teaching and learning practices, levels of engagement with students, and professional development resources used and needed for online learning during COVID-19, as well as post-lockdown implications. Given their centrality in engaging with students and providing continuity of learning for students, the purpose of the questionnaire was to gain insight into the experiences and perspectives of teachers having transitioned from the classroom to online teaching. The survey sought information about the nature and frequency of interactions with students since school closures and the extent to which teaching and learning practices have changed over time. Teachers were also asked to provide information on the types of platforms and other technologies being used to communicate with students. The survey explored teachers' perceived barriers to student engagement during lockdown, focusing on the availability of resources such as digital technologies, parental input and support, and time. Finally, the survey explored the level of interaction and support teachers received from management and colleagues and teacher self-efficacy during this period of change.

In an effort to ensure validity and reliability of results, many of the scales used in the survey (self-efficacy, wellbeing etc.) were drawn from instruments that had already been validated and whose internal consistency had been established (Bray et al., 2020). Items relating to teaching and learning practices were adapted from Universal Design for

Learning guidelines outlined by CAST,[5] which provides a coherent conceptual framework to explore practices of teachers in providing an accessible learning environment online as well as in face-to-face settings. The UDL items were also mapped onto the Junior Cycle Key Skills (Appendix 1) in order to explore the levels of teaching and learning practices that provide continued support for the development of such skills in the online environment. A number of questions in the survey were open-ended allowing teachers to input their views and responses on a range of issues such as student engagement, teaching and learning and supports during school closures. These qualitative findings are used throughout the report and provide a more holistic perspective on teaching during lockdown. By using the quantitative results in combination with these qualitative responses, many of the findings were strengthened and verified. This analysis also provides the opportunity to highlight differences and commonalities between the quantitative and qualitative data.

The survey was piloted by two professionals in the field and some minor adjustments were made as a result.

2. 2 Sampling

In Ireland, second-level education comprises voluntary secondary schools, Education and Training Board (ETB) schools and community/comprehensive colleges. There are 723 second-level schools, which are made up of over 28,000 teachers and over 350,000 students (DES, 2019).

The sample of teachers included in this report was selected using voluntary response and snowball sampling methods, with the invitation to contribute to the online survey circulated widely through all available networks and social media.

In total, the survey was completed by 1302 teachers, consisting of 540 primary school teachers, 723 post-primary school subject teachers, and 39 guidance counsellors. The data in this report relates only to the 723 post-primary school subject teachers from

[5] http://udlguidelines.cast.org/?utm_medium=web&utm_campaign=none&utm_source=cast-about-udl

approximately 102 schools. Given that there are over 28,000 second-level teachers in Ireland this sample represents approximately 3 per cent of the population.

2. 3 Demographics of the sample

The majority of respondents to the survey were female (73 per cent), with 84 per cent of responses from teachers between the ages of 25 and 55. As regards the gender mix of schools, the sample roughly approximates to the national distribution of schools which has 68 per cent mixed, 14 per cent boys only, 18 per cent girls only (Figure 2.1). As regards school size, the representation of teachers from large schools (+700) is larger than the national distributions where the schools are distributed approximately evenly across the four categories defined (Figure 2.1). No information on the geographic location of the respondents was collected.

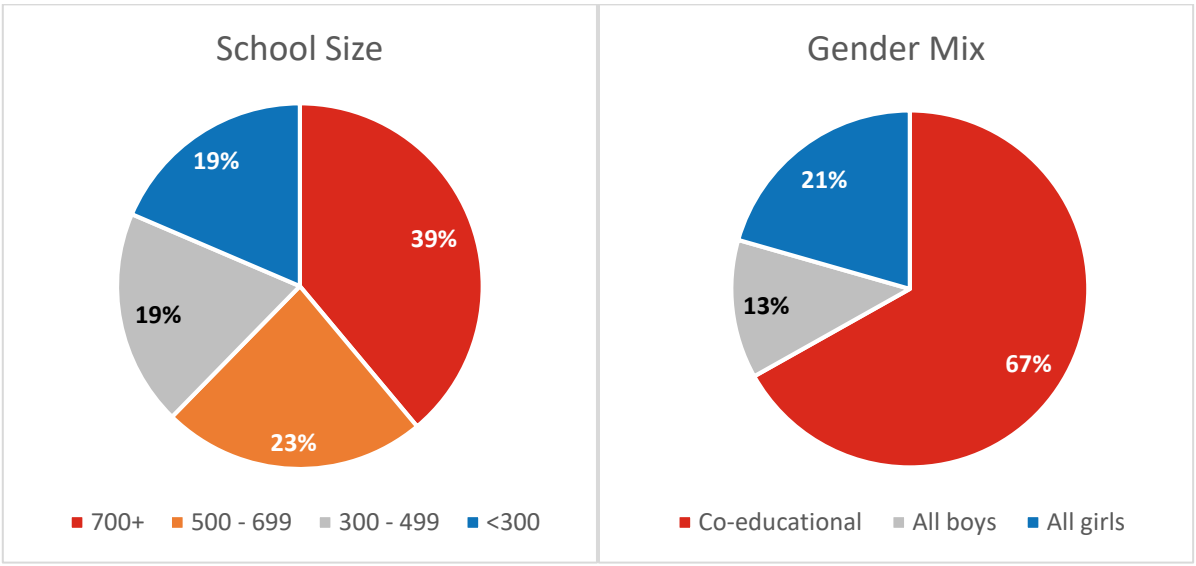

Figure 2. 1: Demographic information related to school type.

In relation to DEIS status, roughly half of the respondents (49.7 per cent) are teaching in schools that have been designated as 'disadvantaged'. This strong representation of teachers from DEIS schools is higher than the national proportion (27 per cent of Irish post-primary schools have DEIS status) and is likely due to the strong connections with Trinity Access-linked institutions. Despite the fact that this may not be nationally

representative, the opportunity to provide a strong voice to practitioners and other stakeholders in these contexts is vitally important.

2. 4 Data analysis

Analysis of the survey data was largely descriptive, examining levels of student engagement in remote learning, teaching and learning during the lockdown, and teacher supports and professional development, as well as how these differed across school type, size and disadvantaged status.

Multi-variate linear and logistic regression models were used to understand key factors influencing student engagement focusing on school characteristics, barriers to online learning, teacher experiences and modes of engagement.

Qualitative analysis was used on the survey's open-ended questions. Using qualitative data analysis software NVivo 12, the data was coded into themes, many of which corresponded with the quantitative analysis such as teacher perspectives on the barriers to student engagement; teacher experiences of teaching and learning during school closures; and teacher use and need of supports during lockdown. The analysis also identified a number of themes not specifically sought in the quantitative data such as teacher wellbeing and stress.

2. 5 Summary

By gathering the teacher perspective, the information presented in this survey provides crucial evidence around what has and has not worked, with important implications for education policy and practice going forward, be it online or face-to-face. While the survey sample represents only 3 per cent of the teacher population in Ireland, the 723 responses across a range of school types and teacher demographics allow a critical insight into the experiences of teachers during school closures. Importantly, the analysis presented in this report highlights what teachers perceive as the primary barriers to the provision of education in a remote setting, providing a good indication of specific areas to be addressed. These findings are invaluable for understanding how students learn and how

to best prepare teachers for continuing their provision of quality education in blended, online or indeed, face-to-face settings.

3 Student Engagement During School Closures

3. 1 Introduction

Research has consistently shown how relationships in school and, in particular, teacher–student relationships influence student engagement and academic success (Pianta et al., 2012). Studies have highlighted that a positive teacher–student relationship can have a particular impact on more vulnerable students such as those with poor attendance and those at risk of early school leaving (Smyth et al., 2019). Both national and international research published since schools closed in March 2020 have highlighted how the move to online teaching and learning has negatively impacted some groups of students specifically those from economically disadvantaged backgrounds, those attending schools in disadvantaged areas and students with disabilities. This chapter examines student engagement in second-level schools in Ireland as reported by teachers. It focuses on the barriers to online teaching and learning and examines the factors impacting student engagement including school characteristics, IT access, modes of communication and teacher self-efficacy and support structures.

3. 2 Levels of student engagement across schools

Engagement is measured through teacher reports of the proportion of students engaging with online learning. In the survey, teachers were asked to report the percentage of students were continuing to engage with learning in each class group they teach on a 5-point scale from under 10%, 11-30%, 31-50%, 51-70%, and over 70% of students continuing to engage. Low engagement is defined as an average of less than 30 percent of students engaging with learning across class groups (excluding transition years. See below for rationale relating to unusual distribution of this year group), as reported by a teacher. Medium to high engagement is where the average student engagement is 31 per cent or higher across all class groups. The findings show that across all school types, 79 per cent of teachers reported that their students engaged at medium to high levels with online learning during school closures, with just 21 per cent reporting low engagement from students during this period.

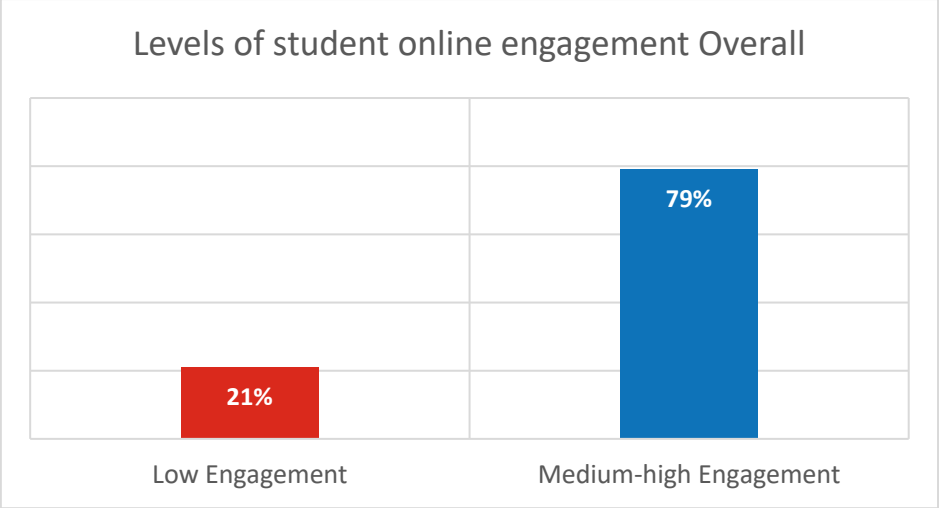

Figure 3.1: Levels of student engagement with online learning at home

Source: Covid-19 Teacher Survey, 2020.

Figure 3.2 shows some variation in the level of engagement across year groups with the most engagement from first- and fifth-year groups. The most notable difference was between students in Transition Year when compared with all other year groups, with 50 per cent of teachers reporting low levels of engagement with online learning from their TY students. This is perhaps not surprising given the nature of this one-year programme. The findings show only slight differences between the other year groups, which may seem unusual given the Junior and Leaving Certificate state examinations being held in third and sixth year. Given the time the data was collected (June 2020) these findings may reflect the impact of the cancellation of state examinations, with the cancellation of Junior Certificate examinations announced on 10 April (DES, 2020b) and the use of calculated grades for the Leaving Certificate on 8 May (DES, 2020c,d) . The qualitative analysis of the open-ended questions in the survey also highlighted the impact of the cancellation of state examinations on student engagement. One teacher noted how:

> *Engagement from students plummeted after announcements about the junior cert.*

Another also noted the impact of government announcements on student engagement:

I think once the minister for education announced all students were getting full marks for their oral exam early on, the students knew they passed the Irish exam.

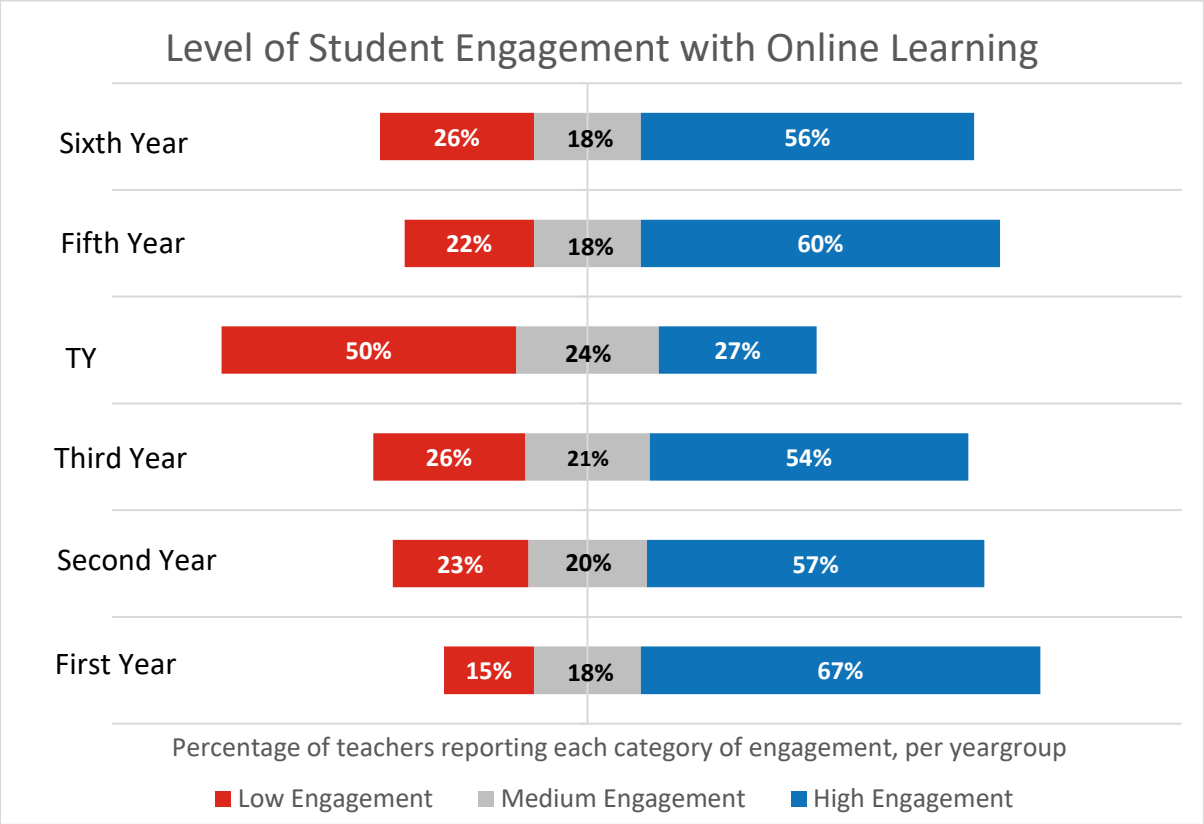

Figure 3.2: Percentage of students engaging with online learning at home by year group

Source: Covid-19 Teacher Survey, 2020.

The disadvantaged (DEIS) status of the school also appears to influence levels of engagement among students, with considerably lower engagement in DEIS settings compared to non-DEIS settings (Figure 3.3).

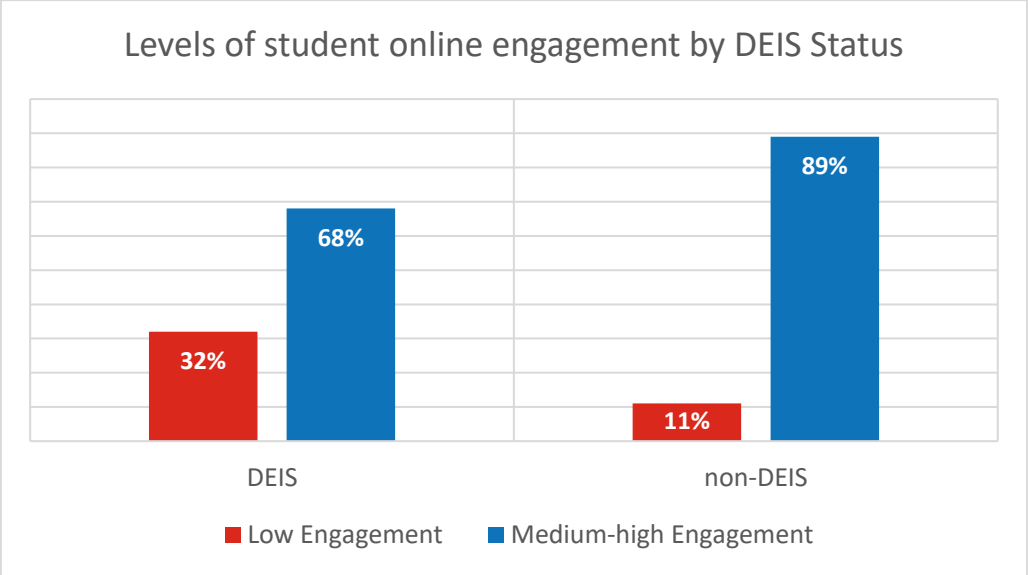

Figure 3. 3: Levels of engagement by DEIS status

Source: Covid-19 Teacher Survey, 2020.

3. 3 Barriers to online learning

In the survey, teachers were asked to identify the main barriers for students in engaging with online learning. Figure 3.4 shows that teachers reported a lack of interest from the students themselves as being the most significant barrier followed by a lack of support from home. The qualitative analysis highlighted that this 'lack of interest' was significant source of stress for some teachers who were concerned about disengagement among students who were already struggling in school, as well as those with disabilities. One teacher felt that '*those who do need help are more reluctant than before to come forward*'. Another expressed frustration at not being able to protect vulnerable students as they normally do in class:

> *My stress levels in relation to our very vulnerable students were much higher as it was not possible to 'check-in' with them as often, to observe their behaviour and ask them if they were okay.*

One teacher described how they felt '*Covid19 has brought the problems of social disadvantage into sharper focus especially in relation to student learning*'. Others were worried about the welfare and wellbeing of some students:

> *I teach in a* DEIS school and many of our students were already disadvantaged before covid19. I worry about their home life now. How many of our students have parents who are now unemployed, how many have lost a loved one to the disease, how many are trapped in an unhappy home life?

Teachers were conscious of the difficulties in trying to maintain the engagement of these student but also had to keep individual family situations in mind:

> *The lack of engagement by students was a worry and how to address that without adding more stress to families is an issue.*

In addition to concerns about a lack of engagement from vulnerable students and those from disadvantaged backgrounds, the qualitative findings highlight the difficulties for some teachers in maintaining engagement online among students with disabilities. One teacher referred to students who needed additional supports in school and "*could not hack remote learning and preferred face-to-face tuition*", and another expressed concerned that their "*students with SEN miss the opportunities to talk and share and receive direct support*". Other teachers reported the opposite however, with their SEN students "*being able to work at their own pace without being judged or criticised*" by their peers.

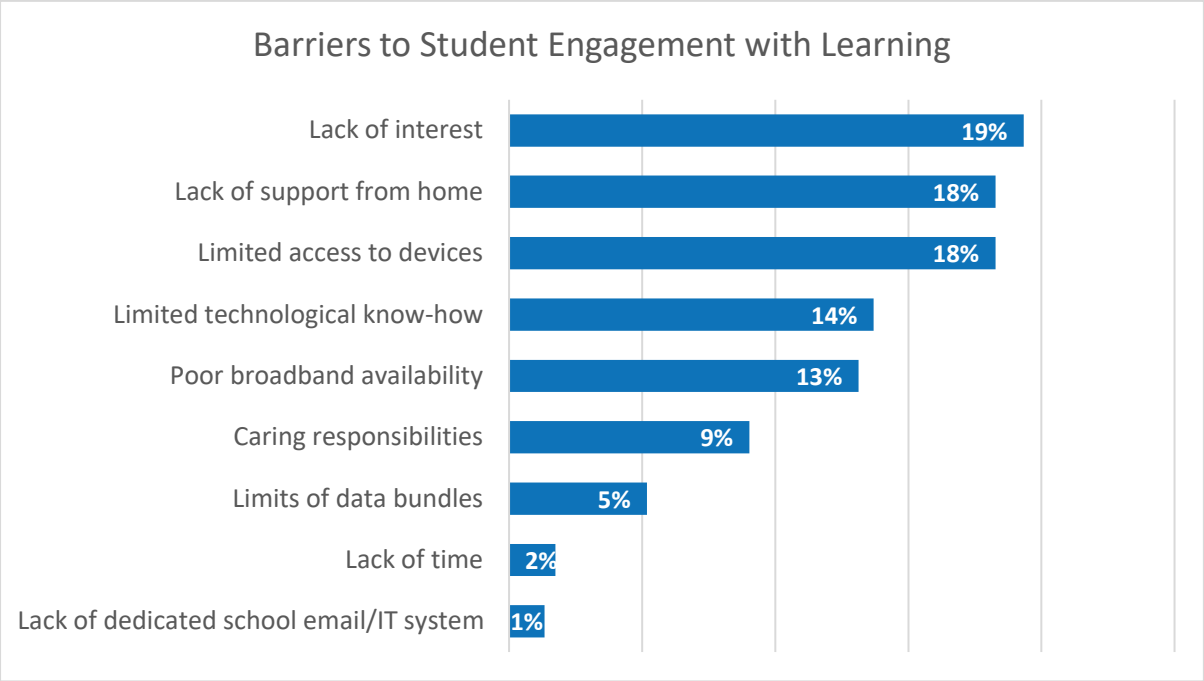

Figure 3.4: Barriers to student engagement with online learning at home

Source: Covid-19 Teacher Survey, 2020.

In line with findings internationally (Andrew et al., 2020; Mohan et al., 2020; Sutton Trust, 2020), teachers reported that limited access to resources such as devices was also a key factor in preventing students from fully engaging with online learning at home. The qualitative findings confirm access to devices as a problem for student engagement, with many teachers aware of students with limited or no access:

> *my students have very little access to devices at home and are often working off a parent's phone. I haven't heard of any who had access to a printer and the children were without a lot of their textbooks.*

Reliable broadband was also highlighted by a number of teachers as being the reason for student disengagement with school:

> *The lack of broadband infrastructure, the poor and unrealistic expectations that we all have super-fast, super reliable broadband with everyone having access to a laptop, iPad, tablet.*

The survey also sought information in relation to changes in student engagement with learning as a result of the school closures, with a particular focus on identifying student groups that may be more at risk of disengagement. Figure 3.5 highlights perceived student engagement by students' attendance patterns. It shows that almost 70 per cent of students who were already at risk of disengagement, or 'reluctant attenders', experienced further disengagement while learning at home. This is compared to 39 per cent of 'regular attender' students. Interestingly, a small percentage of non-attenders, reluctant attenders and regular attenders appear to have increased their levels of engagement with the move to online learning.

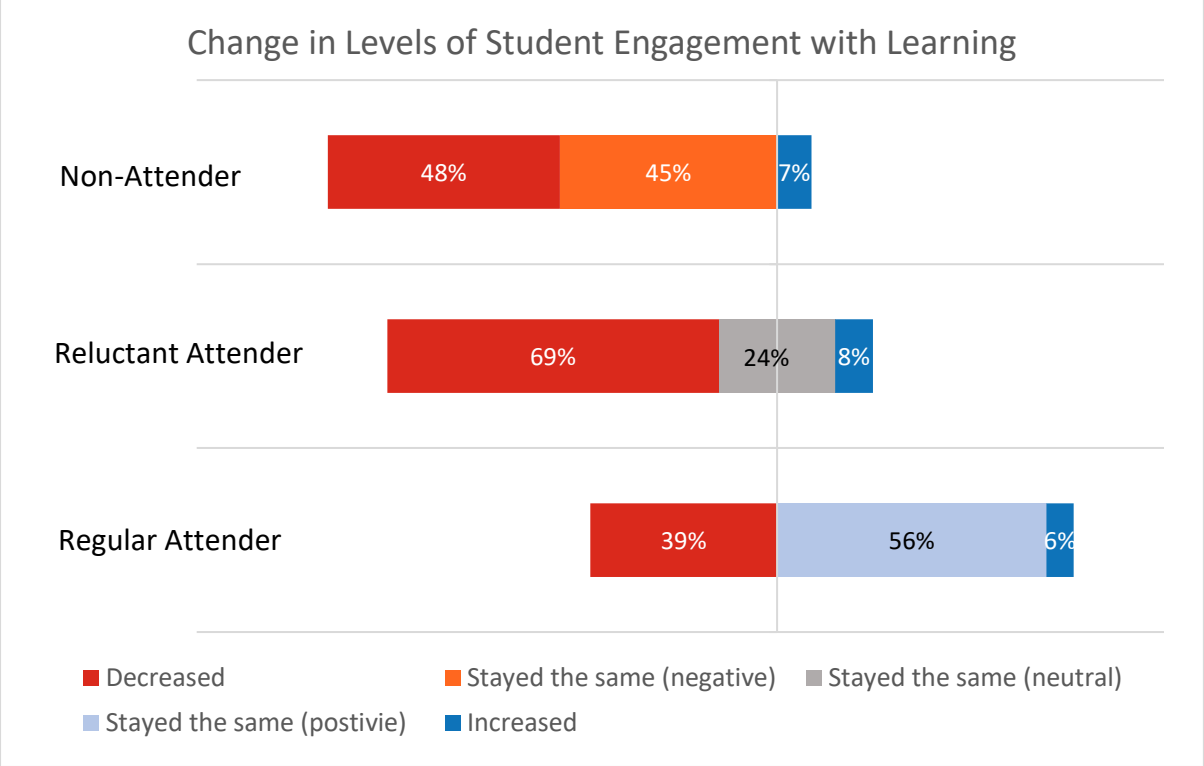

Figure 3.5: Change in student engagement by student attendance pattern

Source: Covid-19 Teacher Survey, 2020.

Teachers were also asked to report on their own barriers to the provision of continuity of learning for their students since the move to remote teaching. The findings (Figure 3.6) demonstrate that the most frequent barrier to their provision of continuity of learning since school closures – identified by 33 per cent of teachers – was a lack of engagement

from their students. Evidently, the multifaceted student barriers reflected in Figure 3.4 all contribute to this perceived lack of engagement from students. Teachers also report a lack of time and the pressure of their own caring responsibilities in the home as barriers in this respect. Furthermore, twelve per cent of teachers reported having limited knowledge of the appropriate pedagogy to use online and 10 per cent had limited technological know-how.

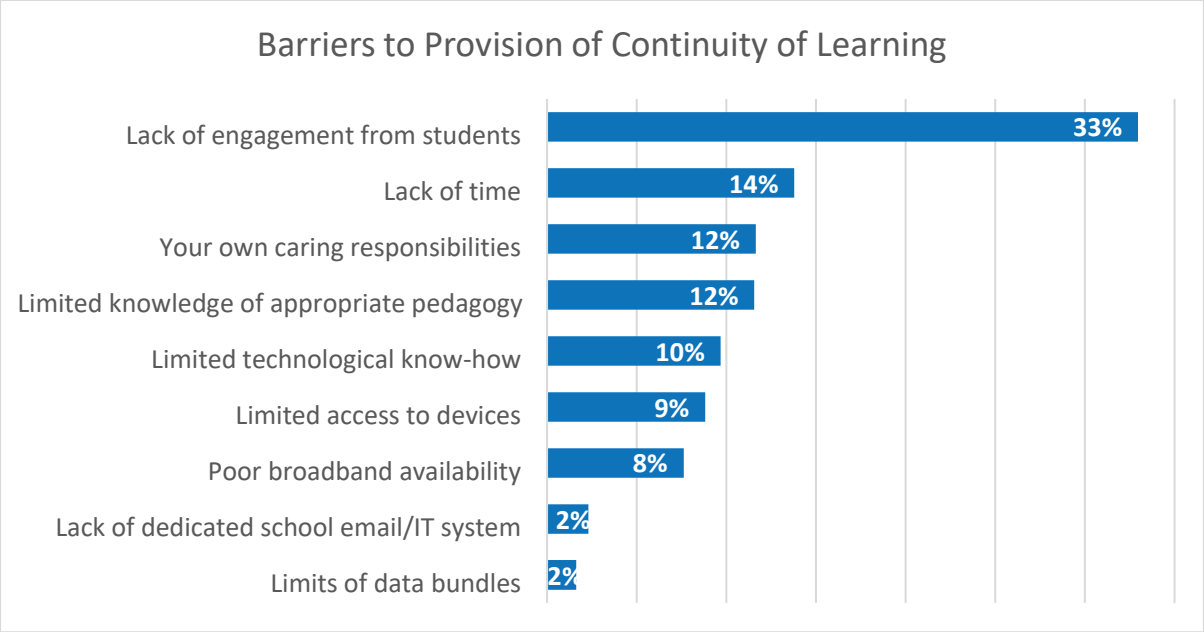

Figure 3.6: Barriers to online teaching for teachers

Source: Covid-19 Teacher Survey, 2020.

3. 4 Predictors of low engagement

Using multilevel logistic regression modelling, this section examines in more detail the factors influencing low levels of student engagement in online learning during school closures. The descriptive analysis presented thus far has shown the relationship between levels of student engagement and a number of variables such as year group or DEIS status. However, a number of school and teacher characteristics can occur concurrently. In order to understand the processes shaping low levels of student engagement, we therefore need to control for a number of factors simultaneously in a regression model; this allows us to estimate the extent to which the factors predict the outcome in question. Because

the outcome is binary (low engagement contrasted against other types of engagement), a binary logistic regression model is used.

Table 3.1 shows the factors found to predict low levels of student engagement during school closures with 'low engagement' reflecting teachers who report less than 30 per cent of their students engaging with online learning since lockdown. Positive coefficients mean that a factor is associated with a greater chance of having low engagement while negative coefficients mean that a factor is associated with a lower chance of having low engagement.

Model 1 explores school characteristics, such as the size of the school, gender mix, DEIS status, language medium etc., and indicates that certain school characteristics are predictors of teachers reporting low levels of engagement from their students. The between school variance is statistically significant with teachers of students in co-educational schools (n = 468) almost twice as likely to report low engagement than those in all-girls schools (n = 101) with no significant differences in reports from teachers in all-boys schools (n = 88). Teachers in DEIS schools (n = 359) are almost 3 times more likely to report low engagement than those in non-DEIS schools (n = 364).

Model 2, taking into account the variance explained by school characteristics, examines the impact of perceived barriers to student engagement with online learning, considering both the teacher and student barriers identified earlier in this section. The lack of a dedicated school IT system emerged as a significant predictor of teachers reporting lower levels of engagement from students. Although only four per cent of respondents reported not having a dedicated email or IT system, this factor was predictive of low engagement with these respondents 5.5 times more likely to report low engagement. Although only a small percentage of respondents reported this issue, the large effect size strongly suggests that appropriate IT infrastructure is critical to effective online or blended learning.

Model 3 highlights the extent to which teacher characteristics can further predict levels of student engagement, given the school characteristics and barriers already considered. The findings show that lower levels of self-efficacy with regards to online learning is a significant predictor of teachers reporting low levels of online engagement from their students.

Table 3.1: Factors influencing low student engagement

Factor	Model 1	Model 2	Model 3
Constant	2.561***	2.669***	1.064
School Characteristics			
Gender mix (ref: Girls)			
Co-ed	.640*	.730*	.654*
Boys	.873*	.783*	.601
Disadvantaged status (ref: non-DEIS)			
DEIS	1.163***	1.127***	1.046***
Barriers to Engagement			
Lack of dedicated school email/IT system		1.569***	1.708***
Teacher characteristics			
Low self-efficacy			-.612***
Nagelkerke R2	.100	.126	.200

Note: From a logistic regression model.
***** p<.001; ** p<.01; * p<.05; © p<.10.**
Source: Covid-19 Teacher Survey, 2020.

3. 5 Student engagement by DEIS status

As DEIS status accounts for such a large proportion of the variance in student engagement with learning since the lockdown, and given the large percentage of respondents falling into each category (DEIS = 395, non-DEIS = 364), it is important that we understand the differences in barriers to student engagement with online learning, at teacher and student levels, that are likely to be accounted for by this variable. The findings[6] show statistically significant associations between DEIS status and each of the barriers outlined in Table 3.2,

[6] Chi square tests of association were carried out.

with teachers in DEIS schools significantly more likely to report these as barriers to student engagement with learning during lockdown.

Table 3.2: Barriers in DEIS schools

Barrier	χ2	df	p-value
Lack of Support from home (Student)	29.058	1	<.001
Lack of engagement from Students (Teacher)	23.956	1	<.001
Lack of interest (Student)	15.929	1	<.001
Limited technological know-how (Student)	14.169	1	<.001
Limited access to devices (Student)	10.940	1	.001
Limits of data bundles (Student)	6.464	1	.011

Source: Covid-19 Teacher Survey, 2020.

The stark differences between the percentage of teachers reporting these barriers in DEIS and non-DEIS settings are represented visually in Figure 3.7

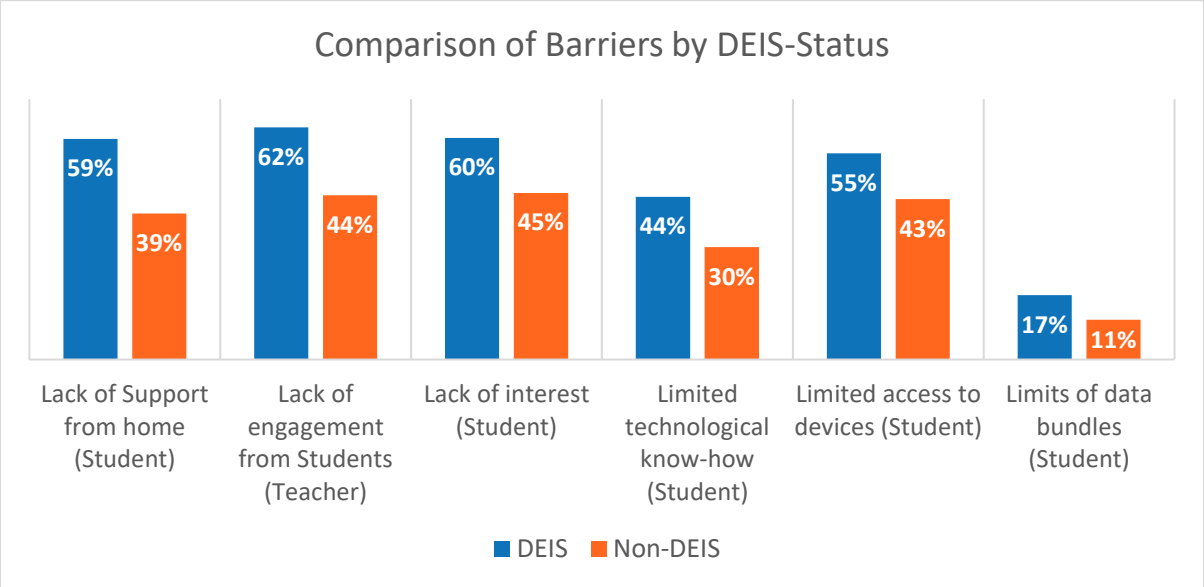

Figure 3.7: Barriers to student engagement with online learning

Source: Covid-19 Teacher Survey, 2020.

Significant differences were also identified[7] in relation to the use of recorded classes and the use of assessment of work and provision of feedback, with teachers in DEIS schools reporting statistically significantly lowers levels of usage of both of these modes of engagement with students. Furthermore, significant differences were also identified in the levels of online engagement with colleagues, with teachers in non-DEIS schools reporting higher levels of this variable; see chapters 4 and 5 for in-depth discussions of the modes of engagement and teacher supports.

Table 3.3: Significant differences between DEIS/non-DEIS re modes of engagement and interactions with colleagues

	DEIS		**Non-DEIS**		
	M	SD	M	SD	t-test
Use of recorded classes	2.56	1.384	2.62	1.477	3.477**
Assessment of work with feedback	4.24	.927	4.41	.822	2.579**
Levels of online engagement with colleagues	2.80	.828	2.93	.794	2.022*

Note: From a logistic regression model.
***** p<.001; ** p<.01; * p<.05; © p<.10.**
Source: Covid-19 Teacher Survey, 2020.

In summary, teachers in DEIS schools were more likely to report increased technical and socio-cultural barriers to student engagement, reduced use of recorded classes and feedback on assessment and less online collaboration with colleagues. Given that many of the predictors of low engagement are likely to be accounted for by the DEIS status variable, the next section examines the predictors of low engagement within DEIS schools and non-DEIS schools separately. The purpose of this is to identify what are the predictors of low levels of student engagement with online learning over and above those accounted for by DEIS status.

[7] Independent *t*-tests were carried out to identify significant differences.

3.5.1 Predictors of low engagement in DEIS schools

Replicating the approach taken for the full cohort, similar models were run for the cohort of respondents from DEIS schools.

Model 1 identified school size as a significant predictor of low levels of student engagement in DEIS schools, with teachers in larger schools (>500 pupils) significantly more likely to report low engagement than those in schools with less than 300 pupils.

Model 2 highlights different barriers as predictors of low levels of student engagement with online learning at home. The most significant predictor of students' low levels of engagement with online learning was teachers' own access to good broadband, with the 12 per cent of respondents who identified poor broadband availability as a barrier to their provision of continuity of learning 3.5 times more likely to report low student engagement.

Model 3 highlights that, similar to the whole cohort of teachers, lower levels of self-efficacy amongst teachers in DEIS schools is a significant predictor of their reporting low levels of engagement from their students.

Model 4 shows that in the DEIS context, the mode of delivery of online learning is a significant predictor of levels of student engagement. In particular, teachers who assessed students work and provided them with feedback were significantly less likely to report low levels of student engagement with online learning.

Table 3.4: Factors influencing low student engagement in DEIS schools

Factor	Model 1	Model 2	Model 3	Model 4
Constant	-.396	-.372	1.214	2.818**
School Characteristics				
School size (ref <300)				
300 – 499	-.231	-.204	-.297	-.246
500 – 699	-.596	-.681*	-.893*	-.789*
700+	-.831*	-1.000**	-1.055*	-.952*
Barriers to Engagement				
Poor Broadband		1.292**	1.242**	1.298**
Teacher Characteristics				
Low self-efficacy			-.581**	-.541**
Modes of Delivery				
Assessment of work with feedback				-.435**
Nagelkerke R2	.029	.079	.138	.175

Source: Covid-19 Teacher Survey, 2020.

3.5.2 Predictors of low engagement in non-DEIS schools

In non-DEIS settings only two levels of the multilevel regression revealed significant results.

Model 1 suggests how the gender mix of schools is a significant predictor of low levels of student engagement with online learning, with teachers in all-boys schools (n = 54) 4.7 times more likely to report lower levels of engagement than those in all-girls schools (n = 101). No significant differences were identified between either all-boys or all-girls and co-educational schools (n = 195).

Model 2 related to teacher characteristics, with teacher self-efficacy emerging as a significant predictor of engagement; teachers with low self-efficacy were more likely to report low levels of engagement from their students. A high level of online interaction with colleagues was a predictor of teachers reporting higher levels of engagement from their students.

Table 3.5: Summary of factors influencing low student engagement in non-DEIS schools

Factor	Model 1	Model 2
Constant	2.574***	3.106*
School Characteristics		
Gender mix (ref: Girls)		
Co-ed	.526	.407
Boys	1.770**	1.538**
Teacher Characteristics		
Higher self-efficacy		-.704**
Greater interaction with colleagues		-.595*
Nagelkerke R2	.029	.079

Source: Covid-19 Teacher Survey, 2020.

3. 6 Summary

This report indicates that overall levels of student engagement with learning during school closures was medium-high (> 30 per cent) across schools with just one-fifth of teachers reporting low percentages (< 30 per cent) of students engaging with online learning.

In line with national and international findings, teachers working in DEIS schools were almost 3 times more likely to report low engagement from their students compared to those in non-DEIS settings. Given the extent of the differences in the levels of student engagement between these contexts, this report provides insights into the key barriers to engagement for students in DEIS settings. Analysis of responses identified that the impact of a lack of support from home, and a general lack of interest in education are two of the most significant barriers in DEIS schools. Furthermore, teachers found that students in DEIS schools were significantly more likely to experience barriers in relation to access to technology and devices than their non-DEIS counterparts. Regarding teachers' own barriers to teaching online, one of the biggest barriers was the perceived lack of student engagement in this process followed by their own lack of time to work from home.

Regarding students who were at risk of disengagement prior to school closures, the findings outlined in this report show that online learning has negatively impacted on this group with students who were 'reluctant attenders' disengaging further.

Teacher self-efficacy consistently emerged as a significant factor in reported levels of student engagement, with teachers reporting low self-efficacy more likely to report lower levels of student engagement. This clearly points to a need for the provision of support for teachers in relation to their competence and confidence to engage in effective online teaching and learning practices. This is dealt with in more detail in chapter 5.

IT infrastructure also emerged as a significant barrier to teachers' ability to provide continuity of learning for a small percentage of teachers. In particular, the lack of a dedicated school IT system was a negative predictor of levels of student engagement across DEIS and non-DEIS schools, with poor broadband availability impacting negatively on teachers in DEIS schools.

Within the DEIS context the findings also point to a significant relationship between the mode of delivery of teaching and learning, and students' levels of engagement with online learning. In particular, the use of assessment with feedback emerged as critical in ensuring student engagement in the DEIS context. This points to a need for a more interactive and collaborative approach to teaching and learning in these settings, which could perhaps go some way to address some of the cultural and social barriers (lack of interest/lack of support) that tend be more prevalent in under-represented contexts. These findings will be further explored in chapter 4.

4 Teaching and Learning: Modes, Tools and Practices

4. 1 Introduction

To ensure continuity of learning, many education systems developed rapid responses to school closures and moved classes online (OECD, 2020). To date, there is little understanding of how these unprecedented events have impacted teaching and learning. In Ireland, Mohan el al (2020) explored the use of different means of communication and platforms for provision of classes and feedback and changes to some teaching and learning practices. Findings in the UK context suggest that differences in IT infrastructure and in mechanisms for providing work (Cullinane and Montacute, 2020) as well as the volume of work set and teacher corrections (Green, 2020) are socially stratified. In the UK context, teachers report that the provision of work and resources was the primary teaching and learning activity during school closures with limited focus on collaboration or metacognitive strategies (NFER, 2020). This chapter offers a unique perspective on changes to teaching and learning in Irish second-level schools. It highlights the key characteristics of teaching and learning during school closures such the frequency of contact across year groups, the modes of engagement with students, the platforms and tools used and most importantly the teaching and learning practices deployed by teachers during the school closures. The survey addressed teachers' use of 24 teaching and learning practices and the degree to which their use of these practices has increased or decreased during school closures. The 24 practices draw on the framework of Universal Design for Learning (Rose, et al., 2014), which examine accessing, building and internalising learning. The practices have been categorised in alignment with the Junior Cycle Key Skills (NCCA, 2014) to explore how continuity of learning in relation to the key skills has been addressed during the shutdown.[8]

4.2 Frequency of contact

On average, teachers were in touch with their students approximately 2-3 times a week for all year groups, with the exception of Transition Year students where contact is less

[8] Appendix X contains the full list of UDL teaching and learning practices investigated and the Key Skills categorisation.

frequent as illustrated in figure 4.1. The frequency distribution is similar for full class groups and individual students. In contrast to the NFER report on the frequency of contact for teachers in disadvantaged areas in the UK context (NFER, 2020), the frequency of contact is similar in DEIS and non-DEIS schools in the study sample

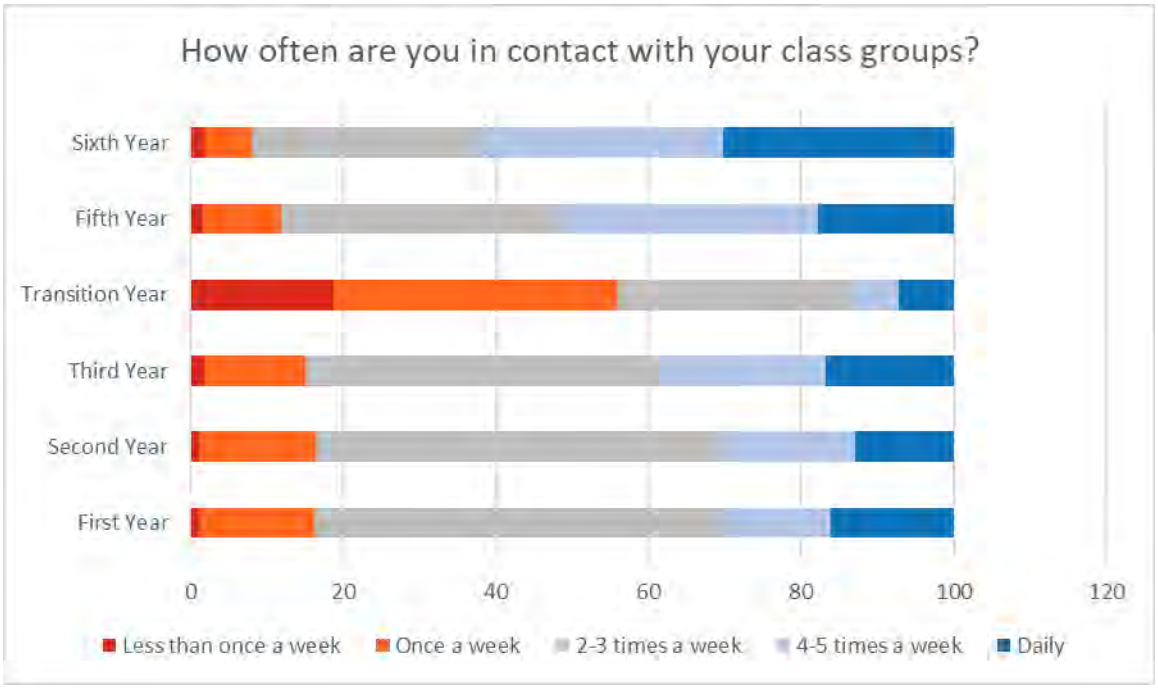

Figure 4.1: Frequency of contact by class group

Source: Covid-19 Teacher Survey, 2020.

4.3 Modes and tools for engagement

Teachers were asked to report the modes of engagement in relation to teaching and learning they were using with students during school closures. Figure 4.2 demonstrates the prevalence of asynchronous communication (where communication is not happening in real time but at different times) through messaging, distributing work and providing feedback and sharing resources. Although, synchronous real-time online classes are used, they do not appear to be the dominant mode of engagement, and recorded classes are rarely used. The use of video for class provision whether live or recorded is not as common as the provision of other resources and assignments. As expected, many teachers report employing a range of modes to connect with their learners. The findings show however, that the more regular the weekly contact with learners, the greater the use of all modes of

engagement. As noted in chapter 3, modes of engagement are significantly correlated with DEIS status in some cases. Specifically, teachers in DEIS schools report statistically significantly lowers levels of usage of recorded classes and assessment of work with provision of feedback than their non-DEIS counterparts. Also, similar to the UK context (Cullinane and Montacute, 2020), teachers in private schools are more likely to report higher use of real time and recorded classes.[9] These finding would suggest that there has been limited live interaction during the school closures, particularly in DEIS schools, as contact with learners tends to be asynchronous and transactional with teachers delivering and receiving content.

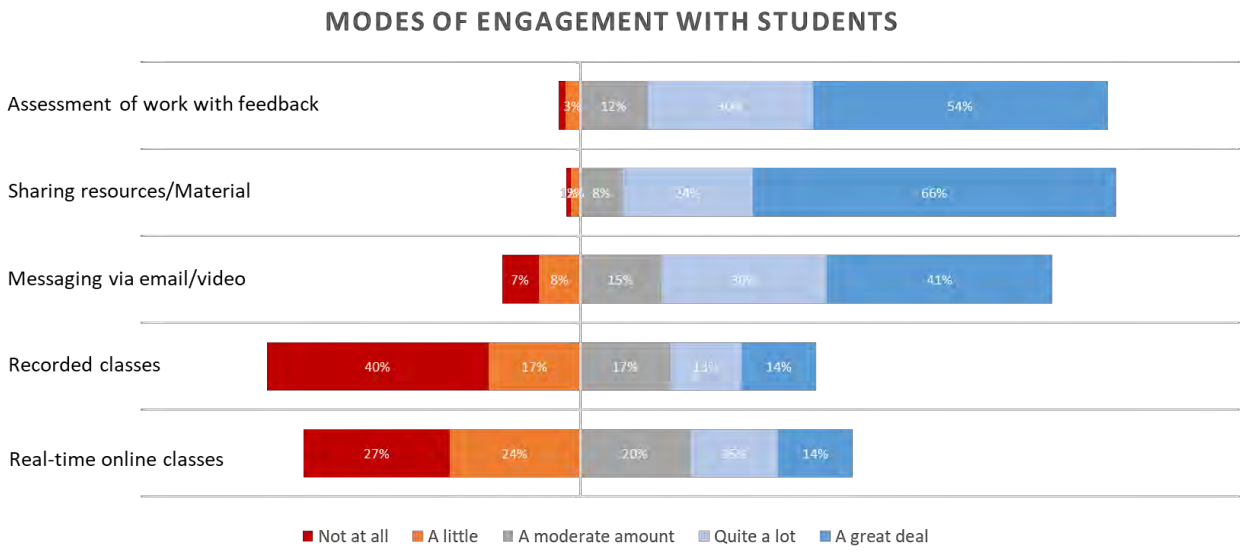

Figure 4.2: Modes of engagement with students

Source: Covid-19 Teacher Survey, 2020.

Focusing on the platforms or tools used by teachers to communicate with students (see figure 4.3), email is by far the most prevalent tool used as in the UK context (NFER, 2020). Whatever the learning platform reported, many teachers report using email in addition to the learning environment. Email seems to be used as a baseline tool to supplement other platforms, even comprehensive e-learning platforms. This aligns with the predominance

[9] Chi square tests of association were used: $\chi 2 = 37.593$, df=4, p<=.000; $\chi 2 = 10.031$, df=4, p<=.040

of asynchronous modes of engagement noted above and emphasises written over oral communication.

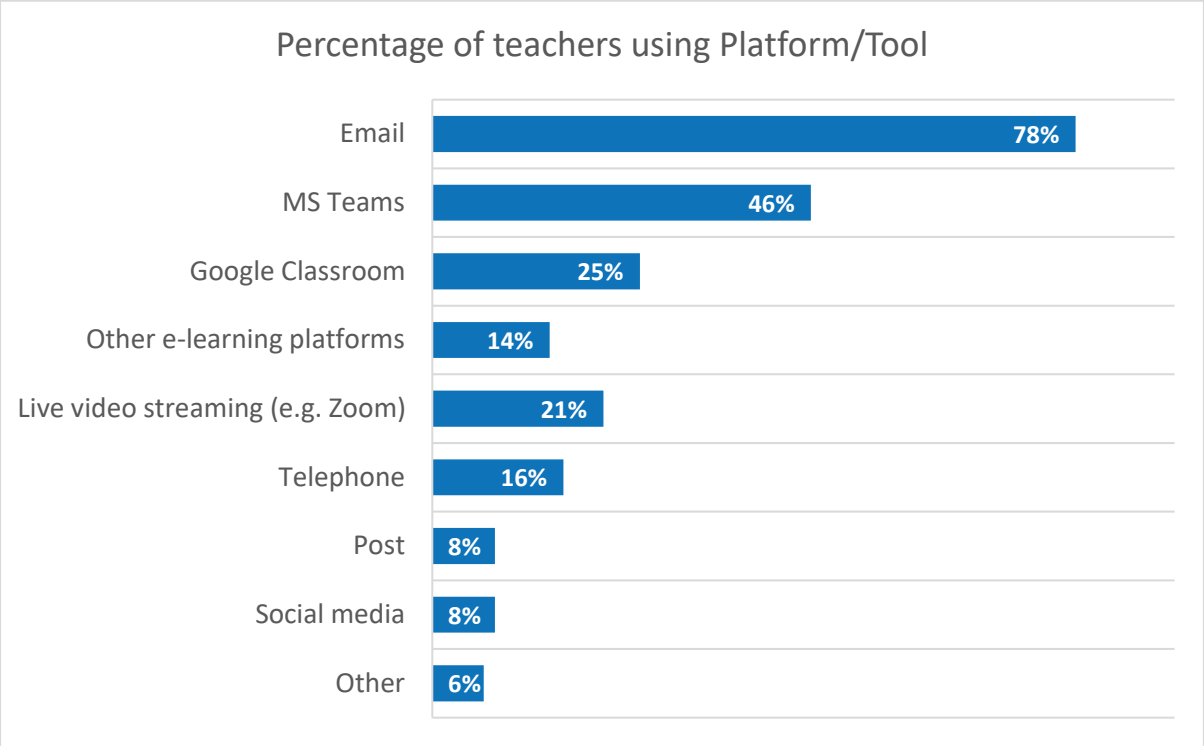

Figure 4.3: Tools and platforms used to communicate with students.

Source: Covid-19 Teacher Survey, 2020.

Similar to Mohan et al (2020), seventy-eight per cent of teachers report using a virtual learning environment (VLE) of some kind with no statistically significant difference between DEIS and non-DEIS schools. These platforms include Google classroom, Microsoft Teams, Edmodo, Seesaw and Schoology. All of these platforms support written, audio and video media and facilitate submission and feedback on student work, typically as asynchronous communication. Some platforms, such as MS Teams, Google Classroom and Schoology, afford both synchronous and asynchronous communication through integrated live video streaming services. Seventy-eight per cent of teachers report using a live video streaming platform, again with no distinction between DEIS and non-DEIS schools. This includes VLEs with integrated video streaming such as MS Teams and

Schoology. A number of stand-alone live video streaming platforms are also reported including Zoom and Skype, offering a synchronous interactive experience.

There is evidence of these platforms being used to supplement other environments, for example 24 per cent of Google Classroom users also use Zoom to communicate with their students. As expected, these integrated and stand-alone live video streaming tools co-occur with the provision of live online classes.

There is also a substantial proportion (10 per cent) of teacher respondents that use traditional 'off-line' methods to connect with their learners on the phone and by post. In line with national and UK findings (Mohan et al, 2020; NFER, 2020), teachers in DEIS schools are more likely to report using these traditional modes of communication that do not rely on internet-enabled devices or internet access to connect with their students.[10] This demonstrates how many DEIS schools are trying a range of approaches to engage with some of their learners who may need support and may not have access to appropriate technology resources.

Overall, the platforms and tools used are not mutually exclusive and many teachers report using a range of mechanisms to connect with their learners. Furthermore, a small number of teachers report using several different e-learning platforms, potentially with different cohorts of students, e.g. Google classrooms with Edmodo or Schoology. The diverse range of tools in use could suggest that teachers are using their professional judgement and autonomy to select the mode of engagement best suited to the needs of their students, especially in areas of disadvantage where there is reportedly less access to digital devices. It could also suggest that some teachers are lacking strong guidance and are trialling multiple tools to evaluate what works best. It could also mean that some schools do not have a clear IT infrastructure for teachers and learners. The impact on students and their families of having to manage the technical and organisational demands of multiple

[10] Chi Square tests of independence strongly suggest that these modes of communication are predominantly associated with DEIS schools (post: $\chi 2 = 17.957$ df=1;p<=.000 ; phone: $\chi 2 = 13.250$, df=1, p<=.000).

different IT platforms within and across subject areas should not be underestimated. The results in chapter 3 show that a small cohort of teachers (27 teachers, 3 per cent of the sample) report a lack of dedicated school email or IT infrastructure as a barrier to teaching and learning during the shutdown. The regression model highlights the extent to which the lack of email or IT infrastructure is strongly associated with low engagement of students, even controlling for multiple school factors. Although this issue only affected a fraction of the sample participants, it is a significant problem when institutions move online (see chapters 5 and 6 for further discussion).

The qualitative findings highlight the significant efforts of teachers to respond creatively and to adopt approaches and technologies that best engage their learners:

> *We are doing our very best. We love our classes and the* children and would do anything to help them.....the media needs to see this.
>
> *I have become more creative with my teaching. I have been able to support students* through a different medium.
>
> *I am happy to have developed a new skill learning Google Classroom through online tutorials and trial and error, so that is definitely a positive. …* Initially there was a noticeable low up take in signing up to Google Classroom, which following many phonecalls for support to homes and providing chrome books where possible, was improved.

Teachers reported how the challenge of moving online had allowed or forced them to adopt more technology in their teaching than they would have used previously:

> *Yes, it has forced me to engage in online teaching and researching and using the online teaching methods.*
>
> *I have become more au fait with educational technology. I am experimenting with different technology to deliver efficient information to the children I work with.*
>
> *It has provided time to explore different forms of technology for use in teaching.*

As noted in chapter 5, however, this is not the experience of all teachers, some of who have struggled to adapt to the technology environment:

> *I feel very behind with the online stuff.*

Furthermore, there is some evidence in the qualitative findings that the wide range of available IT platforms and resources is difficult to navigate for teachers, as suggested in the quantitative findings by the multiple overlapping tools used by some teachers:

> *I have learned new skill but am confused as to what is the best platform to use.*

As regards the impact on students, some teachers reported how the move online has been a really positive experience for some students:

> *Some children are blossoming*
>
> *For quieter pupils this has also been the case with many flourishing in the online environment.*

In particular, the value of email was noted in allowing students who might not want to draw attention in a class setting, to ask questions and look for help:

> *Weaker students enjoy the anonymity of being able to ask for more help. This was evident across the board*
>
> *Students who are struggling can use email to get in contact directly where they might not otherwise do in the classroom. That allows me to target the help to their specific needs (particularly relevant to 6th Year groups)*

However, a number of teachers draw attention to the fact that in some cases students were not sufficiently skilled in IT to engage fully online. This highlights the need for IT skills development not only teachers, but also for students:

> *Students and staff need more training in the online teaching and learning approaches and techniques as well as in managing their (our) own time and self-directed learning.*

This section has set out the modes and tools for engaging with learners. These tools offer a wide range of affordances for learning, including offering collaborative online spaces for

student interaction and activity. The following section examines the kinds of practices teachers have deployed throughout school closures, in order to examine how well these affordances for learning have been exploited.

4. 2 Changes in teaching and learning practices

The survey asked respondents to report on a set of Universal Design for Learning teaching and learning practices – their prevalence of use during the shutdown and also whether this represented an increase or decrease relative to their normal practices in face-to-face schooling. These 24 UDL practices align with the key skills of collaboration, communication, managing myself and managing information (see Appendix 1). For all of the practices a substantial proportion of teachers reported that their use of particular good practices had changed during the school closures. This section examines those practices that represented a statistically significant positive or negative shift in use. The practices reporting a significant positive and negative shift are presented in 4.4. and 4.5. respectively[11].

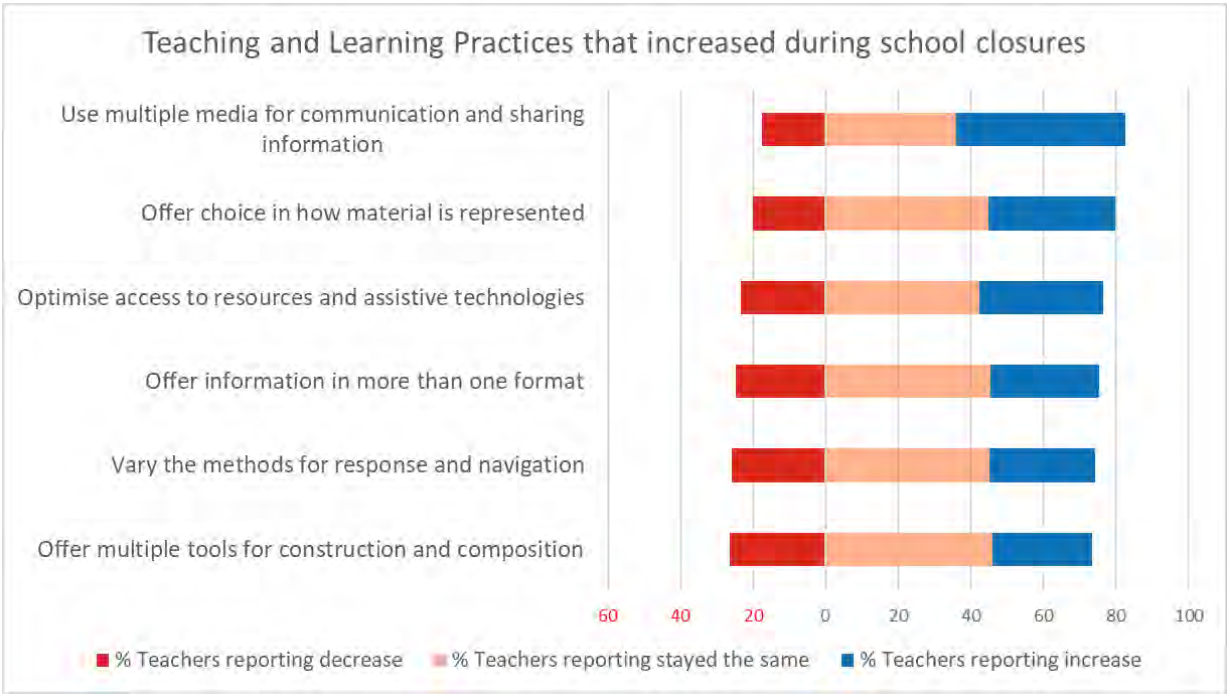

Figure 4.4: Teaching and learning practices which increased during school closures

Source: Covid-19 Teacher Survey, 2020.

[11] Binomial 1-proportion tests conducted.

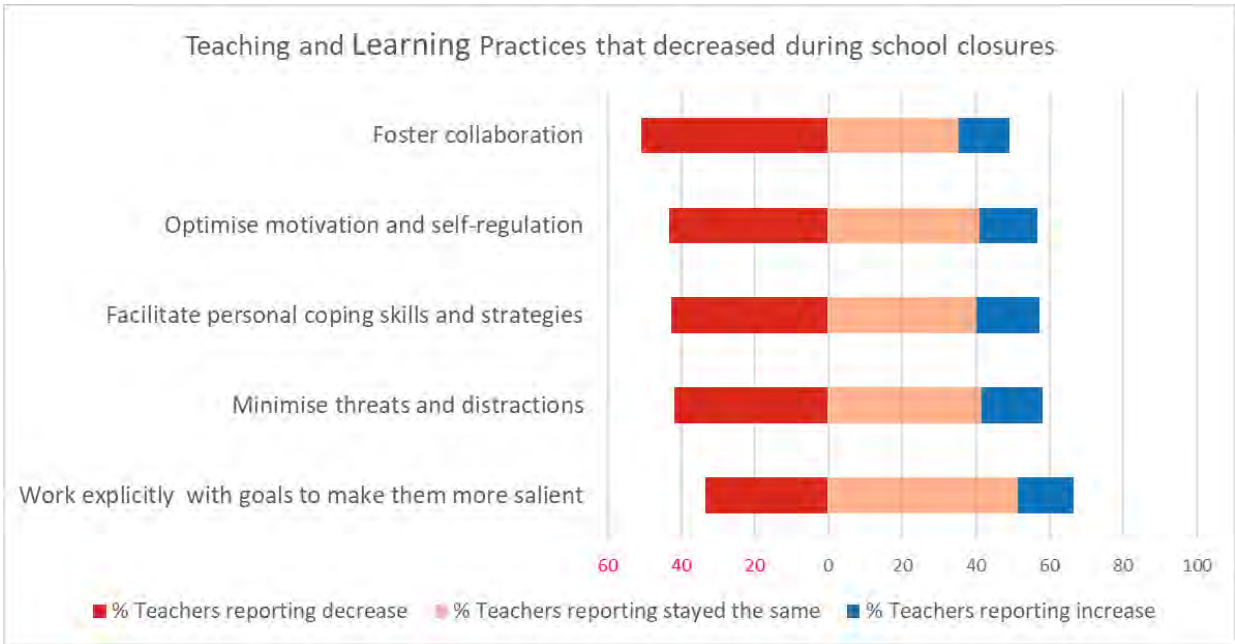

Figure 4.5: Teaching and learning practices which decreased during school closures

Source: Covid-19 Teacher Survey, 2020.

The practices demonstrating positive change all relate to offering choice across multiple modes of representation and expression. All of these practices had been coded for two key skills – communicating and being creative. These are addressed collectively under the code communicating creatively. All practices, and in particular teachers using multiple media to share information, show lower decreases and higher increases in use and teachers report that they are used extensively in class with very few teachers reporting no use of these practices (figure 4.6). The prevalence of these creative communication practices demonstrates how **teachers have availed of the affordances of online environments to offer multiple modes of engagement and representation**, input and output for students.

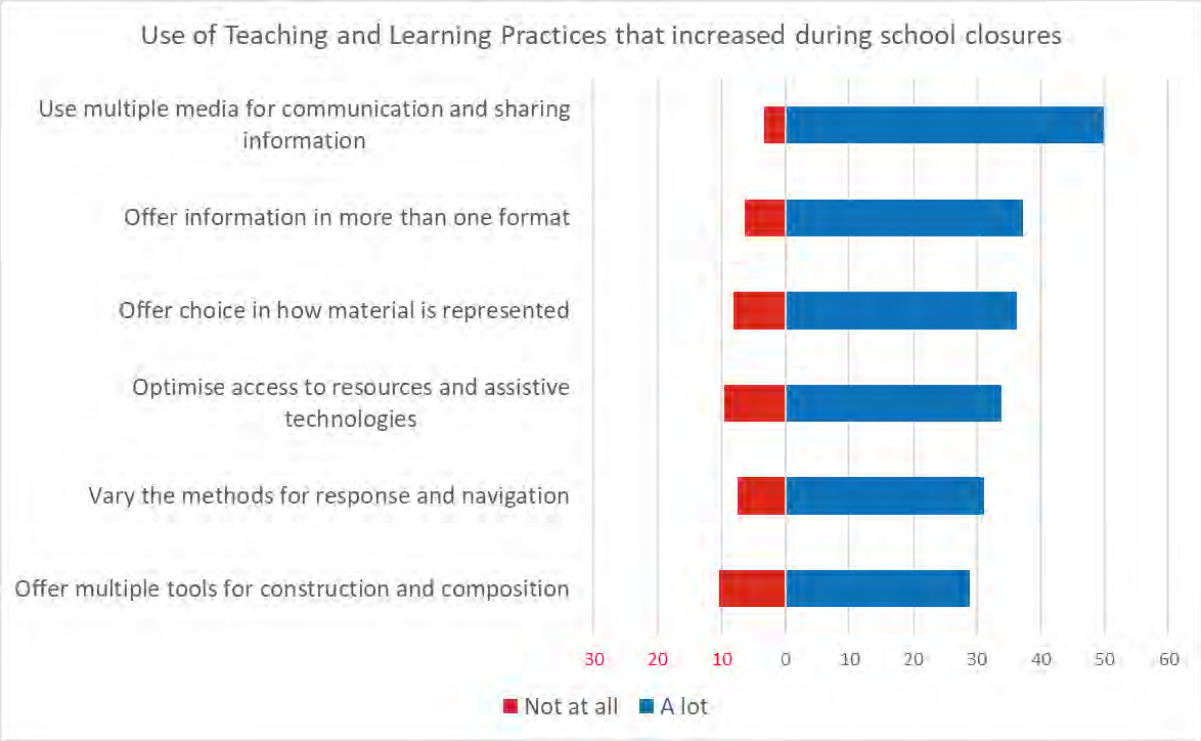

Figure 4.6: Frequency of use of creative communication teaching and learning practices

Source: Covid-19 Teacher Survey, 2020.

The qualitive findings highlight the positive impact of these developments for teachers and learners. A number of teachers report that they have become more creative in their own practice:

> *I have become more creative with my teaching. I have been able to support students through a different medium*

Teachers also reported greater creativity from their students as a result of the opportunities the flexibility and different available media offer:

> *Some students who would really struggle in school have shown themselves to be very creative and talented when given a different medium or more options to express themselves and present their work so that's great to see*

> *Some students are relishing their time at home. They love to work when it suits them and enjoy the peace/ less frantic pace of life*

The potential positive impact on students is summarised by one teacher as:

> *More freedom of creativity to students - more time - broader expectations*

Figure 4.7. represents those teaching and learning practices that decreased substantially during the school closures and had the lowest profile of use among teachers. The worst impacted is the practice relating to keeping students focused on learning, termed here minimising distraction and threats. In the context of the Covid-19 pandemic, this could relate both to distractions in the online learning environment and external distractions or anxieties due to the pandemic. A reduction in these practices is reported across school types and DEIS status and is a very clear indication of the difficulties of online teaching and learning during a global pandemic. First and foremost, students and teachers may be managing very real anxieties deriving from the pandemic and their wellbeing is of primary importance. It also reflects the very unusual context of learning during the school closures where the usual school and classroom contract of behaviour and attendance were not appropriate and could not be applied.

Perhaps the starkest negative impact in teaching and learning practices is in relation to fostering collaboration, which is the most reduced of all 24 practices and almost one-fifth of teachers state they have not done this at all during school closures. Over half of the teacher respondents report that this is a decrease from their practice before school closures, similar to results on group work found in Mohan et al (2020). This is the only practice coded in relation to the key skill Working with Others. Although this practice is significantly associated with access to a video streaming platform, a large proportion of teachers report fostering collaboration without using live video streaming. Furthermore, a large proportion of teachers who do have access to video streaming do not report using practices that foster collaboration.[12] This highlights that collaborative activity is not dependent on live synchronous interaction, although it can be facilitated by these tools.

[12] Chi Square test was conducted. (Pearson Chi-Square X^2=11.924,df=1, p<=.001).

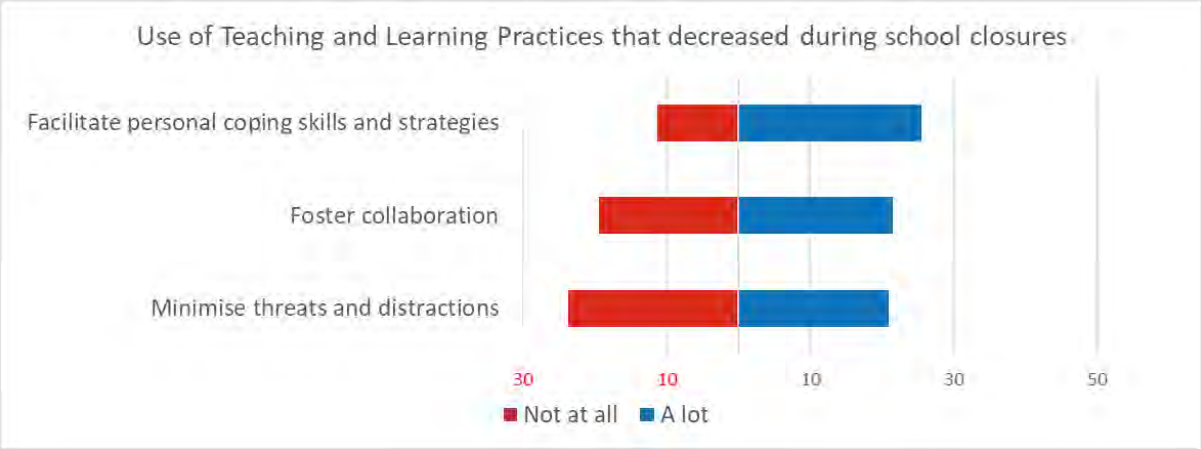

Figure 4.7: Frequency of use of teaching and learning practices that decreased during school closures.

Source: Covid-19 Teacher Survey, 2020.

The qualitative findings highlight this absence of collaborative teaching methodologies to support learning:

> *Less explorative and collaborative learning in subjects such as Maths, as many of the concrete resource tools are unavailable and the 'chat' to explore a possible algorithm can't be facilitated easily.*
>
> *I think it doesn't allow for pair work, group work and collaboration in general.*
>
> *I think we're all missing out. We are not using any of the collaborative / social teaching methods.*

This is summarised powerfully by one teacher:

> *There is definitely a feeling of loss.....loss of control over student development, loss of routine, loss of friendship and collaboration that a school environment brings, loss of connection- eye contact, touch. The community connection between student, teacher and all school staff is what I miss most. I have become very upset over this throughout the past few weeks.*

Furthermore, the impact of limited resources further exacerbates the loss of interaction with students as noted by one teacher:

> *for those with little/no access it has been alienating.*

The next section examines how these modes, tools and practices relate to teachers' reports on student engagement and whether the specific modes of engagement or practices are predictive of engagement. This will provide an empirical account of the extent to which pedagogical practices in the context of Covid-19 have a tangible impact in the learning environment as reported by teachers.

4. 3 Student engagement and teaching and learning practices

In order to explore the impact of *modes of engagement* on levels of student engagement during school closures, a multiple linear regression was conducted, using a backwards elimination model. The model was made up of five items relating to the extent of usage of: real-time, online classes; recorded classes; messaging via email etc; sharing of resources; assessment of student work with feedback.[13] The model for the full cohort found that interaction through assessment feedback and live and recorded classes were predictive of student engagement. This would suggest that the use of video, both live and recorded, with all of its social cues are more engaging for students. Furthermore, the interactivity of engaging with teachers through feedback and through online classes highlight how teachers using a more interactive approach are more likely to report higher percentages of student engagement.

In order to evaluate the impact of the 24 UDL teaching and learning practices on levels of student engagement, a second multiple linear regression was conducted.
For the full cohort, the higher use of following practices was found to be predictive of student engagement: [14]

1. Fostering collaboration and community among the students;

[13] For the full cohort, 3 iterations were conducted, with the third model, excluding the messaging and sharing resource items providing the best fit ($F(3, 332) = 11.582$, $p < 0.001$), with an $f2 = 0.09$, giving a small effect size. Very similar results were found amongst the DEIS ($F(3, 681) = 25.978$, $p < 0.001$), with an $f2 = 0.13$, giving a small/medium effect size) and non-DEIS ($F(3, 345) = 13.369$, $p < 0.001$), with an $f2 = 0.12$, giving a small/medium effect size) cohorts.

[14] The model was made up of the 24 items relating to the extent of use of UDL teaching and learning practices since lockdown, and a backwards elimination model was used. Altogether 19 iterations were conducted, with the final model made up of four practices that significantly predicted teachers reporting higher levels of student engagement with online learning ($F(3, 678) = 10.480$, $p < 0.001$), with an $f^2 = 0.08$, giving a small effect size).

2. Offering information in more than one format;
3. Supporting students' understanding of new concepts;
4. Providing guidance for manipulating and processing information.

Critical here is the relationship between collaborative learning and student engagement as well as offering choice to students in accessing learning and appropriate scaffolding for learners to build and internalise learning.

While the results were similar in the DEIS only model[15] and that of the full cohort, in DEIS schools, in addition to items 1, 2 and 3 above, the higher use of following practices were found to be predictive of student engagement:

- Offering learners individual choice and autonomy in directing their learning;
- Promoting expectations and beliefs that optimise motivation and self-regulation.

The focus here is on practices to enhance motivation as autonomy and challenge are critical components of motivation (Ryan and Deci, 2017). Of primary importance in the non-DEIS schools' model,[16] practices that emerged as positive predictors of higher levels of engagement were slightly different, relating to the extent to which teachers could:

1. offer various entry points to the material;
2. use multiple media for communication and sharing information with students;
3. provide graduated levels of support for practice and performance.
4. providing guidance for manipulating and processing information.

Perhaps most important is provision of choice and appropriate scaffolding for learners in engaging with material. These findings are in line with UK research highlighting the

[15] ($F(7, 328) = 6.000$, $p < 0.001$, with an $f^2 = 0.13$, giving a small/medium effect size).
[16] ($F(5, 343) = 7.972$, $p < 0.0001$, with an $f^2 = 0.12$, giving a small/medium effect size).

importance of developing learner autonomy and of interaction to promote both learning and motivation.

The quantitative findings emphasise the provision of choice to students. Similarly, the qualitative findings highlight the theme of student self-direction to avail of this greater autonomy.

> *For more able students, it has encouraged more independent learning which has fostered an improvement in their learning.*

However, some teachers acknowledge that not all students have the requisite skills need to act in a more self-directed way:

> *Students have had to learn a lot by themselves. Which is a wonderful skill to develop, however not all students are capable of this and I feel some students are at a disadvantage.*

The qualitative findings provide a very clear statement on the value of the social aspect of school and the classroom and how this contributes to learning through motivation, interaction and collaboration:

> *The social aspect is significant to learning and sharing ideas.*
>
> *The interaction with the students, the banter that keeps them motivated, the classroom collaboration/peer work*

Teaching and learning is a highly social activity, but this aspect reported as being substantially absent in the online setting.

> *We are missing the social side of seeing each other in person, a lot of learning in my subject is done through real life demonstration so the students are missing out on this.*
>
> *I feel the lack of personal connection with students places a barrier in the way of motivation, engagement, collaboration, and all else in teaching (which is a people-people business). Technology has helped me to organise lessons and information but places a large obstacle in place for teaching and learning especially for disadvantaged students.*

The teacher respondents clearly articulate the value of the social dimensions of the teaching and learning relationship to motivate students and to scaffold and enhance learning. Some have identified mechanisms to make this work online, for example through the use of asynchronous collaborative platforms such as Google Docs and Padlet. However, many more teachers note the absence of interaction in the online environment. In some cases, video streaming exacerbates this for the teacher where two-way live streaming is not enabled or used:

> *Refusal from students to turn on cameras makes teaching feel very sterile and impersonal.*
>
> *Not being able to see students as they do not turn on their video, so hard to gauge how they are getting on.*

4. 4 Summary

In summary, teachers are in contact with their students on average 2-3 times a week during school closures. There is a predominance of asynchronous, transactional modes of communication with students, with some, but relatively little, live real-time synchronous interaction. In line with international findings, teachers report using a range of sometimes overlapping tools to connect with learners, including VLEs (78 per cent), live video streaming (78 per cent), etc. Email is used by over three-quarters of teacher respondents as a baseline mode of communication, often in addition to a range of other technologies. In DEIS schools in particular, traditional modes of communication are used more frequently to connect with students, which reflects the work undertaken to address technology barriers to continuing learning as well as recommended DES advice for DEIS contexts to contact students individually. There is evidence of teachers using multiple platforms to connect with students. This could be interpreted positively as tailoring platform selection to student needs or negatively as lack of clear guidance on or provision of IT infrastructure.

As regards teaching and learning practices, the practices associated with JC key skills of creativity and communication have increased, while those aligned with Working with

Others and in some cases Managing Myself and Staying Well have decreased. The creative communication practices related to the use of multiple media and resources shared between teachers and learners have increased significantly during school closures. It seems clear that teachers have availed of the affordances of online environments to offer multiple modes of engagement and representation to their learners. However, there has been a substantial decrease in practices to minimise distractions and threats in the online context. This is seen across school types and reflects the stresses of the COVID-19 pandemic as well as the difficult context of renegotiating norms of engagement in relation to learning outside the classroom.

The reduction in practices to facilitate collaboration noted in the quantitative and qualitative findings would strongly suggest that the affordances for rich collaborative learning activity offered by the available platforms and tools are not being fully exploited by a large proportion of teachers. Affordances for collaboration are offered by asynchronous as well as synchronous modes of communication, for example collaboration through document or artefact co-creation. This suggests possibilities for fostering collaboration with students who may not have good access to technology or broadband in their homes.

Most importantly, the findings strongly suggest that the use of particular teaching and learning practices and modes are predictive of student engagement, as reported by the teachers. The use of video, live or recorded, is a positive element. Practices to support scaffolding and choice in learning were important across all school contexts. Fostering collaboration is of critical importance, particularly in DEIS schools. Furthermore, in DEIS schools, practices related to promoting learner motivation are predictive of student engagement. This, linked with the barriers related to social and cultural capital noted in chapter 3, strongly suggests that these issues would need to be tackled explicitly in the event of any future school closures.

5 Teacher Supports and Professional Development

This chapter focuses on the experiences of the second-level teacher during school closures. It examines the level of support teachers received from their schools during this difficult period and explores the level of online collaboration among teachers. The chapter highlights the key supports and resources used by teachers during this time and identifies the professional development needed in the future in order to ensure the continued provision of high-quality education for their students. Importantly, this chapter provides a solid evidence base for policymakers on what is needed to support schools in the next academic year, and in particular, what can be done to improve online learning in the event of any future school closures.

5. 1 Managing school closures – school and colleague support

Teachers were asked about the move to online teaching and the extent to which this had been a coordinated, whole-school approach or whether this was left up to individual teachers. The majority of teachers reported that this transition online was coordinated at school level (64 per cent overall). Differences are evident however, according to the disadvantaged status of the school, with teachers working in DEIS schools less likely to report a whole-school approach to moving online compared to those working in non-DEIS settings (57 per cent compared to 72 per cent respectively – Figure 5.1). As chapter 3 indicates, DEIS schools are more likely than non-DEIS schools to have lower levels of student engagement with online learning and indeed, our research indicates that an uncoordinated approach to the move online is associated with significantly lower levels of reported student engagement with learning.[17]

[17] Chi square tests of association were conducted: $\chi 2 = 18.248$, df=1, p<=.000

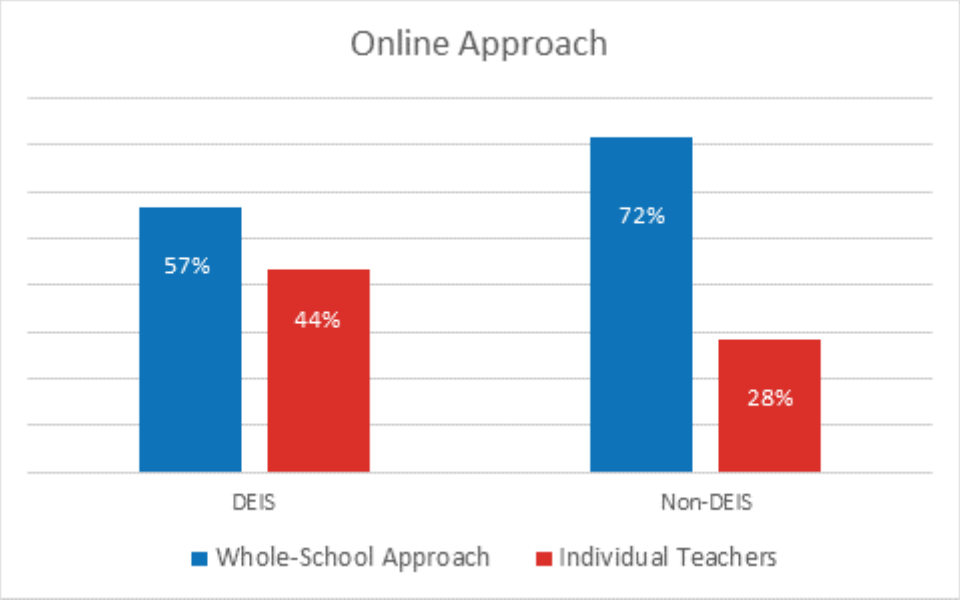

Figure 5.1: Schools' approach to moving teaching online

Source: Covid-19 Teacher Survey, 2020

The qualitative results also highlighted differences among teachers working in schools with a whole-school approach to moving online and those who worked independently. Teachers described how Covid had highlighted problems in school management and in particular a lack of leadership at the school:

> *She is neither leading me nor motivating me. I do not look forward to a future in my school with some of the management teams as they currently stand, which the move online has highlighted to me.*

> *There was too much pressure placed on teachers and students, too many expectations that were not clear, no co-ordinated approach.*

Another teacher 'felt isolated' and left to their 'own devices':

> *[I felt] virtually separate from my school as a community. Communication from leaders was exclusively through daily emails, unless I phoned. There were no staff meetings, Year Head meetings.*

Others however felt that their school communicated online better than face to face and they had experienced increased collaboration during school closures:

> *We collaborate and consult regularly throughout the week in school.*

The survey also asked teachers about the extent to which moving online has impacted on their online interactions with colleagues. Teachers were asked to rate on a five-point scale, how often they collaborated with colleagues about different topics. The statements were ranked from 'much less' to 'much more' with a score of three indicating that the frequency of collaboration had stayed 'about the same'. Figure 5.2 shows that since school closures, teachers reported greater interactions with colleagues about technical issues, presumably to do with the use of new education platforms. Over half of those surveyed reported consulting their colleagues 'somewhat more' or 'much more' for technical advice during this time. Teachers were also more likely to share ideas and teaching strategies with just over 40 per cent of respondents reporting increased communication with colleagues online to share new ideas and teaching approaches since school closures.

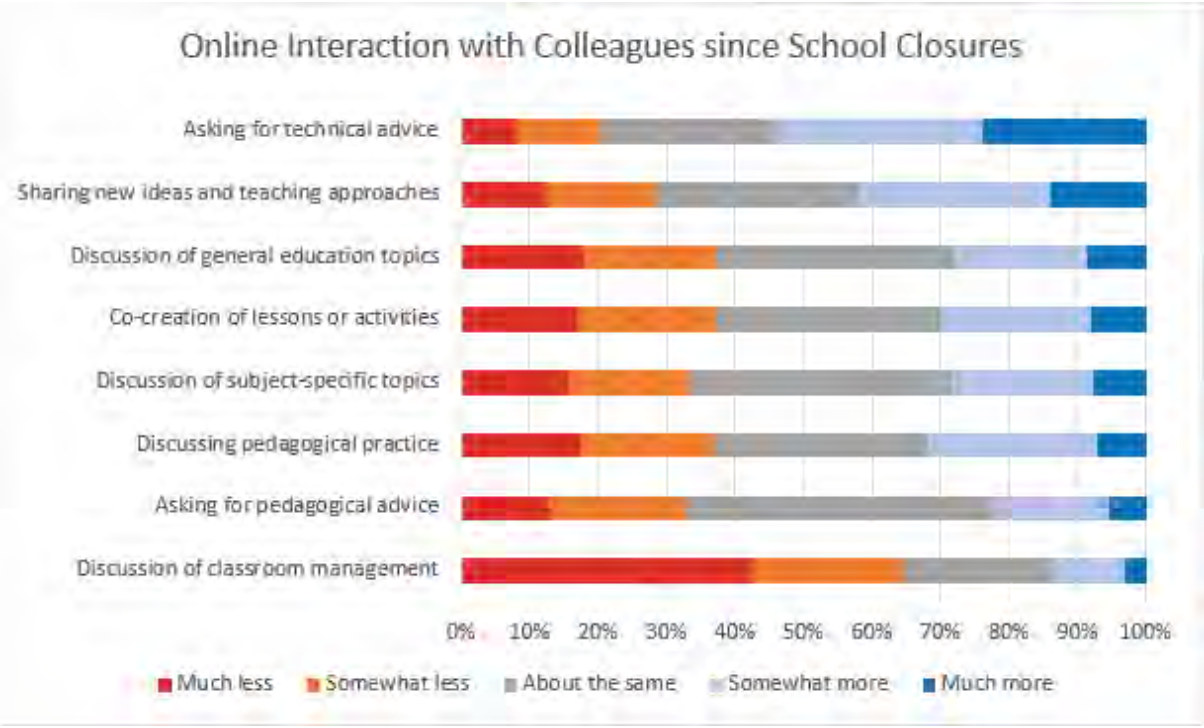

Figure 5.2: Online interactions with colleagues since school closures

Source: Covid-19 Teacher Survey, 2020.

Differences in levels of online interaction with colleagues were also evident according to DEIS status. Using the mean of all topic areas to create an overall score (minimum score = 1, maximum score =5) for online engagement with colleagues, the findings strongly suggest that teachers working in non-DEIS schools had more online interactions with their colleagues (2.60 ± 0.37) compared to teachers in DEIS schools (2.49 ± 0.40).[18] It is likely that this is also reflective of the higher levels of a coordinated approach to the move online by non-DEIS schools. It is important to note that the higher levels of collaboration between teachers in non-DEIS schools was a predictor of higher levels of student engagement in that context (See chapter 3).

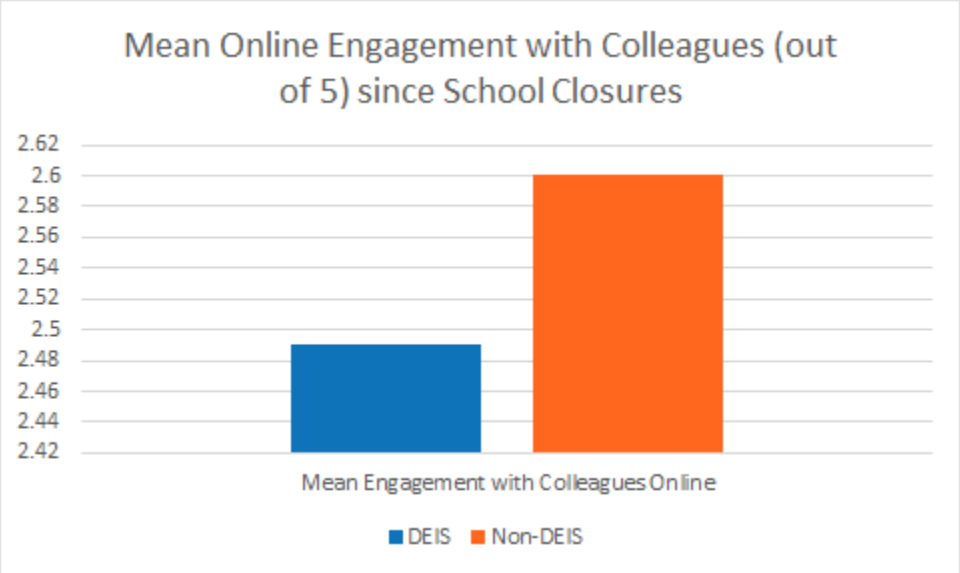

Figure 5.3: Online interactions with colleagues by DEIS status

Source: Covid-19 Teacher Survey, 2020

5. 2 Teacher stress and Covid

The qualitative findings also highlighted barriers to teachers working from home and particularly the level of stress among some teachers to maintain student engagement and balance work and home life. One teacher described how their work hours had increased in their efforts to maintain student engagement. A number of teachers discussed how, with caring responsibilities at home, this was a source of difficulty and stress:

[18] Statistically significant difference of 0.11 (95 per cent CI, 0.003 to 0.219), t(689) = 2.022, p =.044.

> *I can do the live classes but the prep and the corrections (in English, the correct*ions are unmanageable) have to be left until after the children are in bed. It meant that most nights I was only sitting down at 9 and didn't get up again until 1 or 2 in the morning.
>
> *Moving online has proved difficult for me as I have young children to care for at home. Very often, school preparation has to be left till they are in bed or if I am attending to school work during the day, I feel like they are being neglected.*
> *My eyes are sore from the screen. My back is sore from being at the laptop. I have repetitive strain in my right lower arm. I have to teach and mind/ educate my own 3 children at the same time.*

Another teacher described how, despite their efforts, they still felt that they were underperforming in their role:

> *I am struggling to keep up with school work and home school my two children. I feel like I never have enough time, I never have any head space and I'm not doing either task as well as I would like. It's very stressful.*

Teachers spoke about the feeling of being constantly 'on' when the boundaries of school and home became blurred:

> *It feels like I'm constantly 'on' and there's no respite from work at all.*
> *It is awful being on tablet and laptop/ chrome book / phone constantly and up late at night for them and for my spouse. There is no respite either.*

Some respondents described how they felt 'depleted' or 'disenfranchised' working from home with others describing how lonely they were during this time:

> *[I was] physically, socially and emotionally challenged personally. These processes caused me personally anxiety, sleepless nights and stress.*

The change in work environment and lack of human interaction appears to have impacted on both physical and mental health of some respondents:

> *My mental health has suffered along with my physical health, going from a physically active job to essentially being stuck at a desk with no social interaction and little movement has led to back/neck pain and poorer mental health.*

A number of teachers described the frustration around media reporting of teaching and learning during Covid and their own personal experience of it:

> *There is even more negativity now with people thinking teachers are sitting doing nothing and getting paid. I work until 8-11pm at night generally so find this very demoralising.*

> *The media circus has been unbearable and ignorant of all we do. Schools were not closed, and we were not out enjoying the sunshine. If I could retire I would. I feel isolated, unsupported, overworked, taken for granted and highly stressed.*

> *The media, particularly the [name of newspaper] and most social media, have portrayed the teaching as non-cooperative, lazy and a drain on the tax system in this country.*

5. 3 Changes in teacher self-efficacy since school closures

When schools closed, learning moved online, and teachers were left to teach in a manner that was completely new to them. In addition to the supports required by teachers, the survey asked teachers about their experience online more generally, examining issues such as self-efficacy and job satisfaction. Figure 5.4 below illustrates how self-efficacy and job satisfaction have changed since school closures.

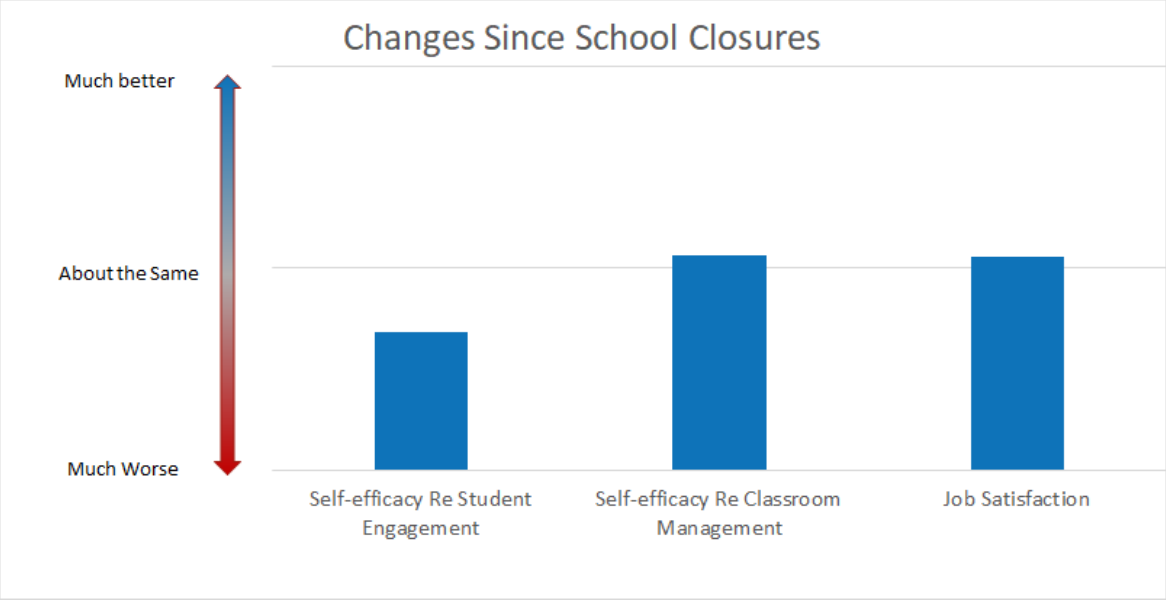

Figure 5.4: Changes in teacher self-efficacy and job satisfaction

Source: Covid-19 Teacher Survey, 2020.

While teachers' self-efficacy with regards to establishing a classroom management system during online lessons appear to have remained the same, teachers' beliefs in their ability to motivate students who show low interest in their work has decreased since school closures. Both teachers in DEIS (M=1.96 ± 1.04) and non-DEIS (M=2.14 ± 1.02) schools reported decreases in their ability to motivate students with low interest, with DEIS schoolteachers being significantly lower than the already low score of non-DEIS schools.[19] For reference, a mean score below three would suggest teachers rated their ability to help students as 'somewhat worse' or 'much worse' since the closure of schools. These findings are all the more concerning as the teaching and learning practices associated with promoting motivation are predictive of student engagement, in particular in DEIS settings (see section 4. 3).

[19] (95 per cent CI, 0.03 to 0.34), t(38) = 2.307, p =.021.

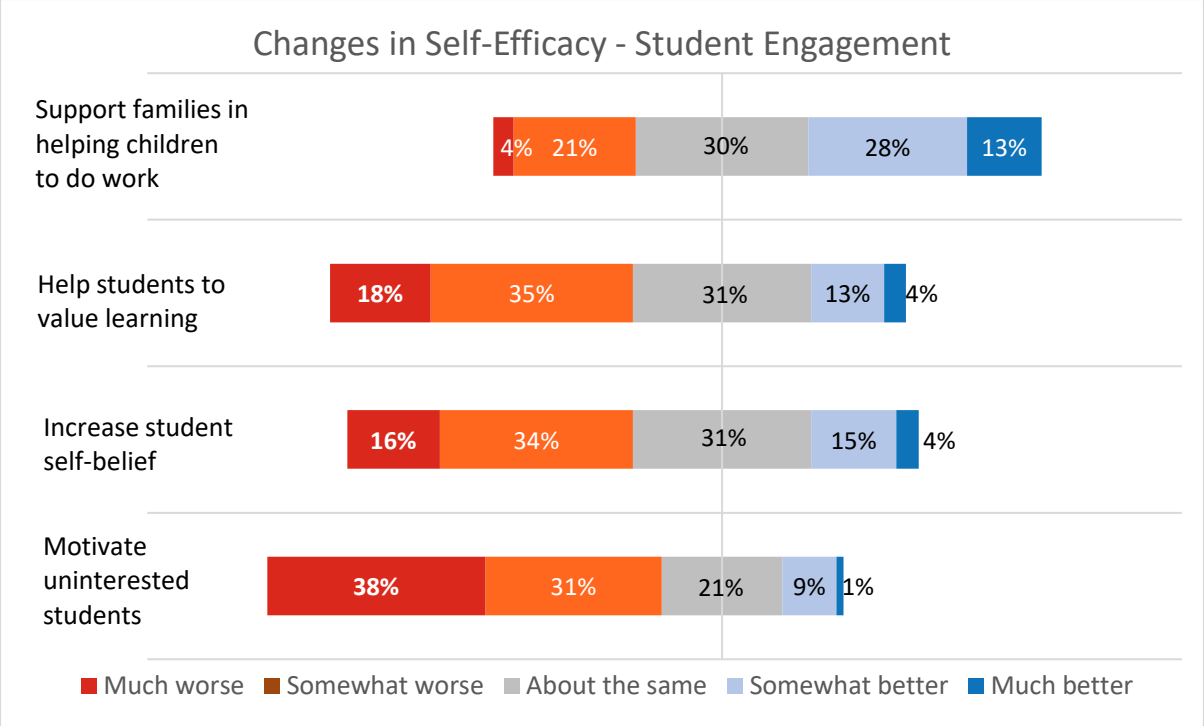

Figure 5.5: Changes in teacher self-efficacy regarding student engagement

Source: Covid-19 Teacher Survey, 2020.

Teachers were asked about their perceived ability to support their students' engagement with learning since school closures. Items asked respondents to rate their perceived ability to motivate uninterested students, increase students' self-belief, help students to value learning and support families in helping students to do work. Of particular concern, is that 38 per cent of teachers said that their ability to support families in helping students to do work was 'much worse' since school closures. A mean score was computed to establish teachers' self-efficacy in terms of student engagement and results show that teachers in DEIS schools reported significantly lower scores than teachers in non-DEIS schools.[20] The significance of these findings is compounded by the recognition that home support is a key barrier to student engagement in DEIS schools (see section 3. 3). These findings reflect a need for teachers and schools to be supported in helping students and their families to engage with remote learning, with this requirement even more stark in areas of socio-economic disadvantage.

[20] 0.34 (95 per cent CI, 0.14 to 0.27), t(662) = 2.34, p =.027.

5. 4 Teacher professional development and support during school closures

At the time of the survey (June 2020) 49 per cent of teachers did not report having engaged in Continuous Professional Development (CPD) events, such as online workshops or webinars, since school closures. Just over a third of respondents reported having engaged in one or two online CPD events. Figure 5.6 illustrates the foci of the most commonly attended CPD events by teachers during school closures. Unsurprisingly, the most popular type was to do with 'Technology' (34 per cent) followed by courses on 'Wellbeing' (20 per cent) and 'SEN' (16 per cent). These topics reflect the key concerns of teachers expressed through the quantitative and qualitative findings of this study and other national research (Mahon, 2020; Burke and Dempsey, 2020). The interest in these types of CPD could also be explained by the influence of educational organisations and groups who have offered professional development courses and webinars to teachers in the past few months. A web search shows that the PDST has offered weekly webinars since school closures in areas of technology, wellbeing and SEN. The NCSE have also produced supports and resources tailored for different year groups. Teacher choice might have been influenced by the availability of these webinars and resources.

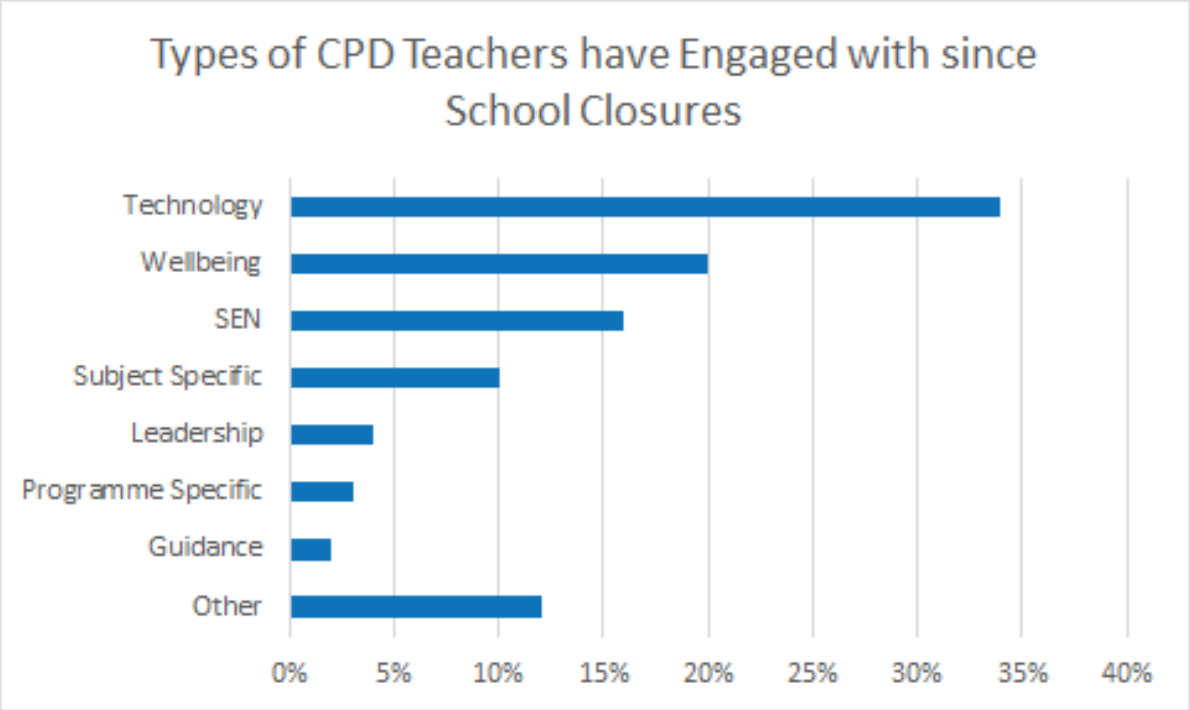

Figure 5.6: CPD types engaged with by teachers

Source: Covid-19 Teacher Survey, 2020.

The qualitative findings also highlighted the difficulties for some teachers to upskill in such a short space of time:

> *Stressful time as a teacher-we are not given proper training in ICT. We have just been expected to suddenly be able to teach online with no prior training.*

Other teachers spoke about their plans to engage in ICT next year as although they now had the devices, they did not know how to use them:

> *Teacher training as in-service days is a must next year for ICT. Our school has no iPads we bought our first set during the crisis. Children had no training in using them nor did staff.*

Teachers described however, that because of the situation they found themselves in, their skills improved dramatically, with many noting how their '*ICT skills have significantly improved*' or that they '*have all had to embrace ICT approaches*' and this has helped with student engagement:

> *I have more ICT knowledge and a better grasp of individual pupils' motivation and personal interests.*

One teacher felt that both their own and their students' IT skills had improved dramatically, which had impacted positively on their ability to do online assessments:

> *I think my ICT/tech skills have improved, as have some students'. It has also opened up new ways of thinking, i.e. how to conduct assessments.*

Others described how they were now more comfortable trying new platforms or apps for learning:

> *I believe I have learned a lot with the move online and feel much more comfortable with ICT and am more willing to try new apps, websites, programmes etc.*

For the majority of teachers, teaching solely online was a journey into unchartered territory and so, many sought support and guidance from a wide range of sources. Figure 5.7 illustrates how teachers rated various sources in terms of the support that they provided to help with online teaching. The results highlight the importance of 'in-school' support with over two-thirds of teachers reporting this form of guidance as being 'good' or 'excellent'. Social media was also used by many teachers as a source of information and support with 62 per cent rating Twitter, Facebook and Instagram as 'good' or 'excellent' in helping them continue teaching online. Teachers reported less satisfaction with the support provided by the Department of Education and Skills with over a third rating this type of support as either 'Terrible' or 'Poor'.

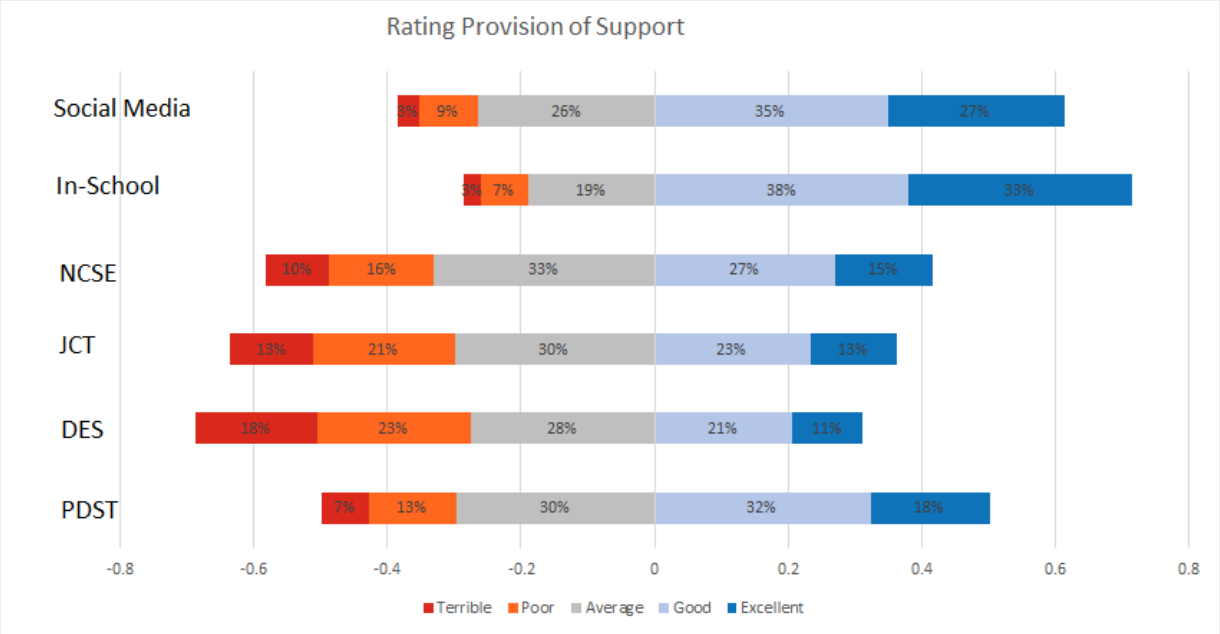

Figure 5. 7: Teachers' ratings of supports during school closures

Source: Covid-19 Teacher Survey, 2020.

The value of in-school supports from colleagues also emerged through analysis of the qualitative data gathered in the survey. One teacher described how '*collaboration has improved with colleagues*' and that they were sharing valuable resources and information with one another:

> *There has been huge sharing of information on online resources and online CPD for teachers.*

Another teacher felt that they had used the time "*to collaborate and learn from other teachers' experiences*". Others were optimistic about the future, describing how Covid had meant they had been

> *'Forced' to embrace technology, even those who were reluctant or nervous. This may facilitate better communication in future between teams of teachers and give us opportunities for collaborating on lesson plans, team teaching etc. It also has the potential to improve our pedagogy.*

Some respondents felt that by working online they had more time and "*more opportunity to attend and participate in meetings with colleagues*". Others found the use of messaging

through WhatsApp "*amazing for staying in touch with colleagues and getting quick answers to queries*".

Teachers also spoke about their use of social media for engaging with subject groups and shared resources as a way of accessing ideas and advice and to receive support while teaching their students online:

> *I've learned a lot from teacher groups on social media, especially UK teachers on Twitter and online CPD*

Despite these in-school supports some teachers were critical of the communication by the Department of Education during school closures. Teachers described a "*lack of leadership*", "*support*"" and "*guidance"* during this critical period in Irish education:

> *The DES's lack of leadership, inconsistent communication, indecision, lack of centralized coordinated response in getting technology access to students in a timely manner, and drip leaking of information to the press has been incredibly frustrating and has caused me and I know many colleagues and students unnecessary additional stress during this time.*

Teachers were also asked about the areas where they felt they would need professional development in the future. The majority expressed a need for more support across all types of professional development listed, with over 80 per cent of teachers responding 'yes' or 'maybe' in terms of needing support with 'Pedagogy for Online Teaching and Learning' (84 per cent) 'Meaningful Integration of Technology' (88 per cent), 'Promotion of Student Autonomy' (82 per cent) and 'Promotion of Student Reflection and Peer Feedback' (83 per cent). Interestingly, the percentages of teachers seeking CPD relating to technology in general were lower, further highlighting that the supports needed by teachers relate more to how to meaningfully integrate technology with online pedagogies.

These findings are particularly valuable for organisations within the education sector with regards to planning for the reopening of schools, or in the event of any future school

closures. Regardless of how, or in which way students will return to school in September, there is a clear need to support schools and teachers in translating their pedagogical practice to the online environment given these unprecedented times and any unexpected challenges in the years to come.

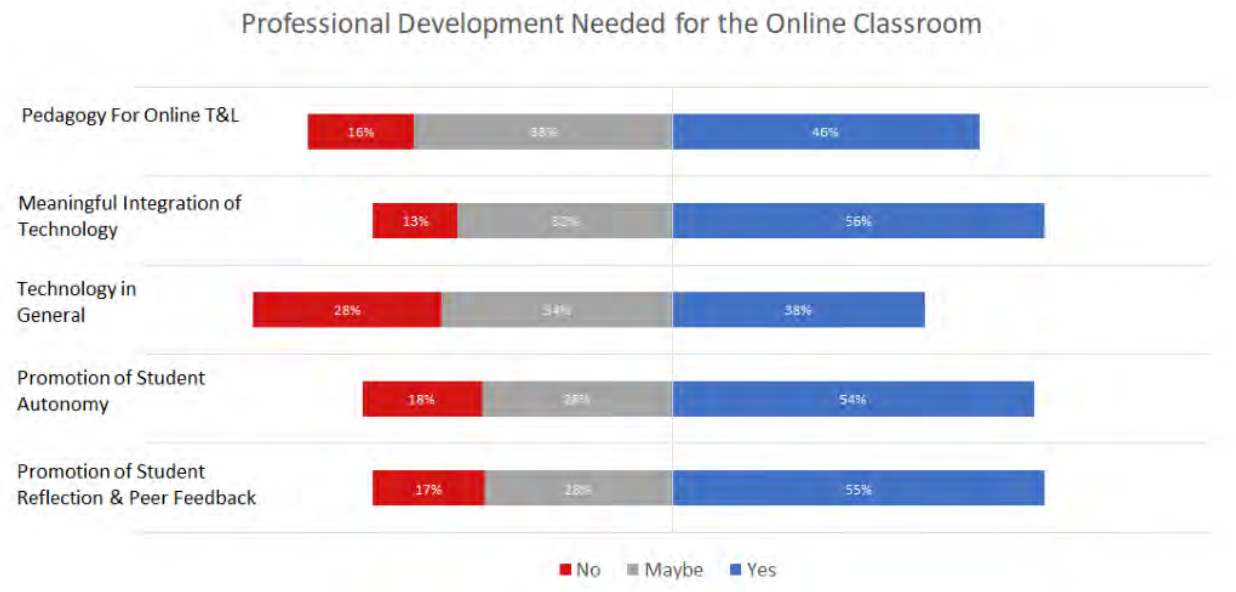

Figure 5.8: Professional development needed for the online classroom

Source: Covid-19 Teacher Survey, 2020.

In the qualitative findings, teachers expressed concerns about the lack professional support provided during school closures. One teacher described how, when it came to educating students online, they were "*completely stressed out. Don't know what I'm doing*". Training in technology was raised as an issue by some teachers:

> *Stressful time as a teacher-we are not given proper training in ICT. We have just been expected to suddenly be able to teach online with no prior training.*

Another respondent criticised the role of the Department of Education in delegating responsibility to individual schools without adequate training:

> *Teachers are trained to deliver their teaching in a classroom with the pupils in front of them. They are not trained for remote learning and the expectations from the DES meant that no matter what any school did - it was consigned to failure. There could be no other outcome.*

When asked about what supports they felt were need in the future teachers reported needing more CPD on teaching and learning approaches and the use of online platforms to meaningfully engage students:

> *Students and staff need more training in the online teaching and learning approaches and techniques as well as in managing their (our) own time and self-directed learning.*

> *Teachers in our school received no formal training for [name of platform], I feel that better management of teacher training for online teaching methods and learning would have had a significantly positive knock on for engaging most, but sadly not all students.*

Other teachers felt that the responsibility should lie with the Department of Education, who should provide clear guidance to schools:

> *The DES should be giving clear guidance on what all schools should be doing. Currently there is a very unhelpful practise in existence where parents are rating schools against each other depending on the level/type of online teaching and learning that is taking place!*

5.5 Summary

Teachers in non-DEIS schools were more likely to report that a whole-school approach was taken in the transition from traditional, in-school education to online learning. An uncoordinated approach to the move online has emerged as being significantly associated with lower levels of interactions between colleagues and lower reported levels of student engagement with education. Overall, teachers have engaged to the same extent, if not more, with their colleagues since school closures. This was particularly important for teachers sharing advice regarding technology as well as ideas and teaching approaches. Teachers seemed to find in-school supports and social media most useful in terms of support for continuing their teaching online.

Approximately half of teachers had engaged in some CPD at the time of data collection. The number of teachers who had not engaged in any formal CPD is a concern given the

huge change in teaching and learning that occurred overnight. This could potentially be explained by the fact that many teachers were left to their own devices when transitioning to online teaching and lacked clear guidance compared to their colleagues who benefitted from a whole-school approach. Of those who did engage in CPD, most opted for courses and webinars to do with technology, wellbeing and SEN. When asked what supports and professional development would be needed to continue online learning teachers called for support in relation to meaningful integration of technology and pedagogy for online teaching and learning rather than how to use the technology itself.

6 Conclusions and Recommendations

This study provides a unique insight into teacher experiences and concerns in relation to student engagement, teaching and learning practices, and professional development during school closures. This chapter summarises the key findings and outlines the main policy recommendations that arise from this.

6. 1 Factors influencing student engagement during school closures

The report shows that percentages of student engagement with online learning in general is at a medium-high level across schools with just one-fifth of teachers reporting low levels of engagement (lower than 30 per cent participation) from their students. In line with findings both in Ireland and internationally, teachers working in **DEIS schools were almost three times more likely to report low engagement** from their students compared to non-DEIS settings. Regarding students who were at risk of disengagement prior to school closures, the report shows that online learning has negatively impacted on this group, with students who were 'reluctant attenders' disengaging even further. Teacher self-efficacy consistently emerged as a significant factor in reported levels of student engagement, especially where respondents reported **low self-efficacy**.

IT infrastructure also appears to impact on student engagement in online learning with teachers who report a lack of a dedicated **school IT infrastructure** more likely to report low engagement among their students.

The findings also point to the impact of the **mode of delivery** on student engagement, with levels of engagement for students in DEIS contexts significantly impacted by the nature of the interaction with their teachers. In particular, the use of assessment with feedback is critical for maintaining higher levels of student engagement.

Given the differences in the levels of engagement between DEIS and non-DEIS schools, the report also provides insights into the key barriers reported by teachers to engagement for students in DEIS settings. The teachers surveyed report that the key barriers for students include a **lack of support** from home and a **lack of interest** overall in online learning.

Furthermore, teachers found that students in **DEIS schools had additional barriers** as regards access to technology and devices. Regarding teachers' own barriers to teaching online, one of the biggest barriers was a perceived lack of student engagement in this process followed by their own lack of time to work from home.

6. 2 Characteristics and Impact of teaching and learning practices

The report strongly suggests a predominance of **asynchronous (not happening in real time), transactional modes of communication** with students with some but **relatively little live real-time synchronous interaction**. Overall, 78 per cent of teachers report using a VLE and 78 per cent report using live video streaming platforms to connect with students, with no distinction between DEIS and non-DEIS schools, contrary to the findings in the UK regarding e-learning platform use (Cullinane and Montacute, 2020). Email is used by over three-quarters of teacher respondents as a baseline mode of communication, often in addition to a range of other technologies. A small proportion of teachers, particularly in DEIS schools, report using traditional mechanisms (telephone and post) to communicate with their students. There is evidence of **teachers using multiple platforms to connect with students**. This could be interpreted positively as tailoring platform selection to student needs, or negatively as lack of clear guidance on or provision of IT infrastructure.

As regards teaching and learning practices, the **practices associated with Junior Cycle Key Skills of creativity and communication have increased** while those aligned with Working with Others and in some cases Managing Myself and Staying Well have decreased. It seems clear that teachers have availed of the affordances of online environments to offer multiple modes of engagement and representation to their learners, for example through more use of video, e-books, ICT based assignments in contrast to written. However, there has been a substantial decrease across school types in practices to minimise distractions and threats in the online context. This is of particular relevance where student safety in an online environment needs to be promoted. Furthermore, **fostering collaboration has seen a major negative impact** with nearly 20 per cent of teachers reporting that they have never fostered collaboration amongst their learners

during school closures. This would strongly suggest that the affordances for rich collaborative learning activity offered by the available platforms and tools are not being fully exploited by a large proportion of teachers. Given the abrupt transition to the online environment on March 12, it is not surprising that teachers have not been able to delve into all of the opportunities afforded by technology. As one teacher noted:

> *We are building the plane while attempting to fly the plane.*

It is in looking to the future in contingency planning for any future school closures that these issues must be addressed.

The findings strongly suggest that the use of **particular teaching and learning practices and modes are predictive of student engagement**, as reported by the teachers. **Practices to support scaffolding and choice** in learning were important across all school contexts. **Fostering collaboration** is of critical importance and in particular in DEIS schools. Furthermore, in DEIS schools the practices related to **promoting learner motivation** are predictive of student engagement. This, linked with the barriers related to social capital noted above, strongly suggests that these issues need to be tackled explicitly in the event of any future school closures.

Overall, the report presents a **profile of rich use of media and resources** to share materials back and forth in predominantly asynchronous communication between teacher and learners. While the increase in richness in media and choice is a very positive development, the transactional nature of the interactions represents a significant impoverishment of the learning environment as represented by the **significant decrease of collaborative learning practices**. This is all the more concerning as the practice to foster collaboration is predictive of student engagement across all school types. The lack of opportunities for collaboration reduces the teaching and learning process to a delivery model between the teacher and individual learners. The social context of learning present in a real classroom was abruptly removed with the school closures and for many teachers and their learners, it has not been replaced. The affordances for rich collaborative learning activity, whether synchronous or asynchronous, offered by these tools are not being fully

exploited by a large proportion of teachers. The UDL framework is an important reminder that **access to information is not the same as access to learning** (Rose et al., 2002) and while access to information has been provided in multiple means, it is not clear that access to learning has been fully addressed.

6. 3 Managing School Closures – Teachers Supports and Training

At the time of writing, there has been no decision made by government as to whether post-primary students will be returning to school in September or not. This report reflects on what has been learned from the necessarily rapid move to online schooling.

This report strongly recommends that **all schools have a contingency plan** in place should online teaching and learning be required once more. The findings strongly suggest that a **whole-school approach needs to be taken** in order to support teachers in the move online in a coordinated manner. An **uncoordinated and individualised approach** has emerged as a **predictor of lower interactions between colleagues** online as well as being a **predictor of lower levels of student engagement** with online learning. The report highlights that teachers in non-DEIS schools were more likely than their DEIS school colleagues to report that a whole-school approach was taken to move their teaching online. This needs to be considered in terms of providing additional detailed guidance to DEIS school leadership as this research, in line with previous findings, has shown that students in DEIS schools are being particularly negatively affected by the repercussions of the school closures, and that educational inequalities are being exacerbated (Mohan et al., 2020; Doyle, 2020).

This study similar or higher levels of online collaboration and interaction between teachers than they were in school. For the most part, teachers interacted with each other in order to **share advice regarding technology as well as sharing ideas and teaching approaches**. Interestingly, when teachers were asked about useful supports since school closures, **in-school support and social media platforms such as Twitter, Facebook and Instagram were listed as being two of the most useful**. In the event of any future

closures, how to leverage such informal and school-based supports with more formal CPD should be considered.

In terms of more formal CPD, roughly half of the teachers reported that they had engaged in professional development since lockdown. Of those teachers who did engage in **CPD**, most chose to train in areas to do with **technology wellbeing or SEN.** This reflects the most common training available from PDST and NCSE websites. These department of education-funded resources should be further promoted and encouraged among teachers and schools.

If learning online were to continue, most teachers indicated that they do not need as much support in the use of technology at this stage, but of critical importance is how to **integrate technology and pedagogy in a meaningful and worthwhile way**. This is echoed by other emerging research in the field, which suggests that there is a variation amongst teachers in terms of their experience, confidence and capabilities to use technology to support learning (DES, 2020j). This also reflects the findings in this report that teachers are in need of fostering collaborative approaches to teaching online. This report strongly recommends the need for professional development and training in how to effectively integrate technology and appropriate, innovative pedagogies in a meaningful way.

6. 4 Recommendations for policy

The findings of this study have implications both for future school closure contingency planning but also for the post-primary system more generally. The recommendations that follow are split according to whether they should be addressed by stakeholders at government level, or by school leaders and educators.

System-Level Recommendations

Model of Best Practice

1 **Distil all existing evidence in order to establish a model of best practice for school management for future planning.** Given that a whole-school, coordinated approach to the effects of school closures was positively associated with both levels of student engagement with learning, and teachers' engagement with colleagues, the system would greatly benefit from structured guidelines for any future school closures. The DES is well placed to collate guidance provided to date with existing evidence for best practice in Ireland in the move online into a coherent set of guidelines. These guidelines could support school-based reflection on the COVID-19 experience, in order to draw learning from these unprecedented and stressful events.

Professional Development

2 **Prioritise CPD in relation to practices that will enhance and develop student engagement**. Our study highlights the positive impact of interactive and collaborative practices to improve student engagement. This is in line with existing studies that emphasise the value of positive student–teacher relationships in maintaining student engagement (Pianta et al. 2012; Smyth et al., 2019). Furthermore, it is a fundamental component of a social constructivist theory of learning (Vygotsky, 1986). Our study also demonstrates that during school closures, such practices have reduced, that teachers are aware of this and that they are looking to address it through CPD. Professional development to enhance these pedagogical practices, especially in an online environment, should be prioritised.

3 **Provide school-based contextualised professional development for teachers:** In line with best practice in teacher professional development, this study highlights the effectiveness of communities of practice for professional development. The teachers in this study report seeking support from colleagues in their schools and through social media and rate this highest among a range of professional resources. There is perhaps a contrast between static formal CPD resources and dynamic interactive community engagement that parallels the student engagement findings in relation to collaborative and interactive teaching and learning practices. There is an opportunity here to leverage informal and school-based communities of practice in the provision of more formal CPD focusing on enabling and facilitating sharing of practice.

Devices and Infrastructure

4 **Address digital poverty.** Digital poverty here relates not only to devices in the home but also to distribution of devices between household members and related issues such as access to broadband, software and hardware functionality, digital skills and so on. In line with other studies (Mohan et al., 2020), this report has identified that there is disparity in access to digital devices and that this impacts on student learning. Clearly, this is an issue that needs to be addressed regardless of possible future school closures. Some measures to address digital poverty have already been taken at government levels, including substantial investment on 22 April 2020.[21] Other measures such as the Tech2Students[22] initiative, have also proven to be successful; these initiatives offer potential structures that could be implemented at system level. Teachers in this study draw attention to the need to provide students as well as their teachers with IT skills development. All of these elements are of critical importance both in the event of future school closures but also within a more general approach for equity in education. This cuts across government departments and requires an Interagency approach.

[21] https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/PR20-04-22.html

[22] A collaborative initiative between Trinity Access. Camara and the ESB.

5 **Address school IT infrastructure.** While solving digital poverty is a long-term goal, addressing schools' IT infrastructure is a matter of urgency. Although only 4 per cent of the sample identified this as a barrier to their provision of continued education in an online setting, these teachers were over five times more likely to report lower engagement levels from their students. The diverse range of tools with sometimes overlapping functionality and reported lack of designated IT infrastructure could be an artefact of the IT for schools' policy environment where there is no state mandated or supported IT infrastructure for schools (McGarr and Johnston, 2019). In a time of crisis, the outliers in the school system without good IT infrastructure will be severely impacted as will their learners. It is essential to ensure that schools have reliable and GDPR compliant systems that allow for information transfer and collaboration.

School- and Educator-level Recommendations

Future Planning

1 Articulate a **contingency plan for future closures** that draws on DES guidelines and on individual, school-based reflections on the Covid-19 school closures. Use this to draft a whole-school approach for any future closures.

Social Context

2 **Prioritise re-establishing the social context for learning whether online or face-to-face.** School closures have created substantial distance between teachers and learners, and it is critical to re-establish positive relationships for learning. The teaching and learning environment has been impoverished by a reduction in interactive and collaborative teaching and learning practices. These practices are critical to develop students' key skills of Working with Others and Managing Myself, focusing on learner autonomy. In any possible future closures, maintaining a social presence for both teachers and learners should be a priority from the start. This will address the motivational and affective needs of learners. This includes the use of

more interactive and collaborative teaching and learning practices but also the use of video, whether live or recorded, to maintain social presence and the human dimension online.

In summary, through this research we have identified numerous factors that have had an impact on student engagement with online education during school closures. We recommend that a total of seven corresponding actions be considered by stakeholders, at government and school levels, in order to ensure the highest quality education for Irish students. These recommendations range from infrastructural actions to alleviate the socio-economic divide, to in-school recommendations for practice.

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Appendix 1: Universal Design for Learning Teaching and Learning Practices

Two of the authors coded the practices for key skills independently. Only 1 practice was not coded the same by both authors and this was resolved through discussion.

UDL Teaching and Learning Practice	**Key Skills**
Building Learning – Foster collaboration and community among the students	Collaborating
Building Learning – Provide opportunities for students to use multiple tools for construction and composition	Communicating Creatively
Accessing Learning –Vary the methods for response to, and navigation of, the material	Communicating Creatively
Accessing Learning – Optimise access to tools, resources and assistive technologies	Communicating Creatively
Accessing Learning – Offer the students choice in how the material is represented (	Communicating Creatively
Accessing Learning – Offer information in more than one format	Communicating Creatively
Building Learning – Use multiple media for communication and sharing information with students	Communicating Creatively
Internalising Learning – Enhance students' capacity for monitoring progress	Managing Myself and Self Direction
Building Learning – Emphasise the importance of process, effort and mastery in the learning	Managing Myself and Self Direction
Building Learning – Provide graduated levels of support for practice and performance in order to build fluency and mastery of the topic	Managing Myself and Self Direction
Building Learning – Work with goals and learning outcomes explicitly with students to make them more salient	Managing Myself and Self Direction

Accessing Learning – Minimise threats and distractions	Managing Myself and Self Direction
Internalising Learning – Support appropriate goal setting, planning and strategy development	Managing Myself and Self Direction
Internalising Learning – Facilitate personal coping skills and strategies	Managing Myself and Self Direction
Internalising Learning – Promote expectations and beliefs that optimise motivation and self-regulation	Managing Myself and Self Direction
Accessing Learning – Offer learners individual choice and autonomy in directing their learning	Managing Myself and Self Direction
Accessing Learning – Offer various entry points to the material, so that the students can be supported in making appropriate choices	Managing Myself and Self Direction
Internalising Learning – Facilitate students' management of information and resources	Thinking Critically
Building Learning – Support students' understanding of new concepts, vocabulary, or notation through provision of definitions, descriptions and/or illustrations	Thinking Critically
Internalising Learning - Highlight patterns, big ideas and relationships in the topic	Thinking Critically
Internalising Learning – Provide guidance for manipulating and processing information	Thinking Critically
Internalising Learning – Identify and build on students' pre-existing knowledge	Thinking Critically
Internalising Learning – Support students' internalisation and generalisation of the information	Thinking Critically
Accessing Learning – Maximise the relevance, value and real-world authenticity of the learning	Thinking Critically

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