Digital Learning Framework Trial Evaluation: Final Report

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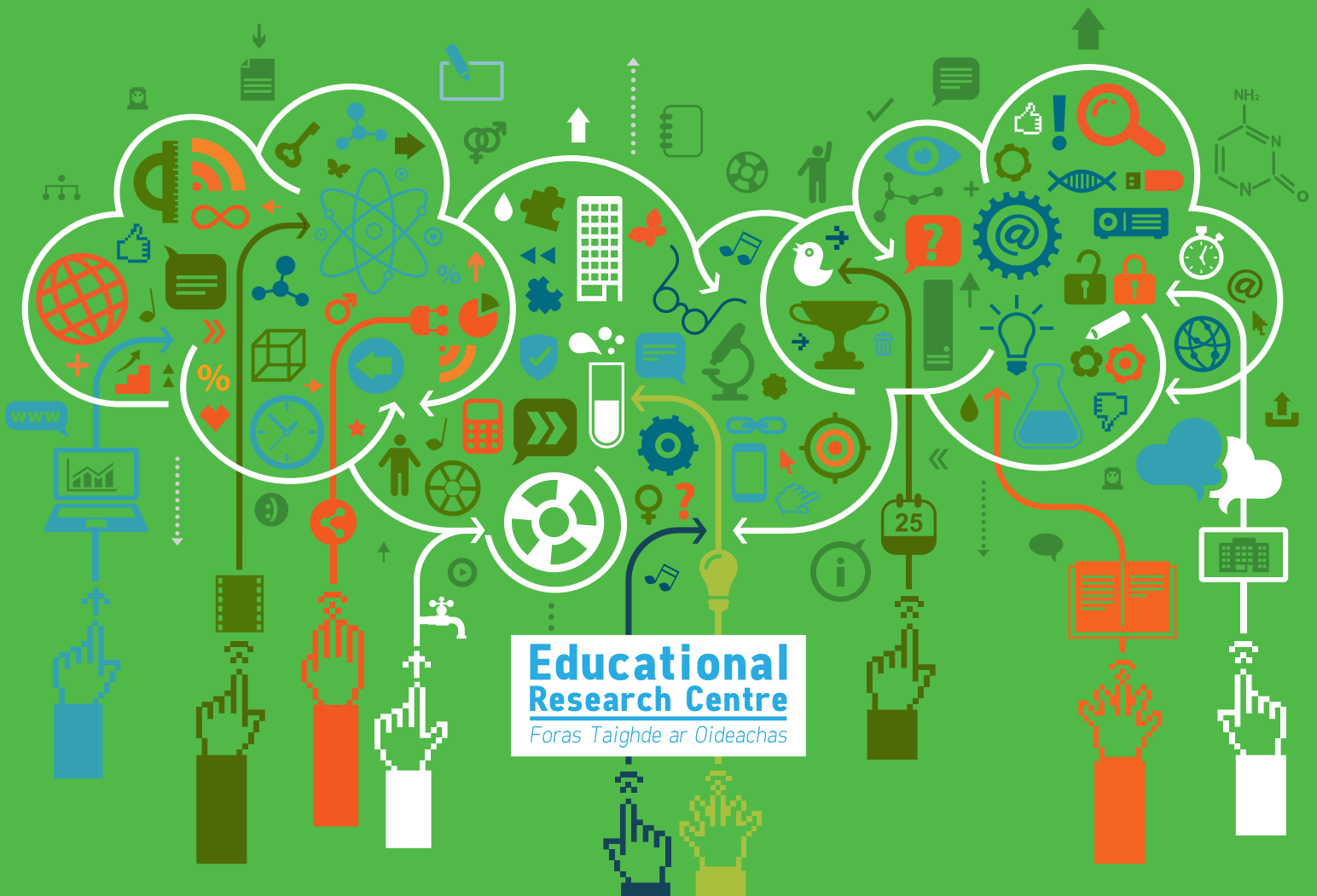
October 2018



Educational Research Centre
Foras Taighde ar Oideachas

Cosgrove, Jude

Digital Learning Framework trial evaluation: final report / Jude Cosgrove, Alice Duggan, Gerry Shiel, Margaret Leahy.

Dublin: Educational Research Centre.

ISBN: 978 0-900440-65-6 (pdf)

1. Digital Learning Framework – Evaluation.
2. Education – Digital technology – Ireland.
3. Education – Information technology – Ireland.
4. Digital technology – Primary schools – Ireland.
5. Digital technology – Post primary schools – Ireland.

2018

I Title II Cosgrove, Jude III Duggan, Alice IV Shiel, Gerry, V Leahy, Margaret

371.334--dc23

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Acknowledgements

The Educational Research Centre would like to acknowledge the advice and guidance of its CEO, Peter Archer (retired September 2018) in the course of this work, as well as the support of its administrative staff: Anne Comey, Imelda Pluck, and Patricia Gaffney.

We acknowledge and appreciate the collaboration with Mark Finlay (PDST) and the seven PDST advisors working with schools during the Digital Learning Framework Trial (Michelle Brady, Stephen Gallagher, Michael McNamara, Roy Mitchell, Denis Moynihan, Sinéad O'Sullivan, and Siobhán O'Sullivan).

We acknowledge Deirdre Butler (DCU Institute of Education, St Patrick's College), Anthony Kilcoyne (PDST), Séamus Knox (Inspectorate, DES), Ben Murray (NCCA), Betty Regan (ICT Policy Unit, DES) and Tony Weir (Inspectorate, DES), for their review of the draft survey materials and draft report structure. We acknowledge Clare Connolly's (ICT Policy Unit, DES) contribution to the study, in particular the collation of school submissions in preparation for sample selection.

We want to thank the school principals, teachers, students and pupils involved in the Digital Learning Framework trial: their responses to the evaluation questionnaires and views expressed during the focus group interviews form the substantive content of this report.

Finally, our thanks to Minister for Education and Skills, Richard Bruton, for his support for the study.

List of Acronyms and Abbreviations

CPD	Continuing Professional Development
DEIS	Delivering Equality of opportunity In Schools
DES	Department of Education and Skills
DL	Digital Learning
DLF	Digital Learning Framework
DLPG	Digital Learning Planning Guidelines
DLT	Digital Learning Team (in the school)
DT	Digital Technology/Technologies
ERC	Educational Research Centre
ETB	Education and Training Board
ICT	Information and Communication Technologies
IR	Industrial Relations
IT	Information Technologies
LAOS	Looking at Our Schools Framework (for School Self-Evaluation)
L&M	Leadership & Management (dimension of the DLF)
NCCA	National Council for Curriculum and Assessment
NCTE	National Council for Technology in Education
OECD	Organisation for Economic Co-operation and Development
PDST	Professional Development Service for Teachers
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PLT	Professional Learning/Training
SEN	Special Educational Needs
SESE	Social, Environmental and Scientific Education
SSE	School Self-Evaluation
T&L	Teaching & Learning (dimension of the DLF)
TIMSS	Trends in International Mathematics and Science Study
TY	Transition Year
UNESCO	United Nations Educational Scientific and Cultural Organisation

Executive Summary

This report describes the final results of the Digital Learning Framework Trial evaluation. It follows from the baseline report on the trial which was published in May, 2018.

Background context

In September 2017, the *Digital Learning Framework* (DLF) for primary and post-primary schools was published (DES, 2017a, b). This was followed by *Digital Planning Guidelines* and a *Planning Template* in December 2017[1]. The DLF is a tool to help schools manage the transformation of teaching and learning as a result of embedding digital technologies into practice, and has been developed to enable schools to implement elements of Ireland's national *Digital Strategy for Schools 2015-2020* (DES, 2015a).

The *Digital Strategy for Schools* is organised under four themes (teaching, learning and assessment; teacher professional learning; leadership, research and policy; and ICT infrastructure). The DLF is a key component of the first of these themes.

Other resources and supports have been developed to underpin the realisation of the Digital Strategy, including exemplar videos of good practice and practical guidelines for schools on issues such as technical support. These are on the Professional Development Service for Teachers (PDST) Technology in Education website[2].

The DLF consists of standards and statements of practice and effective practice; these are organised under the two *dimensions* of Teaching and Learning and Leadership and Management. Within each of these dimensions, there are four *domains*.

- Teaching and Learning Dimension
    - Domain 1 Learner Outcomes
    - Domain 2 Learner Experiences
    - Domain 3 Teachers' Individual Practice
    - Domain 4 Teachers' Collective/Collaborative Practice
- Leadership and Management Dimension
    - Domain 1 Leading learning and teaching
    - Domain 2 Managing the organisation
    - Domain 3 Leading school development
    - Domain 4 Developing leadership capacity.

[1] http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Primary/ and http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Post-Primary/; video exemplars are also available.
[2] http://pdsttechnologyineducation.ie/en/

It is intended that schools focus on one domain at a time in ongoing school development and improvement activities. The structure of the DLF is aligned to the *Looking At Our School* (LAOS) framework (DES, 2016), which is used in school self-evaluation and external inspection activities[3].

Aims of the Digital Learning Framework trial evaluation

The Educational Research Centre (ERC) was asked by the Department of Education and Skills (DES) to conduct an independent evaluation of the Digital Learning Framework trial. The aims of the evaluation are:

1 To gather information on schools' views on the Digital Learning Framework (DLF) document in order to highlight strengths and describe potential improvements
2 To gather information from principals and teachers on the DLF trial in order to identify key strengths and challenges in its implementation
3 To explore whether key strengths and challenges vary with schools' contexts
4 To examine whether participation in the DLF trial has had any impact on teaching practices and/or whether participation has reduced perceived obstacles relating to teaching and learning in a digital context, from the perspectives of principals and teachers
5 To describe key activities, successes and challenges of schools in their work with the PDST during the trial, from the perspectives of both PDST advisors and school staff
6 To describe the learning from the DLF trial from the schools' and PDST perspectives in order to compile information that could contribute to ongoing development and implementation of the DLF.

Design of the Digital Learning Framework trial evaluation

The study involved the collection of information from school principals, digital technology liaison teachers and class teachers from participating schools during October-November 2017 (Phase 1) and again in April-May 2018 (Phase 2). Focus groups were also conducted with school staff in six schools in Phase 1, and with school staff and students/pupils in these same six schools in Phase 2. PDST advisors also took part in a focus group during Phase 2. Online surveys were administered during both phases, with some common content across phases, which allowed for some comparisons across phases.

In September 2017, the DES invited schools to apply to participate in the DLF trial. In their applications, schools indicated a first, second or third preference for the DLF domain that they wished to focus on during the DLF trial. Twenty-eight primary and two special schools[4] were selected from 176 schools that applied, and 20 post-primary schools were selected from 139 applications. In selecting schools, a balance

[3] As a result of industrial relations (IR) issues, primary schools had been directed (since about April 2016) not to engage in the 6-step SSE (School Self-Evaluation) process. The IR issues have now been resolved.
[4] Two primary schools withdrew from the study in December 2017 and January 2018 due to time constraints.

was sought between school characteristics such as location, enrolment size, gender composition, socio-economic context, and DLF domain area.

Comparisons of the DLF trial sample with the population of primary and post-primary schools indicate that the trial schools are broadly representative in terms of location, gender composition, and socio-economic context, but have slightly larger enrolment sizes than on average nationally.

Schools that volunteered to take part in the DLF trial may have a higher propensity to embed digital technologies in their practices than schools that did not volunteer. The sample of schools may therefore be reflective of a more positive culture towards using digital technologies than might be the case with a full national sample.

In late October 2017, management and staff from the selected DLF trial schools attended a one-day seminar and information day on the DLF trial in Croke Park, Dublin.

Table E1 shows the distribution of participating schools across DLF domains. In some cases there are low numbers of schools focusing on a particular domain. For example, just two primary schools focused on Domain 4 of the Teaching and Learning dimension. For this reason, results are not compared across domains.

Table E1. Distribution of DLF domains across the 48 DLF trial schools, primary, post-primary and overall

Domain	**Primary (N = 28)**		**Post Primary (N = 20)**		**All (N = 48)**	
	N	*% focusing on this domain*	*N*	*% focusing on this domain*	*N*	*% focusing on this domain*
Teaching and Learning						
Domain 1 Learner Outcomes	4	14.3	4	20.0	8	16.7
Domain 2 Learner Experiences	8	28.6	1	5.0	9	18.8
Domain 3 Teachers' Individual Practice	3	10.7	1	5.0	4	8.3
Domain 4 Teachers' Collective/Collaborative Practice	2	7.1	7	35.0	9	18.8
Leadership and Management						
Domain 1 Leading learning and teaching	4	14.3	2	10.0	6	12.5
Domain 2 Managing the organisation	1	3.6	3	15.0	4	8.3
Domain 3 Leading school development	4	14.3	1	5.0	5	10.4
Domain 4 Developing leadership capacity	2	7.1	1	5.0	3	8.3

Seven PDST advisors were assigned to an average of seven schools each. Their role was to guide and support the work of schools in reflecting on activities associated with their DLF domain, to identify standards within that domain that schools wish to work on, to establish a vision for each school with respect to digital technologies in their specific domain and standard(s), to support schools as they implemented changes, and to provide tailored professional development to staff involved.

Each school established a Digital Learning Team to oversee the DLF trial. During the course of the trial, it was envisaged that each school's DL Team (along with other staff, as appropriate) would receive five visits from its PDST advisor.

Staff from six schools (three primary, three post-primary) took part in focus group interviews in Phases 1 and 2. The schools cover a range of locations, enrolment sizes, socio-economic contexts and gender compositions, as well as a range of DLF domains and stages of embedding digital technologies into school practices. In Phase 2, pupils/students in five of these schools also took part in focus groups.

Online questionnaires for Phases 1 and 2 were developed by the Educational Research Centre (ERC) and reviewed and approved by some of the members of the Implementation Advisory Group for the Digital Strategy for Schools. PDF versions of the questionnaires are available at www.erc.ie/dlf.

Guidelines for interpreting the results

Table E2 describes some important features of the DLF trial and provides guidelines for the interpretation of the results. These highlight:

- The short timeline (5-6 months) for the trial, meaning that any results, particularly regarding impacts of the DLF, should be regarded as initial indications only
- The relatively small number of schools taking part (which means that results cannot be generalised to the populations of primary and post-primary schools)
- The fact that the DLF contains a total of eight domains, with each school focusing on one of the eight during the trial; this prevents conclusions being drawn about specific DLF domains
- Differences across Phases 1 and 2 in the school-level questionnaire respondents, meaning that comparisons across phases should be made cautiously
- The probability that participating teachers were more digitally literate and digitally engaged than teachers in the general population
- Low teacher response rates at Phase 2, meaning that comparisons of teacher responses across Phases 1 and 2 are limited
- The fact that the information collected through the school focus groups needs to be interpreted in the particular contexts of the six schools taking part in the focus group discussions
- The fact that views of pupils and students were collected in Phase 2 only and that it is probably too early in the overall implementation of the DLF for it to have any meaningful or widespread impact on students and pupils.

Table E2. Features of the DLF trial and caveats/guidelines for interpreting the results

Feature	Caveat/Guideline
The **timeline** for the study is **short**, with about 6 months between baseline and final evaluation.	The results should be interpreted as an **initial indication only** of how schools are using the DLF to embed digital technologies into teaching and learning or leadership and management.
The **sample is small and non-random** (i.e. schools volunteered to take part), comprising 28 primary schools (including 2 special schools) and 20 post-primary schools. The sample may therefore be biased in favour of schools with a more positive disposition towards the use of digital technologies than might be the case with a nationally representative sample.	Although broadly representative of the population of schools in the country, the **results should not be generalised to all schools**. Instead, they should be regarded as **broadly indicative** of the implementation of the DLF trial and should be understood in the **particular contexts** of the participating schools and the fact that they chose to take part.
Each school focuses on one of the eight DLF domains, i.e. each school provides a partial picture of the entire DLF. The numbers of schools focusing on each domain varies from 1 to 8 at primary level, and from 1 to 7 at post-primary level.	**Results by individual DLF domain are not reported separately**. Instead, comparisons are made at the more general level of Teaching and Learning or Leadership and Management dimensions. The **findings should not be used to draw conclusions about the implementation of individual DLF domains**.
In Phase 1, a school-level questionnaire was administered to principals while in Phase 2, it was administered to Digital Learning Team Leaders. This means that **in some cases, different members of school staff would have responded to the school-level questionnaire during Phases 1 and 2**.	**Interpretation of the comparisons** of school-level results across Phases 1 and 2 should take account of the fact that **Phase 1 and Phase 2 respondents may not be the same member of staff**.
The **teachers** responding to the teacher questionnaire and taking part in focus groups are not necessarily representative of all teachers in participating schools as they **may be more digitally literate and digitally engaged**.	Results from the teacher survey should be interpreted with respect to the likelihood that **had all teachers** in participating schools **completed a survey**, the results **might reflect lower overall levels of digital literacy and digital engagement**.
Response rates of teachers were lower during Phase 2 (45%) than during **Phase 1** (79%). It was not **possible to reliably match individual teachers'** responses **across phases**.	For **comparing changes** across Phases 1 and 2, **school-level average teacher responses** for a **limited number of measures** only are reported.
Focus groups provide rich, in-depth information; however, focus groups were conducted **in six of the 48 schools** only (3 primary and 3 post-primary), with 33 staff taking part in phase 1 and 37 staff and 34 students/pupils taking part in phase 2.	The purpose of the focus groups is to provide a **detailed contextual narrative** about the journeys of particular schools as they progress through the trial and are **not intended to be typical or representative** of the full sample of schools.
Students'/pupils' views are not included in the **baseline** phase of the trial but are included in the **follow-up** phase.	The implementation of the DLF is at the very **initial stages** where the **focus** of the work is on **planning and enabling teachers** to implement the DLF. As the DLF is rolled out nationally, the relevance of students'/pupils' opinions will increase.

Summary of findings

Findings refer to Phase 2, with comparisons to Phase 1 where appropriate. The Phase 1 findings are reported in detail in Cosgrove et al. (2018)[5].

School questionnaire respondents

- All schools except one post-primary school returned their Phase 2 school questionnaire.
- At primary level, 50% of the respondents were principals, 14% were deputy principals, 18% were ICT/DL liaison teachers, and 18% were class teachers. At post-primary level, 5% of respondents (one school) was a principal, 32% were deputy principals, 58% were ICT/DL liaison teachers, and 5% (one respondent) was a class/subject teacher.
- In Phase 1, respondents to the school questionnaire were school principals primarily because, in a large majority of schools, a DLT had not been

[5] http://www.erc.ie/wp-content/uploads/2018/05/DLF-Trial-Evaluation-Interim-Report-May-2018.pdf

established. Comparisons of school-level survey responses across Phases 1 and 2 should be mindful of these differences.

Teacher questionnaire respondents

- Teacher response rates were lower in Phase 2 (44.5% at primary and 47% at post-primary) than in Phase 1 (78% at primary and 81% at post-primary).
- In Phase 2, a large majority of post-primary teachers (97.5%) were on the DLT in the school, while 63% of teachers at primary level were on the school's DLT. This suggests that teachers who were more directly involved in the DLF trial in schools were more likely to return a teacher questionnaire.
- Caution in interpreting the teacher results is advised.
    - Response rates were considerably lower in Phase 2 than in Phase 1; also, at primary level, five of the 28 participating schools did not return any teacher questionnaires.
    - A majority of respondents were on the schools' DLTs, so the results are unlikely to represent a whole-school picture.
    - It was not possible to match individual teacher results across Phases 1 and 2, so cross-phase comparisons are made at the level of the school rather than at the level of the teacher and should be interpreted with respect to differences in teacher response rates across phases.

PDST advisors

As already noted, seven PDST advisors (three at post-primary level and four at primary level) worked on this trial. Each advisor completed a short survey for each of his or her schools during Phase 1 and Phase 2.

Focus group respondents

- In Phase 2, 13 focus groups were conducted by two researchers from the ERC (during April/May 2018). One focus group was conducted with the seven PDST advisors; the four primary level and three post-primary level advisors were interviewed as a single group.
- Seven focus groups were conducted with staff in the six schools. In one school, a second group of staff was interviewed instead of a group of pupils. In that school, the principal felt that a focus group with pupils was not relevant, as the school was focusing on a Leadership and Management domain. The number of participants in the staff focus groups ranged from three to eight. The composition of the groups varied and included members of school management, as well as members and non-members of the DL Teams. The interviews lasted an average of 42 minutes.
- Five focus groups were conducted with students and pupils (three in post-primary schools and two in primary schools). The number of participants ranged from three to nine and the interviews lasted an average of 35 minutes.

Digital contexts of participating schools

- Both DLT leaders and teachers rated eight aspects of DT infrastructure and four aspects of DT engagement (of teachers and learners) on a scale ranging from Excellent to Poor. At primary level, a comparison of Phase 2 and Phase 1 responses indicates that there has been a significant improvement in respondents' perceptions of DT infrastructure and DT engagement. There are no significant differences between Phases 1 and 2 at post-primary level on measures of DT infrastructure, although post-primary teachers' responses are indicative of significant improvements in levels of DT engagement across phases.
- These findings are challenging to interpret because the school-level questionnaire was directed to principals during Phase 1, and to DLT leaders at Phase 2. Also, the response rates for teachers were lower in Phase 1 than in Phase 2. Further, the ratings of DT infrastructure and DT engagement are subjective, and it is probable that, over the course of the trial, with increased understanding of how to use DT, respondents' appreciation of the effective use of DT and/or their engagement with DT improved. However, some of the improvements in these ratings at primary level can be directly attributed to efforts in a small number of schools to improve broadband connectivity and/or complete the purchase of new devices with the ICT infrastructure grant.

Digital teaching and learning practices

- At Phase 2, teachers were asked to indicate the frequency with which they had their students/pupils engage in a range of 16 activities using DT.
- At primary level, DTs were mainly used by pupils to find information, practice routine procedures, create knowledge, and work collaboratively with other pupils in the school. Primary pupils were less likely to use DTs to work with data/spreadsheets, use social networks, collaborate with others from outside of the school, create or use simulations, or submit homework.
- At post-primary level DTs were used by students mainly to find information, practice routine procedures, analyse and create knowledge, work collaboratively, and submit homework. Students were less likely to use DTs to work with others outside of the school, to use data logging tools, or to use or create simulations.
- Comparisons of teachers' responses to these 16 items with data on the same items from teachers who took part in the 2013 ICT Census in Schools (Cosgrove et al., 2014a, b) indicate that there have been very substantial increases in the percentages of teachers engaging their pupils/students in a majority of the 16 activities. On some items, the percentages of teachers reporting that they engaged their learners in these activities increased by between 30 and 60 percentage points. At both primary and post-primary levels, teachers who returned a DLF trial questionnaire at Phase 2 reported that they had their pupils use DTs to give peer-to-peer feedback, to collaborate, and to analyse and create information, substantially more frequently than those in the 2013 ICT Census. At post-primary level, large increases were also observed in frequencies with which students published

work online, worked with spreadsheets/databases, and submitted homework.

- These increases (in comparison to the 2013 ICT Census) represent a positive finding; however, they should be interpreted with respect to differences in the samples of the two studies. The 2013 Census sample was nationally representative, while the samples of teachers taking part in the DLF trial are likely to be in schools that are more positively disposed towards DT.

DLT leaders' and teachers' views on the DLF document, Digital Learning Planning Guidelines and other resources

- Similar views emerged in the focus groups at both Phases 1 and 2. This section summarises the main findings from Phase 2.
- At both primary and post-primary levels, relatively frequent use was made of the DLF document, Digital Learning Planning Guidelines (DLPG) and planning template: between 74% and 90% of DLT leaders, and between 55% and 82% of teachers reported using these once a month or more often in the course of the DLF trial.
- Use of/reference to the exemplar videos on the PDST Technology in Education website was somewhat less frequent: about two-fifths of DLT leaders, and about one-third of teachers, Rarely or Never used them. Commentary from the focus groups with school staff suggests that some teachers were not aware of the exemplar videos.
- At both primary and post-primary levels, overall views of these resources were positive.
- At primary level, between 63% and 89% of DLT leaders rated these four resources as resources as Excellent, Very good or Good, while between 7% and 18.5% rated them as Fair or Poor. At post-primary level, between 68% and 95% of DLT leaders rated these four resources as resources as Excellent, Very good or Good, while between 5% and 16% rated them as Fair or Poor.
- At primary level, between 63% and 74% of teachers rated these four resources as resources as Excellent, Very good or Good, while between 6% and 23% rated them as Fair or Poor. At post-primary level, between 56% and 81% of teachers rated these four resources as resources as Excellent, Very good or Good, while between 7% and 20.5% rated them as Fair or Poor.
- Respondents were asked about overall length and layout, language and terminology, content and wording of the DLF domain on which the school was focused, content/wording of the statements of practice for the DLF domain on which the school was focused, and the fit of the DLF within the school's broader planning and development work.
    - Broadly speaking, views on these specific aspects of the DLF document were quite positive. For example, the percentages of DLT leaders rating the length and layout of the DLF as Excellent or Very good were 50% at primary level and 63% at post-primary level. The corresponding percentages reported by teachers were 36% and 54%, respectively.
    - However, specific comments from some respondents (21% of DLT leaders at primary level and 15% of DLT leaders at post-primary level;

11% of teachers at primary level and 4% of teachers at post-primary level) indicate that they had difficulties with the wording, terminology or length of the DLF.

- In the focus groups, some teachers and PDST advisors commented on what they perceived to be forced divisions between dimensions (Teaching and Learning, Leadership and Management) and domains (Learner Experiences and Teachers' Individual/Collaborative Practice). That is, they felt that the DLF does not reflect the interdependencies between these areas, and the reality of schools' experiences.
- The challenge of 'unpacking' the DLF domains and translating them into practice was mentioned by DLT Leaders and teachers in the questionnaires, as well as by the PDST advisors and teachers in the focus groups. Advisors noted that this process involves a degree of flexibility and freedom, and a high level of teacher agency/autonomy that is outside the norm in many schools, making it difficult for teachers to engage with the document without the advisors' reassurance. Teachers noted the time-consuming nature of this process and considered the support of the PDST advisors to be essential for its completion.
- In the focus groups, PDST advisors and teachers said they found it difficult to translate the DLF document into practical actions. The addition of practical or concrete examples to the document was recommended by both groups.
- The PDST advisors also considered linkages between SSE and the DLF. The Leadership and Management dimension is not currently a focus of SSE, so some advisors felt that this should be the main focus of the DLF trial. However, other advisors felt that by focusing on Teaching and Learning, a certain level of infrastructure is assumed, and this might not exist in all schools. Therefore the Leadership and Management dimension was considered a means by which schools could use the DLF to address infrastructural issues. Teachers in one of the focus groups also expressed this view.
- Both the PDST advisors and the school staff generally expressed positive views about the fact that the structure of the DLF matched that of the LAOS framework.
- Ratings (from Excellent to Poor) on various aspects of the Digital Learning Planning Guidelines (DLPG) were provided by 82% of primary DLT leaders and 84% of post-primary DLT leaders, and by about four in five teachers. Respondents were asked about overall length and layout, language and terminology, and usefulness. They were also asked to rate each section of the Guidelines. Approximately 50-60% of DLT leaders' and teachers' ratings were Excellent/Very good.
- In Phase 2, there were no statistically significant differences in DLT leaders' or teachers' ratings of the DLF or the DLPG across primary and post-primary levels; nor did ratings vary significantly across 'Teaching and Learning' and 'Leadership and Management' schools.
- The rate of missing responses on ratings of the DLPG and the sparse commentary on this document in both the questionnaires and focus groups

suggest that a substantial minority of respondents did not refer to the DLPG, or, if they did, it was not in depth. This may partly be because the DLPG became available after the beginning of the DLF trial, at around the time of PDST advisors' second visits to schools.

Time spent by DLT leaders, teachers and PDST advisors working on the DLF trial

- DLT leaders, teachers and PDST advisors were asked to estimate the total time spent working on the DLF trial (covering the six-month period from November 2017 to May 2018). Total amounts of time reported by the three groups are similar on average across primary and post-primary levels, although there is a lot of variation across individual schools.
- On average, primary level DLT leaders reported spending 29 hours working on the DLF trial in their school, and post-primary DLT leaders reported spending an average of 27 hours.
- At primary level, 16% of DLT leaders spent 16 hours or less on the programme, while 37% spent 33 hours or more. The corresponding percentages at post-primary level are 30% and 52%.
- On average at primary level, teachers spent 17 hours working on the DLF trial, and at post-primary level, an average of 18 hours was spent.
- At primary level, one third of respondents spent 8 hours or less on the programme, while 28% spent 25 hours or more. The corresponding percentages at post-primary level are 29% and 29%.
- PDST advisors spent about 33 hours on average per primary school and 32 hours on average per post-primary school. This time estimate includes preparatory work, five school visits, and follow-up work. At primary level, 55% of schools' visit programmes took between 9 and 24 hours in total, 25% took 25-32 hours, and 20% took 33 or more hours. At post-primary level, the corresponding percentages are 7%, 57% and 36%, respectively.

Implementation of the DLF programme

- DLT leaders in a majority of participating schools (71% at primary level and 68% at post-primary level) reported that the DLF trial programme formed part of a one-year or multi-year plan. In 29% of schools at primary level and 32% of schools at post-primary level, the DLF trial programme was at or nearing completion in April-May 2018 (i.e. six months after the beginning of the trial).
- DLT leaders and teachers were asked about the nature of the DLF trial programme in their school, in terms of (i) its focus on pupil-/student-level skills/competencies and (ii) on elements of the programme that related to teachers, management and infrastructure. Their responses indicate that more emphasis was placed on teachers' needs than on pupil/student competencies.
- At primary level, the focus of the DLF programmes were primarily on teachers' digital literacy in general; development of teachers' skills in using specific apps or software; teachers' collaborative and team work; and use of digital technologies for assessment. There was also a moderate to high focus

at primary level on pupils' digital literacy, collaborative and team work, literacy skills, and critical thinking and analysis.

- The areas of focus of post-primary schools' DLF programmes were quite similar to those at primary level. Programmes tended to focus on teachers' digital literacy in general; teachers' collaborative and team work; and making improvements to the sharing of teaching documents and resources (cloud- or server-based). Again similar to primary level, there was a moderate to high level of focus on students' digital literacy, collaborative and team work, and critical thinking and analysis.
- There were very few significant differences in terms of level of focus of various aspects of the schools' DLF programmes across 'Teaching and Learning' and 'Leadership and Management' schools. This suggests that, regardless of the dimension that the schools were working on during the DLF trial, they were engaging in activities across a broad range of elements.
- Levels of engagement with schools' DLF programmes by ICT/DL liaison teachers, class teachers, PDST advisors and students/pupils was reported by DLT leaders as being medium to high at both primary and post-primary levels. For example, at primary level, engagement of teachers was described as high by 68% of respondents and engagement of pupils was described as high by 56% of DLT leaders (with a further 24% of these groups being rated as having medium engagement). At post-primary level, engagement of teachers was described as medium to high by 89.5% of DLT leaders and engagement of students was described as medium to high by 63%.
- A large majority of DLT leaders (88% at primary level and 89% at post-primary level) reported that the DLF complemented existing SSE activities in the area of teaching and learning. Comments on using the DLF as part of SSE activities were made by 15 of the 48 DLT leaders, and 11 of these were positive in tone (the remainder were neutral or descriptive).

The PDST advisor support programme

- Visits took place between November 7, 2017 and June 11, 2018 in primary schools, and between November 6, 2017 and May 11, 2018 in post-primary schools. On average, 20 weeks elapsed between the first and last visit to each primary school, and 21.5 weeks elapsed between the first and last visit to each post-primary school.
- At primary level, almost all schools (93%) received five visits from their PDST advisor. At post-primary level, 40% of schools received five visits, 35% of schools received four, and 25% of schools received three. Reasons for schools receiving fewer than five visits varied (e.g. agreement between the school and PDST advisor that fewer meetings were sufficient; scheduling difficulties; injury of one post-primary PDST advisor towards the end of the trial).
- At primary level, on average, 3-4 members of staff attended the first two meetings, and this increased to an average of 10-12 staff during visits 3, 4 and 5. At post-primary level, an average of 5-6 members of staff attended the first two meetings, and this increased slightly to an average of 8-10 staff during visits 3, 4 and 5. This pattern presumably relates to the involvement of more teachers in the visits as the DLF trial programme progressed.

- PDST advisors and DLT leaders were asked to indicate which among a list of 12 activities formed a part of each school visit. Broadly speaking, the reports of PDST advisors and DLT leaders are consistent with one another.
- Their responses show a clear progression:
    - unpacking or analysing the DLF, creating a shared vision of digital learning, and creating tools to gather evidence during visits 1 and 2
    - analysing the evidence and creating the Digital Learning Plan during visit 3
    - reviewing the Plan, reviewing goals and targets, and reviewing progress during visits 4 and 5.
- Professional learning or training sessions were provided during visits 3, 4 and/or 5, rather than during earlier visits. Based on PDST advisors' reports, a significantly higher number of professional learning/training (PLT) sessions was provided at primary level than at post-primary level. However, number of PLT sessions did not vary by schools' level of practice or level of DT infrastructure at Phase 1. The trial evaluation did not gather information on the content or focus of PLT sessions provided by the PDST advisors.
- Staff in five out of six focus group schools gave very positive feedback about working with the PDST advisors, and considered their support to be vital to the planning and implementation of the DLF trial.
- Staff valued the objective perspective that advisors brought to their schools, as well as the insights and suggestions that they were able to provide from their work with other schools. Their involvement helped to maintain staff motivation to meet deadlines and also provided reassurance when necessary.

Changes in levels of practice between Phases 1 and 2

- PDST advisors were asked to rate schools' level of practice based on the statements of effective/highly effective practice of the domain and standard(s) that the school was focusing on for the DLF trial. This rating was made at both baseline (November-December 2017) and towards the end of the trial (April-May 2018) on an eight-point scale:
    - 1: all below statements of effective practice
    - 2: mostly below statements of effective practice
    - 3: partly below/partly at statements of effective practice
    - 4: mostly at statements of effective practice
    - 5: all at statements of effective practice
    - 6: partly at statements of highly effective practice
    - 7: mostly at statements of highly effective practice
    - 8: all at statements of highly effective practice.
- At Phase 1, over 90% of schools at both primary and post-primary levels received a rating of 3 or lower on this index, i.e. almost all schools were rated as partly, mostly, or all below levels of effective practice.
- Over the course of the trial, the effective practice index score increased by an average of 1.96 points at primary level and an average of 1.74 points at post-primary level. These increases are statistically significant and may be regarded as substantial in size, given the short overall timeline for the trial.

- At primary level, the index score of 25% of schools increased by one point, 32% increase by two points, and 36% increased by three points. No change was observed in two schools (7%).
- At post-primary level, the index score of 37% of schools increased by one point, 37% increase by two points, and 21% increased by three points. No change was observed in one school (5%).
- The increase in the level of practice score was similar across primary and post-primary in both dimensions, i.e. there was no significant difference in the change in scores across 'Teaching and Learning' and 'Leadership and Management' schools.

Comparisons of ratings of effective practice by DLT leaders and PDST advisors

- DLT leaders also provided an index score of level of practice for Phase 2 (but not for Phase 1), and their scores were compared to those provided by PDST advisors. At both primary and post-primary levels, the ratings of DLT leaders tended to be higher than those of PDST advisors, and there was variation in the magnitude of the difference between schools' and advisors' ratings (ranging from -3 to +4 points).
- While both ratings are valid in that they are made on the basis of knowledge about the school's DT contexts and practices, and familiarity with the DLF document, the amount of variation in the ratings suggests that school staff and PDST advisors are using different criteria to assign these ratings.

Changes in teaching, learning, management and infrastructure

- DLT leaders and teachers were asked to rate a range of ten teaching, learning, management and infrastructural items in terms of the level of change that they had observed over the course of the DLF trial (on a scale ranging from Significant change to No change). Reports of DLT leaders and teachers are generally consistent with one another.
- At primary level, 64-75% of DLT leaders reported significant or moderate changes in teaching and learning activities during class time, collaborative practices among teachers, and pupils' interest and engagement in learning activities. In contrast, only 25% of respondents indicated that there had been a significant or moderate change in pupils' learning or homework activities.
- At post-primary level, 74-95% of DLT leaders reported significant or moderate changes in emphasis on use of digital technologies in school policies or guidelines, collaborative practices among teachers, teaching and learning activities during class time, students' interest and engagement in learning activities, decisions relating to enhancing digital technology infrastructure, sharing of documents or resources among teachers, and decisions relating to enhancing broadband connectivity/Wi-Fi connectivity or reliability.
- Levels of perceived change in these ten areas did not differ significantly across 'Teaching and Learning' and 'Leadership and Management' schools. This suggests that, regardless of the dimension that schools focused on during the DLF trial, changes occurred across a range of areas.

- Increased collaboration among staff was mentioned in all six focus groups, making it the most frequently-cited positive impact of participating in the DLF trial. It was characterised by improved communication and increased sharing of knowledge and resources among staff.
- Staff in all six of the focus group schools noted an increase in staff motivation and openness to engage with DT as a result of taking part in the DLF trial. Teachers in five out six focus groups reported feeling more confident to integrate DT in their practice. They also perceived an enhancement of the student experience since participating in the DLF trial, which further increased their motivation as teachers.

Successes of the DLF trial

- The perceived overall level of success of the trial was generally high.
    - DLT leaders: At primary level, 100% of respondents rated the trial as highly or moderately successful. At post-primary level, 95% reported that it had been highly or moderately successful.
    - Teachers: 87% of primary teachers and 71% of post-primary teachers described the DLF trial as highly or moderately successful.
    - PDST advisors: 96% of primary and 90% of post-primary schools' trials were rated as highly or moderately successful.
    - There is general consistency with the views of PDST advisors and DLT leaders in terms of the perceived overall success of the trial.
- DLT leaders, teachers and PDST advisors rated 11 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme.
- Across all three respondent groups and at both primary and post-primary schools, a majority of respondents rated all or almost all items as essential. The results show that a range of conditions and supports (e.g. PDST support; school planning and leadership from school management; opportunity for discussion, collaboration and professional development; and engagement of school staff) are required in order for the DLF programme to be implemented successfully. Participants in the focus groups with school staff also expressed the view that a range of conditions are necessary to support the implementation of the DLF. They emphasised the importance of PDST support, time for planning and collaboration and support from management.
- Comments in the questionnaires from DLT leaders and teachers at both primary and post-primary levels indicate that schools viewed the tailored and sustained support of PDST advisors as critical to the success of the DLF programme. Similarly, in the focus groups, teachers and PDST advisors expressed the view that the potential of the DLF to enable change is dependent on the provision of appropriate, tailored and sustained professional learning/training.
- Some advisors worked with schools to develop internal structures for peer-led professional learning, in order to sustain the successes of the DLF trial. In three out of six staff focus groups, peer-delivered professional

learning/mentoring was mentioned as an especially effective form of collaboration, as it allowed staff to draw on their shared experiences and knowledge of their own school's context.

- PDST advisors' questionnaire commentary highlights the importance of good communication and collaboration (among themselves as a group, between them and school staff, and among school staff in individual schools). They also mentioned practical aspects of implementing the programmes, e.g. development of a clear vision and achievable targets by each school, the involvement of the digital learning liaison teacher, and having staff released to attend PDST meetings and training.
- The focus group with the PDST advisors provided further insights into their perceptions of the factors influencing the success of the DLF trial. Two aspects of planning were considered crucial. The first was the time spent by the PDST advisors working as a group and individually before visiting schools. The second was the development of a Digital Learning vision in each school through a systematic process of identifying an end point and then working backwards to ascertain what was needed to achieve that end point.
- PDST advisors noted a high volume of communication between them and the schools between visits, and acknowledged the high value of the effective use of shared online (cloud-based) folders of tools and resources.
- In the staff focus groups, leadership within schools was considered an important influence on the success of the DLF trial; leading by example and committing to a process of incremental change were considered features of a leadership style that would support successful implementation. Similarly, the PDST advisors expressed the view that endorsement and support from the principal and/or school management were instrumental to the success of the programme.

Challenges associated with the DLF trial

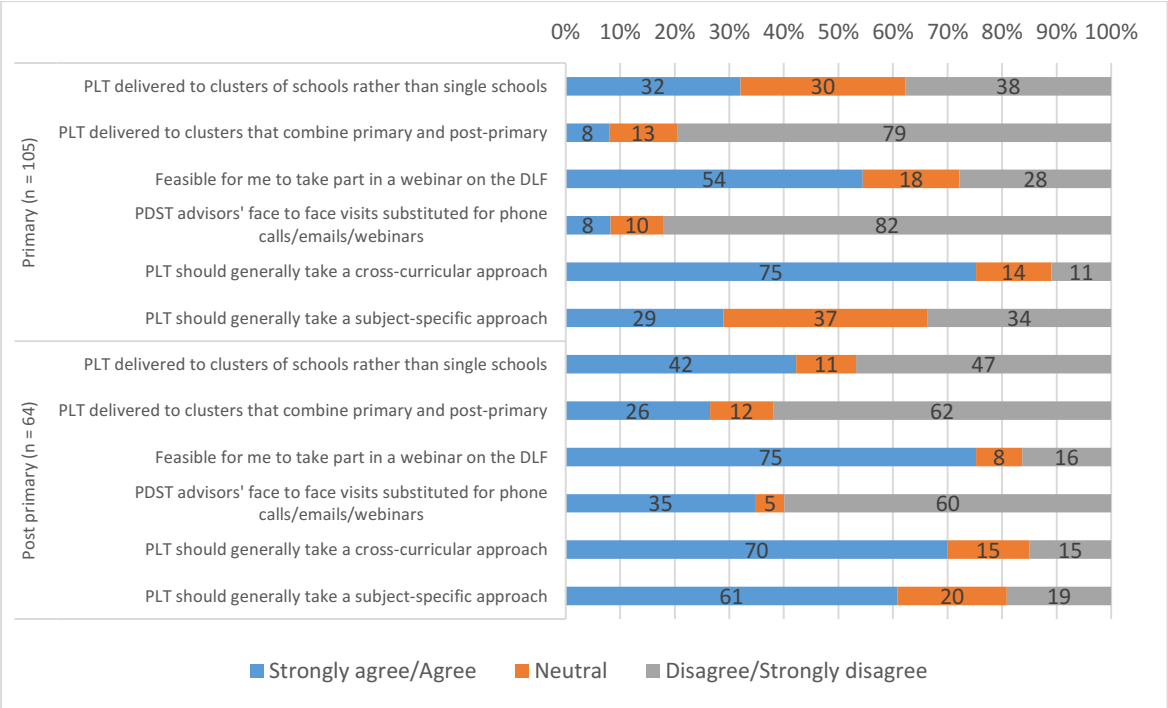
- DLT leaders, teachers and PDST advisors were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their school.
- The two key challenges that were most frequently and most consistently identified by all three respondent groups related to the time required to develop and implement changes and improvements, and DT infrastructure (hardware and connectivity). Variations in teachers' digital competence and attitudes towards DT, and perceived lack of support and leadership from school management, also emerged as relatively common challenges.
- There was considerable variability in what respondents regarded as challenging, indicating that a lot of challenges are highly context-specific. For example, equal percentages of primary school DLT leaders indicated that sharing the learning of the Digital Learning Team across all staff in the school was highly/moderately challenging (50%) and somewhat/not at all challenging (50%), and almost equal percentages of post-primary school DLT leaders indicated that staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme was highly/moderately challenging (53%) and somewhat/not at all challenging (47%).

- The findings from focus groups with teachers and PDST advisors reflect those from the questionnaires, in that the most frequently identified challenges related to time and infrastructure; technical support was also a strong theme in the focus groups.
    - The short timeframe for the DLF trial, competing demands on staff time and a lack of substitute cover were cited by PDST advisors and teachers as challenges to the planning and implementation of schools' DL plans. Consequently, some advisors and schools extended the timeframes for implementation of the DL plans.
    - Teachers noted a lack of dedicated time for them to upskill and share their expertise with their peers as a challenge to embracing collaborative practice.
    - Teachers in three out of six focus groups described problems with infrastructure in their schools (insufficient number of devices; unreliable devices; poor connectivity). Such problems were considered significant barriers to fully embedding DT in teaching and learning.
    - Inadequate technical support was mentioned in four out of six focus groups with teachers. In most schools, one or more members of staff provides *ad hoc* technical support on a voluntary basis, which was considered unfair and unsustainable. The cost of external, professional technical support was considered a barrier to engaging with such support.

Looking to the future: national rollout of the DLF

- In all six staff focus groups, participants discussed their views on the sustainability and future implementation of the DLF. They mentioned several factors that they considered necessary for successful national rollout: leadership from the DES, the support provided by the PDST advisors, the provision of technical support, the provision of training and adequate time for teachers to engage, and the acknowledgment of the variability of schools' digital contexts.
- In the questionnaire, teachers were asked to what extent they agreed or disagreed with six statements about professional learning/training (PLT). Their responses (Figure E1) are relevant to planning the national rollout of the DLF.

Figure E1. Primary and post-primary teachers' levels of agreement/disagreement with six statements about professional learning/training (PLT) for the DLF



- At primary level:
  - there were mixed views on facilitating professional learning across clusters of schools rather than single schools: 32% agreed with clustering, while 38% disagreed
  - 79% disagreed with the clustering of primary and post-primary schools together for PLT
  - 54% agreed that it would be feasible for them to attend a webinar (while 28% disagreed)
  - 82% disagreed that PDST advisor visits could be substituted for phone calls, emails or webinars
  - 75% agreed that PLT should generally take a cross-curricular approach, while 29% agreed that it should generally be subject-specific.
- At post-primary level:
  - there were also mixed views on facilitating professional learning across clusters of schools: 42% agreed with clustering, while 47% disagreed
  - 62% disagreed with the clustering of primary and post-primary schools together for PLT
  - 75% agreed that it would be feasible for them to attend a webinar
  - 60% disagreed and 35% agreed that PDST advisor visits could be substituted for phone calls, emails or webinars
  - 61% agreed that PLT should generally take a cross-curricular approach, while 70% agreed that it should be subject-specific.

- In the focus group, PDST advisors expressed the view that creating clusters of schools for the delivery of technical and professional support would be essential, despite the fact that this is not common practice and would likely involve logistical difficulties.
- PDST advisors felt that the DES should acknowledge the challenges faced by schools due to the variation in existing technical supports. They also felt that schools could benefit from guidance on the purchase of DT devices and that (publicly-funded) schools should be protected against (corporate) marketing pressures.
- PDST advisors cited two examples from other countries (UK and USA), where a distinction is drawn between the complementary roles of a DT technician and a DT co-ordinator/coach. The technician provides technical support and the coach/co-ordinator is a strategic leader of using DT to enhance pedagogical practice. The advisors felt that both of these roles, assigned to different individuals rather than combined, would be important for the successful rollout of the DLF.

Students' and pupils' views on DT

- Some of the themes from the focus groups with students/pupils are not directly related to the DLF. However, they provide valuable insights into young people's perspectives on DT in education and learning.
- Students' and pupils' descriptions of their experiences of DT in school varied considerably across the five focus groups (e.g. in terms of the programmes/applications used; frequency of use). They use a variety of programmes and applications for classwork and homework, including Google Classroom/Schoology (multi-app, cloud-based learning management systems), Screencastify (screen video recorder), YouTube, Book Creator (multimedia document editor), Khan Academy (online Maths app), Scratch (programming language for creating interactive stories and games) and Quizlet (general learning and revision tool).
- Students/pupils in three out of five schools described using DT for individual and group projects. It is difficult to ascertain the level of collaborative work being done as the group work tended to involve the division of projects into separate tasks and their allocation to individuals.
- In two post-primary schools, students noted an increase in the use of DT during the DLF trial period. They also observed the impact that teachers' levels of confidence and competence with DT can have on their learning experiences.
- Students and pupils in three out of five focus groups (one primary and two post-primary schools) described problems with DT infrastructure in their schools (slow, unreliable devices; underuse of devices; shortage of devices). These reflect some of the issues raised by school staff and PDST advisors.
- Students and pupils demonstrated a critical understanding of the role of DT in education and in their lives more generally, identifying several benefits and limitations.
- The benefits identified by students and pupils are listed below:

    - DT enables fast, easy access to large volumes of information
    - Learning can be more interesting and engaging with the use of DT
    - DT can enable a feeling of greater independent learning
    - Digital storage of information is convenient (this benefit was exclusively identified by post-primary students and was related to the weight of their school books)
    - Competence and confidence in the use of DT was considered a valuable life skill.
- The limitations identified by students and pupils may be summarised as follows:
    - DT does not guarantee enhanced learning. Pupils at primary level identified certain tasks which they felt were not enhanced by the use of DT (e.g. repetitive tasks like learning spellings). Post-primary students were of the view that the manner in which DT is used determines whether or not learning is enhanced.
    - Good teaching need not be reliant on the use of DT.
    - Some students learn better when listening to a teacher.
    - Using DT can make it easier to become distracted from the topic/task of interest due to ease of access to large volumes of information, social media apps and students using their personal devices in class.
- Concerns were also raised about internet safety, inappropriate content, privacy, and targeted advertising at both primary and post-primary levels.
- Students and pupils were asked to imagine how DT would be used in an ideal school. In four out of six focus groups, students/pupils expressed a desire for individual digital devices for each learner. They also suggested ideas for incorporating DT into a range of subjects e.g. the use of teleconferencing to help with learning languages or learning about other cultures; the use of 3D printing for Technical Graphics or Design and Communication Graphics.
- In two post-primary schools, students offered their opinions on the education system in a more general sense. They perceived a disproportionate emphasis on knowledge and exams in the education system, and believed that different skills (e.g. communication, DT competency) are more important. They favoured a system of continuous assessment and examinations based on critical thinking and opinion. They also expressed a preference for paper-based examinations, rather than computer-based. They suggested that systemic change is required in order to fully embed DT in education.

Implications

Overall, the DLF trial was considered a success from the perspectives of DLT leaders, teachers and PDST advisors. There is evidence of improvement in embedding DT in teaching, learning and assessment in the short six-month trial period, and this occurred irrespective of the DLF domain on which schools focused. These improvements were evident in the statistically significant increases in PDST advisors' ratings of effective practice across Phases 1 and 2, in the descriptive information from the surveys, and in the qualitative information emerging from the focus group interviews with school staff and PDST advisors. The DLF document and related

resources were also viewed positively. For example, participants were generally positive about the common structure of the DLF and the LAOS framework.

Seven themes or issues emerge very consistently throughout this evaluation. We consider these here in terms of their implications for national rollout of the DLF programme. They are:

- DLF document, Digital Learning Planning Guidelines, and other DLF resources
- Time
- PDST support and Professional learning
- Technical support and maintenance
- Infrastructure
- Measuring and evaluating progress
- Students' and pupils' views on DT.

DLF document, Digital Learning Planning Guidelines (DLPG) and other DLF resources

The results suggest that the following points need to be considered in enhancing the DLF document, DLPG and other resources.

- Development of schematic information such as an infographic or diagram that illustrates the DLF process from beginning to end, and which cross-references the various tools and resources that are available to assist with the different stages of this process.
- Undertaking a review of the DLF with the aim of supporting the reader more in the interpretation of technical (DT-related) terms, for example by providing explicit linkage to examples.
- Including a practical 'how-to' description of the process of unpacking individual DLF domains in the DLPG.
- Elaborating on the examples provided in the DLPG to include a range that covers all eight domains (currently, the DLPG uses illustrative examples from two of the eight).
- Providing a short section offering specific and practical guidance to schools that may be early in the process of embedding DT (i.e. beginning to work towards a level of effective practice), some of which may also be smaller schools.

Through its planning work in the national roll-out of the DLF, the PDST has already addressed the first four of the five points above and the authors commend their work and effort. The www.dlplanning.ie website brings all of the resources into one place and includes tools to assist schools in obtaining a quick overview of the DLF process, such as a Gantt chart that describes the steps. The booklet provided to schools during the seminars planned for national roll-out (*Using the Digital Learning Framework to Embed Digital Technologies*) provides a user-friendly, structured set of steps and exercises to assist schools in the process of implementing the DLF and developing their Digital Learning Plans. The DLPG will be supported with the addition of more case studies that illustrate all domains on www.dlplanning.ie during 2019, and this web resource will also include evidence-gathering tools that cover all eight DLF domains.

However, it is the view of the authors that the development of further guidance and resources may be necessary to support (smaller) schools which are early in the process of embedding DTs. Solutions or further guidance may emerge in the course of the seminars that are planned for the national roll-out of the DLF, in response to the identification of issues and how best to address them.

Time

The Department of Education and Skills has acknowledged the importance of this work, but needs also to recognise the time it requires by providing supports or further guidance on time management for meetings, planning and professional development/training. In turn, schools will benefit from building in planning time for implementing the DLF within their overall school development and planning process, for example during Croke Park hours or staff meetings (where DT/DL could feature on the meeting agenda).

PDST support and Professional learning/training

There was a very strong consensus that the PDST support was essential for the implementation of the DLF trial. On average, PDST advisors spent a little over 30 hours working with each school assigned to them over the six-month DLF trial period. It is highly unlikely that the level of support provided by the PDST during the DLF trial is sustainable in the context of national rollout, although PDST support should remain a core component of PLT for the DLF. Overall, professional learning should be viewed in a systemic way, with PDST support occurring alongside other forms of PLT such as peer-to-peer learning, online resources (e.g. webinars) and collaboration among staff across clusters of schools and across subject departments in post-primary schools. Within a systemic view of professional learning, schools play an active role in identifying and meeting their own professional learning needs and goals. The

There is also a strategic leadership role to be played by the Department in streamlining the rollout of professional learning/training across multiple players (e.g., the NCCA, Colleges of Education) and across various national initiatives and developments.

Technical support

Further work is needed to identify cost-effective, efficient models and solutions to providing equitable technical support to schools. Technical support had previously been identified as a key challenge in the 2013 ICT Census of Schools (Cosgrove et al., 2014a, b). In response to this, the Digital Strategy provides for a review of Technical Support provision in schools.

From the perspectives of school staff and PDST advisors, technical support, ideally, will be provided by technicians, leaving schools' DLT leaders freer to focus on the strategic leadership of DT, in order to enable schools to develop a culture in which teachers can more effectively embed DT in teaching, learning and assessment.

The DES has established an Expert Group to deliver on the key Digital Strategy objective of technical support solutions. The Expert Group (Technical Support Solutions for Schools) will identify and evaluate technical support options in consultation with the relevant stakeholders, including management bodies, in order to develop a model of technical support that will meet the varying needs in the system. It is envisaged that the outcome of this work will provide recommendations for the implementation of technical supports to meet the needs of schools. It is expected that this Expert Group will consider the findings of this DLF trial amongst the evidence that it reviews; in particular, the views of the DLF trial participants.

Infrastructure

As noted above (under implications regarding the DLF document and other resources), schools that are very early in the process of embedding DT into teaching, learning and assessment may benefit from specific and practical guidance relating to DT infrastructure (devices and/or connectivity).

In addition, schools may benefit from additional guidance or support to:

- Identify and plan for progressive development in infrastructural elements of DT
- Develop awareness of and resistance to corporate marketing pressures in the purchase of DT.

Measuring and evaluating progress

For the DLF to achieve its aims, the Department needs to clarify what levels of effective and highly effective practice might look like and promote a shared understanding of their meaning, perhaps by illustrating them 'in action' in a range of examples. Without a shared understanding of effective and highly effective practice, monitoring the implementation of the DLF would be problematic.

Students' and pupils' views on DT

As the rollout of the DLF progresses, further information on the views of learners should be gathered. It is the view of the authors that the most efficient way to gather this information is within Ireland's existing national and international educational assessment programmes, i.e. as part of the forthcoming cycles of the Programme for International Student Assessment (PISA 2021, post-primary), national assessments (2020, primary), and the 2021 cycle of the Progress in International Reading Literacy Study (PIRLS, primary). With respect to PISA, the international project consortium intends to develop and enhance the student ICT questionnaire component for 2021. Nationally, Ireland can add to this component with specific, tailored questions. A similar strategy may be applied to the PIRLS pupil questionnaire.

Research and design implications

The findings of this evaluation have a number of research and design implications which, if adopted, have logistic, administrative and data management consequences.

It is recommended that the evaluation of the national rollout of the DLF should occur within an overall longitudinal framework that covers a minimum period of two years.

The study should ensure to include:

- Reliable information on the progress of schools in their levels of practice in embedding DT
- The ways in which the DLF was used to facilitate change
- A mechanism to incorporate learners' views on DT in learning and assessment through, for example, triangulation with national and international assessment programmes
- The gathering of detailed information on how the DLF is linked with SSE efforts in individual schools
- The collection of information on the nature of professional learning that occurs throughout the process.

Furthermore, in order to enable the interpretation of progress over time, the study design should include a consideration of the following:

- If progress is to be evaluated, measures of level of practice at baseline (as suggested by the statements in the DLF) should be provided by schools and PDST advisors with follow-up measures of progress from at least two time points
- In order to interpret progress in context, a mechanism to record and document schools' DT infrastructure is needed
- Similarly, a mechanism for gathering of information on schools' current technical support arrangements would be helpful to understand progress over time.

Chapter 1
Introduction: Background, Aims and Design of the Digital Learning Framework Trial Evaluation

This report follows from the baseline report on the evaluation of the Digital Learning Framework (DLF) Trial (Cosgrove et al., 2018)[6]. The baseline report provided a starting context for the Digital Learning Framework Trial. The present report focuses on changes that have occurred in schools as a result of taking part in the DLF trial, and key successes and challenges associated with taking part.

Sections 1.1 and 1.2 in this introductory chapter are largely the same as Sections 1.1 and 1.2 in Chapter 1 of the baseline report, and provide the context and rationale for the present study.

The remainder of this chapter describes the design of the DLF trial evaluation, compares the DLF trial sample of schools with the population of schools, discusses caveats or guidelines for interpreting the results, and provides an overview of the remainder of the report.

1.1. Background

1.1.1. Digital Learning Framework and Digital Strategy for Schools

The Digital Learning Framework (DLF) is a tool that has been developed to assist schools to effectively embed digital technologies into teaching, learning and assessment activities. This section provides an overview of Ireland's national *Digital Strategy for Schools 2015-2020* and describes how the DLF is linked to that strategy as well as other national initiatives.

In September, 2017, the *Digital Learning Framework* (DLF) for primary and post-primary schools was published by the Department of Education and Skills (DES, 2017a, b). This was followed by *Digital Planning Guidelines* and a *Planning Template*, published in December 2017[7]. The DLF is a tool to help schools manage the transformation of teaching and learning as a result of embedding digital technologies into practice, and has been developed to enable schools to engage with and implement elements of Ireland's national *Digital Strategy for Schools 2015-2020* (DES, 2015a).

Grounded in constructivist principles, the Digital Strategy for Schools and the DLF promote embedding digital technologies into a wide range of teaching and learning activities. The *Digital Strategy* (2015a, p. 5) states that

[6] http://www.erc.ie/wp-content/uploads/2018/05/DLF-Trial-Evaluation-Interim-Report-May-2018.pdf
[7] http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Primary/ and http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Post-Primary/; video exemplars are also available.

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

The *Digital Strategy* is guided by findings from the *2013 ICT Census of Schools* (Cosgrove et al., 2014a, b) and builds on previous strategies, including *Investing Effectively in Information and Communications Technology in Schools, 2008-2013* (DES, 2008) and *Building Towards a Learning Society: A National Digital Strategy for Schools* (DES, 2013).

The embedding of digital technologies into teaching, learning and assessment is associated with a range of challenges. In the summary report on the 2013 ICT Census of Schools, Cosgrove et al. (2014a, p.8) note:

> *The linking of investments in ICT to improvements in student outcomes is a challenge faced by all countries investing in the use of ICT in education. The present review pointed to the complexity of developing a Digital Strategy for Schools. Such a strategy must consider infrastructural issues but also how digital technologies are to be used in curriculum and assessment. Teachers' pedagogical orientations are pivotal in how the digital technologies are used. Although digital technologies can make things possible, it is people that make change possible.*

The report on the *2013 ICT Census of Schools* discusses a range of policy priorities, organised under four main themes:

- Theme 1: Teaching, learning and assessment using ICT
- Theme 2: Teacher professional learning
- Theme 3: Leadership, research and policy
- Theme 4: ICT infrastructure.

These four themes also underpin the *Digital Strategy,* which specifies a set of actions under each theme.

Of particular relevance to the DLF and the work of schools is Theme 1, under which the DES (2015a, p. 6), states:

> *The Strategy will adapt the UNESCO ICT Competency Framework for Teachers so that schools will have greater clarity around the concept of ICT integration. … [this] will allow the Department's support services and others to provide more appropriate support materials and services to principals and teachers on embedding ICT into their practice.* ***This will be a central focus of the Strategy and it will be reviewed at various intervals and levels*** *between 2015 and 2020.* (Emphasis added.)

The UNESCO framework referred to above forms the basis of the DLF, and the involvement of the Professional Development Service for Teachers (PDST-Technology in Education) in the present trial of the DLF is one example of the

provision of support to enable the embedding of digital technologies into teaching and learning.

Under Theme 2, the DES (p. 7) states that "The Strategy will provide schools with guidance and examples of good practice on the effective, critical, and ethical use of ICT for teaching, learning and assessment. These examples will reflect real classroom practice in action". One way in which this element of the strategy is being realised through the availability of exemplar videos on the PDST Technology In Education website[8].

Under Theme 3, the DES notes the need for distributed leadership across school managers and other stakeholders, and also emphasises how the Strategy links with other practices: "…the Strategy will facilitate schools to create linkages with existing school policies, for example School Self Evaluation, so that ICT is embedded deeply within the school" (p. 7). To achieve this linkage, the structure of the DLF is aligned to the *Looking At Our School* framework (DES, 2016a, b), which is designed to underpin both school self-evaluation and school inspections. (The structure of the DLF is described in the next section.)

It is relevant to note here that, as a result of industrial relations (IR) issues, primary schools had been directed (since about April 2016) not to engage in the 6-step SSE (School Self-Evaluation) process. The IR issues have now been resolved. There was no IR issue at any stage that prevented schools from becoming familiar with the *Looking at Our School framework (*LAOS) (Department of Education and Skills, Personal Communication, March 22, 2018). Nonetheless, primary school staff may have been less familiar with this framework than post-primary staff, and hence would have encountered the LAOS-type structure for the first time when reviewing the DLF.

In discussing Theme 4, the DES notes the recent rollout of the 100MB/second broadband services to all post-primary schools. It also acknowledges the increasing importance of cloud computing and commits to evaluating a number of technical support options to identify the best solutions for schools. Guidance for schools on these and other issues is already available on the PDST Technology in Education website[9].

In addition, to help support the implementation of the *Digital Strategy*, Minister for Education and Skills, Richard Bruton, announced a 30 million euro investment in ICT infrastructure grants for primary and post-primary schools in January 2017[10]. The most recent instalment of this grant was in February 2018.

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[8] http://pdsttechnologyineducation.ie/en/Good-Practice/Videos/; http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Primary/; http://www.pdsttechnologyineducation.ie/en/Planning/Digital-Learning-Framework-and-Planning-Resources-Post-Primary/

[9] http://pdsttechnologyineducation.ie/en/Technology/

[10] See press release dated January 3, 2017, at www.education.ie; rates payable are €2,000 per school plus €22.20 per mainstream pupil in primary schools, with additional per capita payments for pupils in

The DLF is firmly embedded in the Department's *Action Plan for Education* for 2018 (DES, 2018). The plan for 2018 has five high-level goals, and digital technology is listed as a theme (*embracing digital technologies*) within Goal 1 (*improve the learning experience and success of learners*). Under Goal 1, it is stated that the Department will "support schools to plan for rapid progression in the adoption of the Digital Learning Framework" (p. 14), and that it will "disseminate an updated Digital Learning Framework for Schools (previously known as UNESCO ICT Competency Framework) to all schools, following an evaluation, which will guide schools in embedding digital technologies in teaching and learning and leadership and management, from September 2018" (p. 23).

The DLF links with and complements other recent and current DES activities, including planned changes to curricula and Certificate examinations. For example, a new mathematics curriculum at primary level is planned to incorporate aspects of coding. At post-primary level, Junior Cycle already has coding as a short course (NCCA, 2016), and the DES plans to introduce Computer Science as a Senior Cycle subject from September 2018.

The use of digital technologies as an integral part of teaching, learning and assessment is not a new policy area. It has been endorsed in a range of educational policies and initiatives over the past decade. For example, the *National Strategy to Improve Literacy and Numeracy among Children and Young People* (2011-2020), (DES, 2011a), the *Key Skills Framework* (NCCA, 2009), and the *Framework for the Junior Cycle* (DES, 2015b) all assert that digital technologies should be used as a part of pupil/student learning.

1.1.2. Structure and purpose of the Digital Learning Framework

The DLF is organised along two dimensions and eight domains:

- Teaching and Learning Dimension
    - Domain 1 Learner Outcomes
    - Domain 2 Learner Experiences
    - Domain 3 Teachers' Individual Practice
    - Domain 4 Teachers' Collective/Collaborative Practice
- Leadership and Management Dimension
    - Domain 1 Leading learning and teaching
    - Domain 2 Managing the organisation
    - Domain 3 Leading school development
    - Domain 4 Developing leadership capacity.

Within each of the eight domains of the DLF, there is a set of standards, accompanied by statements of effective and highly effective practice. Table 1.1 is an example from Domain 1, Learner Outcomes, of the DLF for primary schools. The DLF

DEIS schools, Special Classes and Special Schools. At post-primary, the rates payable are €2,000 per school plus €31.90 per student, with an additional per capita payment for students in DEIS schools.

is identical at primary and post-primary levels except for changes in wording to reflect pupils (primary) or students (post-primary).

Table 1.1. Teaching and Learning Domain 1: Learner Outcomes - example of standard and statements of effective and highly effective practice

Primary – teaching and learning

DOMAIN 1: LEARNER OUTCOMES

STANDARDS	STATEMENTS OF EFFECTIVE PRACTICE	STATEMENTS OF HIGHLY EFFECTIVE PRACTICE
Pupils enjoy their learning, are motivated to learn and expect to achieve as learners	Pupils use appropriate digital technologies to foster active engagement in attaining appropriate learning outcomes.	Pupils use appropriate digital technologies to foster their active, creative and critical engagement in attaining challenging learning outcomes.
	Pupils use digital technologies to collect evidence and record progress.	Pupils use digital technologies to collect evidence, record progress, evaluate and reflect, and to create new solutions and/or products.

Source: DES, 2017a, p. 5.

The Statements of Practice are underpinned by the UNESCO *ICT Competency Framework for Teachers* (UNESCO & Microsoft, 2011) and informed by the EU Joint Research Centre's *DigCompEdu*[11] and *DigCompOrg*[12] frameworks.

The DLF is designed to encourage both collaboration and self-reflection, as well as guide practice, on the basis of one domain at a time. In describing the how schools might implement the DLF, the DES (2017a, pp. 2-3) comments:

> *It is not expected that all aspects of the new Framework will be included in any one self-reflective or evaluative activity. Rather, the Digital Learning Framework should be viewed as* ***an enabler of self-reflection and improvement*** *and not as an inflexible check-list. It is crucial from the outset that* ***the leadership team in each school has a shared understanding of why and how the school seeks to embed digital technologies*** *in teaching and learning and is committed to doing so.* (Emphasis added.)

1.1.3. Digital Learning Framework Trial

The DES asked the Educational Research Centre (ERC) to conduct an independent evaluation of the DLF trial during its development stage. The ERC evaluation complements existing, planned activities of schools and PDST advisors during the trial and provides a general overview of the implementation of the trial. The results of the ERC evaluation will be used to guide national rollout of the DLF in September 2018.

At the same time as the publication of the DLF in September 2017, schools were invited to express interest in taking part in the trial of the DLF. In mid-October, 28 primary and two special schools were selected from 176 schools that applied, and 20 post-primary schools were selected from 139 applications. As part of their

[11] https://ec.europa.eu/jrc/en/digcompedu
[12] https://ec.europa.eu/jrc/en/digcomporg

application, schools indicated a first, second and third preference for the DLF domain that they wished to focus on during the trial. The sample of schools is described in more detail in Section 1.3.2.

On October 26, 2017, management and staff from these schools were invited to attend a seminar on the DLF trial in Croke Park, Dublin. The seminar provided an overview of the DLF, the purpose of the DLF trial, the design of the ERC's evaluation of the trial, and the role of PDST advisors in supporting and guiding DLF implementation.

1.1.4. International context

Comparisons of Ireland with other countries on measures of school-related digital technology *usage* tend to paint Ireland in an unfavourable light, while broad measures of digital technology *infrastructure* tend to be slightly better in Ireland than the international averages. This underlines both the timeliness and importance of the DLF trial.

For example, data from the 2012 Programme for International Student Assessment (PISA), which focuses on the achievements and experiences of 15-year-olds, indicate that Ireland has the fourth lowest score of 29 OECD countries on an index measuring ICT usage at school (with similar usage levels as Germany, Japan and Turkey) (OECD, 2015). ICT usage at school was substantially higher in Australia, the Czech Republic, New Zealand, the Netherlands, Norway and Sweden. Also, close to half (46%) of Irish 15-year-olds reported that they did not use the Internet at school during a typical school day, which is the 6th lowest among 29 OECD countries. Ireland had the second lowest score on an index measuring use of computers during mathematics instruction, and the third lowest rate of using computers for homework, out of the 29 countries.

In contrast to these usage indices, PISA 2012 results indicated that Ireland had a slightly higher than average share of schools with Internet access (96% compared with an OECD average of 92%) and better than average student-device ratio at school (3.8 compared with an OECD average of about 4.8) (OECD, 2015), which suggests that basic digital technology infrastructure is not a main barrier in digital technology usage in post-primary schools in Ireland.

In PISA 2015, students in Ireland again had mean scores on the use of ICT at school and use of ICT for homework indices that were significantly lower than the 30-country OECD averages (Shiel et al., 2016)[13].

At primary level, comparative information is available from the Trends in International Mathematics and Science Study (TIMSS 2015) and the Progress in International Reading Literacy Study (PIRLS 2016), both of which focus on Fourth Class at primary level.

[13] Detailed international comparisons of these data are not yet published.

The reports of the teachers of children in Fourth Class who took part in TIMSS 2015 indicate that 40% of pupils in Ireland had some form of access to devices during mathematics lessons, which is similar to the international average of 37%, but much lower than other countries such as New Zealand, the Netherlands, Denmark and Northern Ireland (where computer access rates all exceeded 70%) (Mullis et al., 2016; Clerkin et al., 2017). Between 27% and 34% of teachers in Ireland reported that pupils used computers at least monthly for specific mathematical tasks (explore concepts, practice skills and procedures, and look up ideas and information). These again are similar to the international averages but much lower than the four countries with high rates of computer access, where percentages ranged between 48% and 86%.

Results from PIRLS 2016 are consistent with those of TIMSS 2015. In Ireland, teachers reported that 39% of their Fourth Class pupils had access to devices during reading lessons (Mullis et al., 2017). This is slightly lower than the international average of 43% and considerably lower in countries such as New Zealand, Denmark, the Netherlands, Sweden and Northern Ireland, where access rates exceeded 75%. In Ireland, between 10% and 21% did the following activities with their pupils at least weekly: ask pupils to read digital texts (21%), teach strategies for reading digital texts (10%), teach pupils to be critical when reading on the Internet (11%), look up information online (21%), research a particular topic (17%), and ask pupils to compose texts using computers (11%). These are all lower than the corresponding international averages, and substantially lower than the percentages in the five countries with high rates of pupil access to devices mentioned above. For example, the corresponding percentages for Northern Ireland are 33%, 14%, 25%, 54%, 41% and 21%.

Based on PIRLS 2016 data, Ireland has relatively favourable pupil-computer ratios. On average internationally (with Irish percentages in brackets), 51% (57%) of pupils were in schools that had 1 computer for 1 to 2 pupils, 23% (19%) in schools with 1 computer for 3 to 5 students, 19% (24%) in schools with 1 computer for 6 or more students, and 7% (0%) in schools with no computers available for instruction (Mullis et al., 2017).

1.2. Aims of the Digital Learning Framework Trial evaluation

The aims of the evaluation of the Digital Learning Framework trial are:

1 To gather information on schools' views on the Digital Learning Framework (DLF) document in order to highlight strengths and describe potential improvements
2 To gather information from principals and teachers on the DLF trial in order to identify key strengths and challenges in its implementation
3 To explore whether key strengths and challenges vary with schools' contexts
4 To examine whether participation in the DLF trial has had any impact on teaching practices and/or reduction in perceived obstacles relating to teaching and learning in a digital context from the perspectives of principals and teachers

5 To describe key activities, successes and challenges of schools in their work with the PDST during the trial, from the perspectives of both PDST advisors and school staff
6 To describe the learning from the DLF trial from the schools' and PDST perspectives in order to compile information that could contribute to ongoing development and implementation of the DLF.

It is important to bear in mind that the evaluation is of the Digital Learning Framework and *not* of digital resources and infrastructure in schools.

1.3. Design of the evaluation

The evaluation of the Digital Learning Framework (DLF) trial was designed to gather information at the beginning or baseline (Phase 1, November-December 2017) and again towards the end of the evaluation (Phase 2, April-May 2018).

This section describes the role of the PDST advisors in the trial, the sample of primary and post-primary schools taking part, the timeline for the evaluation of the trial, and the content of the questionnaires administered during Phases 1 and 2.

1.3.1. Role of the PDST advisors

Seven PDST advisors were each assigned to an average of seven schools (Table 1.2). Four advisors worked at primary level and three worked at post-primary level. Their role is to guide and support the work of schools in reflecting on current activities associated with their DLF domain, to identify standards within that domain that schools wish to work on, to establish a vision for each school with respect to digital technologies in their specific domain and standard(s), to support schools as they implement changes, and to provide tailored professional development to staff.

Table 1.2. Numbers and locations of schools per PDST advisor supporting the DLF trial

Primary (28 schools)*							
Advisor 1	(6 schools)	Advisor 2	(7 schools)	Advisor 3	(8 schools)	Advisor 4	(7 schools)
Dublin	2	Donegal	1	Clare	1	Cork	2
Louth	1	Kerry	1	Galway	2	Dublin	4
Waterford	1	Longford	1	Kilkenny	1	Louth	1
Wexford	1	Mayo	1	Laois	1		
Wicklow	1	Monaghan	1	Limerick	1		
		Roscommon	1	Tipperary	1		
		Sligo	1	Westmeath	1		
Post-Primary (20 schools)							
Advisor 1	(7 schools)	Advisor 2	(7 schools)	Advisor 3	(6 schools)		
Clare	1	Cavan	1	Carlow	1		
Cork	2	Donegal	1	Dublin	2		
Dublin	1	Dublin	1	Galway	1		
Kildare	1	Leitrim	1	Mayo	2		
Limerick	1	Meath	2				
Wicklow	1	Wexford	1				

*Two primary schools withdrew from the trial. See Section 1.3.2.

Each school also established its own Digital Learning (DL) Team to oversee the DLF trial activities. During the course of the trial, it was envisaged that each school's DL Team (along with other staff, as appropriate) would engage with the PDST advisor over the course of five school visits.

1.3.2. Schools participating in the DLF Trial

The sample design is voluntary (schools self-select or volunteer to take part) rather than random. Two objectives guided the selection of schools to take part in the DLF trial:

- obtaining a representative mix of schools in terms of geographic spread, DEIS status, gender composition, language of instruction and enrolment size (and in the case of post-primary, sector and fee-paying status)
- achieving a sample that covered all eight domains of the DLF (since, as noted earlier, each school focused on one of the eight domains during the trial).

Primary schools (including special schools)

Twenty-eight primary schools and two special schools were selected to take part in the trial. Two primary schools withdrew from the study on December 5th and January 31st due to time constraints and were not replaced. This means that 28 rather than 30 primary and special schools took part and the comparisons in this section are based on the 28 participating primary and special schools.

When reporting results for the 26 primary and two special schools taking part, we refer to them as primary schools for shorthand – it should always be borne in mind that two of these schools are special schools.

Figures 1.1 and 1.2 compare the percentages of primary and special schools in the population with the percentages in the sample by DEIS status, gender composition, language of instruction, enrolment size, and geographic location[14]. For these comparisons, the population of 'mainstream' schools (N = 3115) has been combined with the population of 'special' schools (N = 135). The sample shows good representativeness on the basis of these categories, as well as good geographic spread, with 20 counties included in the sample. The average enrolment size of the selected schools is slightly larger (mean = 213.3) than in the population (mean = 171.8) and the sample has slightly fewer male pupils (47.4%) than the population (51.3%). Four of the selected schools (14.3%) are Digital Schools of Distinction[15].

[14] These comparisons are made using data from the Department of Education and Skills' schools database (2016/2017).

[15] Digital Schools of Distinction is a 'flagship programme' which aims to promote, recognise and encourage excellence in the use of technology in primary and special schools. As at the beginning of June 2018, some 1794 schools are registered in the programme, and 403 schools (12.4% of all primary and special schools) have been awarded Digital School of Distinction status. www.digitalschools.ie.

Figure 1.1. Percentages of primary and special schools in population (N=3250) and sample (n=28) by DEIS status, gender composition, language of instruction and enrolment size

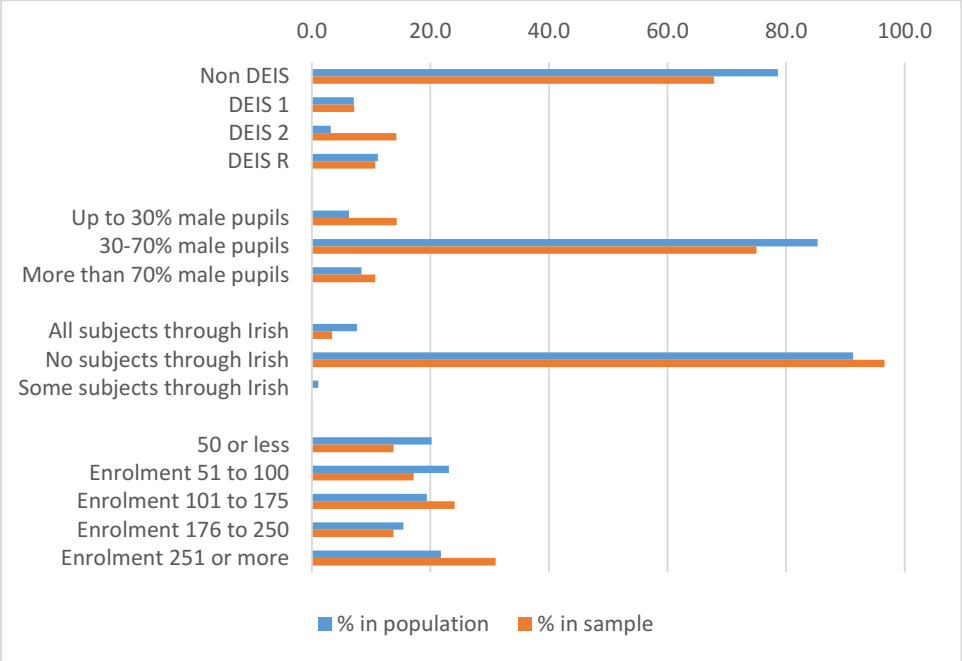
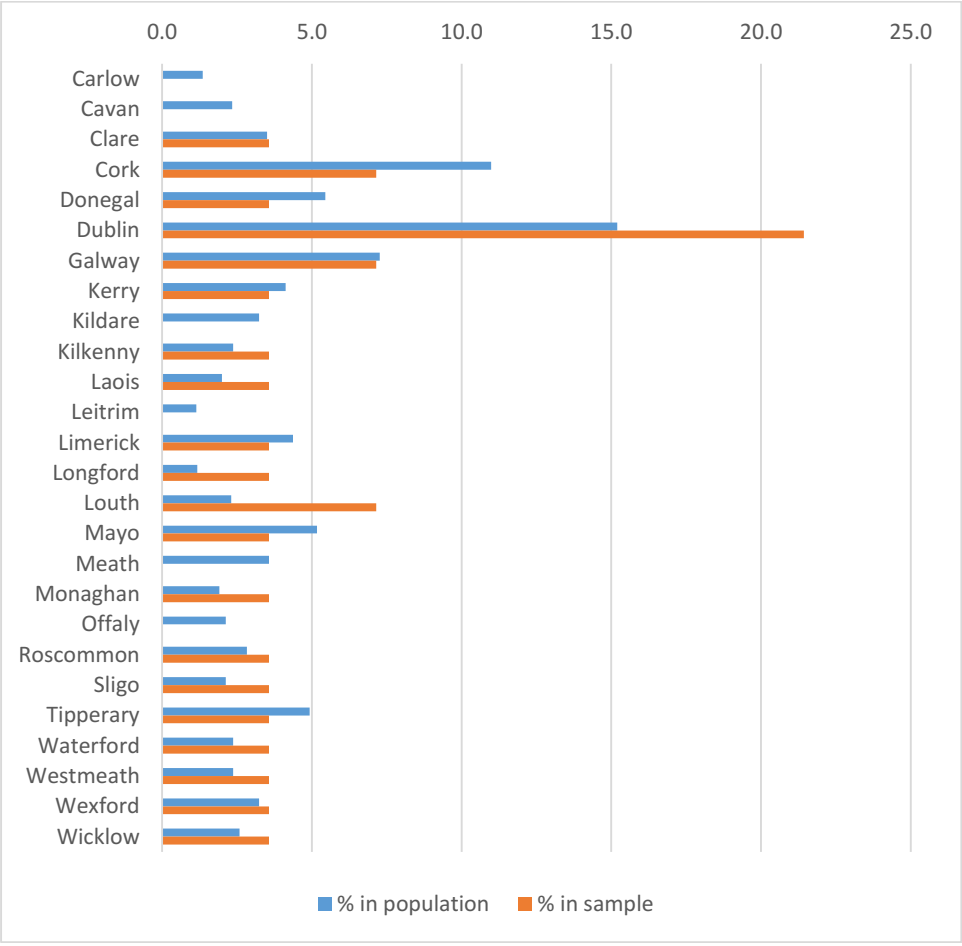


Figure 1.2. Percentages of primary and special schools in population (N=3250) and sample (n=28) by location

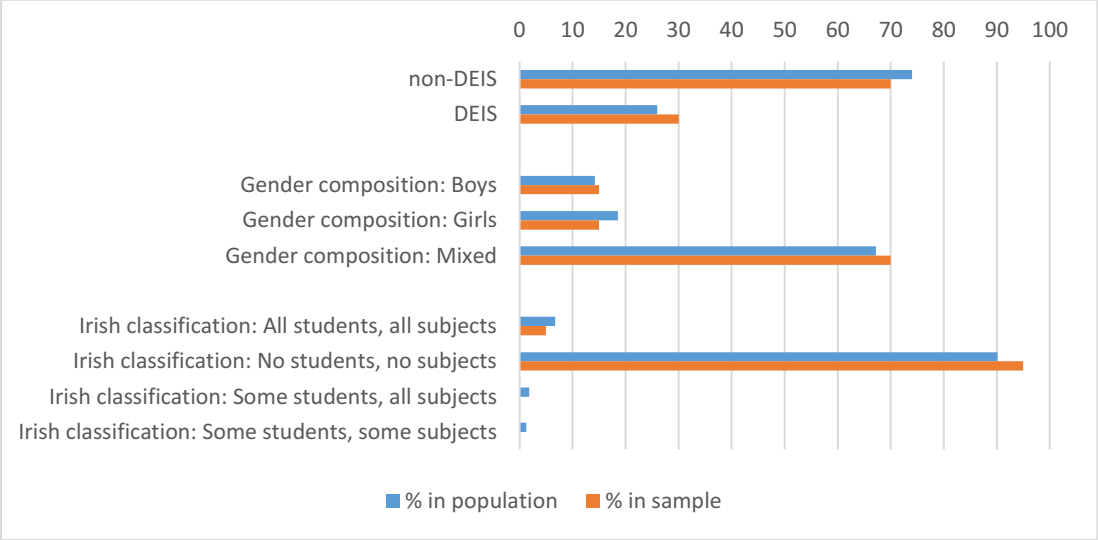


Post-primary schools

Twenty post-primary schools were selected to take part in the DLF trial. Figures 1.3, 1.4 and 1.5 compare the percentages of post-primary schools in the population with the percentages in the sample by DEIS status, gender composition, language of instruction, fee-paying status, enrolment size, sector, and geographic location[16].

The sample shows good representativeness on the basis of these categories, with 14 counties included in the sample. Similar to the DLF trial sample at primary level, average enrolment size of the selected post-primary schools is somewhat larger (m = 660.4) than in the population (M = 495.4) and the sample has slightly more female students (56.6%) than the population (49.6%).

Figure 1.3. Percentages of post-primary schools in population (N=711) and sample (n=20) by DEIS status, gender composition and language of instruction



[16] Again, these comparisons are made on the basis of the Department of Education and Skills' schools database (2016/2017).

Figure 1.4. Percentages of post-primary schools in population (N=711) and sample (n=20) by fee-paying status, enrolment size and sector

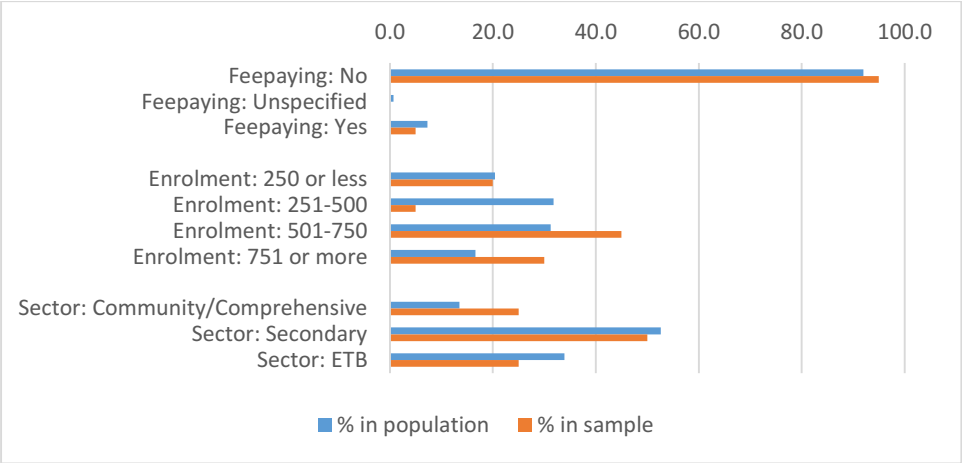
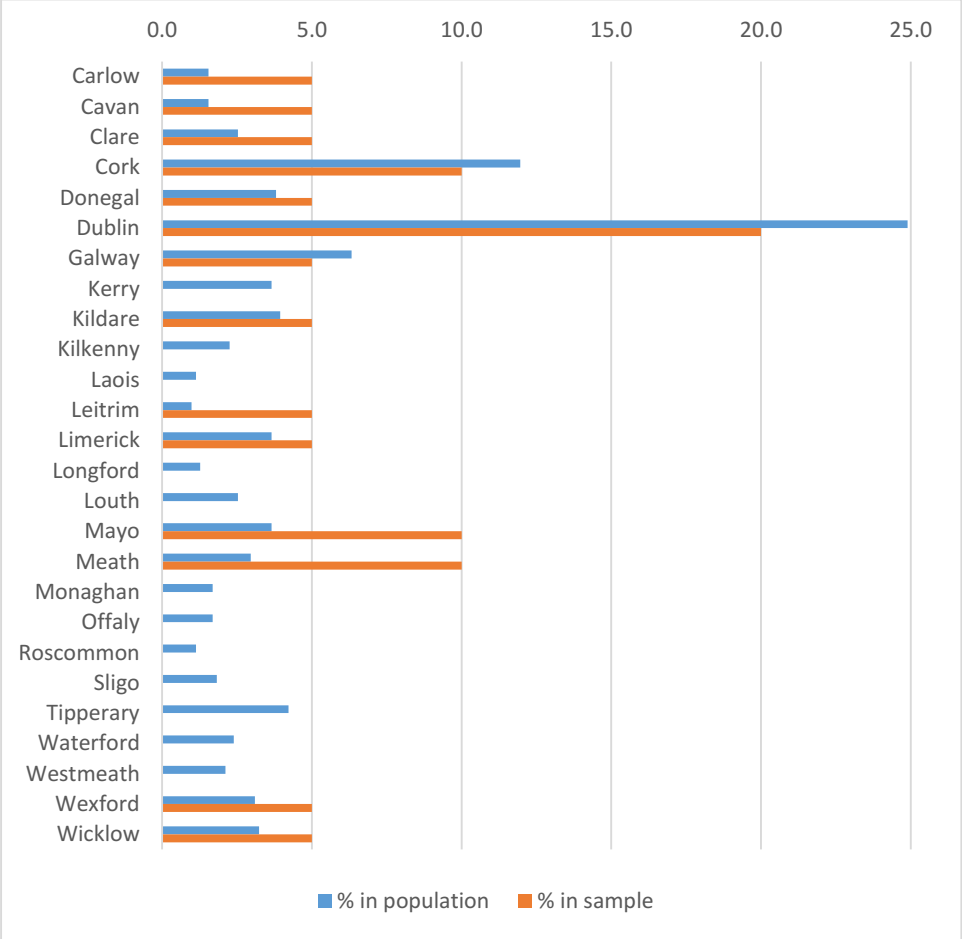


Figure 1.5. Percentages of post-primary schools in population and sample (n=20) by location



Distribution of DLF domains across the sample

Table 1.3 shows the distribution of DLF domains across the schools in the sample. Across all 48 schools, 62.5% focused on a Teaching and Learning dimension while 37.5% focused on a Leadership and Management dimension. At primary level, 61% of schools focused on Teaching and Learning and 39% on Leadership and Management; at post-primary level the corresponding percentages are 65% and 35%.

The most frequent domain at primary level is learner experiences (Domain 2 of Teaching and Learning; 29% of schools), while the most frequent domain at post-primary level is teachers' collective/collaborative practice (Domain 4 of Teaching and Learning; 35%).

Table 1.3. Distribution of DLF domains across the 48 DLF trial schools, primary, post-primary and overall

Domain	**Primary (N = 28)**		**Post Primary (N = 20)**		**All (N = 48)**	
	N	*% focusing on this domain*	*N*	*% focusing on this domain*	*N*	*% focusing on this domain*
Teaching and Learning						
Domain 1 Learner Outcomes	4	14.3	4	20.0	8	16.7
Domain 2 Learner Experiences	8	28.6	1	5.0	9	18.8
Domain 3 Teachers' Individual Practice	3	10.7	1	5.0	4	8.3
Domain 4 Teachers' Collective/Collaborative Practice	2	7.1	7	35.0	9	18.8
Leadership and Management						
Domain 1 Leading learning and teaching	4	14.3	2	10.0	6	12.5
Domain 2 Managing the organisation	1	3.6	3	15.0	4	8.3
Domain 3 Leading school development	4	14.3	1	5.0	5	10.4
Domain 4 Developing leadership capacity	2	7.1	1	5.0	3	8.3

General comment on the DLF trial sample

The sample of 48 schools selected to take part in the DLF trial shows good variation along the key characteristics considered: geographic spread, enrolment size, gender composition, levels of socio-economic disadvantage, language of instruction, and, in the case of post-primary schools, fee-paying status and sector.

The sample can be considered broadly representative of the population *in terms of these particular characteristics*, although it should be noted that the samples' average enrolment sizes and percentages of females enrolled both vary somewhat compared to the populations at primary and post-primary levels. Also, in line with the objectives of the DLF trial, all eight domains of the DLF framework are represented in the selected schools' proposals, though coverage is not evenly spread. At primary level, the number of schools per domain ranges from one (Domain 2 of Leadership and Management) to eight (Domain 2 of Teaching and Learning). At post-primary level, the number of schools per domain ranges from one

(for each of Domains 2 and 3 of Teaching and Learning, and Domains 1, 3 and 4 of Leadership and Management) to seven (Domain 4 of Teaching and Learning).

There are of course other characteristics of schools which are relevant to the DLF trial, such as indicators of digital technologies infrastructure and usage. However, since measures like these are not available for the population of schools, the representativeness of sampled schools in these aspects is unknown.

Schools that volunteered to take part in the DLF trial may have a higher propensity to embed digital technologies in their practices than schools that did not volunteer. The sample of schools may therefore be reflective of a more positive culture towards using digital technologies than might be the case with a nationally representative (random stratified) sample.

Focus groups

The seven PDST advisors involved in the DLF trial participated in a focus group interview and the main findings of this interview are described in Chapter 4 of this report.

Six schools (three at primary level and three at post-primary level) were selected on the basis of location, selected domain, and stage of embedding digital technologies into teaching, learning and assessment, to take part in focus group interviews. In Phase 1, focus groups were conducted with 33 staff involved in the DLF trial in these six schools; in Phase 2, focus groups were conducted with 37 staff and 33 students/pupils. The findings from focus group interviews are described in Chapter 5 of this report.

All participants gave informed consent for the interviews to be recorded. In the case of students and pupils, this entailed informed parental consent. Students and pupils were also given an information sheet, the purpose of the interview was explained, and their permission was sought before recording. The audio files were transferred to the ERC server in encrypted format for download and transcription by a transcription service. The transcription service ensured that all names of individuals and schools were retracted in the written transcripts. Once transcription was complete, the audio files were deleted from the ERC server and the transcription company.

1.3.3. Timeline for the DLF Trial evaluation

The timeline for the evaluation is shown in Figure 1.6. Phase 1 consists of the gathering of baseline data via questionnaires and focus groups, analysis of these data, and compiling the baseline report. Findings from Phase 1 feed into Phase 2, with the development and revision of the questionnaires, gathering of follow-up data via questionnaires and focus groups, and analyses of Phase 2 data, using some elements of the Phase 1 data as a comparator.

Figure 1.6. Timeline for the DLF trial evaluation

Month	Oct-2017	Nov-2017	Dec-2017	Jan-2018	Feb-2018	Mar-2018	Apr-2018	May-2018	Jun-2018	Jul-2018
Phase 1	Develop instruments	Fieldwork	Fieldwork	Analysis: focus groups	Analysis: surveys	Draft interim report	Submit interim report			
Phase 2						Develop instruments	Fieldwork	Fieldwork Analysis: focus groups	Analysis: surveys	Draft and Submit final report

1.3.4. Design and content of the DLF Trial evaluation questionnaires

Online questionnaires for Phases 1 and 2 were developed by the Educational Research Centre (ERC) and reviewed and approved by some of the members of the Implementation Advisory Group for the Digital Strategy for Schools[17].

The questionnaires consist mainly of pre-coded multiple choice or 'tick-box' questions, with some open or text-based response formats. The Phase 2 questionnaires took account of key findings of Phase 1. For example, questions asking respondents what contributed to the success of the DLF trial, and what challenges they experienced, were derived from the Phase 1 focus groups.

During Phase 1, principals were invited to complete two questionnaires – one concerning their views on the first PDST advisor visit and the other concerning the digital context of their school, their views on the DLF, and the school's plans for the DLF trial. For Phase 2, these two questionnaires were combined into a single instrument.

It should be noted that in Phase 2, DLT leaders (some of whom are principals) were the target group for the school-level questionnaire because it was felt that these individuals would be best placed to provide the relevant information. In Phase 1, school principals were asked to complete the questionnaire because at that stage, a majority of schools had not yet established their Digital Learning Teams.

During both Phases 1 and 2, schools were assigned a 2-digit survey ID to log in, and each participating teacher used an individual four-digit ID to log in. Teacher IDs were provided as blank lists to schools and schools assigned teacher names to the IDs in-house.

All questionnaires were delivered online using SurveyMonkey™. The collection of individually identifiable data was avoided (e.g. IP addresses were not collected), and, following the close of the Phase 2 surveys on May 30, 2018, data were removed

[17] The advisory group is comprised of: Brendan Tangney (TCD, Chair); Deirdre Butler (DCU Institute of Education); Giustina Mizzoni (CoderDojo Foundation): Claire Conneely (Google Ireland); Ruth Freeman (Science Foundation Ireland); Donnacha Ó Treasaigh (Principal, Gaelcholáiste Luimnigh); Joe Hogan (OpenNet); Patrick Cluskey (Adviser to Minister for Education & Skills); Eddie Ward (ICT Policy Unit, DES); Éamonn Moran (Curriculum and Assessment Section, DES); Tony Weir (DES Inspectorate); Sean Gallagher (PDST, Technology in Education); Ben Murray (National Council for Curriculum & Assessment); Séamus Knox (DES Inspectorate); Betty Regan (ICT Policy Unit); Anthony Kilcoyne (PDST, Technology in Education). Minister Bruton attends all meetings.

from SurveyMonkey™ and retained in a fully anonymised format on the ERC's secure server.

For Phase 1, invitation/explanatory emails were distributed by the ERC to schools to coincide with the first visit of their PDST advisor. Phase 2 questionnaires were administered by email as close as possible to the final PDST visit. Table 1.4 shows the content of the principal/Digital Learning Team Leader questionnaire for Phases 1 and 2. Table 1.5 describes the content of the PDST questionnaires for PDST advisors and school principals/Digital Learning Team leaders for both phases, and Table 1.6 shows the content of the teacher questionnaire for Phases 1 and 2.

PDF versions of the Phase 1 and Phase 2 questionnaires are available at www.erc.ie/dlf.

Table 1.4. Content of the DLF trial evaluation principal/Digital Learning Team leader questionnaire for phases 1 and 2

Principal (P1) / Digital Learning Team Leader (P2) Questionnaire	**Phase 1**	**Phase 2**
General information	X	X
Digital context of the school: perceived obstacles in embedding DTs into teaching and learning	X	
Digital context of the school: perceived quality of infrastructure and use of DTs in teaching and learning	X	X
Purchases from Grant Scheme for ICT Infrastructure	X	
Views and comments on the DLF document (general, domain by domain)	X	
Views and comments on the DLF document (general, domain on which the school was focused)		X
Use of and views on Digital Learning Planning Handbook and exemplar videos		X
Description of the planned DLF programme: content and reasons for choosing it	X	
Description of the DLF programme: time spent and expected completion date		X
Expected and achieved level of (highly) effective practice		X
Staff, students, parents involved	X	
Level of involvement of teaching staff		X
Content or curricular areas of focus in the programme	X	X
Teaching and/or management areas of focus of the programme		X
Supports for the programme	X	X
Complementarity of DLF programme with other SSE activities		X
Level of engagement of relevant staff and students in the programme		X
Expected/perceived changes in teaching and learning activities	X	X
Expected levels of challenge and benefit of the programme	X	
Perceived overall level of success of the programme		X
Most significant changes as a result of the programme		X
Factors important to the success of the programme		X
Factors that presented challenges to implementing the programme		X

Table 1.5. Content of the DLF trial evaluation PDST questionnaire (for PDST advisors and principals/Digital Learning Team leaders) for phases 1 and 2

PDST Advisor and PDST School Questionnaires (in Phase 2, the PDST component was combined with the Digital Learning Team leader Questionnaire)	**Phase 1 (Visit 1)**	**Phase 2 (All Visits)**
Visit date(s), length of time, format, staff present, others present	X	X
Preparatory activities undertaken	X	
Visit goals	X	
Main activities of visits		X
Level of satisfaction with achieving visit goals	X	X
Contact between PDST advisor and school between visits		X
Total amount of time spent on the DLF trial programme		X
Key challenges identified	X	
Key solutions identified	X	
Most successful aspects of visits	X	X
Most challenging aspects of visits	X	X

Table 1.6. Content of the DLF trial evaluation teacher questionnaire for phases 1 and 2

Teacher Questionnaire	**Phase 1**	**Phase 2**
General information	X	X
General teaching and learning beliefs and practices	X	
Digital context of the school (perceived quality)	X	X
Digital teaching and learning practices	X	X
Views and comments on the DLF document (general, domain by domain)	X	
Views and comments on the DLF document (general, domain on which the school was focused)		X
Use of and views on Digital Learning Planning Handbook and exemplar videos		X
Description of DLF programme	X	
Role in the programme	X	X
Content or curricular areas of focus in the programme	X	X
Teaching and/or management areas of focus of the programme		X
Expected/perceived changes in teaching and learning activities	X	X
Expected/perceived levels of challenge and benefit of the programme	X	
Perceived overall level of success of the programme		X
Description of most significant changes as a result of the programme		X
Factors important to the success of the programme		X
Factors that presented challenges to implementing the programme		X

1.4. Guidelines for interpreting the results

This evaluation has some features that impose limitations on the inferences that may be drawn from the results. These relate mainly to the short overall timeline and the sample. Table 1.7 outlines these features and describes caveats that should be used as guidelines for interpreting the results.

Table 1.7. Features of the DLF trial and guidelines or caveats for interpreting the results of the DLF trial evaluation

Feature	Caveat/Guideline
The **timeline** for the study is **short**, with about 6 months between baseline and final evaluation.	The results should be interpreted as an **initial indication only** of how schools are using the DLF to embed digital technologies into teaching and learning or leadership and management.
The **sample is small and non-random** (i.e. schools volunteered to take part), comprising 28 primary schools (including 2 special schools) and 20 post-primary schools. The sample may therefore be biased in favour of schools with a more positive disposition towards the use of digital technologies than might be the case with a nationally representative sample.	Although broadly representative of the population of schools in the country, the **results should not be generalised to all schools**. Instead, they should be regarded as **broadly indicative** of the implementation of the DLF trial and should be understood in the **particular contexts** of the participating schools and the fact that they chose to take part.
Each school focuses on one of the eight DLF domains, i.e. each school provides a partial picture of the entire DLF. The numbers of schools focusing on each domain varies from 1 to 8 at primary level, and from 1 to 7 at post-primary level.	**Results by individual DLF domain are not reported separately**. Instead, comparisons are made at the more general level of Teaching and Learning or Leadership and Management dimensions. The **findings should not be used to draw conclusions about the implementation of individual DLF domains**.
In Phase 1, a school-level questionnaire was administered to principals while in Phase 2, it was administered to Digital Learning Team Leaders. This means that **in some cases, different members of school staff would have responded to the school-level questionnaire during Phases 1 and 2**.	**Interpretation of the comparisons** of school-level results across Phases 1 and 2 should take account of the fact that **Phase 1 and Phase 2 respondents may not be the same member of staff**.
The **teachers** responding to the teacher questionnaire and taking part in focus groups are not necessarily representative of all teachers in participating schools as they **may be more digitally literate and digitally engaged**.	Results from the teacher survey should be interpreted with respect to the likelihood that **had all teachers** in participating schools **completed a survey**, the results **might reflect lower overall levels of digital literacy and digital engagement**.
Response rates of teachers were lower during Phase 2 (45%) than during **Phase 1** (79%). It was not **possible to reliably match individual teachers'** responses **across phases**.	For **comparing changes** across Phases 1 and 2, **school-level average teacher responses** for a **limited number of measures** only are reported.
Focus groups provide rich, in-depth information; however, focus groups were conducted **in six of the 48 schools** only (3 primary and 3 post-primary), with 33 staff taking part in phase 1 and 37 staff and 34 students/pupils taking part in phase 2.	The purpose of the focus groups is to provide a **detailed contextual narrative** about the journeys of particular schools as they progress through the trial and are **not intended to be typical or representative** of the full sample of schools.
Students'/pupils' views are not included in the **baseline** phase of the trial but are included in the **follow-up** phase.	The implementation of the DLF is at the very **initial stages** where the **focus** of the work is on **planning and enabling teachers** to implement the DLF. As the DLF is rolled out nationally, the relevance of students'/pupils' opinions will increase.

1.5. Content of this report

Chapter 2 describes the findings from the Digital Learning Team leader questionnaire, and includes some comparisons of with the baseline (Phase 1) questionnaire. It examines the digital resource contexts of participating schools, DLT leaders' views on the DLF document, planning guidelines and exemplar videos. The chapter also compares schools' levels of effective practice at baseline (as rated by PDST advisors) and at the end of the trial (as rated both by PDST advisors and Digital

Learning Team Leaders), and describes key changes, successes and challenges associated with the programme.

Chapter 3 describes the findings from the teacher questionnaire. It examines the digital teaching and learning practices of respondents and compares these with the Phase 1 results and the 2013 ICT Census results. It also describes teachers' views on the DLF document, the planning guidelines and exemplar videos, as well as key changes, successes and challenges associated with the programme from teachers' perspectives.

Chapter 4 provides a description of the PDST advisor support programme including visit dates, lengths, attendees, and perceived successes and challenges of the PDST advisor support programme and DLF trial more generally. The chapter includes a summary of the focus group interview held with the PDST advisors in April 2018.

Chapter 5 provides a profile of the six focus group schools and summarises the main findings emerging from the focus group interviews with staff under five themes (DLF document and resources; successes/positive changes; culture and attitudes; supports; challenges; and looking to the future). The themes from the student/pupil focus groups are described under five themes (experience of DT in school; benefits of using DT; limitations of using DT; ideas for using DT in school; and views on the education system as they relate to DT).

Chapter 6 draws the findings together and provides a set of conclusions and implications for national roll-out of the DLF.

Chapter 2
Findings from the Phase 2 Digital Learning Team Leader questionnaire

This chapter describes the findings from the Phase 2 Digital Learning Team Leader questionnaire. Results are in five sections:

- Description of respondents
- Digital contexts of the schools
- DLT leaders' views on the DLF document and DLF resources
- Schools' activities for the DLF trial
- Changes, challenges and successes reported by respondents.

The final section includes comparisons of Digital Learning Team Leaders' and PDST advisors' ratings of the level of effective/highly effective practice achieved at the end of the trial and with level of practice at the beginning of the trial.

Results are unweighted: that is, each school contributes equally to the descriptive statistics described here. Results are *not* generalisable to the population of primary, special and post-primary schools in the country.

2.1. Description of respondents

All primary schools (28) and all but one post-primary school (19) returned a questionnaire. Respondents were asked whether they were the leader or a member of the school's Digital Learning Team (DLT) and their role in the school (Table 2.1).

Table 2.1. Cross-tabulation of respondents by role in the school and role on the Digital Learning Team (DLT): primary and post-primary

Level/Role	*DLT leader*	*DLT Member*	*Not on DLT*	*Total*
Primary (n = 28)				
Principal	35.7	14.3	0.0	50.0
Deputy Principal	7.1	7.1	0.0	14.3
ICT/DL liaison teacher	10.7	7.1	0.0	17.9
Class Teacher	3.6	7.1	7.1	17.9
Total	57.1	35.7	7.1	100.0
Post Primary (n = 19)				
Principal	0.0	5.3	0.0	5.3
Deputy Principal	26.3	5.3	0.0	31.6
ICT/DL liaison teacher	57.9	0.0	0.0	57.9
Class Teacher	0.0	5.3	0.0	5.3
Total	84.2	15.8	0.0	100.0

At primary level, 57% of respondents were the DLT leader and 36% were members of the school's DLT (but not its leader); a further two schools (7%) had respondents who were not on the DLT. Half of respondents (50%) were Principals (including one

Acting Principal), 14% were Deputy Principals, 18% ICT/DL liaison teachers, and 18% were class teachers.

At post-primary level, 84% of respondents were the DLT leader and the remainder (16%) were members of the school's DLT (but not its leader). About 58% of post-primary respondents were the school's ICT/DL liaison teacher, 32% were the deputy principal; one school had the principal as the respondent and one further school had a class teacher as the respondent.

When results for Phases 1 and 2 are compared in this chapter, it should be borne in mind (as noted in Chapter 1) that the phase 1 respondents, principals, were not the same as the phase 2 respondents in all cases (as described in Table 2.1). In Phase 1, the DLT was not established in a majority of schools, so the questionnaire was directed at principals, while in Phase 2, the school questionnaire was directed to DLT leaders as these individuals would be likely to know the most about the DLF trial in their school.

2.2. Digital contexts of schools

DLT leaders rated 12 aspects of digital technology infrastructure (e.g. number of devices, broadband connectivity) and usage (e.g. students'/pupils' overall levels of usage of DT) on a 5-point scale ranging from Excellent to Poor. Table 2.2 shows their ratings at primary and post-primary levels. The five response options have been collapsed to produce three categories (Excellent/Very good, Good, and Fair/Poor).

At primary level, 50% or more of DLT leaders rated six of the 12 items as Excellent or Very good: availability of digital devices such as whiteboards/digital projectors (67%); number of computing devices (desktops, laptops, tablets) (61%); pupils' overall engagement with DT as part of teaching and learning (54%); age and condition of computing devices (50%); awareness of suitable software for teaching and learning (50%); and broadband connection/speed (50%).

In contrast, availability of digital tools such as data sensors, cameras, assistive devices, robotic toys was rated as Fair or Poor by 61% of respondents. About two-fifths of respondents at primary level rated the remaining five items as Excellent or Very good (technical support and maintenance; teachers' overall level of use of DT; teachers' overall level of knowledge of DT; pupils' overall level of knowledge and skills in using DT; availability of suitable software).

At post-primary level, 50% or more of DLT leaders rated four of the 12 items as Excellent or Very good: availability of digital devices such as whiteboards/digital projectors (68%); age and condition of computing devices (67%); broadband connection/speed (53%); and technical support and maintenance (53%).

About 42% of post-primary respondents indicated that the number of computing devices (desktops, laptops, tablets) was Excellent or Very good, while 79% indicated that teachers' overall level of knowledge and skills in using digital technologies for teaching and learning was Good.

There was considerable variation in ratings at post-primary level on a further five items (i.e. similar percentages of respondents rated the following items as both Excellent/very good and as Fair/poor): awareness of suitable software; availability of suitable software; students' overall level of knowledge and skills; students' overall engagement; and teachers' overall level of use of DT. Similar to primary level, ratings were least positive for availability of digital tools (with 89.5% rating this as Fair or Poor).

Table 2.2. Percentages of respondents rating 12 aspects of DT infrastructure and DT engagement in the school as excellent/very good, good, and fair/poor: primary and post-primary

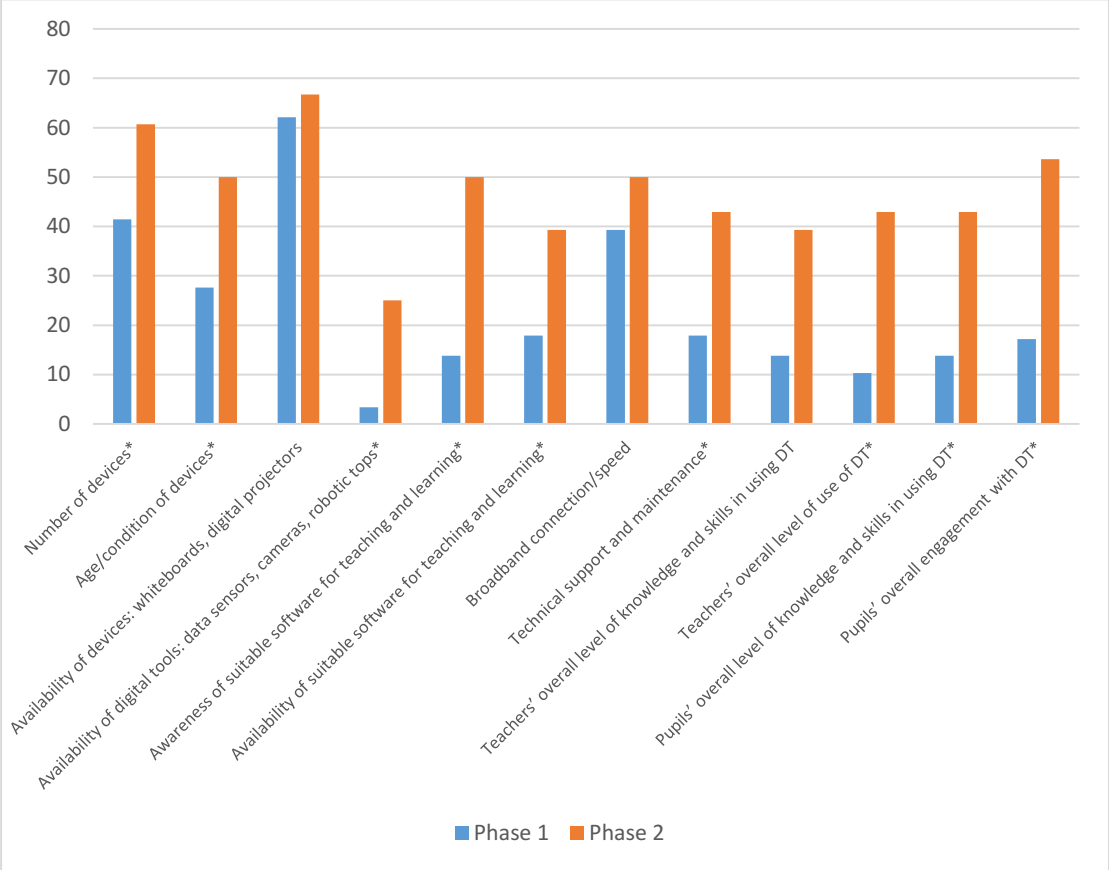
Item	Primary (N=28)			Post-primary (N=19)		
	% Excellent or Very good	*% Good*	*% Fair or Poor*	*% Excellent or Very good*	*% Good*	*% Fair or Poor*
Number of computing devices (desktops, laptops, tablets)	60.7	25.0	14.3	42.1	47.4	10.1
Age and condition of computing devices (desktops, laptops, tablets)	50.0	32.1	17.9	66.7	22.1	11.1
Availability of digital devices such as whiteboards, digital projectors	66.7	22.2	11.1	68.4	21.1	10.5
Availability of digital tools such as data sensors, cameras, assistive devices, robotic toys (e.g. BeeBots)	25.0	14.3	60.7	5.3	5.3	89.5
Awareness of suitable software for teaching and learning	50.0	23.1	26.9	31.6	36.8	31.6
Availability of suitable software for teaching and learning	39.3	32.1	28.6	26.3	47.4	26.3
Broadband connection/speed	50.0	28.6	21.4	52.6	31.6	15.8
Technical support and maintenance	42.9	28.6	28.6	52.6	26.3	21.1
Teachers' overall level of knowledge and skills in using digital technologies for teaching and learning	39.3	42.9	17.9	10.5	78.9	10.5
Teachers' overall level of use of digital technologies for teaching and learning	42.9	35.7	21.4	21.1	52.6	26.3
Pupils' (students') overall level of knowledge and skills in using digital technologies for learning	42.9	35.7	21.4	26.3	52.6	21.1
Pupils' (students') overall engagement with digital technologies as part of teaching and learning	53.6	21.4	25.0	36.8	31.6	31.6

The responses shown in Table 2.2 were compared to ratings at Phase 1 and are shown in Figures 2.1 (primary level) and 2.2 (post-primary level). Items marked with an asterisk (*) indicate that there has been a statistically significant change in the rating across Phases 1 and 2.

Comparisons of the ratings on individual items across Phases 1 and 2 shown in Figures 2.1 and 2.2, and on the computed DT infrastructure and DT engagement measures shown in Table 2.3, should be interpreted with caution. First, these items measure *perceptions* rather than being based on objective measures. Second, as noted in Section 2.1 and Chapter 1 (Section 1.4), in some cases, different individuals may have responded to the school-level questionnaire in Phases 1 and 2.

At primary level, there appears to have been significant improvement in the ratings of nine of the 12 items (i.e. all items except for availability of digital devices such as whiteboards, digital projectors (p = .327); broadband connection/speed (p = .527); and teachers' overall level of knowledge and skills in using digital technologies for teaching and learning (p = .056)). Particularly large increases in the percentages of respondents rating items as Excellent or Very good (with increases ranging from about 30-36%) are apparent for items relating to pupils' overall engagement with DT; pupils' overall knowledge and skills in using DT; teachers' overall use of DT; and awareness of suitable software for teaching and learning.

Figure 2.1. Comparisons of school-level ratings (percent Excellent/Very good) of digital technology infrastructure and usage across phases 1 and 2: primary level

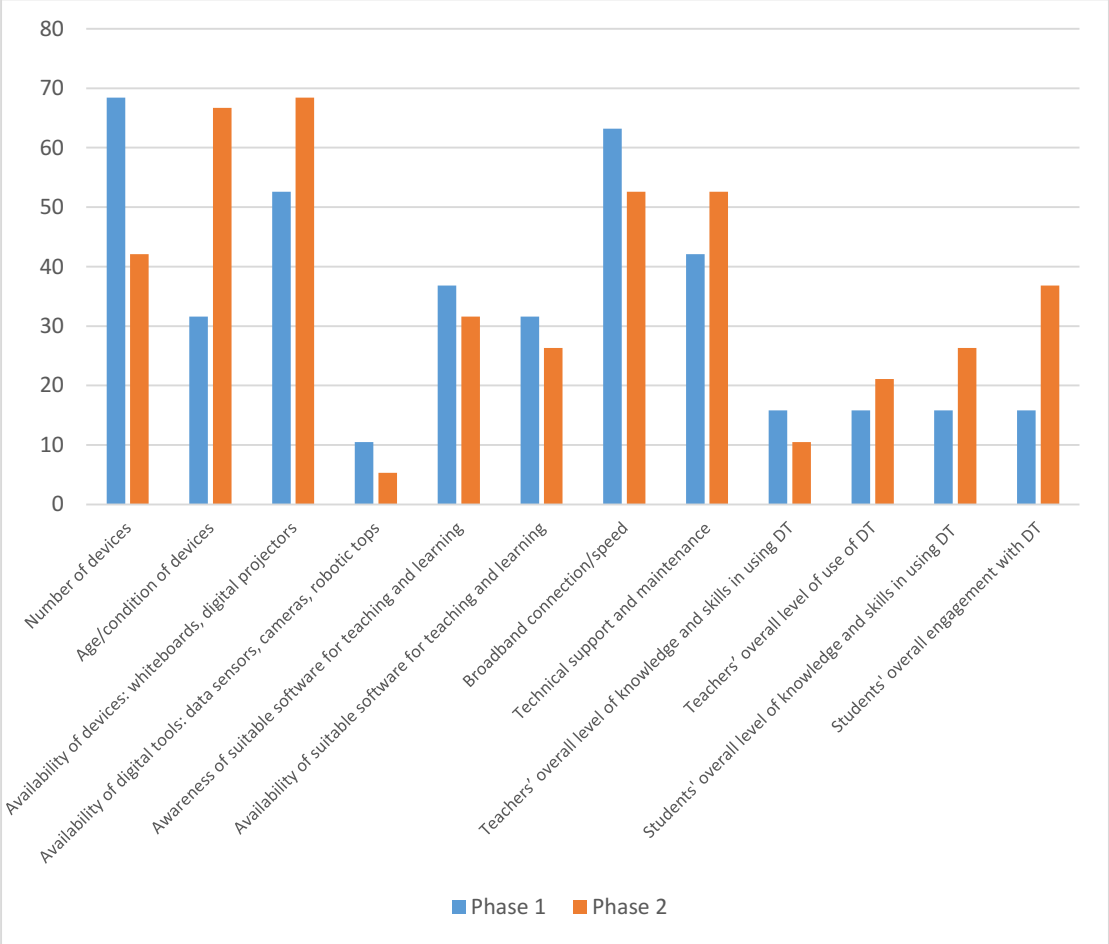


Note. Items marked with an asterisk (*) show a statistically significant change across phases 1 and 2 (p < .05).

The comparisons on these items across Phases 1 and 2 at post-primary level show a different picture. Some of the items show an increase in the percentages of

Excellent/Very good, while others show a decrease. However, none of these differences are statistically significant (Figure 2.2).

Figure 2.2. Comparisons of school-level ratings (percent Excellent/Very good) of digital technology infrastructure and usage across phases 1 and 2: post-primary level



The responses to the first eight items in Table 2.2 were combined to form an overall scale measuring digital technology (DT) infrastructure, and responses to the last four items shown in Table 2.2 were combined to form an overall scale of DT engagement[18].

A comparison of these scale means across Phases 1 and 2 (Table 2.3) shows that there has been a significant improvement in respondents' perceptions of both DT infrastructure and DT engagement at primary level between Phases 1 and 2, while there are no significant differences in the mean DT infrastructure or DT engagement scores at post-primary level across Phases 1 and 2. Again, these comparisons should be interpreted with caution.

[18] The scales are computed by giving a weight of 2 to 'Excellent/Very Good', a weight of 1 to 'Good' and a weight of 0 to 'Fair/Poor'. The DT infrastructure scale ranges from 0-16 and the DT engagement scale ranges from 0-8.

Table 2.3. Mean DT infrastructure and DT engagement scores at phases 1 and 2 with significance tests for differences in means at primary and post-primary levels

Level	Scale	Mean Phase 1	Mean Phase 2	t	df	p
Primary (n = 28)	DT infrastructure	6.571	9.607	3.678	27	.001
	DT engagement	2.893	4.929	3.281	27	.003
Post Primary (n = 18)	DT infrastructure	8.944	8.556	-0.354	17	.728
	DT engagement	3.667	4.000	0.644	17	.528

2.3. Respondents' views on the DLF document and DLF resources

2.3.1. General use of, and views on, DLF resources

Respondents were asked the frequency with which they used or referred to the DLF document, Digital Learning Planning Guidelines (DLPG), Digital Learning Plan Template, and video exemplars during the course of the DLF trial. Their responses are shown in Table 2.4. At both primary and post-primary levels, the most frequent response for each of the four resources was Sometimes (about once a month).

At both primary and post-primary levels, relatively frequent use was made of the DLF document, DLPG and template: between 74% and 90% of respondents reported using these once a month or more often.

At primary level, 44% of respondents used the DLF document Very or Quite frequently (once a fortnight or more often), while 30% used the Digital Learning Plan template once a fortnight or more often. The Digital Learning Planning Guidelines and exemplar videos were used somewhat less frequently (with about 22% of respondents indicating that they used these once a fortnight or more often). About 15% of respondents had never referred to the video exemplars.

At post-primary level, about 37% of respondents referred to the DLF document once a fortnight or more often, while about one in five (21%) used the Digital Learning Planning Guidelines and Planning Template once a fortnight or more often. About 16% of post-primary respondents never referred to the video exemplars, while 16% referred to them about once a fortnight.

There are no statistically significant differences between primary and post-primary school respondents in terms of the frequency with which they reported using these resources during the DLF trial (in all cases p (chi-square) > .05).

As noted in the baseline report on the DLF trial (Cosgrove et al., 2018, p. 74), PDST advisors shared a range of resources with schools. Resources shared during their first visit comprised a checklist of activities for PDST advisors to complete during the visit; presentation on developing the school's digital learning vision; a set of questions to enable schools to develop this vision; and a worksheet to facilitate the mapping of the school's domain and standard(s) in terms of levels of current practice and the gathering of evidence. Therefore, the materials referred to in Table 2.4 are not the only resources that were used by schools during the trial. In addition, as noted in the baseline report, the Digital Learning Planning Guidelines were not available at the

beginning of the DLF trial but would have been available from around the second PDST advisor visit onwards.

Table 2.4. Frequency of using the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars during the DLF trial: primary and post-primary

Level/Resource	*Very frequently (once a week or more often)*	*Quite frequently (about once a fortnight)*	*Sometimes (about once a month)*	*Rarely (about once or twice over the past 6 months)*	*Never*
Primary (n = 27)					
DLF document	14.8	29.6	40.7	14.8	0.0
Digital Learning Planning Guidelines	7.4	14.8	51.9	18.5	7.4
Digital Learning Plan Template	11.1	18.5	55.6	14.8	0.0
Video exemplars	3.7	18.5	40.7	22.2	14.8
Post Primary (n = 19)					
DLF document	0.0	36.8	52.6	10.5	0.0
Digital Learning Planning Guidelines	0.0	21.1	52.6	26.3	0.0
Digital Learning Plan Template	5.3	15.8	68.4	10.5	0.0
Video exemplars	0.0	15.8	42.1	26.3	15.8

Table 2.5 shows primary and post-primary respondents' ratings of the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars.

The percentages of DLT leaders indicating 'never' in Table 2.4 do not 'tally' with the percentages indicating 'not used' in Table 2.5. This is not an error: it is due to the fact that some DLT leaders who responded 'rarely (about once or twice in the past 6 months)' to an item in Table 2.4 responded 'not used' to the corresponding item in Table 2.5.

At primary level, between 52% and 63% of respondents rated these materials as Excellent or Very Good, while between 7% and 18.5% rated them as Fair or Poor. Close to one in five primary level respondents did not use the video exemplars.

At post-primary level, between 53% and 74% of respondents rated the materials as Excellent or Very Good, while between 5% and 16% rated them as Fair or Poor. Again, the video exemplars were not used by about one in six post-primary level respondents.

There are no statistically significant differences between primary and post-primary school respondents in terms of their ratings of these resources (in all cases p (chi-square) > .05).

Table 2.5. Ratings of the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars: primary and post-primary

Level/Resource	*Excellent*	*Very good*	*Good*	*Fair*	*Poor*	*Not used*
Primary (n = 27)						
DLF document	22.2	37.0	14.8	14.8	3.7	7.4
Digital Learning Planning Guidelines	14.8	37.0	25.9	11.1	3.7	7.4
Digital Learning Plan Template	22.2	40.7	25.9	7.4	0.0	3.7
Video exemplars	11.1	48.1	3.7	14.8	3.7	18.5
Post Primary (n = 19)						
DLF document	36.8	36.8	21.1	5.3	0.0	0.0
Digital Learning Planning Guidelines	15.8	47.4	26.3	5.3	0.0	5.3
Digital Learning Plan Template	36.8	31.6	21.1	10.5	0.0	0.0
Video exemplars	36.8	15.8	15.8	15.8	0.0	15.8

2.3.2. Views on the DLF document

Respondents were also asked more specifically about the DLF document: its overall length and layout; language and terminology; content and wording of statements and practice for the standards associated with the domain that their school was focusing on; and the fit of the document with the school's broader development and improvement planning. Their responses are shown in Figures 2.3 (primary) and 2.4 (post-primary).

In general, the ratings were quite positive. At primary level, percentages of Excellent or Very good ratings were 50% for length and layout; 37.5% for language and terminology; 42% for the content and wording of the domain and standards, 42% for the wording of the statements of practice for the standards that the school was focusing on the trial; and 33% for the fit of the document with the school's broader development and improvement planning. Percentages of Fair/Poor ratings ranged from 17% to 25%.

At post-primary level, percentages of Excellent or Very good ratings were 63% for length and layout; 53% for language and terminology; 58% for the content and wording of the domain and standards, 58% for the wording of the statements of practice for the standards that the school was focusing on the trial; and 68% for the fit of the document with the school's broader development and improvement planning. Percentages of Fair/Poor ratings ranged from 0% to 10.5%.

Although the ratings of post-primary school respondents are comparatively more positive than those of primary school respondents, these differences are not statistically significant (in call cases, p (chi-square > .05). This finding should be interpreted with respect to the small numbers of schools taking part (with the result that the statistical power of analyses is lower than it would be if more schools were in the DLF trial).

Comparisons of these ratings were also made across the dimension (Teaching and Learning; Leadership and Management) that the schools were focusing on for the DLF trial (separately for primary and post-primary levels). Ratings were similar, and not statistically significantly different depending on the dimension of focus (in all cases, p (chi-square) > .05).

Figure 2.3. Ratings of general and specific aspects of the DLF document: primary (N = 24)

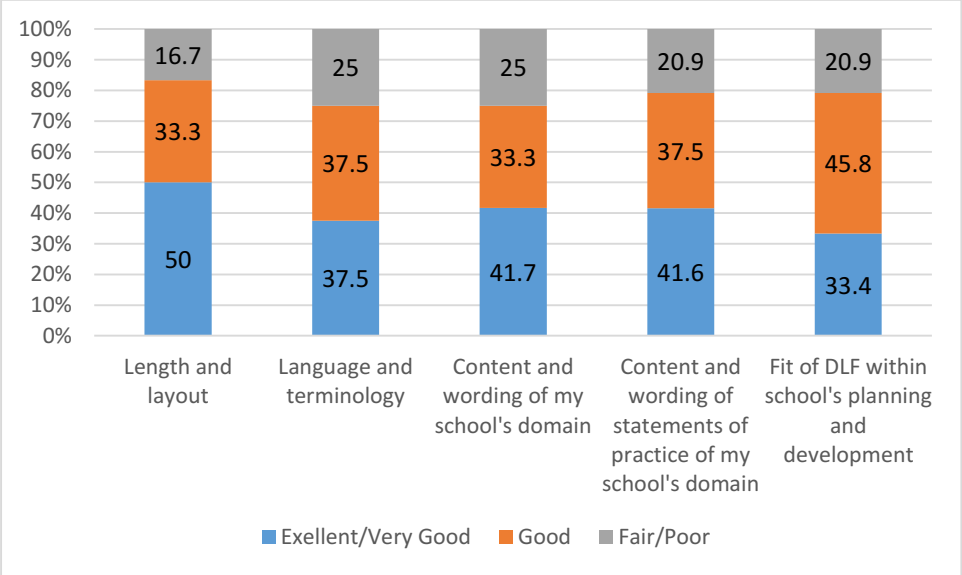
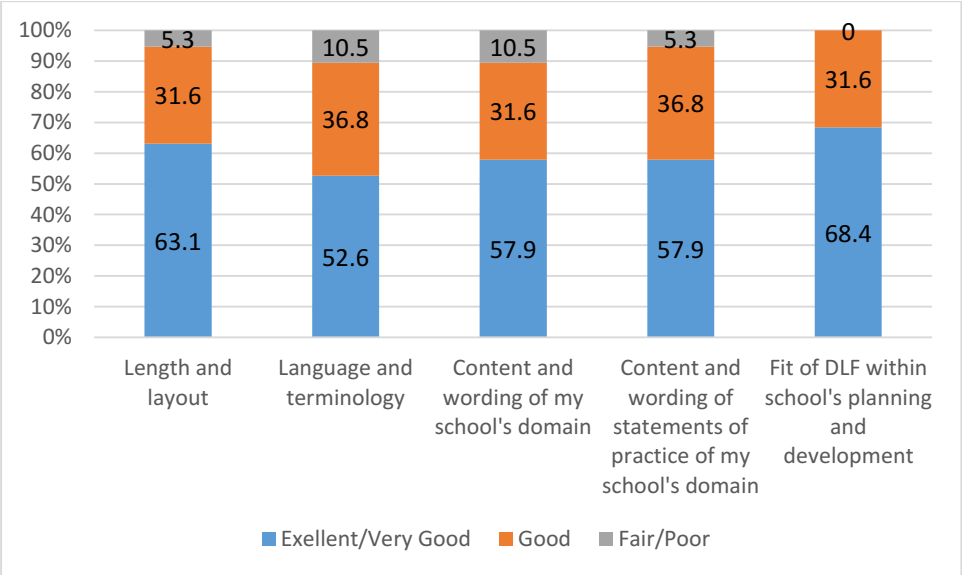


Figure 2.4. Ratings of general and specific aspects of the DLF document: post-primary (N = 19)



Respondents were asked to comment further on their views of the DLF, and comments were received from ten primary respondents (37%) and five post-primary respondents (26%).

Among primary respondents, six of the comments were negative in tone, mainly in terms of the length, layout and terminology; two were neutral (for example, explaining the process of 'unpacking' the DLF); and two were positive (for example, that the domain fitted with the school's SSE).

At post-primary level, three of the comments were positive (for example, in that the DLF document fitted with the LAOS framework), two were neutral (for example, explaining the process of working through the document), and one was negative (commenting that the terminology was challenging).

2.3.3. Views on the Digital Learning Planning Guidelines

Views on the Digital Learning Planning Guidelines were sought from respondents, both generally and for each section. Respondents' ratings are shown in Figures 2.5 (primary) and 2.6 (post-primary).

Figure 2.5. Ratings of general and specific aspects of the Digital Learning Planning Guidelines: primary (N = 23)

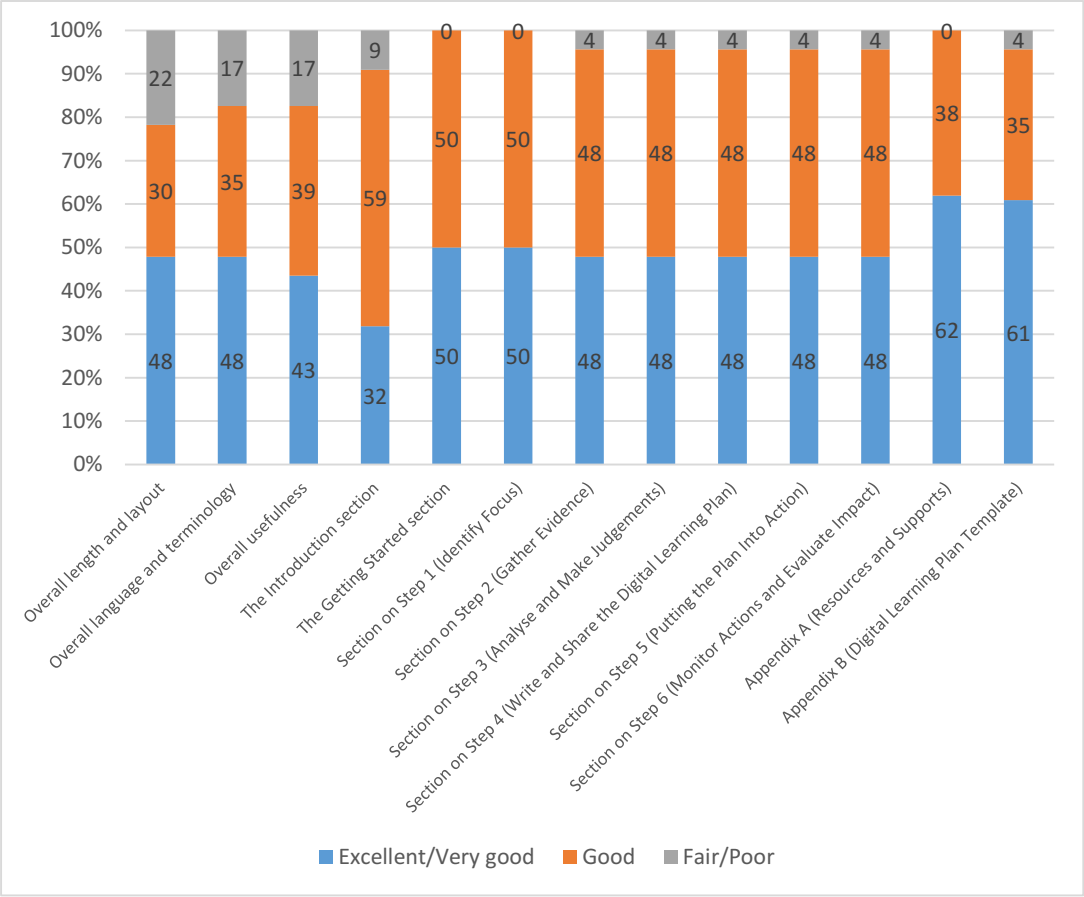
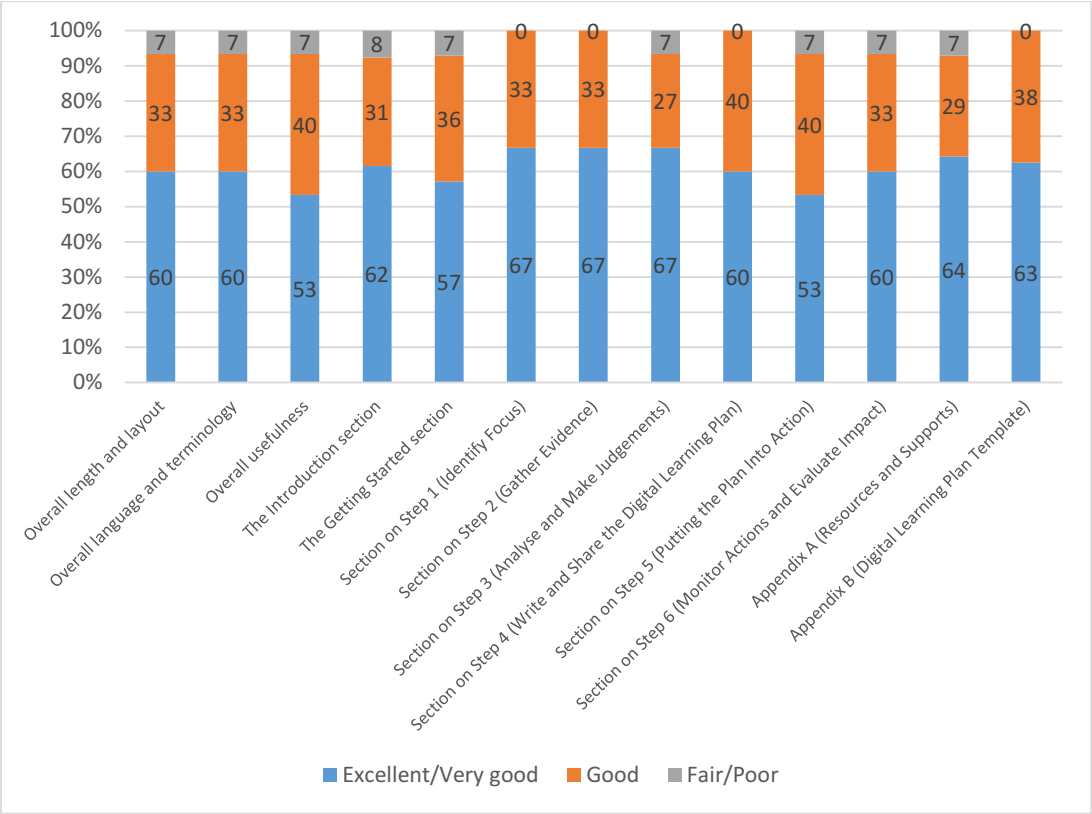


Figure 2.6. Ratings of general and specific aspects of the Digital Learning Planning Guidelines: post-primary (N = 16)



Note that 18% of respondents at primary level and 16% of respondents at post-primary level indicated that they had not referred to the Guidelines (or a specific part of the Guidelines being asked about) or skipped the question: this is likely to indicate that 16-18% of respondents did not use the Guidelines during the trial.

At both primary and post-primary levels, ratings were generally quite positive. At primary level, a majority of the aspects of the Guidelines were rated as Excellent/Very good by about half of respondents. However, the Introduction section was viewed as Excellent/Very good by only 32% of respondents. Also, the overall length/layout, language/terminology and usefulness were rated as Fair/Poor by 17-21% of respondents at primary level.

At post-primary level, a majority of the aspects of the Guidelines were rated Excellent/Very good by 60% or more of respondents, and ratings of Fair/Poor were uncommon (7% or less).

Although the ratings of post-primary school respondents are marginally more positive than those of primary school respondents, these differences are not statistically significant (in call cases, p (chi-square > .05).

Comparisons of these ratings were also made across the dimension (Teaching and Learning and Leadership and Management) that the schools were focusing on for the DLF trial (separately for primary and post-primary levels). Ratings were similar, and

not statistically significantly different depending on the dimension of focus (in all cases, p (chi-square) > .05).

Eight respondents at primary level (29%) and six at post-primary level (32%) provided additional comments on their views on the Digital Learning Planning Guidelines. At primary level, comments noted the value of both the advice of and the resources provided by the PDST advisor in developing the Digital Learning Plan from the school. At post-primary level, two-thirds of the comments were also of this nature, while one respondent commented that the timing of the DLF trial was not ideal in terms of overall school planning activities, and another respondent made a general positive comment about the DLF initiative.

2.4. Schools' activities during the DLF trial

2.4.1. Distribution of domains and standards across participating schools

Table 2.6 shows the dimensions, domains and standards of the DLF, and Table 2.7 shows the percentages of schools focusing on each domain and standard for the DLF trial.

Each school focused on one of the eight domains of the DLF for its trial programme. Within each domain there are four standards, and schools could focus on any of these four. Some schools focused on a single standard, while others selected more than one. The standards are not hierarchical in that Standard 1 does not need to be attained prior to Standard 2, etc.

It was noted in Chapter 1 (Table 1.3) that the domains that schools were focusing on during the trial were not evenly distributed across schools; Table 2.7 confirms that coverage is also uneven across standards *within* domains.

For example, Table 2.7 shows that at primary level, although eight schools (29%) are focusing on Domain 2 of the Teaching and Learning dimension (Learner Experiences), a majority of these schools are focusing on Standard 3 of this particular domain (see Table 2.6 for a description of individual standards). Similarly, at post-primary level, seven schools (35%) are focusing on Domain 4 of Teaching and Learning (Teachers' Collective/Collaborative Practice), six of the seven schools are focusing on Standard 4 within this domain.

Some of the standards are not included in the programmes of any of the schools that took part in the DLF trial. At primary level, 6 of the 16 Teaching and Learning standards, and 10 of the 16 Leadership and Management standards, are not the focus of any school's DLF trial programme. At post-primary level, 10 of the 16 Teaching and Learning standards, and 10 of the 16 Leadership and Management standards, are not the focus of any school's DLF trial programme.

Table 2.6. Summary of the DLF dimensions, domains and standards

Dimension: Teaching and Learning	**Standard**			
	1	2	3	4
Domain 1 Learner Outcomes	Pupils enjoy their learning, are motivated to learn and expect to achieve as learners	Pupils have the necessary knowledge, skills and attitudes required to understand themselves and their relationships	Pupils demonstrate the knowledge, skills and understanding required by the primary curriculum	Pupils achieve the stated learning objectives for the term and year
Domain 2 Learner Experiences	Pupils engage purposefully in meaningful learning activities	Pupils grow as learners through respectful interactions and experiences that are challenging and supportive	Pupils reflect on their progress as learners and develop a sense of ownership of and responsibility for their learning	Pupils experience opportunities to develop the skills and attitudes necessary for lifelong learning
Domain 3 Teachers' Individual Practice	The teacher has the requisite subject knowledge, pedagogical knowledge and classroom management skills	The teacher selects and uses planning, preparation and assessment practices that progress pupils' learning	The teacher selects and uses teaching approaches appropriate to the learning objective and to pupils' learning needs	The teacher responds to individual learning needs and differentiates teaching and learning activities as necessary
Domain 4 Teachers' Collective/Collaborative Practice	Teachers value and engage in professional development and professional collaboration	Teachers work together to devise learning opportunities for pupils across and beyond the curriculum	Teachers collectively develop and implement consistent and dependable formative and summative assessment practices	Teachers contribute to building whole-staff capacity by sharing their expertise
Dimension: Leadership and Management	**Standard**			
	1	2	3	4
Domain 1 Leading learning and teaching	Promote a culture of improvement, collaboration, innovation and creativity in learning, teaching, and assessment	Foster a commitment to inclusion, equality of opportunity and the holistic development of each pupil	Manage the planning and implementation of the curriculum	Foster teacher professional development that enriches teachers' and pupils' learning
Domain 2 Managing the organisation	Establish an orderly, secure and healthy learning environment, and maintain it through effective communication	Manage the school's human, physical and financial resources so as to create and maintain a learning organisation	Manage challenging and complex situations in a manner that demonstrates equality, fairness and justice	Develop and implement a system to promote professional responsibility and accountability
Domain 3 Leading school development	Communicate the guiding vision for the school and lead its realisation	Lead the school's engagement in a continuous process of self- evaluation	Build and maintain relationships with parents, with other schools, and with the wider community	Manage, lead and mediate change to respond to the evolving needs of the school and to changes in education
Domain 4 Developing leadership capacity	Critique their practice as leaders and develop their understanding of effective and sustainable leadership	Empower staff to take on and carry out leadership roles	Promote and facilitate the development of pupil voice and pupil leadership	Build professional networks with other school leaders

Note. The standards are not hierarchical in that Standard 1 does not need to be attained prior to Standard 2, etc.

Table 2.7. Percentages of primary and post-primary schools engaging with each of the domains and standards of the DLF (schools can focus on multiple standards within one domain)

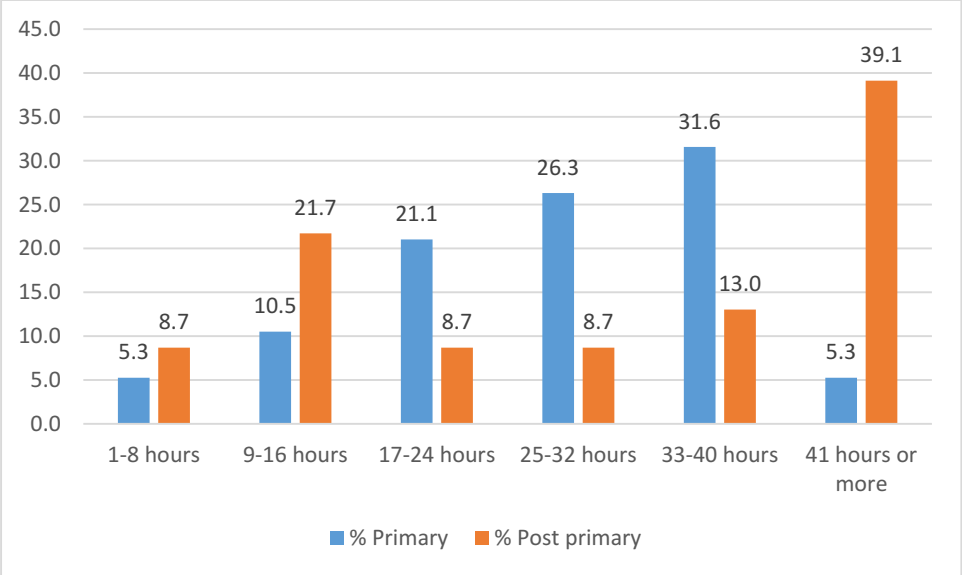
Dimension/Domain	**Primary (N = 28)**					
	N	*% focusing on this domain*	*% standard 1*	*% standard 2*	*% standard 3*	*% standard 4*
Teaching and Learning (N = 17)						
Domain 1 Learner Outcomes	4	14.3	7.1	3.6	3.6	0.0
Domain 2 Learner Experiences	8	28.6	7.1	0.0	21.5	0.0
Domain 3 Teachers' Individual Practice	3	10.7	7.1	0.0	0.0	3.6
Domain 4 Teachers' Collective/Collaborative Practice	2	7.1	7.1	3.6	3.6	0.0
Leadership and Management (N = 11)						
Domain 1 Leading learning and teaching	4	14.3	0.0	0.0	7.1	7.1
Domain 2 Managing the organisation	1	3.6	0.0	0.0	0.0	3.6
Domain 3 Leading school development	4	14.3	0.0	0.0	14.3	0.0
Domain 4 Developing leadership capacity	2	7.1	0.0	3.6	0.0	3.6
Dimension/Domain	**Post Primary (N = 20)**					
	N	*% focusing on this domain*	*% standard 1*	*% standard 2*	*% standard 3*	*% standard 4*
Teaching and Learning (N = 13)						
Domain 1 Learner Outcomes	4	20.0	5.0	0.0	0.0	15.0
Domain 2 Learner Experiences	1	5.0	5.0	0.0	0.0	0.0
Domain 3 Teachers' Individual Practice	1	5.0	0.0	5.0	0.0	0.0
Domain 4 Teachers' Collective/Collaborative Practice	7	35.0	0.0	0.0	5.0	30.0
Leadership and Management (N = 7)						
Domain 1 Leading learning and teaching	2	10.0	0.0	0.0	5.0	5.0
Domain 2 Managing the organisation	3	15.0	0.0	10.0	0.0	5.0
Domain 3 Leading school development	1	5.0	0.0	5.0	0.0	0.0
Domain 4 Developing leadership capacity	1	5.0	0.0	0.0	5.0	0.0

Note. Some schools focused on a single standard, while others selected more than one. The standards are not hierarchical in that Standard 1 does not need to be attained prior to Standard 2, etc. See Table 2.6 for description of the standards within each domain.

2.4.2. Total time spent working on the DLF trial

On average at primary level, DLT leaders spent 29 hours (this equates to about an hour to an hour and a half per week) working on the DLF trial (from November to May) at primary level, and at post-primary level, an average of 27 hours was spent. There was considerable variation across respondents in the total time spent, however (Figure 2.7): at primary level, 16% of respondents spent 16 hours or less on the programme, while 37% spent 33 hours or more. The corresponding percentages at post-primary level are 30% and 52%.

Figure 2.7. Total number of hours spent working on the DLF trial programme: primary and post-primary



2.4.3. Stage and focus of schools' DLF trial programmes

In a majority of participating schools (71% at primary level and 68% at post-primary level) the DLF trial programme formed part of a one-year or multi-year plan. About twice as many primary schools (62.5%) than post-primary schools (32%) described the DLF trial programme as running for more than a year. In 29% of schools at primary level and 32% of schools at post-primary level, the DLF trial programme was at or nearing completion (Table 2.8).

Table 2.8. Stage of the DLF trial programme in primary and post-primary schools

Stage of the DLF trial programme	*Primary (n = 24)*	*Post primary (n = 19)*
Programme is already completed and aims and targets attained	12.5	10.5
Programme forms a six-month plan (shortly due to be completed during May-June 2018)	16.7	21.1
Programme forms a one-year plan (due to be completed during September-December 2018)	8.3	36.8
Programme will run for more than one year (due to be completed after 2018)	62.5	31.6
Total	100.0	100.0

Respondents were asked about the nature of the DLF trial programme in their school, in terms of (i) its focus on pupil-/student-level skills/competencies and (ii) on elements of the programme that related to teachers, management and infrastructure. Ratings are shown in Tables 2.9 (primary) and 2.10 (post-primary).

Table 2.9. Level of focus given to pupils' skills/competencies and areas relevant to teachers, management and infrastructure: primary (n = 25)

Pupils' skills/competencies	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Pupils' literacy skills	40.0	28.0	8.0	24.0
Pupils' oral language skills	24.0	36.0	8.0	32.0
Pupils' numeracy skills	16.0	20.0	36.0	28.0
Pupils' mathematics skills	20.0	20.0	32.0	28.0
Pupils' science skills	4.0	16.0	44.0	36.0
Pupils' critical thinking and analysis	36.0	28.0	12.0	24.0
Pupils' collaborative and team work	48.0	28.0	24.0	0.0
Pupils' wellbeing	16.0	36.0	16.0	32.0
Pupils' business skills/entrepreneurship	4.0	8.0	20.0	68.0
Pupils' artistic and creative skills	16.0	28.0	12.0	44.0
Pupils' digital literacy	52.0	28.0	4.0	16.0
Another area	20.0	8.0	0.0	72.0
Teachers/management/infrastructure	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Teachers' collaborative and team work	54.2	25.0	12.5	8.3
Teachers' digital literacy in general	79.2	4.2	8.3	8.3
Teachers' use of digital technologies for assessment	50.0	20.8	16.7	12.5
Teachers' use of digital technologies for communication with pupils or parents	25.0	29.2	12.5	33.3
Teachers' use of digital technologies for administration (e.g. attendance)	20.8	33.3	16.7	29.2
Development of teachers' skills in using specific apps or software for teaching and learning	75.0	12.5	0.0	12.5
Incorporating use of digital technologies into short-term planning	25.0	33.3	16.7	25.0
Incorporating use of digital technologies into long-term planning	25.0	33.3	16.7	25.0
Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools	37.5	25.0	16.7	20.8
Making improvements to technical maintenance and support for teaching and learning	33.3	20.8	16.7	29.2
Making improvements to the quality of broadband connectivity	29.2	8.3	25.0	37.5
Making improvements to the sharing of teaching documents and resources (cloud- or server-based)	20.8	29.2	25.0	25.0
Another area	16.7	0.0	4.2	79.2

At primary level, 36-52% of the following components of pupils' skills/competencies were rated as having a high focus (lists is ordered with highest level of focus first):

- Pupils' digital literacy
- Pupils' collaborative and team work
- Pupils' literacy skills
- Pupils' critical thinking and analysis.

Lower levels of emphasis (with just 4% rated as having a high focus) were given to:

- Pupils' science skills
- Pupils' business skills/entrepreneurship.

For the remaining items, 16-24% were rated as having a high focus in the DLF trial programme. These were:

- Pupils' oral language skills
- Pupils' mathematics skills
- Pupils' numeracy skills
- Pupils' wellbeing
- Pupils' artistic and creative skills.

Regarding teachers, management and/or infrastructure, 50-79% of the following items were rates as having a high focus:

- Teachers' digital literacy in general
- Development of teachers' skills in using specific apps or software for teaching and learning
- Teachers' collaborative and team work
- Teachers' use of digital technologies for assessment.

In contrast, there was a lower level of focus (21% rated high focus) on:

- Teachers' use of digital technologies for administration (e.g. attendance)
- Making improvements to the sharing of teaching documents and resources (cloud- or server-based).

Between 25% and 38% of the remaining items were regarded as having a high focus. These were:

- Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools
- Making improvements to technical maintenance and support for teaching and learning
- Making improvements to the quality of broadband connectivity
- Teachers' use of digital technologies for communication with pupils or parents
- Incorporating use of digital technologies into short-term planning
- Incorporating use of digital technologies into long-term planning.

Information on the levels of focus on student-level skills/competencies and on elements of the programme that related to the work of teachers, management and infrastructure in post-primary schools is shown in in Table 2.10.

Table 2.10. Level of focus given to students' skills/competencies and areas relevant to teachers, management and infrastructure: post-primary (n = 19)

Pupils' skills/competencies	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Students' literacy skills	16.7	38.9	16.7	27.8
Students' oral language skills	0.0	33.3	27.8	38.9
Students' numeracy skills	11.1	44.4	11.1	33.3
Students' mathematics skills	5.6	38.9	22.2	33.3
Students' science skills	0.0	38.9	22.2	38.9
Students' critical thinking and analysis	33.3	27.8	16.7	22.2
Students' collaborative and team work	50.0	27.8	0.0	22.2
Students' wellbeing	16.7	38.9	22.2	22.2
Students' business skills/entrepreneurship	5.6	50.0	27.8	16.7
Students' artistic and creative skills	16.7	33.3	33.3	16.7
Students' digital literacy	66.7	11.1	5.6	16.7
Another area	11.1	5.6	0.0	83.3
Teachers/management/infrastructure	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Teachers' collaborative and team work	68.4	10.5	10.5	10.5
Teachers' digital literacy in general	73.7	21.1	0.0	5.3
Teachers' use of digital technologies for assessment	42.1	36.8	10.5	10.5
Teachers' use of digital technologies for communication with pupils or parents	42.1	26.3	10.5	21.1
Teachers' use of digital technologies for administration (e.g. attendance)	10.5	26.3	26.3	36.8
Development of teachers' skills in using specific apps or software for teaching and learning	42.1	42.1	10.5	5.3
Incorporating use of digital technologies into short-term planning	42.1	36.8	10.5	10.5
Incorporating use of digital technologies into long-term planning	31.6	52.6	10.5	5.3
Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools	31.6	36.8	21.1	10.5
Making improvements to technical maintenance and support for teaching and learning	36.8	31.6	15.8	15.8
Making improvements to the quality of broadband connectivity	26.3	31.6	10.5	31.6
Making improvements to the sharing of teaching documents and resources (cloud- or server-based)	57.9	15.8	10.5	15.8
Another area	15.8	0.0	0.0	84.2

In terms of students, 33-67% of the following items were rated as having a high focus:

- Students' digital literacy
- Students' collaborative and team work
- Students' critical thinking and analysis.

In contrast, one or fewer schools indicated that the following had a high focus in their school's DLF trial programme:

- Students' mathematics skills
- Students' business skills/entrepreneurship
- Students' oral language skills
- Students' science skills.

Between 11% and 17% of post-primary school respondents indicated that the following student competencies had a high focus in their DLF trial programme:

- Students' literacy skills
- Students' wellbeing
- Students' artistic and creative skills
- Students' numeracy skills.

Between 58% and 74% of schools indicated that the following had a high level of focus in their DLF trial programmes:

- Teachers' digital literacy in general
- Teachers' collaborative and team work
- Making improvements to the sharing of teaching documents and resources (cloud- or server-based).

In contrast, the use of digital technologies by teachers for administration (e.g. attendance) was much lower, rated as having a high focus in only two schools (10.5%).

The following elements of the programme that relate to teachers, management and infrastructure were rated as having a high focus by between 26% and 42% of schools:

- Teachers' use of digital technologies for assessment
- Teachers' use of digital technologies for communication with pupils or parents
- Development of teachers' skills in using specific apps or software for teaching and learning
- Incorporating use of digital technologies into short-term planning
- Making improvements to technical maintenance and support for teaching and learning
- Incorporating use of digital technologies into long-term planning
- Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools
- Making improvements to the quality of broadband connectivity.

Similar to the results for primary level, at post-primary level, overall, there is a higher focus on elements relating to teachers, management and/or infrastructure (bottom part of Table 2.10) compared with pupils' skills and competencies (top part of Table 2.10).

Interestingly, there were very few statistically significant differences across primary and post-primary schools in terms of the level of focus given to various possible elements of the schools' DLF trial programmes (i.e. the items in Tables 2.9 and 2.10). Business skills/entrepreneurship had a significantly higher focus at post-primary than primary level (p (chi-square) = .004). Development of teachers' skills in using specific apps or software also had a significantly higher focus at post-primary than primary level (p (chi-square) = .034). Otherwise, levels of focus did not differ significantly across primary and post-primary levels.

We also compared the levels of focus of various possible aspects of the programme across schools grouped according to whether they were implementing a domain in the Teaching and Learning or Leadership and Management dimension. There were no differences across these two dimensions at primary level. At post-primary level, four significant differences emerged.

- Students' business skills/entrepreneurship (significantly higher among 'Teaching and Learning' schools; p = .034)
- Teachers' use of digital technologies for communication with pupils or parents (significantly higher among 'Teaching and Learning' schools; p = .005)
- Making improvements to technical maintenance and support for teaching and learning (significantly higher among 'Teaching and Learning' schools; p = .036)
- Making improvements to the quality of broadband connectivity (significantly higher among 'Teaching and Learning' schools; p = .010).

Overall, these findings could suggest that, regardless of the dimension that the schools are working on during the DLF trial, schools are engaging in activities across a broad range of elements, with a particularly high level of focus on the work of teachers.

2.4.4. Meetings and communications for, and engagement with, the DLF trial programme

Respondents were asked about the frequency with which various meetings and communications were implemented by the school during the DLF trial. Their responses are shown in Table 2.11.

The frequencies with which the first four items in the list of activities (staff meetings, professional development activities, peer-to-peer mentoring or coaching, school-wide communications) indicate high levels of commitment and engagement from schools at both primary and post-primary levels.

At primary level, the most frequent activities were school-wide communications, professional development activities for staff, and staff meetings (in 52-60% of schools, these activities occurred three times or more). Communications to parents, meetings with the Board of Management, and mentoring or coaching among teachers occurred slightly less frequently (32-44% of respondents indicated that these activities occurred three times or more). Meetings with parents were least common: in 72% of schools these did not occur.

At post-primary level, school-wide communications, mentoring or coaching among teachers, and professional development activities for staff were the most frequent (with 53-74% of respondents indicating that these occurred three times or more). Staff meetings occurred three times or more in 42% of schools. In contrast, 79% of schools reported no meetings with parents, and 58% reported no communications with parents. Meetings or communications with the Board of Management occurred once or twice in a majority (79%) of post-primary schools.

Table 2.11. Frequency with which schools implemented meetings and communications to support the DLF trial: primary and post-primary

Primary (n = 25)	*No*	*Once*	*Twice*	*Three times*	*Four times or more*
Staff meetings for information and planning purposes	8.0	8.0	32.0	16.0	36.0
Professional development activities for staff	4.0	20.0	20.0	24.0	32.0
Peer-to-peer mentoring or coaching among teachers	20.0	12.0	24.0	8.0	36.0
School-wide communications (e.g. emails, posters)	20.0	4.0	16.0	16.0	44.0
Meetings with parents	72.0	16.0	8.0	4.0	0.0
Communications (e.g. letters, emails) to parents	28.0	20.0	20.0	12.0	20.0
Meetings or communications with the Board of Management	12.0	16.0	32.0	20.0	20.0
Post primary (n = 19)	*No*	*Once*	*Twice*	*Three times*	*Four times or more*
Staff meetings for information and planning purposes	0.0	26.3	31.6	31.6	10.5
Professional development activities for staff	5.3	5.3	36.8	26.3	26.3
Peer-to-peer mentoring or coaching among teachers	10.5	10.5	15.8	26.3	36.8
School-wide communications (e.g. emails, posters)	15.8	5.3	5.3	10.5	63.2
Meetings with parents	78.9	15.8	0.0	0.0	5.3
Communications (e.g. letters, emails) to parents	57.9	31.6	0.0	0.0	10.5
Meetings or communications with the Board of Management	15.8	42.1	36.8	0.0	5.3

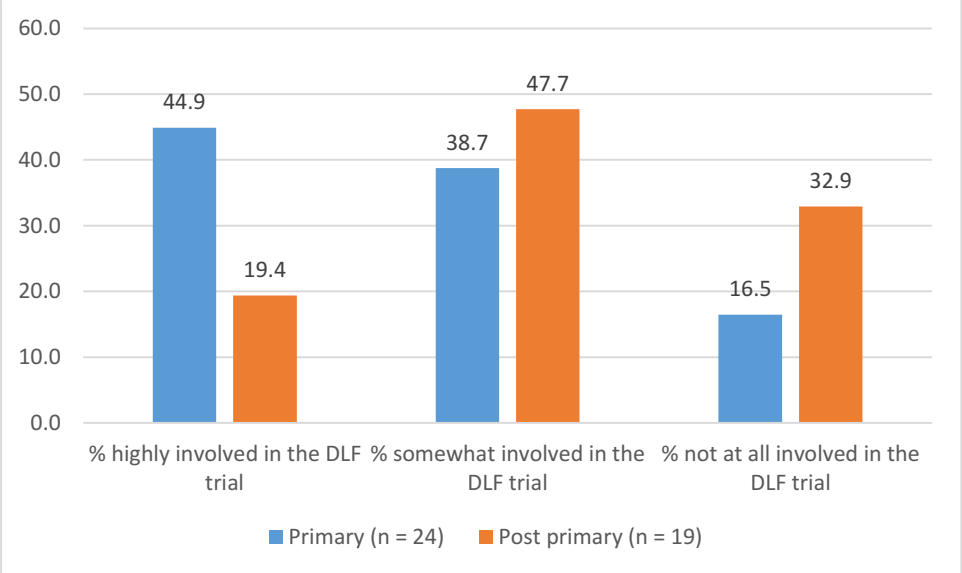
Respondents also provided a broad indication of the level of involvement of teaching staff in the DLF trial. This information is shown in Figure 2.8.

At primary level, about 45% of teaching staff were highly involved, 39% were somewhat involved, and 16.5% were not involved in the trial, according to the Digital

Learning Team Leaders. At post-primary level, about one-fifth of teaching staff were highly involved, 48% somewhat involved, and 33% not involved.

There is a relationship between the percentage of teaching staff highly involved in the DLF trial and the total enrolment size of the school (as one might expect): the larger the school, the lower the percentage of highly-involved teachers (r (primary) = -.420; r (post-primary) = -.412). Levels of involvement of teaching staff did not vary significantly across 'Teaching and Learning' and 'Leadership and Management' schools at either primary or post-primary levels (i.e. p (t) < .05).

Figure 2.8. Level of involvement of teaching staff in the DLF trial: primary and post-primary



Respondents were asked for their views on the levels of engagement of various stakeholders in the DLF trial. Their responses are shown in Table 2.12. Overall, the table shows high levels of engagement on the part of class teachers, ICT/DL liaison teachers, and the PDST advisors, with engagement levels for these groups rated as 'high' in 68-88% of primary schools.

In post-primary schools, the engagement of ICT/DL liaison teachers and PDST advisors was rated as 'high' by 90-95% of respondents. Engagement of class teachers was rated as 'high' in 32% of schools and 'medium' in 58% of schools. Differences in the levels of engagement of class teachers are likely to be related to their levels of involvement in the DLF trial which in turn is associated with the school's enrolment size (see Figure 2.8 above).

Engagement of pupils was rated as 'high' in 56% of primary schools and 26% of post-primary schools. As might be expected from the results shown previously in Table 2.11, levels of engagement of parents and Boards of Management were lower at both primary and post-primary levels. Levels of engagement of technical support staff varied across schools at both primary and post-primary levels, and may be

linked to the particular role or contractual arrangements that individual schools have with external technical support staff.

Table 2.12. Levels of engagement of various stakeholders/staff as reported by DLT leaders: primary and post-primary

Primary (n = 25)	*High*	*Medium*	*Low*	*Not applicable/Not involved*
Class teachers	68.0	24.0	8.0	0.0
ICT/Digital Learning Liaison Teacher	84.0	8.0	0.0	8.0
Pupils	56.0	24.0	8.0	12.0
Parents	12.0	12.0	36.0	40.0
Technical support staff	28.0	24.0	12.0	36.0
PDST advisor	88.0	12.0	0.0	0.0
Board of Management	20.0	16.0	52.0	12.0
Post primary (n = 19)	*High*	*Medium*	*Low*	*Not applicable/Not involved*
Class teachers	31.6	57.9	0.0	10.5
ICT/Digital Learning Liaison Teacher	89.5	5.3	5.3	0.0
Students	26.3	36.8	21.1	15.8
Parents	5.3	5.3	47.4	42.1
Technical support staff	26.3	26.3	26.3	21.1
PDST advisor	94.7	5.3	0.0	0.0
Board of Management	10.5	42.1	31.6	15.8

Respondents were asked for their views on the extent to which the DLF complements existing SSE activities in the area of teaching and learning[19]. As shown in Table 2.13, a large majority of participating schools (88% at primary level and 89% at post-primary level) reported that the DLF complemented these existing activities to a large extent or to some extent.

Seven primary schools (25%) provided a comment on using the DLF as part of SSE activities. Comments were positive in tone and varied in content. Two schools commented in a positive way on the support provided through the PDST; two schools expressed positive views of using the DLF for SSE; two schools described what they had achieved or what they hoped to achieve via the DLF; and one school commented on broadband upgrading.

Eight post-primary schools (42%) also commented on using the DLF as part of SSE activities. These comments were also positive in tone: seven of these referred in a positive manner to the complementarity of the DLF with SSE activities, its effectiveness to encourage reflection on practice, and/or gather evidence; the other comment described what the school had achieved in the course of the DLF trial

[19] The DES Circulars (0039/2016 and 0040/2016) guiding the current cycle of SSE (2016-2020) state that the focus is on the Teaching and Learning dimension of the LAOS framework. The Leadership and Management dimension is not currently part of the SSE process.

Table 2.13. Extent to which DLF complements existing SSE activities in teaching and learning: primary and post-primary

	Primary (n = 25)	*Post primary (n = 19)*
To a large extent	44.0	52.6
To some extent	44.0	36.8
To a small extent	11.0	5.3
Not at all	0.0	5.3

2.5. Changes, successes and challenges reported by respondents

2.5.1. Changes in teaching, learning, management and infrastructure

Digital Learning Team leaders were asked to rate the level of change that they perceived since participating in the DLF trial for a range of teaching, learning, management and infrastructural areas. Their responses are shown in Table 2.14.

At primary level, the largest changes were identified by respondents (with 64-75% reporting significant or moderate changes) as:

- Teaching and learning activities during class time
- Collaborative practices among teachers
- Pupils' interest and engagement in learning activities.

Significant or moderate changes were identified by between 39% and 50% for:

- Emphasis on use of digital technologies in school policies or guidelines
- Decisions relating to enhancing digital technology infrastructure (e.g. quality or number of computing devices)
- Teachers' assessment practices
- Decisions relating to enhancing technical support or maintenance
- Decisions relating to enhancing broadband connectivity/Wi-Fi connectivity or reliability
- Sharing of documents or resources among teachers.

In contrast, about 75% of DLT leaders indicated that there no change, or minor changes, in pupils' homework or study activities.

At post-primary level, 74-95% of respondents reported significant or moderate changes in:

- Emphasis on use of digital technologies in school policies or guidelines
- Collaborative practices among teachers
- Teaching and learning activities during class time
- Students' interest and engagement in learning activities
- Decisions relating to enhancing digital technology infrastructure (e.g. quality or number of computing devices)
- Sharing of documents or resources among teachers
- Decisions relating to enhancing broadband connectivity/Wi-Fi connectivity or reliability.

Also, between 47% and 53% of post-primary respondents reported significant or moderate changes in:

- Students' study or homework activities
- Teachers' assessment practices
- Decisions relating to enhancing technical support or maintenance.

Table 2.14. Perceived levels of change in a range of a range of teaching, learning, management and infrastructural areas: primary and post-primary

Primary (n = 28)	*Significant change*	*Moderate change*	*Minor change*	*No change*
Teaching and learning activities during class time	32.1	42.9	3.6	21.4
Pupils' study or homework activities	3.6	21.4	21.4	53.6
Pupils' interest and engagement in learning activities	25.0	39.3	3.6	32.1
Teachers' assessment practices	25.0	21.4	25.0	28.6
Collaborative practices among teachers	28.6	42.9	7.1	21.4
Sharing of documents or resources among teachers	21.4	17.9	17.9	42.9
Emphasis on use of digital technologies in school policies or guidelines	21.4	28.6	17.9	32.1
Decisions relating to enhancing digital technology infrastructure (e.g. quality or number of computing devices)	32.1	17.9	14.3	35.7
Decisions relating to enhancing technical support or maintenance	32.1	14.3	17.9	35.7
Decisions relating to enhancing broadband connectivity/wifi connectivity or reliability	25.0	17.9	10.7	46.4
Post primary (n = 19)	*Significant change*	*Moderate change*	*Minor change*	*No change*
Teaching and learning activities during class time	15.8	68.4	5.3	10.5
Students' study or homework activities	10.5	42.1	10.5	36.8
Students' interest and engagement in learning activities	21.1	57.9	10.5	10.5
Teachers' assessment practices	10.5	42.1	26.3	21.1
Collaborative practices among teachers	47.4	42.1	5.3	5.3
Sharing of documents or resources among teachers	42.1	31.6	15.8	10.5
Emphasis on use of digital technologies in school policies or guidelines	42.1	52.6	5.3	0.0
Decisions relating to enhancing digital technology infrastructure (e.g. quality or number of computing devices)	31.6	47.4	15.8	5.3
Decisions relating to enhancing technical support or maintenance	15.8	31.6	31.6	21.1
Decisions relating to enhancing broadband connectivity/wifi connectivity or reliability	26.3	47.4	0.0	26.3

Although a comparison of the top and bottom parts of Table 2.14 could suggest that there has been a greater degree of change in aspects of teaching, learning, management and infrastructure in post-primary compared with primary schools as a result of taking part in the trial, it should be borne in mind that the responses are perceptions rather than objectively measured degrees of change.

Within primary and post-primary levels, there are few significant differences in the reported degree of change in these areas depending on whether schools are focused

on Teaching and Learning or Leadership and Management. Only two statistically significant differences emerged:

- At primary level, 'Teaching and Learning' schools reported a significantly higher degree of change in teaching and learning activities in class time than 'Leadership and Management' schools (p (chi-square) = .040).
- At post-primary level, 'Leadership and Management' schools reported a significantly higher degree of change in collaborative practices among teachers than 'Teaching and Learning' schools (p (chi-square) = .030).

DLT leaders were also asked to describe, in a text response, what they viewed as the most significant changes that occurred as a result of taking part in the DLF trial. Their responses were coded into themes by two researchers at the ERC and the frequency of these coded themes are shown in Table 2.15.

Table 2.15. Themes/areas of significant change as identified in DLT leaders' text responses: primary and post-primary

Themes/Areas of significant change	*Primary (n = 24)*	*Post primary (n = 19)*
Creation of a shared DT vision for the school	8.3	10.5
More focused planning	33.3	42.1
Whole-school engagement with DT	16.7	5.3
Improved staff communication /collaboration	25.0	47.4
Improved staff awareness of DT	45.8	47.4
Improved teachers' competency with DT	37.5	26.3
Creation of DL Team	16.7	10.5
Greater integration of DT in teaching practice (teaching, learning, assessment)	37.5	26.3
Greater student engagement with DT	29.2	21.1
Improved student outcomes/ performance	4.2	21.1
Improved communication with parents	8.3	0.0
Improved DT infrastructure	20.8	10.5
Improved connectivity	8.3	10.5

At both primary and post-primary levels, five of the most commonly-mentioned areas of change (mentioned in 25-46% of responses) were:

- More focused planning
- Whole-school engagement with digital technologies
- Improved staff awareness of DT
- Improved teachers' competency with DT
- Greater integration of DT into teaching practice.

In addition, at primary level, 29% of respondents mentioned greater pupil engagement with DT as a significant change.

2.5.2. Levels of effective practice at Phase 1

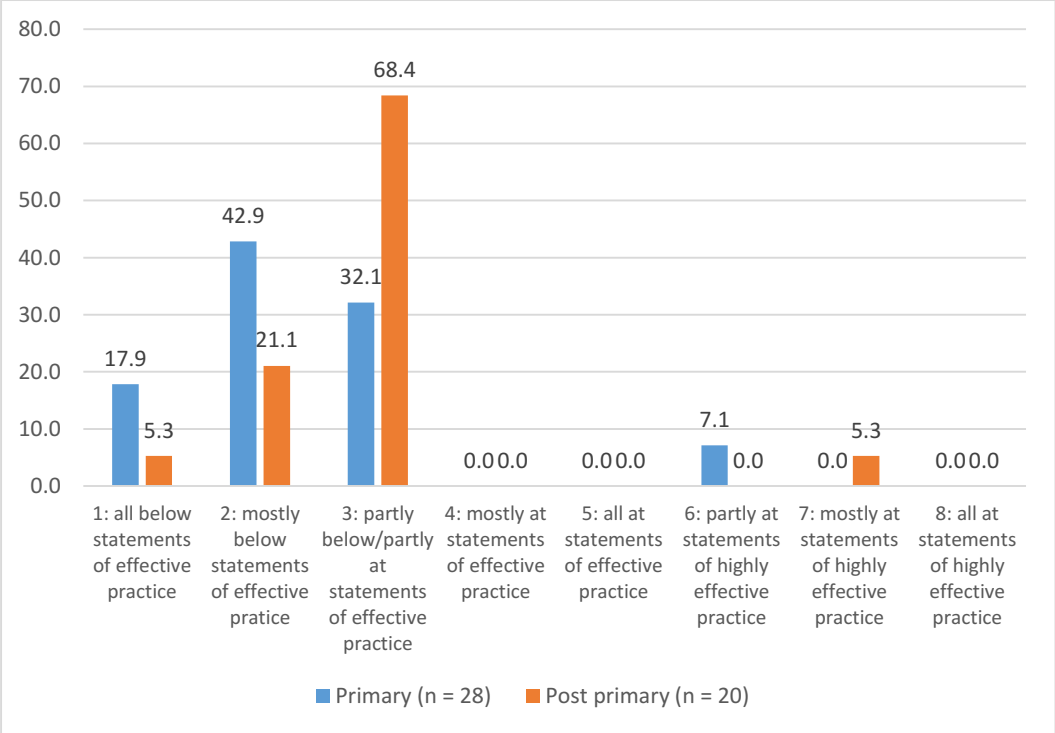
Figure 2.9 shows PDST advisors' ratings of schools' levels of practice at baseline (Phase 1).

The levels of practice reported here and in the following two sections are directly linked to each school, i.e. levels of practice associated with the specific domain standard(s) of each school's programme. This eight-point 'level of practice index' is a measure that was developed for this evaluation and does not form part of the DLF as such.

At primary level in Phase 1, three-fifths of schools were mostly or all below the standards suggested by the statements of effective practice; 32% were partly below and partly at the standards suggested by the statements of effective practice; and two schools (7%) were partly at the standards suggested by the statements of highly effective practice.

At post-primary level, 26% of schools were mostly or all below the standards suggested by the statements of effective practice; 68% were partly below and partly at the standards suggested by the statements of effective practice; and one school (5%) was mostly at the standards suggested by the statements of highly effective practice.

Figure 2.9. Levels of practice at phase 1 (baseline) as reported by PDST advisors: primary and post-primary



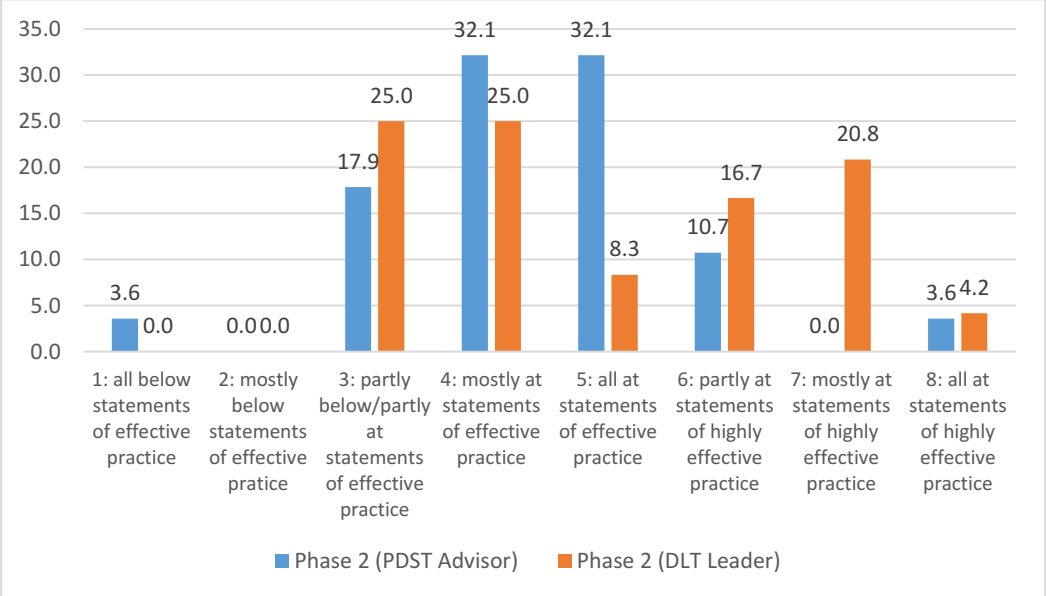
2.5.3. Levels of effective practice at Phase 2: Comparisons of PDST advisors and DLT leaders' responses

Towards the end of Phase 2, PDST advisors were again asked to assign a score for each school on the level of practice index, and DLT leaders were also asked to provide a score for their school. Figure 2.10 shows the Phase 2 ratings at primary level, and Figure 2.11 shows them at post-primary level.

Figure 2.10 shows that, on the basis of PDST advisors' ratings at Phase 2, 64% of schools were rated as being levels 4 or 5 (mostly or all at the standard(s) suggested by the statements of effective practice). An additional 14% were at levels six and eight (partly or all at the standard(s) suggested by the statements of highly effective practice), and 18% were at level 3. Just one primary school was at level 1 at the end of the DLF trial.

On the basis of DLT leaders' ratings, more schools were at higher levels of effective/highly effective practice: 42% were at levels 6 to 8; 33% were at levels 4 and 5; and 25% were at level 3.

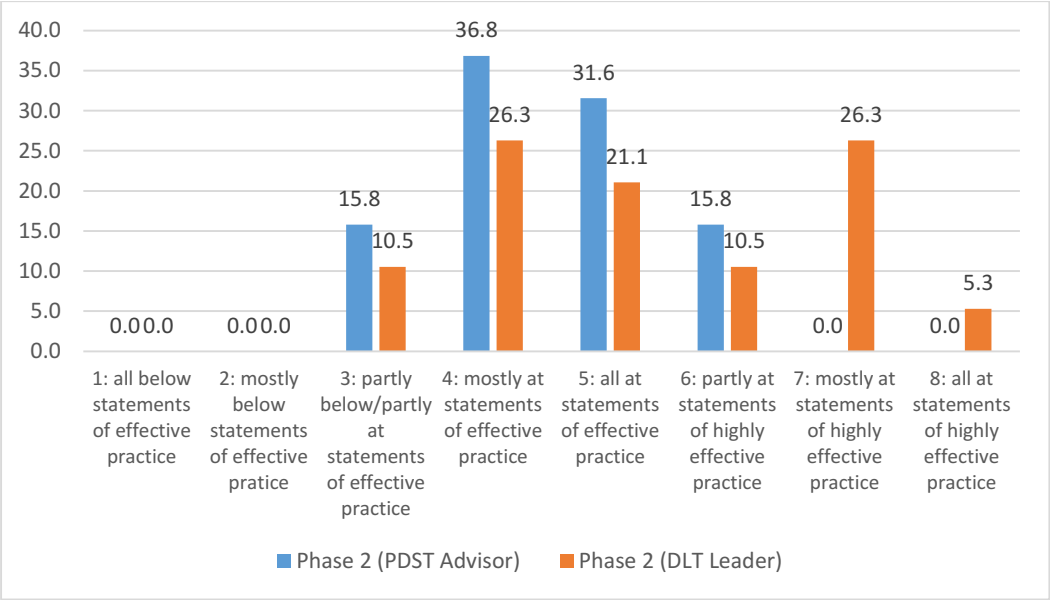
Figure 2.10. Ratings of effective practice at Phase 2 (PDST advisors and DLT leaders): primary



Turning now to post-primary schools, Figure 2.11 shows that, on the basis of PDST advisors' ratings at Phase 2, 68% of schools were rated as being levels 4 or 5 (mostly or all at the standard(s) suggested by the statements of effective practice). An additional 16% were at level six (partly at the standard(s) suggested by the statements of highly effective practice), and 16% were at level 3.

On the basis of DLT leaders' ratings, more schools were at higher levels of effective/highly effective practice compared to PDST advisors' ratings: 42% were at levels 6 to 8; 47% were at levels 4 and 5; and 11% were at level 3.

Figure 2.11. Ratings of effective practice at Phase 2 (PDST advisors and DLT leaders): primary



To gain a better understanding of the differences between PDST advisor and DLT leader ratings of effective practice at Phase 2, we cross-tabulated their responses. These are shown in Tables 2.16 (primary) and 2.17 (post-primary) and in Figure 2.12.

- Cells shaded in dark grey on the diagonal show agreement between the ratings between PDST advisors and school staff.
- Cells shaded in light grey next to the diagonal show close agreement (i.e. difference of one point) between PDST advisors and school staff.
- Numbers in bold above the diagonal show higher ratings were given by PDST advisors compared with school staff and the difference is two or more points.
- Numbers underlined below the diagonal show higher ratings were given by school staff and the difference is two or more points.

Table 2.16/Figure 2.13 shows that, for primary schools:

- There was exact (11%) or close (47%) agreement for 58% of schools.
- In 32% of schools, DLT leader ratings were two or more points higher than PDST advisor ratings.
- In 11% of schools, PDST advisor ratings were two or more points higher than DLT leader ratings.

Table 2.17/Figure 2.13 shows that, for post-primary schools:

- There was exact (29%) or close (33.5%) agreement for 62% of schools.
- In 29% of schools, DLT leader ratings were two or more points higher than PDST advisor ratings.
- In 8% of schools, PDST advisor ratings were two or more points higher than DLT leader ratings.

Table 2.16. Cross-tabulation of PDST advisors' and DLT leaders' ratings of levels of effective practice at the end of the DLF trial: primary

Primary: PDST advisor ratings in columns, DLT leader ratings in rows	1: All below those suggested by the statements of effective practice	2: Mostly below those suggested by the statements of effective practice	3: Partly below and partly at those suggested by the statements of effective practice	4: Mostly at those suggested by the statements of effective practice	5: All at those suggested by the statements of effective practice	6: Partly at those suggested by the statements of highly effective practice	7: Mostly at those suggested by the statements of highly effective practice	8: All at those suggested by the statements of highly effective practice
1: All below those suggested by the statements of effective practice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2: Mostly below those suggested by the statements of effective practice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3: Partly below and partly at those suggested by the statements of effective practice	0.0	0.0	5.3	0.0	0.0	**5.3**	0.0	0.0
4: Mostly at those suggested by the statements of effective practice	0.0	0.0	**5.3**	5.3	**10.5**	**5.3**	0.0	0.0
5: All at those suggested by the statements of effective practice	0.0	0.0	0.0	**15.8**	0.0	**5.3**	0.0	0.0
6: Partly at those suggested by the statements of highly effective practice	0.0	0.0	0.0	0.0	**10.5**	0.0	0.0	0.0
7: Mostly at those suggested by the statements of highly effective practice	0.0	0.0	**5.3**	**10.5**	**10.5**	0.0	0.0	0.0
8: All at those suggested by the statements of highly effective practice	0.0	0.0	0.0	**5.3**	0.0	0.0	0.0	0.0

Grey diagonal: Exact/close agreement in ratings by DLT leaders and PDST advisors.
Figures underlined below the diagonal: DLT leader rating higher than PDST advisor rating.
Figures in bold above the diagonal: PDST advisor rating higher than DLT leader rating.

Figure 2.12. Comparison of DLT leaders' and PDST advisors' ratings of level of effective practice at Phase 2: primary and post-primary

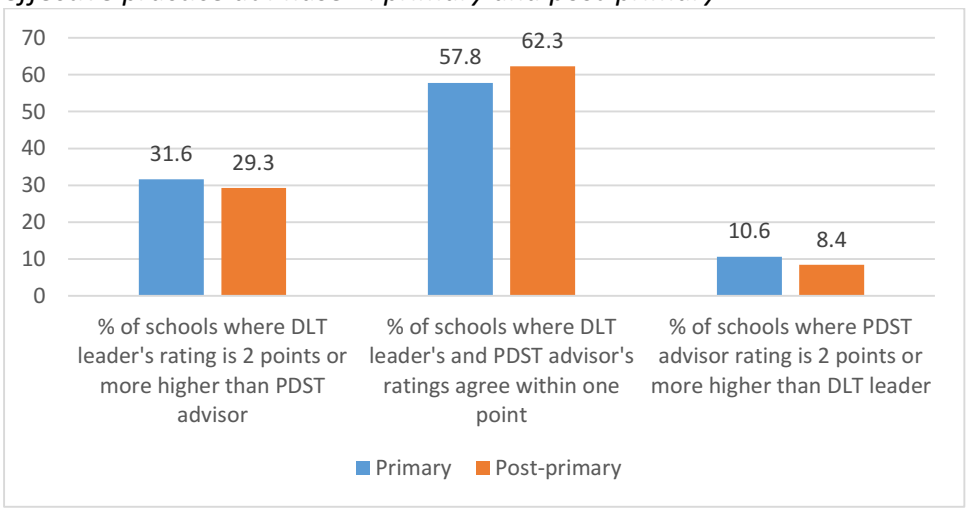


Table 2.17. Cross-tabulation of PDST advisors' and DLT leaders' ratings of levels of effective practice at the end of the DLF trial: post-primary

Post-primary: PDST advisor ratings in columns, DLT leader ratings in rows	1: All below those suggested by the statements of effective practice	2: Mostly below those suggested by the statements of effective practice	3: Partly below and partly at those suggested by the statements of effective practice	4: Mostly at those suggested by the statements of effective practice	5: All at those suggested by the statements of effective practice	6: Partly at those suggested by the statements of highly effective practice	7: Mostly at those suggested by the statements of highly effective practice	8: All at those suggested by the statements of highly effective practice
1: All below those suggested by the statements of effective practice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2: Mostly below those suggested by the statements of effective practice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3: Partly below and partly at those suggested by the statements of effective practice	**4.2**	0.0	8.3	**8.3**	**4.2**	0.0	0.0	0.0
4: Mostly at those suggested by the statements of effective practice	0.0	0.0	**8.3**	4.2	**8.3**	**4.2**	0.0	0.0
5: All at those suggested by the statements of effective practice	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0
6: Partly at those suggested by the statements of highly effective practice	0.0	0.0	0.0	**4.2**	**4.2**	8.3	0.0	0.0
7: Mostly at those suggested by the statements of highly effective practice	0.0	0.0	**4.2**	**4.2**	**8.3**	0.0	0.0	**4.2**
8: All at those suggested by the statements of highly effective practice	0.0	0.0	0.0	**4.2**	0.0	0.0	0.0	0.0

Grey diagonal: Exact/close agreement in ratings by DLT leaders and PDST advisors.
Figures underlined below the diagonal: DLT leader rating higher than PDST advisor rating.
Figures in bold above the diagonal: PDST advisor rating higher than DLT leader rating.

These results suggest that schools tend to rate the level of effective practice higher than PDST advisors. While both ratings are valid in that they are made on the basis of knowledge about the school's DT contexts and practices, and familiarity with the DLF document, the amount of variation in the ratings suggests that school staff and PDST advisors are using different criteria to assign these ratings.

The findings in Tables 2.16 and 2.17 are borne out by the fact that agreement between advisors and school staff in their responses to the question 'At what level of effective or highly effective practice did the school's programme aim to achieve in terms of its domain and standard(s)?' is low (Table 2.18).

Taken together, Tables 2.16-2.18 indicate inconsistencies in the understanding of the aims of the DLF trial and the interpretation and application of the standards in the DLF.

Table 2.18. DLT leaders' and PDST advisors' responses to the question: 'At what level of effective or highly effective practice did the school's programme aim to achieve in terms of its domain and standard(s)?' (primary and post-primary)

Primary: PDST advisor ratings in columns, DLT leader ratings in rows	1: Mostly at the level of effective practice suggested in the DLF	2: All at the level of effective practice suggested in the DLF	3: Mostly at the level of highly effective practice suggested in the DLF	4: All at the level of highly effective practice suggested in the DLF
1: Mostly at the level of effective practice suggested in the DLF	8.7	21.7	0.0	0.0
2: All at the level of effective practice suggested in the DLF	17.4	8.7	0.0	0.0
3: Mostly at the level of highly effective practice suggested in the DLF	8.7	26.1	0.0	4.3
4: All at the level of highly effective practice suggested in the DLF	4.3	0.0	0.0	0.0
Post-primary: PDST advisor ratings in columns, DLT leader ratings in rows	1: Mostly at the level of effective practice suggested in the DLF	2: All at the level of effective practice suggested in the DLF	3: Mostly at the level of highly effective practice suggested in the DLF	4: All at the level of highly effective practice suggested in the DLF
1: Mostly at the level of effective practice suggested in the DLF	0.0	15.8	5.3	0.0
2: All at the level of effective practice suggested in the DLF	10.5	26.3	0.0	0.0
3: Mostly at the level of highly effective practice suggested in the DLF	21.1	10.5	0.0	0.0
4: All at the level of highly effective practice suggested in the DLF	0.0	0.0	10.5	0.0

2.5.4. Changes in levels of effective practice across Phases 1 and 2

This section compares PDST advisors' ratings of effective practice at Phases 1 and 2. Figure 2.12 shows the number of points' increase on the 8-point scale across Phases 1 and 2 at primary and post-primary levels.

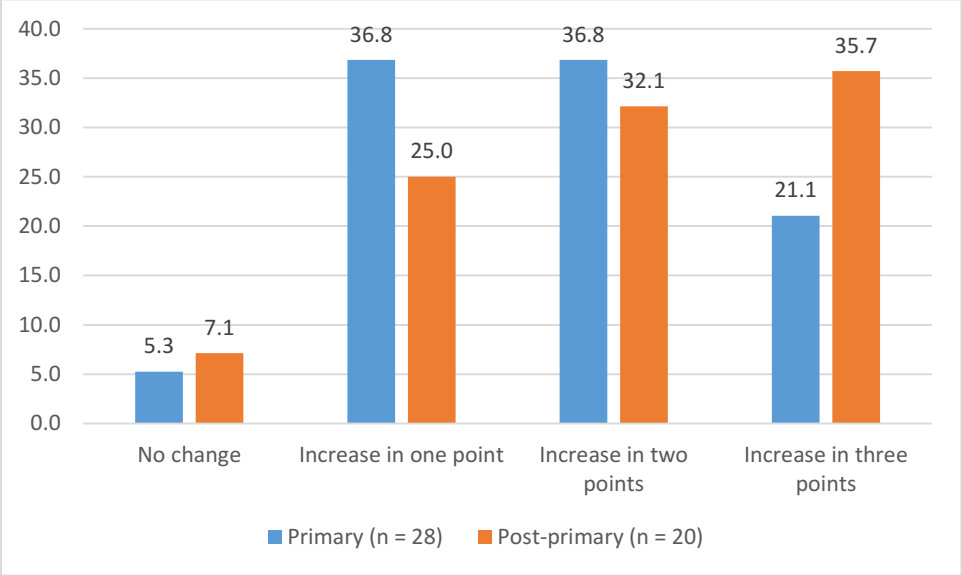
At primary level, 21% of schools increased by three points, 37% by two points, and 37% by one point. There was no change in the Phase 1 and Phase 2 levels of practice in two schools (7%). The average increase is 1.74 points.

At post-primary level, 21% of schools increased by three points, 37% by two points, and 37% by one point. There was no change in the Phase 1 and Phase 2 levels of practice in two schools (7%). On average, scores increased by 1.96 points.

At both primary and post-primary levels, these increases are statistically significant (p (t) primary = <.001; p (t) post-primary = .041). Note that the magnitude of the increase is unrelated to the initial level of effective practice: in other words, the increases between Phases 1 and 2 are about the same whether or not schools were starting at a lower or higher point on the Phase 1 level of practice (p (F) primary = .297; p (F) post-primary = .709).

There are no differences in the amount of improvement in levels of practice depending on whether the school was focused on a Teaching or Learning or Leadership and Management dimension (p (chi-square) primary = .287; p (chi-square) primary = .613).

Figure 2.12. Comparison of Phase 1 and Phase 2 level of practice ratings made by PDST advisors: primary and post-primary



Another way of looking at the data is by grouping Phase 1 and Phase 2 ratings into four groups and cross-tabulating these. The groups are:

- Mostly or all below levels of effective practice (points 1 and 2 on the index)
- Partly or mostly at levels of effective practice (points 3 and 4 on the index)
- All at levels of effective practice (point 5 on the index)
- Partly or all at levels of highly effective practices (points 6 to 8 on the index).

This information is shown in Table 2.19.

The table shows, at primary level:

- 39% changed from mostly or all below levels of effective practice to partly or mostly at levels of effective practice.

- 18% changed from mostly or all below levels of effective practice to all at levels of effective practice.
- 14% changed from partly or mostly at levels of effective practice to all at levels of effective practice.
- 7% changed from partly or mostly at levels of effective practice to partly or all at levels of highly effective practice.
- 22% remained within one of these broader categories across Phases 1 and 2 (i.e. 4% mostly or all below effective practice, 11% partly/mostly at effective practice, and 7% partly or all at highly effective practice.

At post-primary level, Table 2.19 indicates that:

- 26% changed from mostly or all below levels of effective practice to partly or mostly at levels of effective practice.
- 32% changed from partly or mostly at levels of effective practice to all at levels of effective practice.
- 16% changed from partly or mostly at levels of effective practice to partly or all at levels of highly effective practice.
- 26% remained within one of these broader categories across Phases 1 and 2 (i.e. 26% remained at partly/mostly at the level of effective practice).

Table 2.19. Cross-tabulation of Phase 1 and Phase 2 levels of practice scores (collapsed into four categories, PDST advisors' ratings): primary and post-primary

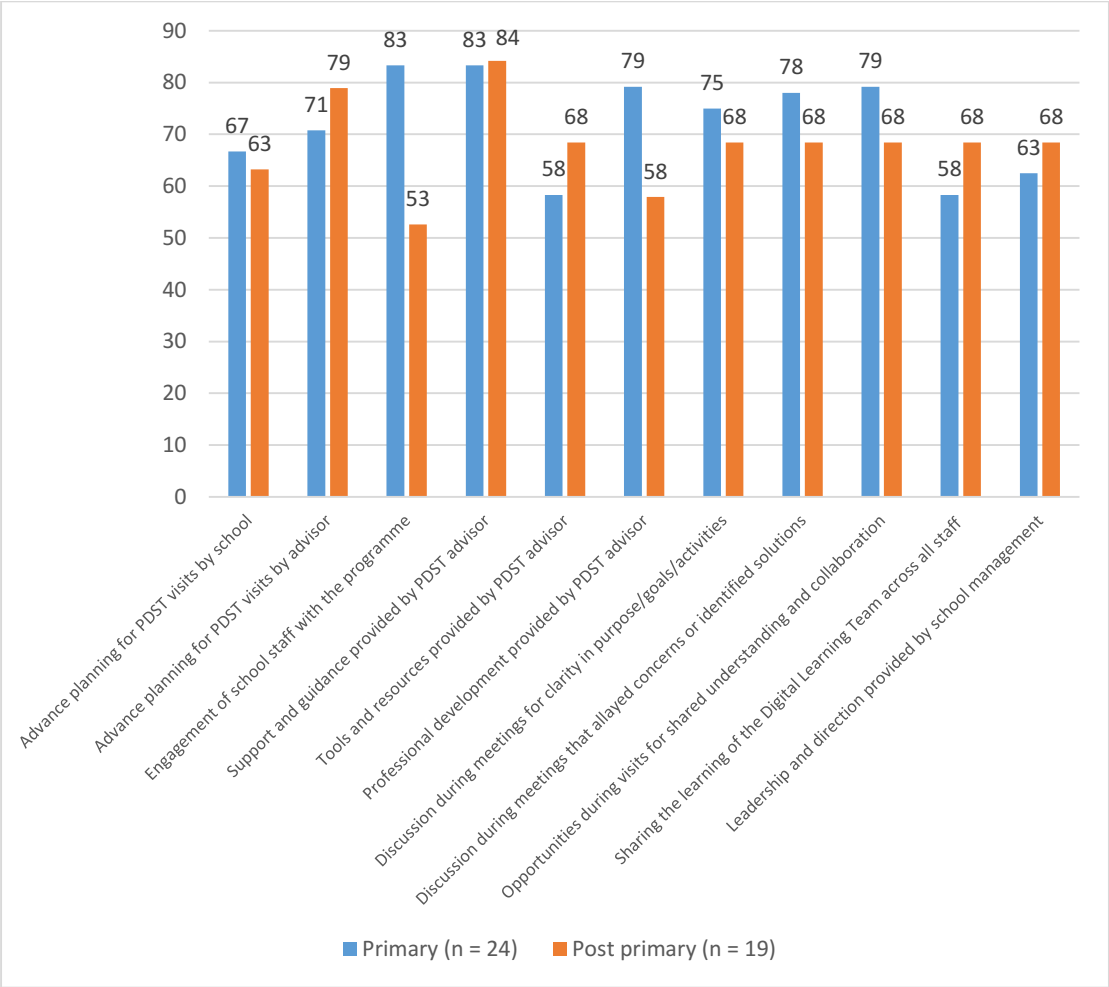
Primary: Phase 2 level in columns, Phase 1 level in rows	Mostly/all below effective practice	Partly/mostly at effective practice	All at effective practice	Partly or all at highly effective practice
Mostly/all below effective practice	3.6	39.3	17.9	0.0
Partly/mostly at effective practice	0.0	10.7	14.3	7.1
All at effective practice	0.0	0.0	0.0	0.0
Partly or all at highly effective practice	0.0	0.0	0.0	7.1
Post-primary: Phase 2 level in columns, Phase 1 level in rows	Mostly/all below effective practice	Partly/mostly at effective practice	All at effective practice	Partly or all at highly effective practice
Mostly/all below effective practice	0.0	26.3	0.0	0.0
Partly/mostly at effective practice	0.0	26.3	31.6	15.8
All at effective practice	0.0	0.0	0.0	0.0
Partly or all at highly effective practice	0.0	0.0	0.0	0.0

2.5.5. Successes

DLT leaders were asked how successful they felt the DLF trial had been in their school overall. At primary level, 75% of respondents indicated that it had been highly successful and 25% indicated that it had been moderately successful. At post-primary level, 74% reported that it had been highly successful, 21% moderately successful, and 5% partly successful. Hence, the perceived overall level of success of the programme was high at both primary and post-primary levels.

Respondents rated 11 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme. These aspects were developed on the basis of key themes emerging from the focus groups in Phase 1 (Cosgrove et al., 2018; Chapter 5). Figure 2.14 shows the percentages of respondents at primary and post-primary levels rating each of these aspects as 'essential for the success of the programme'.

Figure 2.14. Percentages of primary and post-primary respondents rating 11 aspects of DLF programme implementation as essential to its success



Across both primary and post-primary schools, a majority of respondents (58-84%) rated all items as essential. The results shown in Figure 2.14 indicate that from the perspectives of DLF leaders, a range of factors (PDST support; school planning and

leadership from school management; opportunity for discussion, collaboration and professional development; and engagement of school staff) need to be present in order for the DLF programme to be implemented successfully.

DLT leaders were also asked to describe in a text response what they felt contributed to the success of the programme in their school. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes is shown in Table 2.20.

At primary level, by far the most frequently mentioned aspect was PDST support in general (which featured in 77% of responses). About one quarter of responses (23%) also mentioned the willingness of staff to engage with the DLF programme. Other themes, including support from management, collaboration among staff, PDST-delivered CPD, and investment in infrastructure, were mentioned by 18% of respondents or less. Note that only 22 out of the 28 primary level respondents answered this question (i.e. responses are missing for 21% of primary schools).

At post-primary level, the most frequently mentioned aspect was again PDST support in general (mentioned in 68% of responses). Between 40% and 50% of responses mentioned support from management and willingness of staff to engage, while a quarter mentioned the commitment of the DL liaison teacher or DL team. Other themes, such as planning, collaboration among staff, PDST-delivered CPD, and investment in infrastructure were mentioned in 21% or less of post-primary responses.

Table 2.20. Coded themes from DLT leaders in response to the question 'Please describe the things that contributed to the success of the programme in your school': primary and post-primary

Aspect/Theme	*Primary (n = 22)*	*Post primary (n = 19)*
Support from management	9.1	47.4
Commitment of DL coordinator/ Team	18.2	26.3
Planning (both with PDST advisor and among staff)	13.6	21.1
Good initial level of DL among staff	13.6	0.0
Willingness of staff to engage	22.7	42.1
Collaboration among staff	4.5	21.1
Communication among staff	4.5	15.8
PDST support in general	77.3	68.4
PDST-delivered CPD	0.0	15.8
Investment in infrastructure	9.1	5.3

2.5.6. Challenges

Respondents were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their school. These items were developed from the key themes emerging from the Phase 1 focus group interviews (Cosgrove et

al., 2018; Chapter 5). Responses from primary and post-primary schools are shown in Table 2.21.

Table 2.21. DLT leaders' ratings of ten issues as significant, ongoing challenges in implementing the DLF framework/programme in their schools: primary and post-primary

Primary (n = 24)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	16.7	20.8	25.0	37.5
Staff level of competencies in managing and using digital technologies in teaching and learning	12.5	29.2	33.3	25.0
The overall timeline for the trial	25.0	12.5	33.3	29.2
Dedicated time for staff to attend PDST visit meetings	37.5	8.3	37.5	16.7
Dedicated time for staff to implement the steps involved in the programme	20.8	29.2	33.3	16.7
Digital technology infrastructure (e.g. number and quality of computing devices)	16.7	20.8	33.3	29.2
Broadband connectivity/Wi-Fi connectivity or reliability	20.8	20.8	25.0	33.3
Gathering evidence to support the work of the programme	4.2	25.0	45.8	25.0
Sharing the learning of the Digital Learning Team across all staff in the school	4.2	45.8	29.2	20.8
Providing overall leadership for the programme on the part of school management	12.5	33.3	33.3	20.8
Post primary (n = 19)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	21.1	31.6	36.8	10.5
Staff level of competencies in managing and using digital technologies in teaching and learning	21.1	52.6	26.3	0.0
The overall timeline for the trial	42.1	36.8	15.8	5.3
Dedicated time for staff to attend PDST visit meetings	36.8	31.6	21.1	10.5
Dedicated time for staff to implement the steps involved in the programme	36.8	36.8	26.3	0.0
Digital technology infrastructure (e.g. number and quality of computing devices)	15.8	47.4	15.8	21.1
Broadband connectivity/Wi-Fi connectivity or reliability	21.1	15.8	10.5	52.6
Gathering evidence to support the work of the programme	21.1	36.8	42.1	0.0
Sharing the learning of the Digital Learning Team across all staff in the school	15.8	21.1	26.3	36.8
Providing overall leadership for the programme on the part of school management	15.8	10.5	36.8	36.8

The four items with the most frequent rating of 'highly challenging' at primary level (21-38%) related to time and connectivity/reliability of Wi-Fi connection:

- Dedicated time for staff to attend PDST visit meetings
- The overall timeline for the trial
- Dedicated time for staff to implement the steps involved in the programme
- Broadband connectivity/Wi-Fi connectivity or reliability.

However, there is a large amount of variation across responses to the individual items, which indicates that the nature of challenges vary considerably depending on individual schools' contexts. For example, equal percentages of respondents indicated that sharing the learning of the Digital Learning Team across all staff in the school was highly/moderately challenging (50%) and somewhat/not at all challenging (50%).

At post-primary level, between 37% and 42% of respondents identified time as a major challenge, i.e. rated the following as highly challenging:

- The overall timeline for the trial
- Dedicated time for staff to attend PDST visit meetings
- Dedicated time for staff to implement the steps involved in the programme.

Again, similar to primary level, there is a large amount of variation across responses to individual items, suggesting that challenges experienced are highly context-dependent. For example, almost equal percentages of schools indicated that staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme was highly/moderately challenging (53%) and somewhat/not at all challenging (47%).

DLT leaders were also asked to describe in a text response what they felt were the challenges affecting the implementation of the DLF programme in their schools. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes are shown in Table 2.22.

At both primary (46%) and particularly post-primary levels (89.5%), the most frequently cited challenge related to time constraints. In close to 29% of primary schools, poor connectivity (14%) and lack of technical support (14%) were identified as challenges, while in primary, 26% of responses mentioned poor infrastructure but none mentioned lack of technical support. About one-fifth of responses (21%) mentioned culture and attitudes of school staff as being a challenge. The remaining themes (low confidence among staff, insufficient funding) were mentioned by 16% of respondents. Overall, DLT leaders' written comments on the challenges that they experienced confirm the findings in Table 2.21 and underline the importance of time and context in programme implementation. That about a quarter of schools cited poor infrastructure and/or lack of technical support should not be overlooked either.

Table 2.22. Coded themes from DLT leaders in response to the question 'Please describe the challenges that affected the implementation of the programme in your school': primary and post-primary

Aspect/Theme	*Primary (n = 28)*	*Post primary (n = 19)*
Time constraints (initiative overload, releasing teachers for meetings, sub cover)	46.4	89.5
Culture/ attitudes (resistance to change, negative attitude towards technology)	21.4	21.1
Low confidence of staff in using DT	10.7	15.8
Poor connectivity	21.4	10.5
Poor infrastructure	14.3	26.3
Lack of technical support	14.3	0.0
Insufficient funding	10.7	10.5

2.6. Key points from Chapter 2

Respondents

- All schools except one post-primary school returned a questionnaire.
- At primary level, 50% of the respondents were principals, 14% were deputy principals, 18% were ICT/DL liaison teachers, and 18% were class teachers. At post-primary level, 5% of respondents (one school) was a principal, 32% were deputy principals, 58% were ICT/DL liaison teachers, and 5% (one respondent) was a class teacher.
- It should be noted that Phase 1 respondents were school principals due to the fact that in a large majority of schools, a DLT had not been established. Comparisons of school-level survey responses across Phases 1 and 2 should be mindful of these differences in respondents.

Digital contexts of participating schools

- Respondents rated eight aspects of DT infrastructure and four aspects of DT engagement (of teachers and learners) on a scale ranging from Excellent to Poor. At primary level, a comparison of these responses with responses to the same items in Phase 1 indicates that there has been a significant improvement in both DT infrastructure and DT engagement. There are no significant differences between Phases 1 and 2 at post-primary level.
- This finding is challenging to interpret due to the fact that the school-level questionnaire was directed to principals during Phase 1, and to DLT leaders at Phase 2 (as noted above). Also, the ratings of DT infrastructure and DT engagement are subjective, and it is possible that, over the course of the trial, with increased understanding of how to use DT, respondents' appreciation of the effective use of DT improved. However, part of the improvements in these ratings at primary level can be directly attributed to efforts in a small number of schools to improve broadband connectivity and/or complete the purchase of new devices with the ICT infrastructure grant.

Views on the DLF document, Digital Learning Planning Guidelines and other resources

- At both primary and post-primary levels, relatively frequent use was made of the DLF document, DLPG and template: between 74% and 90% of respondents reported using these once a month or more often in the course of the DLF trial.
- Use of/reference to the exemplar videos on the PDST Technology in Education website was somewhat less frequent: about two-fifths of respondents Rarely or Never used them.
- At primary level, between 52% and 63% of respondents rated these four resources as Excellent or Very Good, while between 7% and 18.5% rated them as Fair or Poor.
- At post-primary level, between 53% and 74% of respondents rated them as Excellent or Very Good, while between 5% and 16% rated them as Fair or Poor.
- Respondents were asked about overall length and layout, language and terminology, content and wording of the DLF domain on which the school was focused, content/wording of the statements of practice for the DLF domain on which the school was focused, and the fit of the DLF within the school's broader planning and development work.
- Broadly speaking, views on these specific aspects of the DLF document were quite positive. At primary level, percentages of Excellent or Very good ratings were 50% for length and layout; 37.5% rated language and terminology; 42% for the content and wording of the domain and standards, and 42% for the wording of the statements of practice for the standards that the school was focusing on the trial; and 33% for the fit of the document with the school's broader development and improvement planning. Percentages of Fair/Poor ratings ranged from 17% to 25%.
- At post-primary level, percentages of Excellent or Very good ratings were 63% for length and layout; 53% rated language and terminology; 58% for the content and wording of the domain and standards, and 58% for the wording of the statements of practice for the standards that the school was focusing on the trial; and 68% for the fit of the document with the school's broader development and improvement planning. Percentages of Fair/Poor ratings ranged from 0% to 10.5%.
- Ratings of the specific aspects of the DLF document at post-primary level were somewhat more positive than at primary level but these differences are not statistically significant; nor did ratings differ significantly depending on whether the school was focusing on a domain in the Teaching and Learning or Leadership and Management dimensions.
- Ten primary school respondents and six post-primary school respondents provided comments on their ratings. At primary level, commentary was negative in six of these comments (in terms of the length, layout and terminology), neutral in two, and positive in two. In contrast, three of the six comments at post-primary level were positive, two were neutral, and one was negative (again, with reference to the terminology used).

- Ratings (from Excellent to Poor) on various aspects of the Digital Learning Planning Guidelines (DLPG) were provided by 82% of primary respondents and 84% of post-primary respondents. Respondents were asked about overall length and layout, language and terminology, and usefulness. They were also asked to rate each section of the Guidelines.
- At post-primary level, a majority of the aspects of the DLPG were rated Excellent/Very good by 60% or more of respondents, and ratings of Fair/Poor were uncommon (7% or less).
- At primary level, a majority of the aspects of the DLPG were rated as Excellent/Very good by about half of respondents. However, the Introduction section was viewed as Excellent/Very good by only 32% of respondents. Also, the overall length/layout, language/terminology and usefulness were rated as Fair/Poor by 17-21% of respondents at primary level.
- Differences in ratings of the DLPG across primary and post-primary levels are not statistically significant; nor did ratings vary significantly across 'Teaching and Learning' and 'Leadership and Management' schools.

Distribution of domains and standards across participating schools

- For the DLF trial, schools focused on one of the eight DLF domains to develop a programme/plan in their school with the support of the PDST advisors.
- At primary level, 61% of schools were focused on a Teaching and Learning domain (most commonly Learner Experiences) and 39% were focused on a Leadership and Management domain (more commonly Leading Learning and Teaching, or Leading School Development). At post-primary level, 65% of schools were focused on a Teaching and Learning domain (most commonly Teachers' Collective/Collaborative Practice) and 35% were focused on a Leadership and Management domain (most commonly Managing the Organisation).
- Within their chosen or assigned domain, schools focused on one or two of the four standards associated with it. It was much more common for schools to focus on certain standards, with the result that three of the 16 Teaching and Learning standards, and seven of the 16 Leadership and Management standards, were not the focus of any school's DLF trial programme at either primary or post-primary levels.
- Therefore, due to uneven coverage at the domain and standard levels, results should not be used to draw conclusions about individual domains or standards.

Implementation of the DLF programme

- On average, primary level DLT leaders reported spending 29 hours working on the DLF trial in their school, and post-primary DLT leaders reported spending an average of 27 hours.
- There is a lot of variation in amount of time spent working on the DLF trial. At primary level, 16% of respondents spent 16 hours or less on the programme, while 37% spent 33 hours or more. The corresponding percentages at post-primary level are 30% and 52%.
- In a majority of participating schools (71% at primary level and 68% at post-primary level) the DLF trial programme formed part of a one-year or multi-

year plan. In 29% of schools at primary level and 32% of schools at post-primary level, the DLF trial programme was at or nearing completion.

- Respondents were asked about the nature of the DLF trial programme in their school, in terms of (i) its focus on pupil-/student-level skills/competencies and (ii) on elements of the programme that related to teachers, management and infrastructure.
- At primary level, the focus of the DLF programmes were primarily on pupil's digital literacy, collaborative and team work, literacy skills, and critical thinking and analysis. There was also a high focus at primary level on teachers' digital literacy in general; development of teachers' skills in using specific apps or software; teachers' collaborative and team work; and use of digital technologies for assessment.
- At post-primary level, the kinds of focus of schools' DLF programmes were quite similar to those at primary level. Programmes tended to focus on students' digital literacy, collaborative and team work, and critical thinking and analysis. Again similar to primary level, there was also a high level of focus on teachers' digital literacy in general; teachers' collaborative and team work; and making improvements to the sharing of teaching documents and resources (cloud- or server-based).
- There were very few significant differences in terms of level of focus of various aspects of the schools' DLF programmes across 'Teaching and Learning' and 'Leadership and Management' schools. This suggests that, regardless of the dimension that the schools were working on during the DLF trial, they were engaging in activities across a broad range of elements (ranging from teachers' DT competence, collaborative work, and use of specific apps/software; to students'/pupils' DT literacy, collaboration and critical thinking and analysis), with a particularly high level of focus on the work of teachers.
- At primary level, DLF leaders reported that about 45% of teaching staff were highly involved, 39% were somewhat involved, and 16.5% were not involved in the trial. At post-primary level, about one-fifth of teaching staff were highly involved, 48% somewhat involved, and 33% not involved. Level of involvement of teachers was related to the schools' enrolment size at both primary and post-primary levels: the larger the school, the less likely it was for a majority of teachers to be highly involved in the DLF trial.
- Levels of engagement with schools' DLF programmes by ICT/DL liaison teachers, class teachers, PDST advisors and students/pupils was reported as being medium to high at both primary and post-primary levels. For example at primary level, the engagement of teachers was described as high by 68% of respondents and the engagement of pupils was described as high by 56% of respondents (with a further 24% of these groups being rated as having medium engagement). At post-primary level, the engagement of teachers was described as medium to high by 89.5% of respondents and the engagement of students was described as medium to high by 63% of respondents.
- A large majority of participating schools (88% at primary level and 89% at post-primary level) reported that the DLF complemented existing SSE

activities in the area of teaching and learning. Comments on using the DLF as part of SSE activities were made by 15 of the respondents, and 11 of these were positive in tone (the remainder were neutral or descriptive).

Changes in teaching, learning, management and infrastructure

- Respondents were asked to rate a range of ten teaching, learning, management and infrastructural items in terms of the level of change that they had observed over the course of the DLF trial (on a scale ranging from Significant change to No change).
- At primary level, 64-75% of respondents reported significant or moderate changes in teaching and learning activities during class time, collaborative practices among teachers, and pupils' interest and engagement in learning activities. In contrast, only 25% of respondents indicated that there had been a significant or moderate change in pupils' learning or homework activities.
- At post-primary level, 74-95% of respondents reported significant or moderate changes in emphasis on use of digital technologies in school policies or guidelines, collaborative practices among teachers, teaching and learning activities during class time, students' interest and engagement in learning activities, decisions relating to enhancing digital technology infrastructure, sharing of documents or resources among teachers, and decisions relating to enhancing broadband connectivity/wifi connectivity or reliability.
- Levels of change in these ten areas did not differ significantly across 'Teaching and Learning' and 'Leadership and Management' schools. This finding indicates that, regardless of the dimension that schools focused on during the DLF trial, changes occurred across a range of areas.
- DLT leaders were also asked to describe the three most significant changes that they had observed. These were coded into 14 themes. Across both primary and post-primary levels, the most frequently mentioned changes related to more focused planning, whole-school engagement with DT, improved staff awareness of DT, improved teachers' competency with DT, and greater integration of DT into teaching practice.

Changes in levels of practice between Phases 1 and 2

- PDST advisors were asked to rate schools' level of practice in terms of the standards suggested by the statements of effective/highly effective practice of the domain and standard(s) that the school was focusing on for the DLF trial. This rating was made at both baseline (November-December 2017) and towards the end of the trial (April-May 2018) on an eight-point scale:
    - 1: all below statements of effective practice
    - 2: mostly below statements of effective practice
    - 3: partly below/partly at statements of effective practice
    - 4: mostly at statements of effective practice
    - 5: all at statements of effective practice
    - 6: partly at statements of highly effective practice
    - 7: mostly at statements of highly effective practice
    - 8: all at statements of highly effective practice.

- At Phase 1, over 90% of schools at both primary and post-primary levels received a rating of 3 or lower on this index, i.e. almost all schools were rated as partly, mostly, or all below levels of effective practice.
- Over the course of the trial, the effective practice index score increased by an average of 1.96 points at primary level and an average of 1.74 points at post-primary level. These increases are statistically significant.
- At primary level, the index score of 25% of schools increased by one point, 32% increase by two points, and 36% increased by three points. No change was observed in two schools (7%).
- At post-primary level, the index score of 37% of schools increased by one point, 37% increase by two points, and 21% increased by three points. No change was observed in one school (5%).
- The increase in the level of practice score was similar in both dimensions, i.e. there was no significant difference in the change in scores across 'Teaching and Learning' and 'Leadership and Management' schools. Improvements in level of practice were unrelated to levels of DT infrastructure reported at Phase 1 or to the initial level of practice recorded by PDST advisors at Phase 1.

Comparisons of ratings of effective practice by DLT leaders and PDST advisors

- DLT leaders also provided an index score of level of practice for Phase 2, and their scores were compared to those provided by PDST advisors. At both primary and post-primary levels, the ratings of DLT leaders tended to be higher than those of PDST advisors, and there was variation in the magnitude of the difference between schools' and advisors' ratings (ranging from -3 to +4 points).
- While both ratings are valid in that they are made on the basis of knowledge about the school's DT contexts and practices, and familiarity with the DLF document, the amount of variation in the ratings suggests that school staff and PDST advisors are using different criteria to assign these ratings.

Successes of the DLF trial

- The perceived overall level of success of the trial was high, according to DLT leaders. At primary level, 75% of respondents indicated that it had been highly successful and 25% indicated that it had been moderately successful. At post-primary level, 74% reported that it had been highly successful, 21% moderately successful, and 5% partly successful.
- Respondents rated 11 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme. (These 11 aspects were developed from Phase 1 focus group data.)
- Across both primary and post-primary schools, a majority of respondents (58-84%) rated all items as essential. The results show that a range of conditions and supports (PDST support; school planning and leadership from school management; opportunity for discussion, collaboration and professional development; and engagement of school staff) are required in order for the DLF programme to be implemented successfully.

- DLT leaders were also asked to describe in a text response what they felt contributed to the success of the programme in their school. The text responses were coded into themes. At primary level, by far the most frequently mentioned aspect was PDST support in general (which featured in 77% of responses). About one quarter of responses (23%) also mentioned the willingness of staff to engage with the DLF programme.
- At post-primary level, the most frequently mentioned aspect was again PDST support in general (which featured in 68% of responses). Between 40% and 50% of responses mentioned support from management and willingness of staff to engage.
- The finding that support from the PDST in general emerged as a very strong theme at both primary and post-primary levels indicates that schools viewed the tailored and sustained support of PDST advisors as critical to the success of the DLF programme.

Challenges associated with the DLF trial

- Respondents were asked to rate how challenging a range of 10 issues (developed from Phase 1 focus group data) were in implementing the DLF trial programme in their school.
- The four items with the most frequent rating of 'highly challenging' at primary level (21-38%) related to time and connectivity/reliability of wifi connection, while between 37% and 42% of post-primary respondents identified time as a major challenge.
- There was considerable variability in what DLT leaders regarded as challenging. For example, equal percentages of primary school respondents indicated that sharing the learning of the Digital Learning Team across all staff in the school was highly/moderately challenging (50%) and somewhat/not at all challenging (50%), and almost equal percentages of post-primary schools indicated that staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme was highly/moderately challenging (53%) and somewhat/not at all challenging (47%).
- This suggests that, other than the overarching challenge of time, other challenges experienced are highly context-specific.
- DLT leaders were also asked to describe in a text response what they felt were the challenges affecting the implementation of the DLF programme in their schools. The text responses were coded into themes.
- At both primary (46%) and particularly post-primary levels (89.5%), the most frequently cited challenge related to time constraints. In close to 29% of primary schools, poor connectivity (14%) and lack of technical support (14%) were identified as challenges, while in post-primary, 26% of responses mentioned poor infrastructure but none mentioned lack of technical support.
- DLT leaders' written comments on the challenges that they experienced underline the importance of time and context in programme implementation. That about a quarter of schools cited poor infrastructure and/or lack of technical support should not be overlooked.

Chapter 3
Findings from the Phase 2 teacher questionnaire

This chapter describes the findings from the Phase 2 teacher questionnaire. Results are in seven sections, including comparisons, where relevant, with Phase 1 teacher results (Cosgrove et al., 2018, Chapter 3), the 2013 ICT Census (Cosgrove et al., 2014a, b), and Digital Learning Team leaders' responses at Phase 2 of the DLF trial (described in Chapter 2):

- Description of respondents
- Digital contexts of teachers
- Digital teaching and learning practices
- Teachers' views on the DLF document, Digital Learning Planning Guidelines, and other resources
- Teachers' activities for the DLF trial
- Changes, challenges and successes reported by teachers
- Teachers' views on supports and training for the DLF programme.

Results are weighted by a teacher weight that is based on the average number of teachers involved in the DLF trial in each school, so that each school is represented equally in the calculation of descriptive statistics (frequencies and means)[20]. This mirrors the approach taken in reporting the DLT leaders' responses in Chapter 2 (i.e. each school is of equal importance, regardless of enrolment size). Results are *not* generalizable to the population of primary and post-primary schools/teachers in the country.

As noted in Chapter 1, teacher response rates were lower for Phase 2 (45%) than they were for Phase 1 (79%). The same protocols were followed in Phase 2 as they were in Phase 1 in distributing the teacher survey and issuing reminders by email and phone, but the time of data collection for Phase 2 (April-May) could have mitigated against high response rates. Furthermore, it was not possible to reliably match individual teachers' responses across Phases 1 and 2. Therefore, to compare change across phases, school average teacher responses for a limited number of measures only are reported.

3.1. Description of respondents

At primary level, 245 teachers were selected to take part (i.e. were identified by their school principals in Phase 1 as being involved in the DLF trial), and at post-primary level, 145 teachers were involved in the DLF trial.

Phase 1 response rates: The response rates at primary and post-primary levels, respectively, were 77.6% (n = 190) and 81.4% (n = 145).

[20] This weight is computed (at the school level) by dividing the average number of teachers selected per school by the number of responding teachers in each school. The denominator at primary level (average number of teachers selected per school) is 4.74, and it is 3.58 in post-primary schools.

Phase 2 response rates: The response rates were lower in Phase 2 than in Phase 1. Response rates at primary and post-primary levels, respectively, 44.5% (n = 109) and 46.9% (n = 68). Five of the 28 primary schools did not return any teacher questionnaires, while one of the 20 post-primary schools did not return any teacher questionnaires.

The Phase 2 questionnaires did not include any questions on the year/class levels/subjects taught[21]. At Phase 2, teachers were asked whether or not they were a member of the school's Digital Learning Team. A large majority of post-primary teachers (97.5%, or all but two teachers) indicated that they were on the DLT in their school, while 62.7% of teachers at primary level were on the school's DLT. This implies that teachers who were more directly involved in the DLF trial in schools were more likely to return a teacher questionnaire, particularly at post-primary level.

We advise caution in interpreting the teacher results for three reasons.

First, as noted, response rates were considerably lower in Phase 2 than in Phase 1; also, at primary level, five of the 28 participating schools did not return any teacher questionnaires.

Second, a majority of respondents were on the schools' DLTs, so the results are unlikely to represent a whole-school picture, particularly at post-primary level, where almost all teachers were on the schools' DLTs.

Third, it was not possible to match individual teacher results across Phases 1 and 2, so any cross-phase comparisons are made at the level of the school rather than at the level of the teacher and should be interpreted with respect to differences in teacher response rates across phases.

3.2. Digital contexts of teachers

Teachers rated 12 aspects of digital technology infrastructure and usage relating to their schools and/or themselves on a 5-point scale ranging from Excellent to Poor. Table 3.1 shows their ratings at primary and post-primary levels (with responses combined to form three categories: Excellent/Very good, Good, and Fair/Poor). This question corresponds to that shown in Table 2.2 (Chapter 2) in the principal questionnaire.

At primary level, four items were rated Excellent/Very good by over 50% of respondents:

- Availability of digital devices such as whiteboards, digital projectors
- Number of computing devices (desktops, laptops, tablets)
- Broadband connection/speed

[21] This is because it had been hoped to match teacher responses at the individual level across Phases 1 and 2, which turned out not to be possible due to differences in the assignment of teacher IDs across phases.

- My pupils' (students') overall engagement with digital technologies as part of teaching and learning.

Three further items also received positive ratings, generally speaking (i.e. 81-88% Excellent/Very Good/Good):

- Age and condition of computing devices (desktops, laptops, tablets)
- My pupils' (students') overall level of knowledge and skills in using digital technologies for learning
- My own overall level of use of digital technologies for teaching and learning.

The four items with the most variation at primary level (suggesting that these are more dependent on the context of individual schools) were:

- Technical support and maintenance
- Availability of suitable software for teaching and learning
- Awareness of suitable software for teaching and learning
- My own overall level of knowledge and skills in using digital technologies for teaching and learning.

Availability of digital tools such as data sensors, cameras, assistive devices, robotic toys (e.g. BeeBots) received the lowest rating among primary school teachers (with 53% rating this item as Fair/poor).

At post-primary level, six of these items were rated as Excellent/Very good by over 50% of respondents:

- Broadband connection/speed
- Availability of digital devices such as whiteboards, digital projectors
- Technical support and maintenance
- My own overall level of use of digital technologies for teaching and learning
- My own overall level of knowledge and skills in using digital technologies for teaching and learning
- Number of computing devices (desktops, laptops, tablets).

There was considerable variation in the responses of teachers at post-primary level on a further five items (indicating that these aspects differ depending on the context of the school):

- Awareness of suitable software for teaching and learning
- Age and condition of computing devices (desktops, laptops, tablets)
- Availability of suitable software for teaching and learning
- My students' overall level of knowledge and skills in using digital technologies for learning
- My students' overall engagement with digital technologies as part of teaching and learning.

Availability of digital tools such as data sensors, etc. received the lowest rating among post-primary teachers (78% rated this item as Fair/Poor).

Table 3.1. Percentages of teachers rating 12 aspects of digital technologies in the school as excellent/very good, good, and fair/poor: primary and post-primary

Item	Primary (N=107)			Post-primary (N=68)		
	% Excellent or Very good	*% Good*	*% Fair or Poor*	*% Excellent or Very good*	*% Good*	*% Fair or Poor*
Number of computing devices (desktops, laptops, tablets)	62.2	22.7	15.1	54.9	27.7	17.5
Age and condition of computing devices (desktops, laptops, tablets)	47.3	41.6	11.1	36.3	32.1	31.6
Availability of digital devices such as whiteboards, digital projectors	72.5	17.8	9.7	60.7	26.4	12.9
Availability of digital tools such as data sensors, cameras, assistive devices, robotic toys (e.g. BeeBots)	17.7	29.5	52.8	9.9	11.8	78.3
Awareness of suitable software for teaching and learning	46.4	29.6	24.0	39.4	39.6	20.9
Availability of suitable software for teaching and learning	40.2	32.4	27.4	32.2	38.1	29.7
Broadband connection/speed	59.1	24.0	16.9	61.8	18.1	20.2
Technical support and maintenance	36.5	34.3	29.2	55.5	25.7	18.7
My own overall level of knowledge and skills in using digital technologies for teaching and learning	35.4	43.9	20.7	53.9	40.0	6.0
My own overall level of use of digital technologies for teaching and learning	43.6	37.4	19.0	54.6	38.0	7.4
My pupils' (students') overall level of knowledge and skills in using digital technologies for learning	44.5	41.7	13.8	30.8	50.7	18.5
My pupils' (students') overall engagement with digital technologies as part of teaching and learning	53.8	31.0	15.2	30.4	45.9	23.7

Broad comparisons may be made between the responses of teachers in Table 3.1 and those of DLT leaders (Chapter 2, Table 2.2). Generally speaking, responses of teachers and DLT leaders at primary level were similar to one another.

At post-primary level, teachers gave less positive ratings to age and condition of computing devices (e.g., 32% of post-primary teachers compared to 11% of DLT leaders rated this item as Fair/Poor). Also, DLT leaders at post-primary level gave less positive ratings than teachers responding to the teacher questionnaire on three items (availability of digital tools such as data sensors, etc.; awareness of suitable software; and teachers' overall use of DTs). Reasons for these differences are unclear, but may be related to differences in the roles of DLT leaders and teachers in the DLF trial.

Similar to the responses of DLT leaders (Chapter 2, Tables 2.2 and 2.3), the teachers' responses to the first eight items in Table 3.1 were combined to form an overall scale

measuring digital technology (DT) infrastructure, and responses to the last four items shown in Table 3.1 were combined to form an overall scale of DT engagement[22].

The Pearson correlation between these two measures is moderate to strong, positive and significant at both primary ($r = .478$, $p < .001$) and post-primary levels ($r = .462$, $p < 001$). This indicates that levels of DT infrastructure and DT engagement are positively related to one another from the perspectives of teachers at both primary and post-primary levels.

These scale scores were aggregated (averaged) to the school level for both Phases 1 and 2. A comparison of these scale means across phases (Table 3.2) shows that there has been a significant perceived improvement in infrastructure at both primary and post-primary levels between Phases 1 and 2.

Although levels of DT engagement both increased across Phases 1 and 2, this difference is not statistically significant at post-primary level. Note that this pattern of results at post-primary level could be associated with differences in the respondent groups across phases and results for both primary and post-primary schools should be interpreted with caution (as noted in Section 3.1).

Table 3.2. Mean DT infrastructure and DT engagement scores at Phases 1 and 2 with significance tests for differences in means at primary and post-primary levels

Level	Scale	Mean Phase 1	Mean Phase 2	t	df	p
Primary (n = 23)	*DT infrastructure*	6.43	9.76	4.814	22	<.001
	DT engagement	3.20	5.00	5.099	22	<.001
Post Primary (n = 19)	*DT infrastructure*	7.06	9.21	2.808	18	.012
	DT engagement	4.34	5.10	1.438	18	.168

Comparisons of the ratings on individual items across Phases 1 and 2 shown in Table 3.2 should be interpreted with caution. First, these items measure *perceptions* rather than being based on objective measures. Second, as noted in Section 3.1 and Chapter 1 (Section 1.4), response rates of teachers were considerably lower in Phase 2 than in Phase 1.

[22] The scales are computed by giving a weight of 2 to 'Excellent/Very Good', a weight of 1 to 'Good' and a weight of 0 to 'Fair/Poor'. The DT infrastructure scale ranges from 0-16 and the DT engagement scale ranges from 0-8. Reliabilities (Cronbach's alpha) for the DT infrastructure scale are .744 (primary) and .854 (post-primary), and they are .889 (primary) and .867 (post-primary) for the DT engagement scale.

3.3. Digital teaching and learning practices

3.3.1. Teachers' usage of digital technologies in teaching and learning activities

Teachers were asked to rate the frequency with which they asked their pupils/students to use digital technologies in a range of 16 teaching and learning activities on a scale ranging from Never to Usually/Always. Their responses are shown in Tables 3.3 (primary) and 3.4 (post-primary). Items are ranked from high to low on mean frequency (i.e. the most frequent activities appear first in the tables).

The six most frequent activities reported by primary teachers, with around two-thirds or more having their pupils do these sometimes, usually or always, were:

- Find information on the Internet (teacher-directed)
- Carry out research on the Internet (pupil/student-led)
- Reinforce and practise routine skills and procedures
- Publish and present work online
- Create presentations using a range of media (e.g., podcast, video)
- Give feedback to peers or assess other pupils'/students' work.

In contrast, around 60% or more of primary teachers never had their pupils do the following:

- Work with pupils/students or adults from outside class (e.g., students from other schools or adult mentors)
- Use data-logging tools (e.g. in science for weather, environment)
- Submit homework
- Work with spreadsheets and databases
- Use simulations or abstractions to explore a system or abstract concept
- Use social networks for school-related learning activities
- Collaborate with peers from class through email, videoconferencing, or online forums
- Create simulations or abstractions to explore a system or abstract concept.

These results indicate that at primary level, DTs are mainly used by pupils to find information, practise routine procedures, and, to a slightly lesser extent, analyse information and create knowledge, and work collaboratively with other pupils in the school. They were less likely to use DTs to work with data/spreadsheets, use social networks, collaborate with others from outside of the school, create or use simulations, or submit homework.

Table 3.3. Frequency with which teachers report that their pupils use digital technologies for various purposes, primary (N = 107)

Activity	*% Never*	*% Sometimes*	*% Usually/ Always*	*Rank of frequency (most frequent = 1)*
Find information on the Internet (teacher-directed)	4.3	29.4	66.3	1
Carry out research on the Internet (pupil/student-led)	10.9	44.6	44.4	2
Reinforce and practise routine skills and procedures	4.2	55.2	40.6	3
Publish and present work online	27.5	43.4	29.0	4
Create presentations using a range of media (e.g., podcast, video)	25.9	48.9	25.2	5
Give feedback to peers or assess other pupils'/students' work	33.5	44.7	21.8	6
Use e-books	31.4	50.3	18.3	7
Analyse data or information	43.2	47.7	9.0	8
Work with pupils/students or adults from outside class (e.g., students from other schools or adult mentors)	63.2	22.7	14.1	9
Use data-logging tools (e.g. in science for weather, environment)	58.4	33.5	8.1	10
Submit homework	65.3	27.4	7.3	11
Work with spreadsheets and databases	65.4	27.1	7.5	12
Use simulations or abstractions to explore a system or abstract concept	69.0	23.3	7.7	13
Use social networks for school-related learning activities	70.0	22	8	14
Collaborate with peers from class through email, videoconferencing, or online forums	74.1	16.9	9	15
Create simulations or abstractions to explore a system or abstract concept	72.1	21.5	6.4	16

At post-primary level, around 80% or more of teachers sometimes, usually or always had their students do the following:

- Find information on the Internet (teacher-directed)
- Carry out research on the Internet (pupil/student-led)
- Reinforce and practise routine skills and procedures
- Create presentations using a range of media (e.g., podcast, video)
- Collaborate with peers from class through email, videoconferencing, or online forums
- Publish and present work online
- Submit homework
- Analyse data or information.

In contrast, 50% or more of post-primary teachers never had their students do the following:

- Use simulations or abstractions to explore a system or abstract concept
- Create simulations or abstractions to explore a system or abstract concept
- Use data-logging tools (e.g. in science for weather, environment)
- Work with pupils/students or adults from outside class (e.g., students from other schools or adult mentors).

These results indicate that at post-primary level, DTs are used by students mainly to find information, practise routine procedures, and, to a slightly lesser extent, analyse information and create knowledge, work collaboratively, and submit homework. Students were less likely to use DTs to work with others outside of the school, use data logging tools, or to use or create simulations.

Table 3.4. Frequency with which teachers report that their students use digital technologies for various purposes, post-primary (N = 67)

Activity	*% Never*	*% Sometimes*	*% Usually/ Always*	*Rank of frequency (most frequent = 1)*
Find information on the Internet (teacher-directed)	2.7	24.7	72.6	1
Carry out research on the Internet (pupil/student-led)	6.8	26.6	66.6	2
Reinforce and practise routine skills and procedures	7.3	49.1	43.5	3
Create presentations using a range of media (e.g., podcast, video)	11.2	45.4	43.4	4
Collaborate with peers from class through email, videoconferencing, or online forums	18.1	43.9	37.9	5
Publish and present work online	20.5	49.3	30.2	6
Submit homework	21.9	46.7	31.4	7
Analyse data or information	15.2	67.9	16.9	8
Use social networks for school-related learning activities	37.4	35.0	27.6	9
Use e-books	37.4	44.1	18.6	10
Work with spreadsheets and databases	39.7	47.5	12.7	11
Give feedback to peers or assess other pupils'/students' work	43.1	44.1	12.8	12
Use simulations or abstractions to explore a system or abstract concept	55.3	29.4	15.4	13
Create simulations or abstractions to explore a system or abstract concept	70.5	16.8	12.7	14
Use data-logging tools (e.g. in science for weather, environment)	61.9	36.3	1.8	15
Work with pupils/students or adults from outside class (e.g., students from other schools or adult mentors)	74.8	19.4	5.7	16

3.3.2. Comparisons of teachers' reports with the 2013 ICT Census of Schools

The questions shown in Tables 3.3 and 3.4 were included in the 2013 ICT Census of Schools (Cosgrove et al., 2014b, p. 153).

In this section, we compare the percentages of teachers in the 2013 Census with those in Phase 2 of the DLF trial who indicated that they sometimes, usually or always did each of these 16 activities with their pupils. These are necessarily broad comparisons, designed to give a general indication as to whether or not there are differences in the pattern of activities between those observed in the 2013 Census and schools taking part in the DLF trial. It should be noted that the Census was targeted at teachers in general, whereas schools (and hence teachers) nominated themselves to take part in the trial.

Primary teachers in the DLF trial reported higher frequencies on all but one of the 16 activities than teachers in the 2013 Census (Figure 3.1).

In particular, very large differences (of around 40-45%) are associated with three of these items:

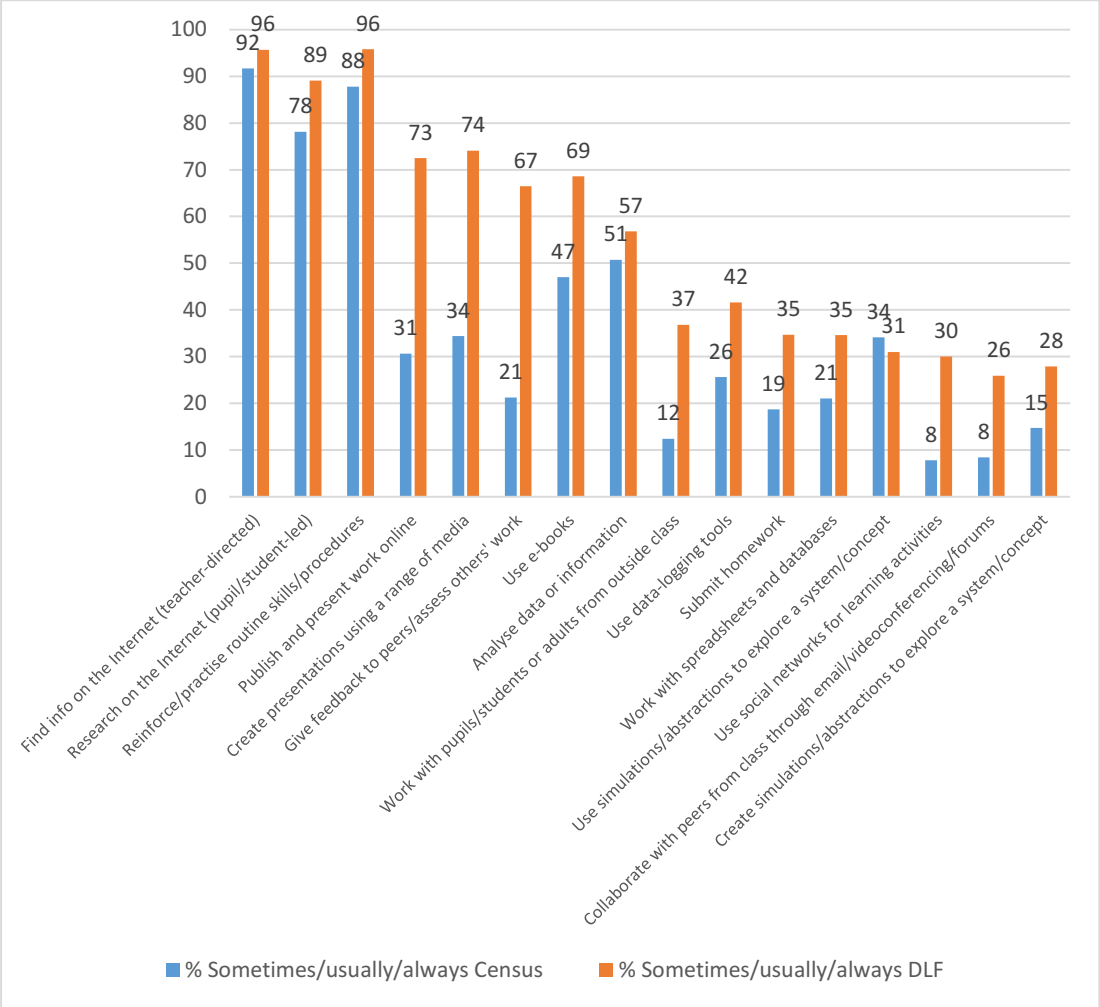
- Give feedback to peers/assess others' work (21% reported doing this in the 2013 Census, compared with 67% in the DLF trial)
- Publish and present work online (31% in the Census, 73% in the DLF trial)
- Create presentations using a range of media (34% in the Census, 74% in the DLF trial).

In addition, large increases (of around 20-25%) were found for a further three items:

- Work with pupils/students or adults from outside class (12% in the Census, 37% in the DLF trial)
- Use social networks for learning activities (8% in the Census, 30% in the DLF trial)
- Use e-books (47% in the Census, 69% in the DLF trial).

At primary level, teachers who took part in the DLF trial reported that they had their pupils use DTs to give peer-to-peer feedback, to collaborate, and to analyse and create information, substantially more frequently than those in the 2013 Census. This is a positive finding, though it should be interpreted with respect to differences in the samples of the two studies. Furthermore, self-reporting occurred in Phase 2 after an intense period of support from a PDST advisor and the schools' engagement with the DLF framework.

Figure 3.1. Frequency with which primary teachers reported that they had pupils use various digital technologies sometimes, usually or always: DLF trial and 2013 ICT census

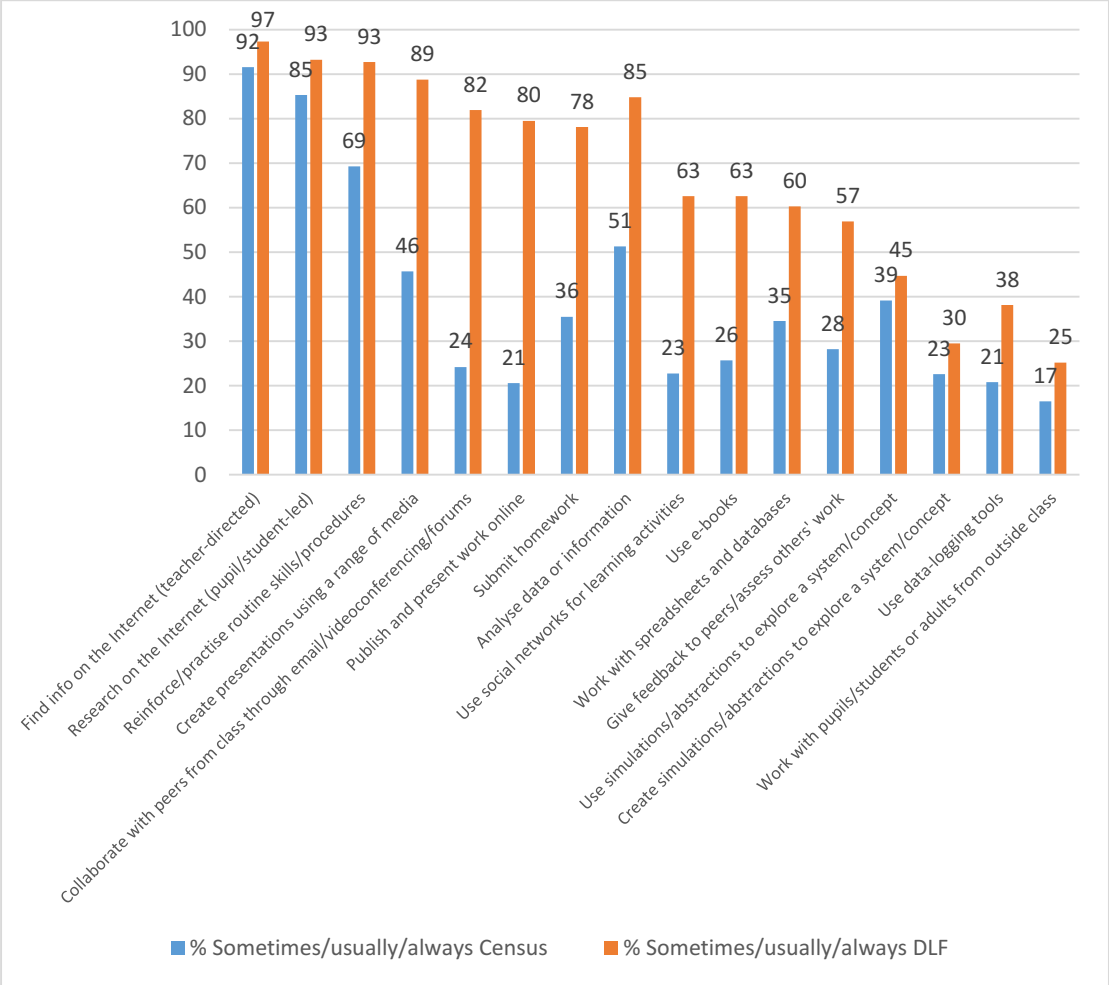


Note. Items are ordered from high to low by mean frequency reported by DLF trial teachers.

Figure 3.2 compares the percentages of post-primary teachers in the 2013 Census and the DLF trial indicating whether or not they had their students do each of the 16 activities.

Post-primary teachers in the DLF trial reported higher frequencies on all 16 activities than teachers in the 2013 Census.

Figure 3.2. Frequency with which post-primary teachers reported that they had pupils use various digital technologies sometimes, usually or always: DLF trial and 2013 ICT census



In particular, very large differences (of around 30-60%) are associated with seven of these items:

- Publish and present work online (21% reported this in the Census, compared to 80% in the DLF trial)
- Collaborate with peers from class through email/videoconferencing/forums (24% in the Census, 82% in the Census)
- Create presentations using a range of media (46% in the Census, 89% in the DLF trial)
- Submit homework (36% in the Census, 78% in the DLF trial)
- Use social networks for learning activities (23% in the Census, 63% in the DLF trial)
- Use e-books (26% in the Census, 63% in the DLF trial)
- Analyse data or information (51% in the Census, 85% in the DLF trial).

In addition, large increases (of around 20-30%) were found for a further three items:

- Give feedback to peers/assess others' work (28% in the Census, 57% in the DLF trial)

- Work with spreadsheets and databases (35% in the Census, 60% in the DLF trial)
- Reinforce/practise routine skills/procedures (69% in the Census, 93% in the DLF trial).

At post-primary level, teachers who took part in the DLF trial have their students use DTs to publish work online, collaborate and give peer-to-peer feedback, to analyse and create information, work with spreadsheets/databases, and submit homework, substantially more frequently than those in the 2013 Census. This is a positive finding, though again, it should be interpreted with respect to differences in the samples of the two studies. Furthermore, self-reporting occurred in Phase 2 after an intense period of support from a PDST advisor and the schools' engagement with the DLF framework.

3.3.3. Teachers' usage of digital technologies during class time

Teachers were asked to indicate how frequently eight digital technology-related activities occurred in their classes (in their main subject area, if post-primary teachers) since January 2018 on a scale ranging from Never to Weekly or more often. Their responses are shown in Table 3.5.

At primary level, about two-fifths to one half of teachers reported doing the following with their pupils once a fortnight or more often:

- I use digital technologies to give different work to the pupils who have difficulties learning and/or to those who can advance faster
- Pupils use digital technologies for projects or class work
- Pupils work in small groups using digital technologies to come up with a joint solution to a problem or task
- I let pupils practice similar tasks using digital technologies until I know that every student has understood the subject matter.

Between one-third and one quarter of primary teachers used digital technologies to refer to a problem from everyday life or work to demonstrate why new knowledge is useful, and/or to present a summary of learned content using DT.

Less frequently, teachers at primary level assigned DT-based projects that took more than a week to complete (17% once a fortnight or more often) and checked pupils' homework that had been submitted electronically (16% did this fortnightly or more often).

Table 3.5. Frequency with which teachers report using digital technologies in class for various purposes (since January 2018), primary and post-primary

Activity	Primary (N=106)				Post Primary (N=64)			
	% Never/ almost never	*% Once/ twice a month*	*% Once/ twice a fortnight*	*% Weekly or more often*	*% Never/ almost never*	*% Once/ twice a month*	*% Once/ twice a fortnight*	*% Weekly or more often*
I present a summary of learned content using digital technologies/devices	22.0	50.5	11.4	16.2	4.1	35.0	23.7	37.2
Pupils/students work in small groups using digital technologies to come up with a joint solution to a problem or task	26.5	34.0	29.2	10.3	23.9	42.2	22.4	11.5
I use digital technologies to give different work to the pupils/students who have difficulties learning and/or to those who can advance faster	22.2	28.8	14.4	34.6	39.1	33.3	15.2	12.4
I use digital technologies to refer to a problem from everyday life or work to demonstrate why new knowledge is useful	32.9	33.4	16.7	16.9	16.0	35.2	21.3	27.5
I let pupils/students practice similar tasks using digital technologies until I know that every student has understood the subject matter	29.6	31.4	22.0	17.0	30.0	37.0	26.1	6.9
I check pupils'/students' assignments or homework which have been completed electronically/digitally	61.5	22.6	6.5	9.4	17.7	43.5	20.9	17.9
Using digital technologies, pupils/students work on projects that require at least one week to complete	35.4	47.7	13.4	3.6	22.8	42.3	17.5	17.4
Pupils/students use digital technologies for projects or class work	13.8	46.3	18.1	21.8	9.3	43.2	15.3	32.3

At post-primary level, about two-fifths to three-fifths of teachers reported doing the following with their students once a fortnight or more often:

- I present a summary of learned content using digital technologies/devices
- I use digital technologies to refer to a problem from everyday life or work to demonstrate why new knowledge is useful
- Pupils/students use digital technologies for projects or class work
- I check pupils'/students' assignments or homework which have been completed electronically/digitally.

Between 28% and 35% of post-primary teachers did the following once a fortnight or more often:

- Using digital technologies, pupils/students work on projects that require at least one week to complete
- Pupils/students work in small groups using digital technologies to come up with a joint solution to a problem or task
- I let pupils/students practice similar tasks using digital technologies until I know that every student has understood the subject matter
- I use digital technologies to give different work to the pupils/students who have difficulties learning and/or to those who can advance faster.

At both primary and post-primary levels, teachers used DTs in class for a range of purposes quite frequently since January 2018. There are some differences across primary and post-primary levels, however, which may be expected. For example, at primary level, 49% of teachers used DTs in differentiated teaching at least once a fortnight, compared with 28% at post-primary level. In contrast, 39% of post-primary teachers checked electronically-submitted homework/assignments one a fortnight or more often, compared with 16% of primary level teachers.

The responses to the eight items in Table 3.5 were combined to form an overall scale measuring digital technology (DT) activities[23]. These scores were aggregated (averaged) to the school level and compared with those for Phase 1 at primary and post-primary levels. At primary level, the mean score increased by about 2.8 points and this increase is statistically significant (p (t) = .001). At post-primary school, the mean score increased by about 0.8 points: this increase is not statistically significant (p (t) = .495) (Table 3.6). Note that these results should be interpreted with caution (as noted in Section 3.1).

Table 3.6. Mean DT activity scores at Phases 1 and 2 with significance tests for differences in means at primary and post-primary levels

Level	Mean Phase 1	Mean Phase 2	t	df	p
Primary (N = 23)	5.13	7.95	3.655	22	.001
Post-primary (N = 19)	8.14	9.18	1.141	19	.495

3.4. Respondents' views on the DLF document and DLF resources

3.4.1. General use of, and views on, DLF resources

Teachers were asked the frequency with which they used or referred to the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars during the course of the DLF trial. Their responses are shown in Table 3.7. At both primary and post-primary levels, the most frequent response for each of the four resources was Sometimes (about once a moth).

[23] The scale is based on responses (Never or almost never, Once or twice a month, Once or twice a fortnight, Weekly or more often) to these eight items and giving a weight of 2 to 'Once or twice a fortnight' and 'Weekly or more often', a weight of 1 to 'Once or twice a month and a weight of 0 to 'Never or almost never'. Cronbach's alpha = .860 (primary) and .871 (post-primary).

At primary level, about one in five respondents used these resources once a fortnight or more often, while about seven in ten used them once a month or less. Between 8% and 11% of primary teachers had not referred to these resources over the course of the DLF trial.

At post-primary level, about one in four respondents used the DLF and the DLPG once a fortnight or more often, while about two-thirds used them once a month or less. Usage of the Planning Template and exemplar videos were slightly less frequent: 17% of post-primary teachers used these once a fortnight or more often, while 72% used them about once a month or less often. Between 5.5% and 11% of post-primary teachers had not referred to these resources over the course of the DLF trial.

Teachers at post-primary level referred to the DLF document, the DLPG, and the video exemplars more frequently than teachers at primary level (p (chi-square) < .05 in all cases). There are no statistically significant differences between primary and post-primary school respondents in terms of the frequency with which they reported referring to the Planning Template (p (chi-square) = .450).

Table 3.7. Frequency of using the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars during the DLF trial: primary and post-primary

Level/Resource	*Very frequently (once a week or more often)*	*Quite frequently (about once a fortnight)*	*Sometimes (about once a month)*	*Rarely (about once or twice over the past 6 months)*	*Never*
Primary (n = 106)					
DLF document	3.9	19.0	31.9	37.7	7.6
Digital Learning Planning Guidelines	3.5	15.1	36.2	33.8	11.4
Digital Learning Plan Template	3.8	15.9	44.1	26.4	9.8
Video exemplars	3.8	15.9	44.1	26.4	9.8
Post Primary (n = 65)					
DLF document	7.7	18.9	55.5	12.4	5.5
Digital Learning Planning Guidelines	3.2	22.1	50.9	14.4	9.5
Digital Learning Plan Template	7.7	9.1	51.8	20.3	11.1
Video exemplars	7.7	9.1	51.8	20.3	11.1

As noted in the baseline report on the DLF trial (Cosgrove et al., 2018, p. 74) and Chapter 2 of this report, PDST advisors shared a range of resources with schools (including a presentation on developing the school's digital learning vision; set of questions to enable schools to develop this vision; and a worksheet to facilitate the mapping of the school's domain and standard(s) to levels of current practice). Therefore, the materials referred to in Table 3.7 are not the only resources that were used by schools during the trial. In addition, the DLPG were not available at the

beginning of the DLF trial but would have been available from around the second PDST advisor visit onwards.

The frequency with which teachers used these resources (Table 3.7) can be compared to the frequency with which DLT leaders reported using these resources (Table 2.4). Frequency of usage was higher among DLT leaders than teachers at both primary and post-primary levels, as could be expected. For example, 44% of DLT leaders at primary level, compared with 23% of teachers at primary level, used the DLF document once a fortnight or more often. The corresponding percentages at post-primary level are 37% and 27%.

Table 3.8 shows primary and post-primary teachers' ratings of the DLF document, DLPG, Digital Learning Plan Template, and video exemplars.

The percentages of teachers indicating 'never' in Table 3.7 do not 'tally' with the percentages indicating 'not used' in Table 3.8. This is not an error: it is due to the fact that some teachers who responded 'rarely (about once or twice in the past 6 months)' to an item in Table 3.7 responded 'not used' to the corresponding item in Table 3.8.

At primary level, about one in three teachers rated the DLF document, DLPG, and Planning Template as Excellent or Very Good, while 10-23% rated these as Fair or Poor. About 45% of primary teachers rated the video exemplars as Excellent or Very good, while 26% had not used them.

At post-primary level, around half of the teachers rated the DLF document, DLPG, and Planning Template as Excellent or Very Good, while 14-21% rated these as Fair or Poor. About equal percentages of post-primary teachers rated the video exemplars as Excellent or Very good (36%) and indicated that they had not used them (37%).

Post-primary teachers gave significantly more positive ratings to the DLF document, DLPG and Planning Template than primary teachers (in all three cases, p (chi-square) <.05). There were no differences in the ratings of the video exemplars across primary and post-primary teachers (p (chi-square) > .05).

Teachers' ratings of these resources (Table 3.8) can be compared to DLT leaders' ratings (Table 2.5). Ratings were more positive among DLT leaders than teachers at both primary and post-primary levels. For example, 59% of DLT leaders at primary level, compared with 31% of teachers at primary level, rated the DLF document as Excellent or Very good. The corresponding percentages at post-primary level are 74% and 53%.

Table 3.8. Ratings of the DLF document, Digital Learning Planning Guidelines, Digital Learning Plan Template, and video exemplars: primary and post-primary

Level/Resource	*Excellent*	*Very good*	*Good*	*Fair*	*Poor*	*Not used*
Primary (n = 106)						
DLF document	5.3	25.9	37.4	11.6	5.8	14.1
Digital Learning Planning Guidelines	3.4	27.6	31.8	18.1	5.0	14.1
Digital Learning Plan Template	3.6	29.5	41.1	10.1	0.0	15.7
Video exemplars	9.2	35.4	23.6	6.0	0.0	25.8
Post Primary (n = 65)						
DLF document	15.6	37.6	27.6	13.7	0.0	5.4
Digital Learning Planning Guidelines	17.0	31.7	28.8	13.7	0.0	8.8
Digital Learning Plan Template	14.7	31.7	23.8	20.5	0.0	9.2
Video exemplars	17.4	18.5	20.3	7.2	0.0	36.6

3.4.2. Views on the DLF document

Teachers were also asked more specifically about the DLF document: its overall length and layout; language and terminology; content and wording of statements and practice for the standards associated with the domain that their school was focusing on; and the fit of the document with the school's broader development and improvement planning. Their responses are shown in Figures 3.3 (primary) and 3.4 (post-primary).

At primary level, percentages of Excellent/Very good ratings ranged from 36-41% for length and layout, language and terminology, the content and wording of the domain and standards that the school was focusing on for the trial, and the statements of practice for the standards that the school was focusing on for the trial; a slightly higher percentage (46.5%) rated the fit of the document with the school's broader development and improvement planning as Excellent/Very good. Percentages of Fair/Poor ratings ranged from 10% to 23.5%.

At post-primary level, percentages of Excellent/Very good ratings ranged from 40-54%. Percentages of Fair/Poor ratings ranged from 14% to 22%.

Although the ratings of post-primary school respondents are somewhat more positive than those of primary school respondents, these differences are not statistically significant (in call cases, p (chi-square > .05).

Comparisons of these ratings were also made across the dimension (Teaching and Learning, Leadership and Management) that the schools were focusing on for the DLF trial (separately for primary and post-primary levels). Two significant differences emerged, both at post-primary level. The results indicate that post-primary teachers in schools focusing on a Leadership and Management dimension gave significantly less positive ratings to 'Content and wording of my school's domain' and 'Fit of the DLF within school's planning and development' (in both cases, p (chi-square) < .05).

Figure 3.3. Ratings of general and specific aspects of the DLF document: primary (N = 99)

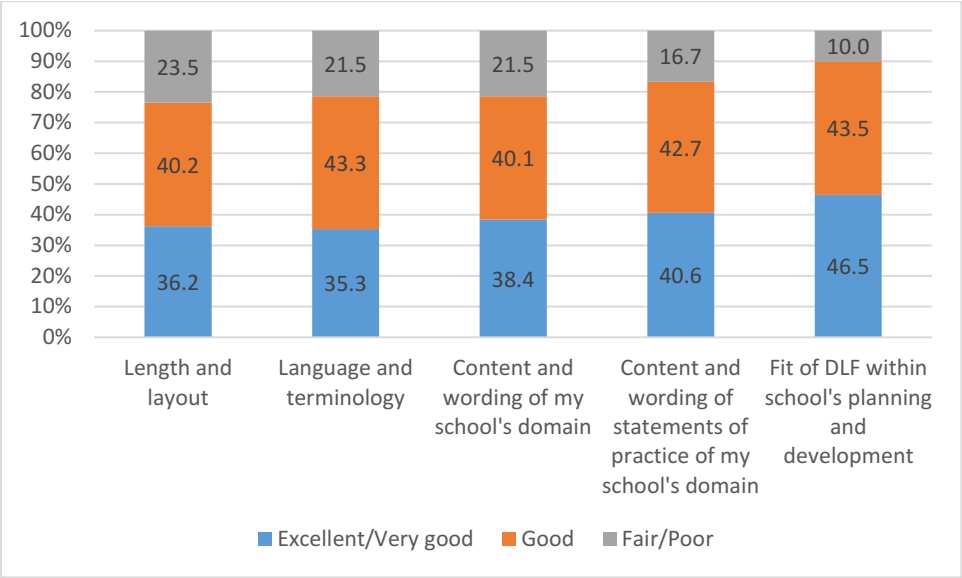
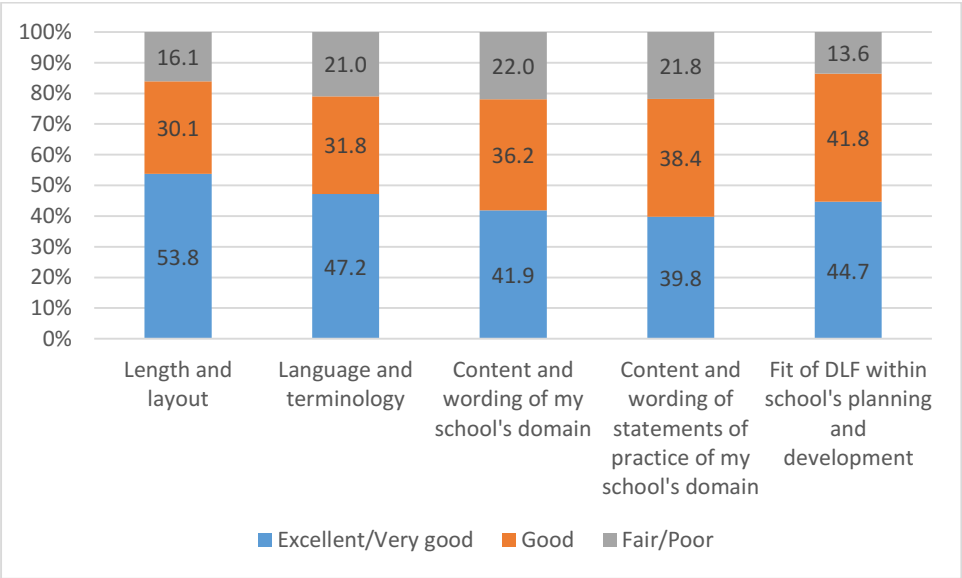


Figure 3.4. Ratings of general and specific aspects of the DLF document: post-primary (N = 63)



Broad comparisons of teachers' and DLT leaders' ratings of general and specific aspects of the DLF document (Chapter 2, Table 2.5) indicate that DLT leaders' ratings tended to be somewhat more positive at post-primary level, while at primary level, ratings varied. For example, 36% of primary teachers compared with 50% of DLT leaders rated the overall length and layout as Excellent/Very good; in contrast, 46.5% of primary teachers, compared with 33.3% of DLT leaders rated the fit of the DLF within the school's planning and development as Excellent/Very good.

Teachers were asked to comment further on their views of the DLF, and comments were received from 14 primary respondents (12.8%) and eight post-primary respondents (11.9%).

Primary teachers' comments may be summarised as follows:

- Six of the comments indicated that help and advice was needed to interpret the DLF document.
- Three of the comments indicated that the document was too long.
- Three of the comments indicated that the wording was too broad and/or too technical to readily apply in a local context.
- One comment noted that the DLF document is not available as Gaeilge.
- One comment noted the link with SSE processes, but that the domain of that particular school (in the Leadership and Management dimension) was not covered in SSE at the time.

Post-primary teachers' comments may be described as follows:

- Two of the comments indicated that the language/terminology was too technical and that these elements should be simplified.
- One comment indicated that the DLF was too subjective.
- One respondent commented positively about the DLF trial in becoming familiar with DT resources, but noted that limited devices and poor connectivity in the school limited the extent to which they could use DTs in class.
- Two respondents made positive comments about the trial in general rather than about the DLF document.
- Two respondents commented that the benefits of participating would become apparent next year (as opposed to commenting on the DLF document).

3.4.3. Views on the Digital Learning Planning Guidelines

Views on the Digital Learning Planning Guidelines were sought from respondents, both generally and for each section. Respondents' ratings are shown in Figures 3.5 (primary) and 3.6 (post-primary). Note that responses to these items were missing for 22% of primary teachers and 19% of post-primary teachers, which suggests that about one in five teachers had not referred to the DLPG.

Figure 3.5. Ratings of general and specific aspects of the Digital Learning Planning Guidelines: primary (N = 85)

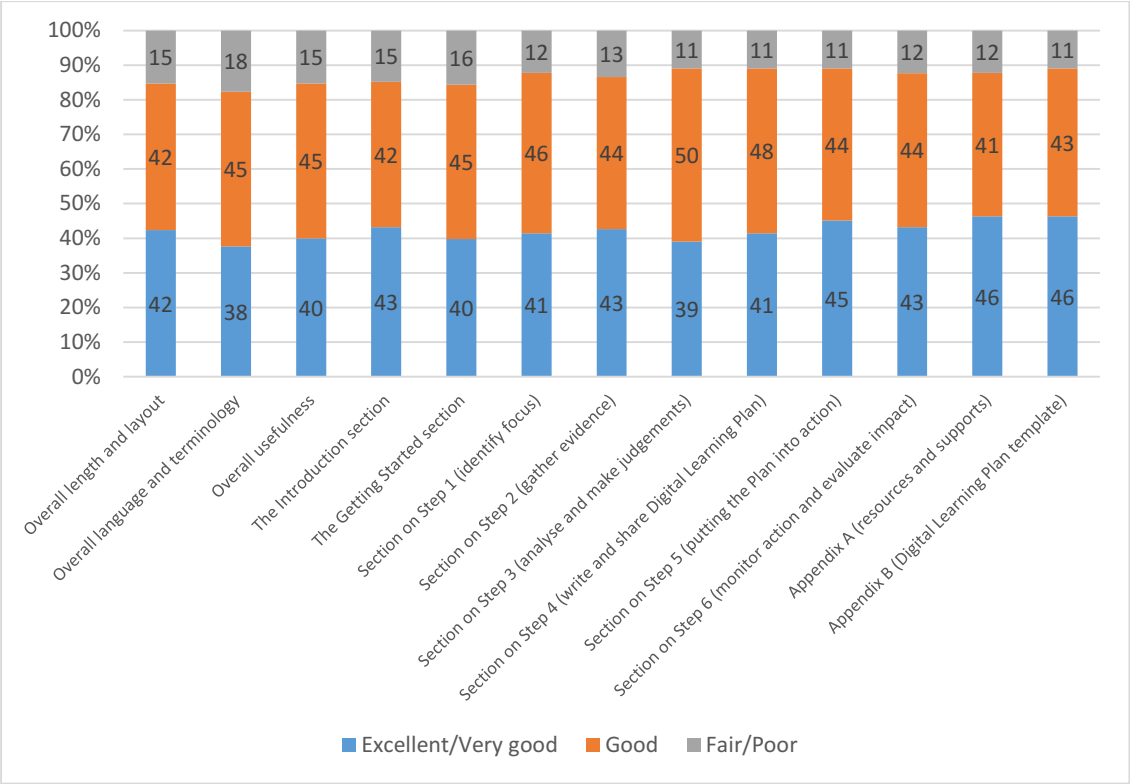
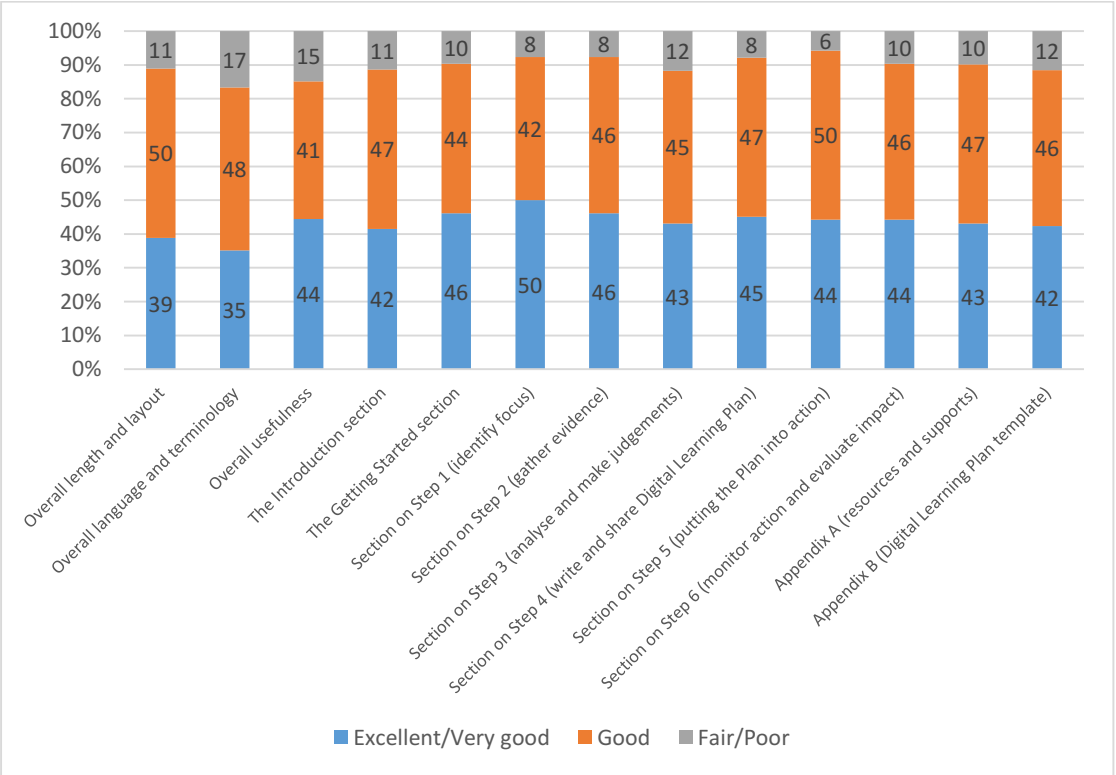


Figure 3.6. Ratings of general and specific aspects of the Digital Learning Planning Guidelines: post-primary (N = 54)



At both primary and post-primary levels, ratings were generally quite positive, with Excellent/Very good/Good ratings ranging from 82-89% (primary) and 83-92% (post-primary).

Teachers' ratings on general and specific aspects of the DLPG do not differ across primary and post-primary schools (in call cases, p (chi-square > .05).

Comparisons of these ratings were also made across the dimension (Teaching and Learning, Leadership and Management) that the schools were focusing on for the DLF trial (separately for primary and post-primary levels). At post-primary level, there were no differences in the ratings made by teachers in 'Teaching and Learning' and 'Leadership and Management' schools. In contrast, teachers at primary level in 'Leadership and Management' schools gave more positive ratings than teachers in 'Teaching and Learning' schools on ratings for Sections 1, 2, 3, 4, 5 6, and Appendices A and B of the DLPG (in all cases, p (chi-square) < .05).

Broad comparisons of teachers' and DLT leaders' ratings of the DLPG (Chapter 2, Figures 2.4 and 2.5) indicate that DLT leaders' ratings tended to be more positive than those of teachers. For example, at primary level, 48% of DLT leaders indicated that the overall length and layout was Excellent/Very good, and the same percentage (48%) indicated that the overall language and terminology was Excellent/Very good. The corresponding percentages for primary teachers were 42% and 38%, respectively. At post-primary level, 60% of DLT leaders indicated that the overall length and layout was Excellent/Very good, and the same percentage (60%) indicated that the overall language and terminology was Excellent/Very good. The corresponding percentages for post-primary teachers were 39% and 35%, respectively.

Eight respondents at primary level (7.3%) and five at post-primary level (7.4%) provided additional comments on their views on the Digital Learning Planning Guidelines. The low number of comments as well as the high rate of missing responses to this question suggest that many teachers may not have read the DLPG, or if they did, it was not in depth.

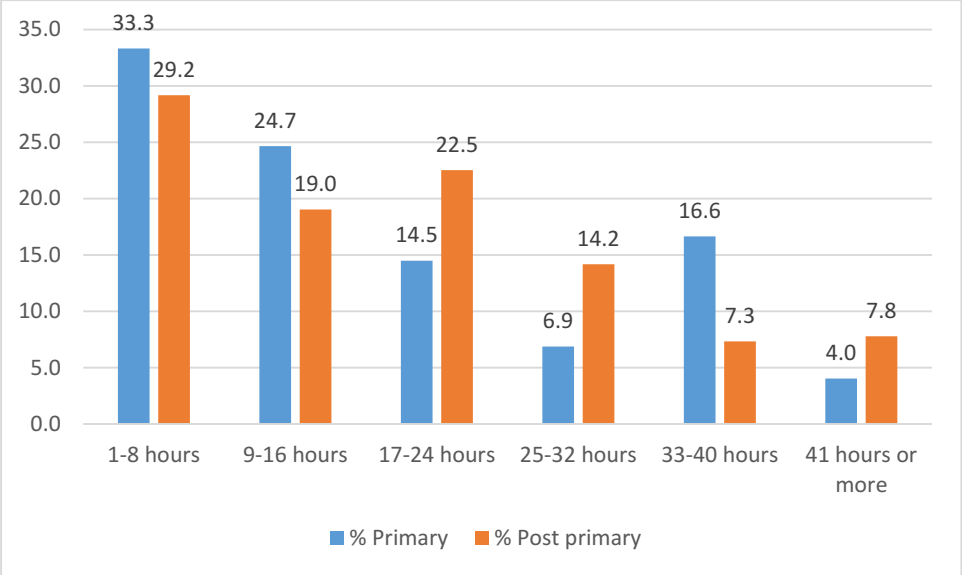
At primary level, all eight respondents commented positively about the guidance of the PDST advisor and/or that this support was required in order to be able to interpret the document and/or implement the DLF trial. However, it is unclear from some of these comments whether or not the respondent is referring to the DLF document or to the DLPG.

At post-primary level, three of the comments did not relate directly to the DLPG (two commented on improvements being more apparent next year, while the third made suggestions for assigning school staff to different roles/groups depending on their capabilities). Of the remaining two comments, one respondent indicated that they were unaware that the document existed, and the other respondent that it was unlikely that teachers would have the time to read the DLPG.

3.5. Total time spent working on the DLF trial

On average at primary level, teachers spent 17 hours working on the DLF trial (from November to May), and at post-primary level, an average of 18 hours was spent. There was some variation across respondents in the total time spent (Figure 3.7): at primary level, one third of respondents spent 8 hours or less on the programme, while 28% spent 25 hours or more. The corresponding percentages at post-primary level are 29% and 29%.

Figure 3.7. Total number of hours spent working on the DLF trial programme: primary and post-primary



3.6 Focus of schools' DLF trial programmes

3.6.1. Primary teachers' perspectives

Teachers were asked about the nature of the DLF trial programme in their school, in terms of (i) its focus on pupil-/student-level skills/competencies and (ii) on elements of the programme that related to teachers, management and infrastructure. Responses are shown in Table 3.9.

In terms of pupils, 64-86% primary teachers rated the following items as having a high or medium focus:

- Pupils' digital literacy
- Pupils' collaborative and team work
- Pupils' literacy skills
- Pupils' oral language skills
- Pupils' critical thinking and analysis.

Business skills/entrepreneurship had the lowest overall focus (with 21.5% rating this as high or medium).

For the remaining items, 36-53% were rated as having a high or medium focus in the DLF trial programme. These were:

- Pupils' numeracy skills

- Pupils' mathematics skills
- Pupils' artistic and creative skills
- Pupils' science skills
- Pupils' wellbeing.

Table 3.9. Level of focus given to pupils' skills/competencies and areas relevant to teachers, management and infrastructure: primary (n = 106)

Pupils' skills/competencies	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Pupils' literacy skills	43.6	36.3	3.6	16.5
Pupils' oral language skills	33.3	34.3	11.4	21.0
Pupils' numeracy skills**	26.2	26.7	24.0	23.0
Pupils' mathematics skills	19.7	31.1	26.2	23.0
Pupils' science skills	12.4	28.6	21.0	38.1
Pupils' critical thinking and analysis	28.3	35.8	11.7	24.2
Pupils' collaborative and team work*	50.3	31.2	7.7	10.9
Pupils' wellbeing	17.9	18.1	35.6	28.4
Pupils' business skills/entrepreneurship	4.1	17.5	28.0	50.5
Pupils' artistic and creative skills*	14.0	27.8	27.7	30.5
Pupils' digital literacy	55.2	30.8	2.3	11.8
Another area	15.4	3.7	0.6	80.3
Teachers/management/infrastructure	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Teachers' collaborative and team work	52.9	38.4	2.6	6.2
Teachers' digital literacy in general	71.3	22.0	0.9	5.8
Teachers' use of digital technologies for assessment	41.3	31.2	11.1	16.4
Teachers' use of digital technologies for communication with pupils or parents**	20.6	33.9	23.9	21.6
Teachers' use of digital technologies for** administration (e.g. attendance)	30.6	22.5	21.7	25.3
Development of teachers' skills in using specific apps or software for teaching and learning	73.4	20.7	5.3	0.6
Incorporating use of digital technologies into short-term planning	39.1	29.7	17.5	13.7
Incorporating use of digital technologies into long-term planning	34.8	31.5	20.3	13.4
Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools**	64.1	18.0	4.1	13.8
Making improvements to technical maintenance and support for teaching and learning**	39.3	25.4	11.8	23.4
Making improvements to the quality of broadband connectivity**	45.2	17.8	13.5	23.5
Making improvements to the sharing of teaching documents and resources (cloud- or server-based)**	46.8	27.4	9.6	16.2
Another area	6.5	6.3	1.0	86.2

* Significantly higher level of focus reported by teachers in 'Teaching and Learning' than 'Leadership and Management' schools (p (chi-square) < .05).
** Significantly higher level of focus reported by teachers in 'Leadership and Management' than 'Teaching and Learning' schools (p (chi-square) < .05).

Regarding teachers, management and/or infrastructure, 90% or of teachers at primary level rated the following items as having a high or medium focus:

- Development of teachers' skills in using specific apps or software for teaching and learning
- Teachers' digital literacy in general
- Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools
- Teachers' collaborative and team work.

Between 66% and 74% of primary teachers indicated that the following items had a high or medium focus in their school's DLF trial programme:

- Making improvements to the sharing of teaching documents and resources (cloud- or server-based)
- Making improvements to the quality of broadband connectivity
- Teachers' use of digital technologies for assessment
- Making improvements to technical maintenance and support for teaching and learning
- Incorporating use of digital technologies into short-term planning
- Incorporating use of digital technologies into long-term planning.

Teachers rated the two remaining items, use of DTs for administration and use of DTs for communication with pupils and parents as having a lower level of focus in their school's programmes, although a little over 50% of teachers rated these two items has having a high or medium focus.

There is a higher overall focus on elements relating to teachers, management and/or infrastructure (bottom part of Table 3.9) compared with pupils' skills and competencies (top part of Table 3.9). This is consistent with the reports of DLT leaders. A comparison of the reports of primary teachers and DLT leaders (Chapter 2, Table 2.9) indicates a consistency in the levels of focus reported, which suggests a good degree of shared understanding about the aims/focus of the schools' DLF trial programmes.

Ratings of teachers on the items in Table 3.9 were compared across 'Teaching and Learning' and 'Leadership and Management' schools. Items in the table are marked with an asterisk if there are statistically significant differences. Level of focus, as reported by primary teachers, was significantly higher in 'Leadership and Management' schools for: pupils' numeracy skills; making improvements to technical maintenance and support; incorporating use of digital technologies into short-term planning; teachers' use of digital technologies for administration; and making improvements to the quality of broadband connectivity ($p < .05$). In contrast, teachers in 'Teaching and Learning' schools reported a significantly higher level of focus on pupils' literacy and numeracy skills (p (chi-square) < .05).

3.6.2. Post-primary teachers' perspectives

Information on the levels of focus on student-level skills/competencies and on elements of the programme that related to the work of teachers, management and infrastructure in post-primary schools is shown in in Table 3.10.

Table 3.10. Level of focus given to students' skills/competencies and areas relevant to teachers, management and infrastructure: post-primary (n = 64)

Pupils' skills/competencies	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Students' literacy skills	12.1	23.6	24.7	39.6
Students' oral language skills	4.1	35.7	15.3	44.8
Students' numeracy skills**	9.2	30.0	22.2	38.7
Students' mathematics skills	3.7	23.5	30.8	42.0
Students' science skills	1.8	20.8	32.4	45.0
Students' critical thinking and analysis	32.2	25.7	8.9	33.1
Students' collaborative and team work	44.5	28.1	6.4	21.1
Students' wellbeing	14.9	32.3	19.9	32.9
Students' business skills/entrepreneurship	5.5	15.7	32.7	46.1
Students' artistic and creative skills	4.8	32.8	25.0	37.5
Students' digital literacy	50.4	27.6	5.3	16.7
Another area	5.0	6.8	2.8	85.4
Teachers/management/infrastructure	*High focus*	*Medium focus*	*Low focus*	*Not a focus of our programme*
Teachers' collaborative and team work**	66.9	24.2	1.1	7.8
Teachers' digital literacy in general	71.0	18.5	4.3	6.2
Teachers' use of digital technologies for assessment	46.7	33.2	15.9	4.2
Teachers' use of digital technologies for communication with pupils or parents	34.5	40.7	16.0	8.9
Teachers' use of digital technologies for administration (e.g. attendance)	41.4	21.6	13.0	24.0
Development of teachers' skills in using specific apps or software for teaching and learning	56.7	32.6	7.4	3.3
Incorporating use of digital technologies into short-term planning	32.4	38.6	26.2	2.9
Incorporating use of digital technologies into long-term planning	45.3	31.0	19.5	4.2
Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools	43.4	28.2	10.3	18.1
Making improvements to technical maintenance and support for teaching and learning	31.1	40.6	6.2	22.1
Making improvements to the quality of broadband connectivity	32.9	18.1	19.3	29.7
Making improvements to the sharing of teaching documents and resources (cloud- or server-based)	64.0	16.5	8.4	11.0
Another area	1.3	4.5	0.0	94.2

** Significantly higher level of focus reported by teachers in 'Leadership and Management' than 'Teaching and Learning' schools (p (chi-square) < .05).

In terms of students, 58-78% of the following items were rated as having a high or medium focus by post-primary teachers:

- Students' digital literacy
- Students' collaborative and team work
- Students' critical thinking and analysis.

In contrast, 21-27% indicated that mathematics skills, science skills and business skills/ entrepreneurship had a high or medium focus in the school's DLT trial programme.

Between 36% and 47% of post-primary school teachers indicated that the remaining student competencies had a high or medium focus in their DLF trial programme:

- Students' wellbeing
- Students' oral language skills
- Students' numeracy skills
- Students' artistic and creative skills
- Students' literacy skills.

In terms of aspects of the programme relating to teachers, management and infrastructure, around 80-90% of post-primary teachers indicated that the following had a high or medium level of focus in their DLF trial programmes:

- Teachers' collaborative and team work
- Teachers' digital literacy in general
- Development of teachers' skills in using specific apps or software for teaching and learning
- Making improvements to the sharing of teaching documents and resources (cloud- or server-based)
- Teachers' use of digital technologies for assessment.

Also, between 63% and 76% of teachers rated the following items under teachers/management/infrastructure as having a high or medium focus:

- Incorporating use of digital technologies into long-term planning
- Teachers' use of digital technologies for communication with pupils or parents
- Making improvements to digital technologies infrastructure - number and quality of computing devices and/or tools
- Making improvements to technical maintenance and support for teaching and learning
- Incorporating use of digital technologies into short-term planning
- Teachers' use of digital technologies for administration (e.g. attendance).

Similar to the results for primary level, at post-primary level, overall, there is a higher focus on elements relating to teachers, management and/or infrastructure (bottom part of Table 3.10) compared with students' skills and competencies (top part of Table 3.10). Also, a comparison of the reports of post-primary teachers and DLT leaders (Chapter 2, Table 2.10) indicates a consistency in the levels of focus

reported, which suggests a good degree of shared understanding of the aims and focus of the schools' DLF programme.

Ratings of teachers on the items in Table 3.10 were compared across 'Teaching and Learning' and 'Leadership and Management' schools. Items in the table are marked with an asterisk if there are statistically significant differences. Level of focus, as reported by post-primary teachers, was significantly higher in 'Leadership and Management' schools for students' numeracy skills and teachers' collaborative and team work (p (chi-square) < .05); otherwise, teachers' ratings did not differ depending on the DLF dimension that the school was focused on for the trial.

3.7. Changes, successes and challenges reported by teachers

3.7.1. Changes in teaching, learning, management and infrastructure

Teachers were asked to indicate the level of change that they perceived since participating in the DLF trial for a range of teaching, learning, management and infrastructural areas. Their responses are shown in Table 3.11.

At primary level, the largest changes were identified by respondents (with 71-84.5% reporting significant or moderate changes) as:

- My teaching and learning activities during class time
- My pupils' interest and engagement in learning activities
- Digital technology infrastructure (quality or number of computing devices) that I have access to
- Emphasis on use of digital technologies in school policies or guidelines
- My collaboration with other teachers in the school
- My sharing of documents or resources with other teachers in the school.

Significant or moderate changes were identified by between 45% and 57% for:

- Technical support or maintenance
- My assessment practices
- My record-keeping practices
- Broadband connectivity/wifi connectivity or reliability.

In contrast, 31% of teachers indicated that there had been a significant or moderate change in their pupils' homework or study activities.

At post-primary level, about 69-84% of respondents reported significant or moderate changes in:

- My collaboration with other teachers in the school
- My sharing of documents or resources with other teachers in the school
- Emphasis on use of digital technologies in school policies or guidelines
- My teaching and learning activities during class time
- My assessment practices.

Also, between 49% and 64% of post-primary respondents reported significant or moderate changes in:

- Digital technology infrastructure (quality or number of computing devices) that I have access to
- My students' study or homework activities
- My students' interest and engagement in learning activities
- My record-keeping practices
- Technical support or maintenance
- Broadband connectivity/wifi connectivity or reliability.

Table 3.11. Perceived levels of change in a range of a range of teaching, learning, management and infrastructural areas: primary and post-primary

Primary (n = 105)	*Significant change*	*Moderate change*	*Minor change*	*No change*
My teaching and learning activities during class time	29.1	55.4	14.0	1.6
My pupils' study or homework activities	6.5	24.8	36.3	32.4
My pupils' interest and engagement in learning activities	29.1	51.5	10.5	8.9
My assessment practices**	13.9	37.4	29.1	19.6
My record-keeping practices**	19.0	28.1	32.2	20.6
My collaboration with other teachers in the school	32.9	43.3	17.0	6.8
My sharing of documents or resources with other teachers in the school*	31.1	40.3	15.3	13.2
Emphasis on use of digital technologies in school policies or guidelines**	39.3	40.2	15.5	4.9
Digital technology infrastructure (quality or number of computing devices) that I have access to**	35.0	44.9	14.4	5.7
Technical support or maintenance**	24.3	32.9	22.2	20.6
Broadband connectivity/wifi connectivity or reliability	29.2	16.0	22.9	31.8
Post primary (n = 63)	*Significant change*	*Moderate change*	*Minor change*	*No change*
My teaching and learning activities during class time	33.8	41.4	14.5	10.3
My students' study or homework activities	12.8	51.3	23.1	12.8
My students' interest and engagement in learning activities	13.7	49.0	21.1	16.2
My assessment practices	24.2	45.1	16.4	14.3
My record-keeping practices	25.5	36.3	16.3	21.8
My collaboration with other teachers in the school*	42.5	41.1	13.5	2.9
My sharing of documents or resources with other teachers in the school	48.7	34.3	11.5	5.4
Emphasis on use of digital technologies in school policies or guidelines	33.5	44.1	20.0	2.5
Digital technology infrastructure (quality or number of computing devices) that I have access to	25.7	39.7	8.9	25.7
Technical support or maintenance*	21.0	29.7	18.2	31.0
Broadband connectivity/wifi connectivity or reliability	23.6	25.5	12.1	38.9

** Significantly higher level of focus reported by teachers in 'Teaching and Learning' than 'Leadership and Management' schools (p (chi-square) < .05).
** Significantly higher level of focus reported by teachers in 'Leadership and Management' than 'Teaching and Learning' schools (p (chi-square) < .05).

In summary, there has been a high degree of perceived change in a range of DT-related teaching, learning, management and infrastructural areas at both primary and post-primary levels. Perceived changes reported by teachers are largely consistent with those reported by DLT leaders (Chapter 2, Table 2.14). It should be borne in mind, however, that a majority of respondents were members of the schools' Digital Learning Teams and might have been more engaged in the DLF trial than teachers who were not on the schools' Digital Learning Teams.

Within primary schools, teachers in 'Leadership and Management' schools reported significantly more perceived change in: their assessment practices, record-keeping practices, emphasis on use of DTs in school policies or guidelines, and technical support or maintenance. Primary teachers in 'Teaching and Learning' schools reported significantly more perceived change in their sharing of documents/resources with other teachers in the school (in all cases, p (chi-square) $< .05$).

At post-primary level, only two significant differences between teachers in 'Teaching and Learning' and 'Leadership and Management' schools emerged: teachers in 'Teaching and Learning' schools reported higher levels of perceived change in their collaboration with other teachers in the school, and with technical support and maintenance (in both cases, p (chi-square) $< .05$).

Teachers were also asked to describe, in a text response, what they viewed as the most significant changes that occurred as a result of taking part in the DLF trial. Their responses were coded into themes by two researchers at the ERC and the frequency of these coded themes are shown in Figures 3.7 (primary) and 3.8 (post-primary). Primary and post-primary themes overlap: both groups mentioned the following themes:

- Increased staff collaboration/sharing of information
- Increased teachers' DT competence and confidence
- Increased awareness of software/technology
- Increased pupil/student engagement
- Changes to administrative processes.

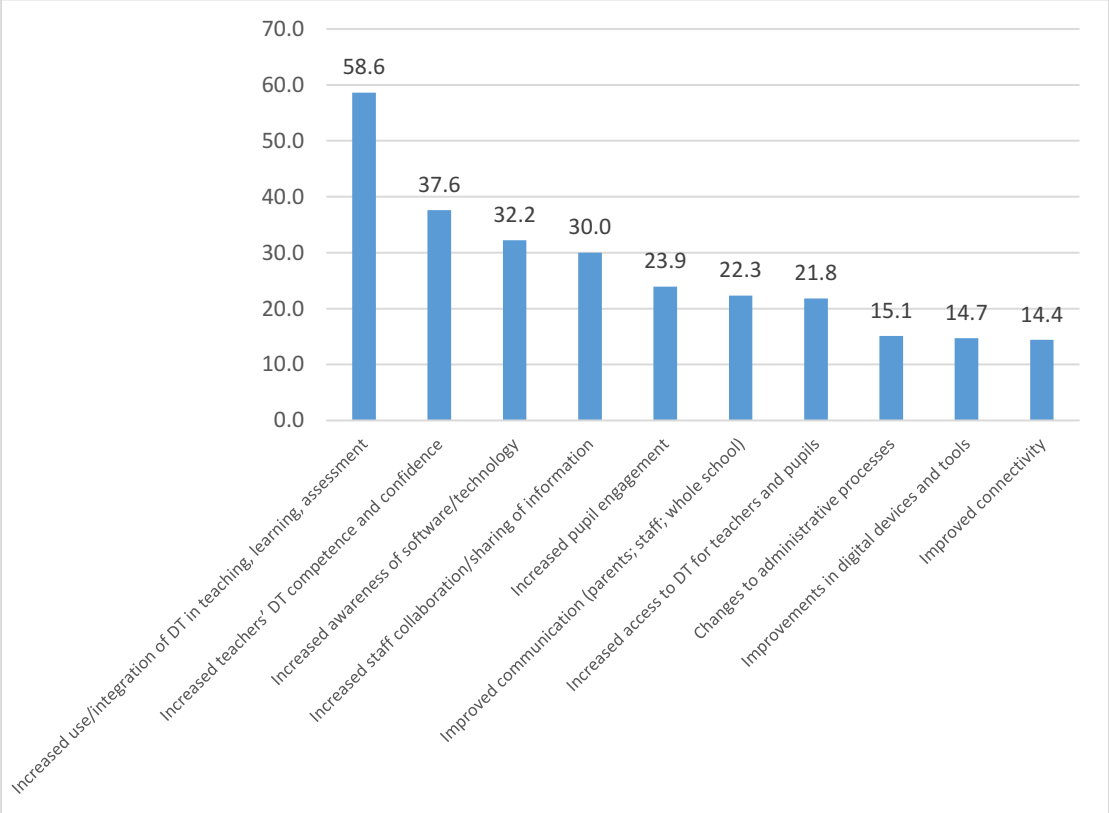
However, there are some differences:

- While improvements in access to/numbers of devices and improved connectivity featured at primary, these were not mentioned by post-primary teachers in their comments on change.
- Post-primary teachers mentioned more positive attitudes towards DT and changes to management practices; these were not mentioned at primary level.
- In terms of using DT, post-primary teachers focused on assessment while primary teachers focused more generally on its integration into teaching, learning and assessment.
- Improvements/changes in communication mentioned at primary level included both within the school and with parents while at post-primary, these mentioned parents only.

At primary level, 94.5% of respondents described at least one significant change as a result of taking part in the DLF trial (Figure 3.8):

- The most frequently-described change related to an increased use/integration of DTs into teaching, learning and assessment (mentioned by 59% of respondents).
- Between 30% and 38% of teachers mentioned improvements in their levels or DT competence or confidence, increased awareness of DT for education, or increases in staff collaboration or sharing of information among staff.
- Between 22% and 24% of teachers mentioned increased pupil engagement, improved communication, or increased access to DT by teachers and pupils.
- Fewer primary teachers (14-15%) mentioned changes to administrative processes, improvements in the numbers of devices/tools available, and/or improved connectivity.

Figure 3.8. Themes/areas of significant change as identified in teachers' text responses: primary



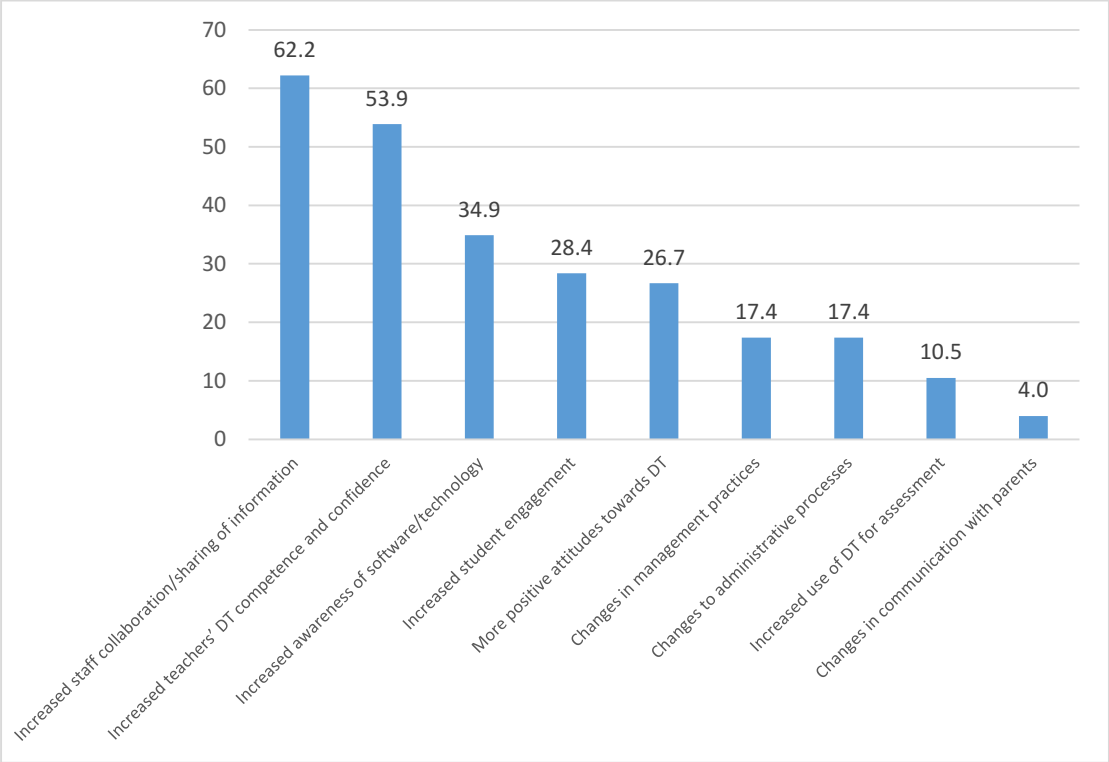
At post-primary level, 94% of respondents described one or more significant changes as a result of taking part in the DLF trial (Figure 3.9):

- The most frequently-described changes related to increased collaboration among staff (mentioned by 62% of respondents) and increases in teachers' competence and confidence in using DT (54%).
- Between 27% and 35% of teachers mentioned increased awareness of software/technology, increased student engagement, and more positive

attitudes towards DT (both on the part of themselves and other teachers in the school).

- About 17% of teachers mentioned changes to management practices and changes to administrative practices.
- Fewer post-primary teachers mentioned increased used of DT for assessment (10.5%) and changes in communication with parents (4%).

Figure 3.9. Themes/areas of significant change as identified in teachers' text responses: post-primary



3.7.2. Successes

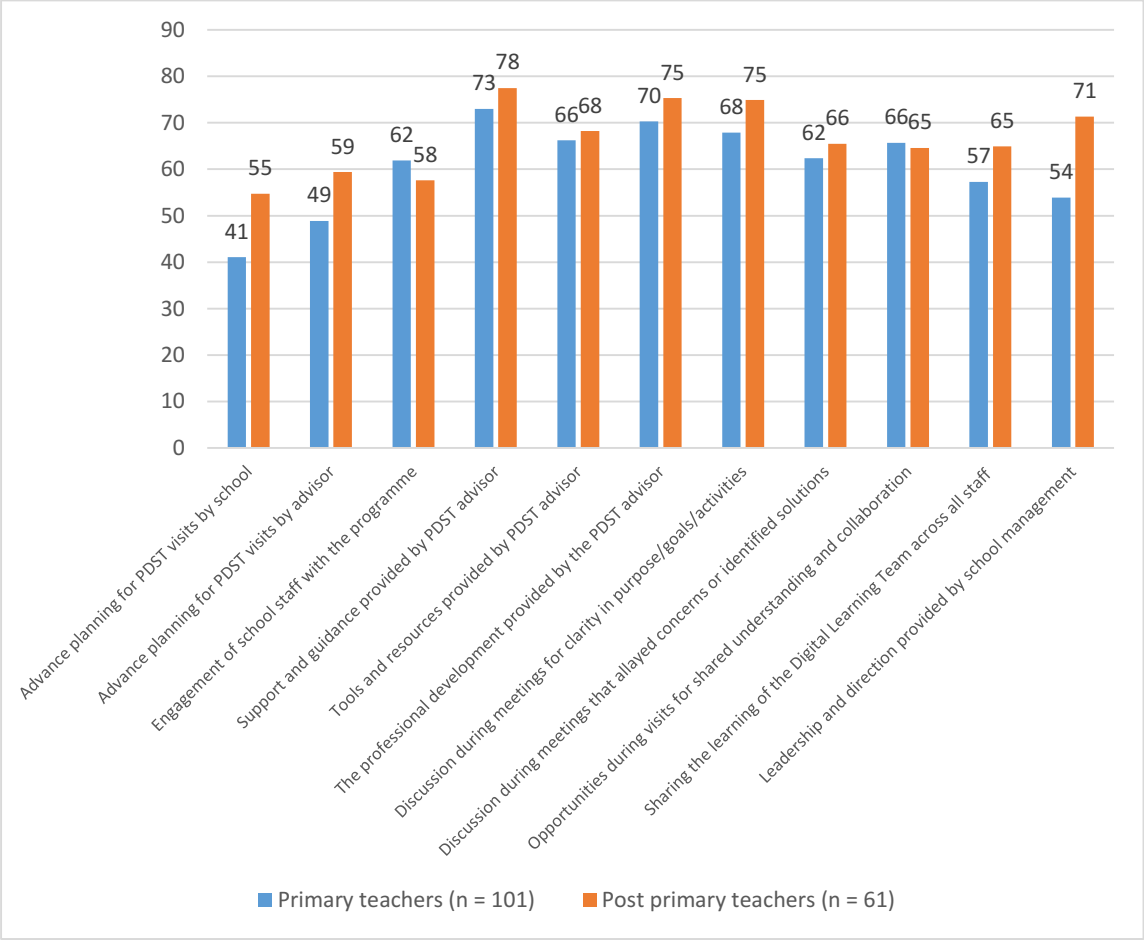
Teachers were asked how successful overall they felt the DLF trial had been in their school. At primary level, 35% of respondents indicated that it had been highly successful, 52% indicated that it had been moderately successful, 13% partly successful and under 1% not successful. At post-primary level, 19% reported that it had been highly successful, 52% moderately successful, and 29% partly successful.

Hence, the perceived overall degree of success of the programme was moderate to high: 87% of primary teachers and 71% of post-primary teachers described it as highly or moderately successful. Teachers' ratings of overall success were slightly less favourable than those of the DLT leaders (100% of primary school DLT leaders described the DLF trial programme as highly or moderately successful; the percentage at post-primary level was 95%: Chapter 2, Section 2.5.5).

Teachers rated 11 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme. These aspects were developed on the basis of key themes emerging

from the focus groups in Phase 1 (Cosgrove et al., 2018; Chapter 5). Figure 3.10 shows the percentages of respondents at primary and post-primary levels rating each of these aspects as 'essential for the success of the programme'.

Figure 3.10. Percentages of primary and post-primary teachers rating 11 aspects of DLF programme implementation as essential to its success

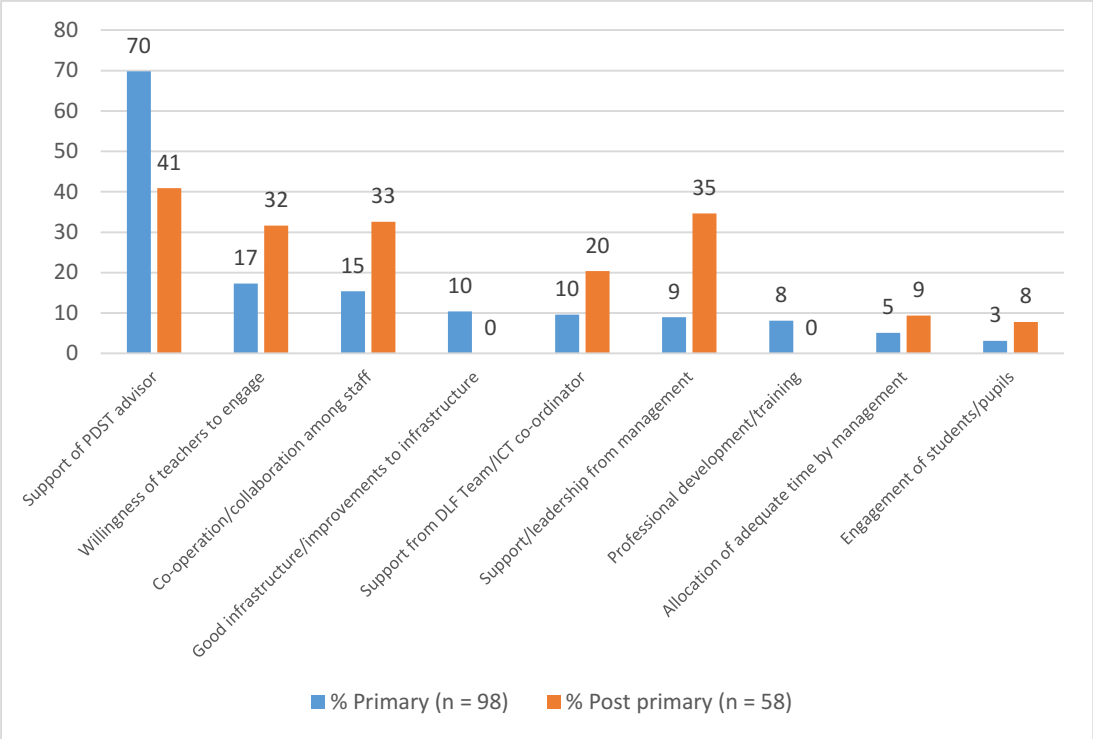


Across both primary and post-primary schools, a majority of teachers rated almost all items as essential. They gave particularly high ratings to professional development and supports and advice from the PDST advisors. Primary teachers gave somewhat lower ratings to leadership and direction provided by school management, and on the two items on advance planning (i.e. on the part of the school and on the part of the PDST advisor), than post-primary teachers.

The results shown in Figure 3.10 suggest that a range of factors and supports (PDST support and professional development; opportunity for discussion, collaboration and sharing learning across the school; engagement of school staff; and leadership from school management) need to be present in order for the DLF programme to be implemented successfully. This overall finding from teachers is consistent with the perspectives of the DLT leaders (Chapter 2, Figure 2.13).

Teachers were also asked to describe in a text response what they felt contributed to the success of the programme in their school. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes are shown in Figure 3.11. Responses were missing for this question for 10.0% of primary teachers and 13.6% of post-primary teachers.

Figure 3.11. Coded themes from teachers in response to the question 'Please describe the things that contributed to the success of the programme in your school': primary and post-primary



At primary level, by far the most frequently mentioned aspect the support of the PDST advisor (which featured in 70% of responses). The other themes, such as willingness of teachers to engage, collaboration/co-operation among teachers, support from management, and professional development/training, were mentioned by 17% of respondents or less.

At post-primary level, responses were more evenly distributed across the themes, but the support of the PDST advisor was still the most frequently mentioned theme (41% of comments included this). Also, between 32% and 35% of teachers mentioned support/leadership from management, co-operation/collaboration among teachers, and/or willingness of teachers to engage as being essential to the success of their school's DLF trial programme. The other themes (support from the DLF team, allocation of adequate time, and engagement of students) featured in 20% or less of post-primary teachers' comments.

It is worth noting that support (in general) from the PDST advisors featured in teachers' commentary on the factors that they felt contributed to the success of the

trial much more strongly than professional development. This pattern also emerged in the commentary from DLT leaders (Chapter 2, Table 2.20).

3.7.3. Challenges

Teachers were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their school. These items were developed from the key themes emerging from the Phase 1 focus group interviews (Cosgrove et al., 2018; Chapter 5). Responses from primary and post-primary schools are shown in Table 3.12.

At primary level, between 12.5% and 43% of these items were rated highly/moderately challenging by teachers: none of the items was rates as highly/moderately challenging by the majority. The three items with the highest frequencies of highly/moderately challenging ratings, 38-43%, and hence perceived to be the biggest challenges, were:

- Dedicated time for staff to implement the steps involved in the programme
- Dedicated time for staff to attend PDST visit meetings
- Digital technology infrastructure (e.g. number and quality of computing devices).

In addition, 24-30% of teachers rated the following as highly or moderately challenging:

- Broadband connectivity/wifi connectivity or reliability
- Staff level of competencies in managing and using digital technologies in teaching and learning
- The overall timeline for the trial.

Table 3.12. Teachers' ratings of ten issues as significant, ongoing challenges in implementing the DLF framework/programme in their schools: primary and post-primary

Primary (n = 102)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	4.6	13.5	44.5	37.4
My level of competencies in managing and using digital technologies in teaching and learning	3.9	22.5	41.9	31.7
The overall timeline for the trial	8.1	15.9	57.3	18.7
Dedicated time for staff to attend PDST visit meetings	19.4	22.8	34.3	23.5
Dedicated time for staff to implement the steps involved in the programme	19.7	23.7	47.0	9.6
Digital technology infrastructure (e.g. number and quality of computing devices)	11.6	26.2	42.5	19.7
Broadband connectivity/wifi connectivity or reliability	16.9	13.4	31.9	37.8
Gathering evidence to support the work of the programme	4.4	12.8	58.5	24.4
Sharing the learning of the Digital Learning Team across all staff in the school	4.3	12.7	46.9	36.1
Providing overall leadership for the programme on the part of school management	2.9	9.6	46.5	41.0
Post primary (n = 67)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	18.0	35.9	41.1	5.0
My level of competencies in managing and using digital technologies in teaching and learning	12.8	33.9	28.2	25.1
The overall timeline for the trial	33.6	29.5	25.9	11.0
Dedicated time for staff to attend PDST visit meetings	40.5	19.9	24.3	15.3
Dedicated time for staff to implement the steps involved in the programme	48.1	23.3	22.3	6.2
Digital technology infrastructure (e.g. number and quality of computing devices)	22.1	28.3	31.2	18.4
Broadband connectivity/wifi connectivity or reliability	16.4	27.9	20.3	35.4
Gathering evidence to support the work of the programme	2.9	36.3	44.1	16.7
Sharing the learning of the Digital Learning Team across all staff in the school	13.3	19.1	43.4	24.1
Providing overall leadership for the programme on the part of school management	11.5	13.1	39.0	36.3

At post-primary level, between 25% and 71% of these items were rated highly/moderately challenging by teachers. Over 50% of post-primary teachers rated the following as highly or moderately challenging:

- Dedicated time for staff to implement the steps involved in the programme
- The overall timeline for the trial
- Dedicated time for staff to attend PDST visit meetings
- Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme
- Digital technology infrastructure (e.g. number and quality of computing devices).

Three further items were rated as highly or moderately challenging by between 39% and 47% of respondents:

- Staff level of competencies in managing and using digital technologies in teaching and learning
- Broadband connectivity/wifi connectivity or reliability
- Gathering evidence to support the work of the programme.

The two remaining items were rated as highly or moderately challenging by fewer respondents:

- Sharing the learning of the Digital Learning Team across all staff in the school (32%)
- Providing overall leadership for the programme on the part of school management (25%).

At both primary and post-primary levels, time and infrastructure featured among the most challenging issues in implementing the DLF trial programme. This is consistent with the views of DLT leaders at both primary and post-primary levels described in Chapter 2 (Table 2.21). Variation in the ratings is related to individual school contexts, and possibly levels of expectation. For example, at post-primary level, almost equal percentages of teachers rated DT infrastructure and their own level of DT competence as highly/moderately challenging, and somewhat/not challenging; at primary levels, dedicated time to implement the programme was not seen as a challenge by 57% of teachers, but was viewed as a major/moderate challenge by 43% of teachers.

Teachers were also asked to describe in a text response what they felt were the challenges affecting the implementation of the DLF programme in their schools. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes are shown in Table 3.13.

Time was a theme in 58% of comments at primary level and 72% of comments at post-primary level (i.e. insufficient time to implement the programme in practice, references to the need for sub cover, and/or references to competing time demands).

At both primary (44%) and post-primary (29%) infrastructure was mentioned as a challenge. However, at primary level teachers tended to make specific references to insufficient numbers of devices and poor connectivity, while post-primary teachers made more general references to infrastructure.

A third theme that emerged related to resistance on the part of some school staff to engage in the DLF trial programme or DT (mentioned in 7% of primary teachers' comments and 20% of post-primary teachers' comments).

About 17% of primary teachers mentioned variability in teacher competence or confidence using DT as a challenge; this theme did not feature in the comments of post-primary teachers.

Table 3.13. Coded themes from teachers in response to the question 'Please describe the challenges that affected the implementation of the programme in your school': primary and post-primary

Aspect/Theme	*Primary (n = 95)*	*Post primary (n = 50)*
Time (insufficient; need for sub cover; competing demands)	57.9	71.8
Variability in teacher competence/confidence in using DT	16.6	
Resistance/negative attitudes among some staff	7.0	20.1
Limited resources/devices	16.9	
Poor connectivity	26.9	
Poor infrastructure		28.7

The themes/challenges presented in Table 3.13 are consistent with those identified by the DLT leaders (Chapter 2, Table 2.22). Both groups identified time the most frequently; infrastructural difficulties, teachers' competence/confidence with DTs, and resistant attitudes among some staff featured in the comments of both teachers and DLT leaders at both primary and post-primary levels.

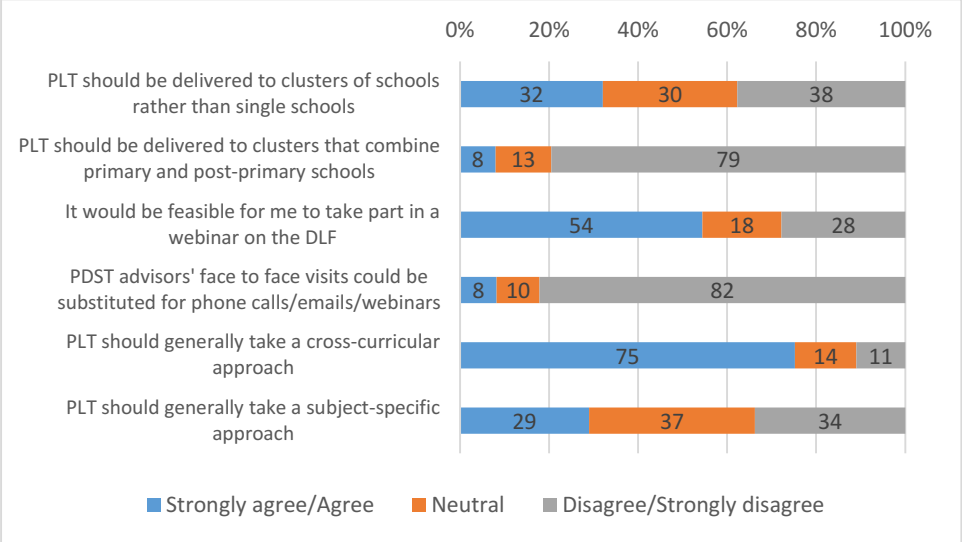
3.7. Teachers' views on supports and training for the DLF programme

Teachers were asked to indicate whether they agreed or disagreed with six statements concerning the provision of professional learning/training (PLT). Their responses are shown in Figures 3.12 (primary) and 3.13 (post-primary). This information is likely to be of relevance in planning for the national roll-out of the DLF.

At primary level, there were mixed views on the provision of PLT to clusters of schools rather than single schools: 32% agreed with clustering, while 38% disagreed and 30% were neutral. However, 79% of primary school teachers disagreed with the clustering of primary and post-primary schools together for PLT. A majority (54%) agreed that it would be feasible for them to attend a webinar (while 28% disagreed). Primary school teachers were in strong disagreement with the statement that PDST advisor visits could be substituted for phone calls, emails or webinars (82% disagreed, 10% were neutral, and 8% agreed). Finally, there was stronger support for a cross-curricular approach than a subject-specific approach in the provision of PLT

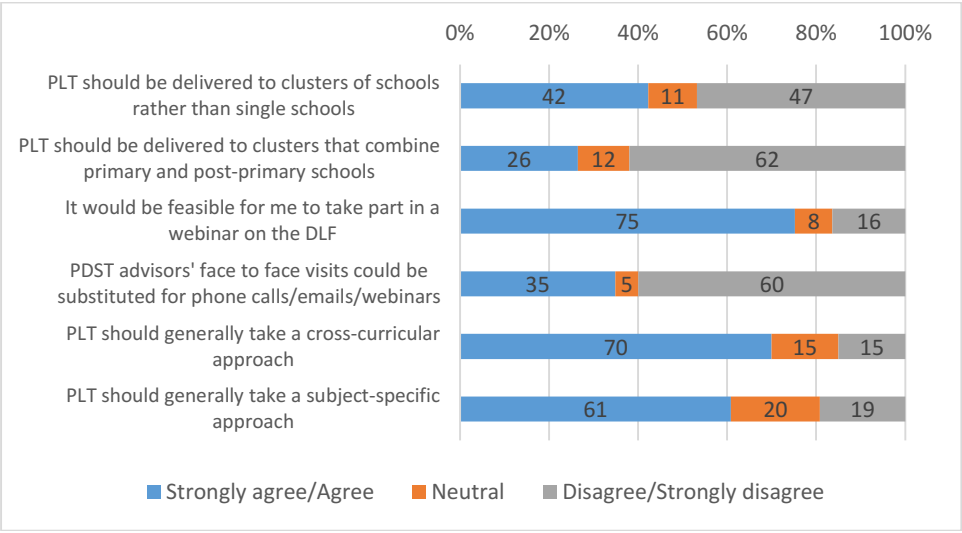
for the DLF: 75% agreed that PLT should generally take a cross-curricular approach, while 25% agreed that it should generally take a subject-specific approach.

Figure 3.12. Levels of agreement/disagreement with six statements about professional learning/training (PLT): primary (n = 105)



At post-primary level, there were also mixed views on the delivering training to clusters of schools rather than single schools: 42% agreed with clustering, while 47% disagreed (11% were neutral). Similar to primary schools, a majority of post-primary school teachers (62%) disagreed with the clustering of primary and post-primary schools together for PLT. Three-quarters (75%) agreed that it would be feasible for them to take part in a webinar. There was slightly more agreement with the statement PDST advisor visits could be substituted for phone calls, emails or webinars than at primary level, though a majority disagreed with this statement (35% agreed, 5% were neutral, 60% disagreed). Finally, there was support among post-primary teachers for both subject-specific approaches (61% agreement) and cross-curricular approaches (70% agreement) in the provision of PLT for the DLF.

Figure 3.13. Levels of agreement/disagreement with six statements about professional learning/training (PLT): post-primary (n = 64)



3.8. Key points from Chapter 3

Description of respondents

- Teacher response rates were lower in Phase 2 (44.5% at primary and 47% at post-primary) than in Phase 1 (78% at primary and 81% at post-primary).
- A large majority of responding post-primary teachers (97.5%) were on the DLT in the school, while 63% of responding teachers at primary level were on the school's DLT. This implies that teachers who were more directly involved in the DLF trial in schools were more likely to return a teacher questionnaire.
- Caution in interpreting the teacher results is advised.
    - Response rates were considerably lower in Phase 2 than in Phase 1; also, at primary level, five of the 28 participating schools did not return any teacher questionnaires.
    - A majority of respondents were on the schools' DLTs, so the results are unlikely to represent a whole-school picture.
    - It was not possible to match individual teacher results across Phases 1 and 2, so cross-phase comparisons are made at the level of the school rather than at the level of the teacher and should be interpreted with respect to differences in teacher response rates across phases.

Digital contexts of teachers

- To get a sense of the digital contexts in which teachers work, respondents rated 12 aspects of DT infrastructure (e.g. number of devices, broadband connectivity) and engagement with DT (e.g. their own overall use of DT) on a scale ranging from Excellent to Poor.
- At primary level, a large majority of teachers (80% or more) rated the following as Excellent, Very good or Good: availability of digital devices, number of digital devices, age and condition of digital devices, broadband connection/speed, pupils' engagement in DT, pupils' knowledge and skills in using DT, and their own overall level of use of DT for teaching and learning.
- There was more variation in primary teachers' ratings of the perceived quality of technical support and maintenance, availability and awareness of DT for teaching and learning, and their own overall level of knowledge and skills in using DT; that is, similar percentages of teachers rated these items as Excellent/very good and as Fair/poor.
- At post-primary level, a large majority of teachers (again, 80% or more) rated the following as Excellent, Very good or Good: availability of digital devices, number of digital devices, broadband connection/speed, technical support and maintenance, their own overall level of knowledge and skills in using DT, and their own overall level of use of DT for teaching and learning.
- There was more variation in post-primary teachers' ratings of the age and condition of digital devices, availability and awareness of DT for teaching and learning, and students' engagement with, and overall level of knowledge and skills in using DT (i.e. similar numbers of teachers rated these these as Excellent/very good and as Fair/poor).

- These 12 items were used to compute two scales: DT infrastructure and DT engagement. The correlation between these two scales is moderate, positive and significant (.48 at primary and .46 at post-primary). This indicates that levels of DT infrastructure and DT engagement are positively related to one another from the perspectives of teachers. However, it should be borne in mind that these ratings are based on perceptions rather than on objective measures.
- These scale scores were aggregated (averaged) to the school level for both Phases 1 and 2. A comparison of these scale means across phases shows that there has been a significant perceived improvement in infrastructure at both primary and post-primary levels between Phases 1 and 2. Although levels of DT engagement both increased across Phases 1 and 2, this difference is not statistically significant at post-primary level. These results should be interpreted with caution, for the reasons noted above. Also, the ratings of DT infrastructure and DT engagement are subjective, and it is possible that, over the course of the trial, with increased understanding of how to use DT, respondents' appreciation of the effective use of DT improved. However, part of the improvements in these ratings at primary level can be directly attributed to efforts in a small number of schools to improve broadband connectivity and/or complete the purchase of new devices with the ICT infrastructure grant.

Digital teaching and learning practices

- Teachers were asked to indicate the frequency with which they had their students/pupils engage in a range of 16 activities using DT.
- At primary level, DTs are mainly used by pupils to find information, practice routine procedures, and, to a slightly lesser extent, create knowledge, and work collaboratively with other pupils in the school. Primary pupils were less likely to use DTs to work with data/spreadsheets, use social networks, collaborate with others from outside of the school, create or use simulations, or submit homework.
- At post-primary level DTs are used by students mainly to find information, practice routine procedures, and, to a slightly lesser extent, analyse and create knowledge, work collaboratively, and submit homework. Students were less likely to use DTs to work with others outside of the school, to use data logging tools, or to use or create simulations.
- Comparisons of teachers' responses to these 16 items with data on the same items from teachers who took part in the 2013 ICT Census indicate that there have been very substantial changes in the percentages of teachers engaging their pupils/students in a majority of activities. On some of the items, the percentages of teachers reporting that they engaged their learners in these activities increased by between 30 and 60 percentage points.
- At primary level, teachers who took part in the DLF trial reported that they had their pupils use DTs to give peer-to-peer feedback, to collaborate, and to analyse and create information, substantially more frequently than those in the 2013 Census.

- At post-primary level, teachers who took part in the DLF trial have their students use DTs to publish work online, collaborate and give peer-to-peer feedback, to analyse and create information, work with spreadsheets/databases, and submit homework, substantially more frequently than those in the 2013 Census.
- These increases represent a positive finding; however, they should be interpreted with respect to differences in the samples of the two studies. The 2013 Census sample was nationally representative, while the sample of teachers taking part in the DLF trial are likely to be in schools that are more positively disposed towards DT. Moreover, a majority of Phase 2 respondents were part of schools' DLTs and would therefore have been quite involved in the implementation of the DLF programme in their schools.

Teachers' views on the DLF document, Digital Learning Planning Guidelines, and other resources

- Teachers were asked the frequency with which they used or referred to the DLF document, Digital Learning Planning Guidelines (DLPG), Digital Learning Plan Template, and video exemplars during the course of the DLF trial.
- A majority (55-64% at primary level and 69-82% at post-primary level) used these resources once a month or more often which indicates relatively frequent engagement with these materials. Approximately one in seven primary school teachers (14%) had not referred to the DLF document or the DLPG while about 5% of post-primary teachers had not referred to the DLF document and 9% had not referred to the DLPG. About a quarter of primary teachers (26%) and 37% of post-primary teachers had not referred to the video exemplars.
- Roughly one-third of primary teachers rated the DLF document and DLPG as excellent or very good, while about one in five rated them as fair or poor.
- About half of post-primary teachers rated the DLF document and DLPG at excellent or very good, while about one in seven rated them as fair or poor.
- At both primary and post-primary levels, 75% or more of teachers rated the following aspects of the DLF document as excellent, very good or good: length and layout, language and terminology, content and wording of their school's domain, content and wording of statements of practice of their school's domain, and fit of the DLF within the schools broader planning and development activities.
- Comments about the DLF from about 12% of respondents indicated that some teachers felt that help was needed to 'unpack' the document, that the document was too long, and/or that the wording was too broad or too technical.
- Teachers rated general aspects of the DLPG (length and layout, language and terminology, overall usefulness) as well as each specific section of the DLPG. Ratings indicated that 82% or more of respondents felt that these general and specific aspects were excellent, very good or good.
- However, about one in five teachers did not provide any ratings on the DLPG and this, coupled with the low number of comments received about the

DLPG, suggests that many teachers may not have read the DLPG, or if they did, it was not in depth.

Time spent working on the DLF trial

- On average at primary level, teachers spent 17 hours working on the DLF trial (from November to May), and at post-primary level, an average of 18 hours was spent.
- There was some variation across respondents in the total time spent at primary level, one third of respondents spent 8 hours or less on the programme, while 28% spent 25 hours or more. The corresponding percentages at post-primary level are 29% and 29%.

Focus of the DLF trial programme

- Teachers were asked about the focus of the DLF programme in their school in terms of teaching/management/infrastructure areas, and areas of pupil competence and skill. At both primary and post-primary levels, teaching/management/infrastructure aspects were perceived to have a higher level of focus than pupils' or students' skills or competencies.
- The main areas of focus at primary level were teachers' digital literacy, development of teachers' skills in using specific apps or software, teachers' collaborative and team work, and making improvements to DT infrastructure. Pupils' skills and competencies that tended to have a high focus at primary level covered digital literacy, collaborative and team work, literacy skills, oral language skills and critical thinking and analysis.
- At post-primary level, teachers indicated the following areas as being of particularly high focus: teachers' digital literacy, collaborative and team work, use of DT for assessment, development of teachers' skills in using specific apps or software, and improving the sharing of documents and resources among teachers. Students' skills and competencies in digital literacy, collaborative and team work, and critical thinking and analysis tended to have a high focus at post-primary level.
- A comparison of the reports of teachers and DLT leaders to these questions indicates a consistency in the levels of focus reported, which suggests a good degree of shared understanding of the aims and focus of the schools' DLF programme.

Changes reported by teachers

- Teachers were asked to rate the extent to which they had observed changes with respect to 11 areas relating to teaching, learning, management and infrastructure on a scale ranging from significant change to no change.
- There has been quite a high degree of perceived change in a range of DT-related teaching, learning, management and infrastructural areas at both primary and post-primary levels. It should be borne in mind, however, that a majority of respondents were members of the schools' Digital Learning Teams and might have been more engaged in the DLF trial than teachers who were not on the schools' DLTs.

- At primary level, about 70% or more of teachers perceived significant or moderate changes in six of these areas: teaching and learning activities during class time, pupils' interest and engagement in learning, DT infrastructure, emphasis on DT in school policies/guidelines, collaboration with other teachers, and sharing of documents or resources with other teachers.
- At post-primary level, around 70% or more of teachers perceived significant or moderate changes in five of these areas: collaboration with other teachers, sharing of documents or resources with other teachers, emphasis on DT in school policies/guidelines, teaching and learning activities during class time, and use of DT in assessment.
- Perceived changes reported by teachers are largely consistent with those reported by DLT leaders.

Successes reported by teachers

- The perceived overall degree of success of the programme was moderate to high: 87% of primary teachers and 71% of post-primary teachers described it as highly or moderately successful.
- Teachers' ratings of overall success were slightly less favourable than those of the DLT leaders (100% of primary school DLT leaders and 95% of post-primary DLT leaders described the DLF trial programme as highly or moderately successful).
- Teachers rated 11 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme. These aspects were developed on the basis of key themes emerging from the focus groups in Phase 1.
- Across both primary and post-primary schools, a majority of teachers rated almost all items as essential. They gave particularly high ratings to professional development and supports and advice from the PDST advisors.
- These results suggest that a range of conditions and supports (PDST support and professional development; opportunity for discussion, collaboration and sharing learning across the school; engagement of school staff; and leadership from school management) need to be present in order for the DLF programme to be implemented successfully. This is consistent with the perspectives of the DLT leaders (Chapter 2).

Challenges reported by teachers

- Teachers were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their school. These items were developed from the key themes emerging from the Phase 1 focus group interviews.
- At both primary and post-primary levels, dedicated time to attend PDST advisor meetings and to implement the DLF programme, and DT infrastructure, emerged as the main, ongoing challenges experienced by teachers. At post-primary level, teachers also identified staff culture and

attitudes towards digital technologies leading to difficulties in 'buy-in' as a key challenge.

- The key challenges of time and DT infrastructure were also highlighted in the reports of DLT leaders (Chapter 2).
- Variation in the ratings is related to individual school contexts, and possibly levels of expectation. For example, at post-primary level, almost equal percentages of teachers rated DT infrastructure and their own level of DT competence as highly/moderately challenging, and somewhat/not challenging; at primary levels, dedicated time to implement the programme was not seen as a challenge by 57% of teachers, but was viewed as a major/moderate challenge among 43% of teachers.

Teachers' views on supports and training for the DLF programme

- Teachers were asked the extent to which they agreed or disagreed with six statements about professional learning/training (PLT). Their responses are relevant to planning for national rollout of the DLF programme.
- At primary level, there were mixed views on PLT being delivered to clusters of schools rather than single schools: 32% agreed with clustering, while 38% disagreed. A majority of 79% of primary teachers disagreed with the clustering of primary and post-primary schools together for PLT. A majority (54%) agreed that it would be feasible for them to attend a webinar (while 28% disagreed). Primary school teachers were in strong disagreement with the statement that PDST advisor visits could be substituted for phone calls, emails or webinars (82% disagreed, 10% were neutral, and 8% agreed). There was stronger support for a cross-curricular approach than a subject-specific approach in the provision of PLT for the DLF: 75% agreed that PLT should generally take a cross-curricular approach, while 25% agreed that it should generally take a subject-specific approach.
- At post-primary level, there were also mixed views on delivering PLT to clusters of schools rather than single schools: 42% agreed with clustering, while 47% disagreed. Similar to primary schools, a majority of post-primary school teachers (62%) disagreed with the clustering of primary and post-primary schools together for PLT. Three-quarters (75%) agreed that it would be feasible for them to take part in a webinar. There was slightly more agreement with the statement that PDST advisor visits could be substituted for phone calls, emails or webinars than at primary level, though a majority disagreed with this statement (35% agreed, 5% were neutral, 60% disagreed). There was support among post-primary teachers for both subject-specific approaches (61% agreement) and cross-curricular approaches (70% agreement) in the provision of PLT for the DLF.

Chapter 4
Findings from the PDST advisors' DLF trial visit programme

This chapter describes the PDST advisor DLF trial visit programme to schools mainly from the perspectives of advisors, but also with reference to DLT leaders' views. It includes a summary of a focus group interview that was conducted with the PDST advisors in April 2018. Results are described in four sections:

- General description of the visit programme (such as visit dates, lengths, staff attending, and visit goals/activities)
- Successes identified by PDST advisors
- Challenges identified by PDST advisors
- Main themes arising from the focus group of PDST advisors.

Results are unweighted (i.e. each school contributes equally to the calculation of means and percentages) and are *not* generalizable to the population of primary and post-primary schools in the country.

The percentages in this chapter refer to percentages of *schools*, not PDST advisors. That is, PDST advisors completed one survey for each of the schools assigned to them.

4.1. General description of the PDST advisor DLF trial visit programme

4.1.1. Visit dates, total number of visits, and length of visits

Table 4.1 shows visit dates, percentages of schools receiving two to five visits, average visit lengths, time elapsed between first and last visits, and average number of hours spent on all visits to each school.

Visits took place between November 7, 2018 and June 11, 2018 in primary schools, and between November 6, 2017 and May 11, 2018 in post-primary schools. On average, 20 weeks elapsed between the first and last visit to each primary school, and 21.5 weeks elapsed between the first and last visit to each post-primary school.

At primary level, almost all schools (93%) received five visits from their PDST advisor. At post-primary level, 40% of schools received five visits, 35% of schools received four, and 25% of schools received three. Reasons for schools receiving less than five visits varied. In some cases, schools agreed with the PDST advisors that five visits were not needed; in other cases, the school's schedule did not permit five visits to occur; and in the case of post-primary schools, one PDST advisor needed to cancel some of the visits due to injury towards the end of the DLF trial period.

On average, visits took between 3 and 5 hours at primary level and between 3 and 4 hours at post-primary level. At primary level, PDST advisors spent an average of 21.5 hours across all school visits, and at post-primary level, the average was significantly lower, at 13.4 hours ($p(t) < .001$). This comparison includes schools with fewer than five visits. However, even excluding schools with fewer than five visits, PDST advisors

spent significantly more time on their visits at primary (mean = 21.8 hours) than at post-primary level (mean = 16.3 hours) (p (t) = .002).

Table 4.1. Visit dates, percentages of schools receiving two to five visits, average visit lengths, time elapsed between first and last visits, and average number of hours spent on all visits: primary and post-primary

Aspect of visit programme	*Primary (n = 28)*	*Post primary (n = 20)*
Dates for Visit 1	7 Nov-21 Dec	6 Nov-7 Dec
Dates for Visit 2	22 Nov-11 Jan	8 Dec-9 Feb
Dates for Visit 3	10 Jan-20 Mar	12 Jan-15 May
Dates for Visit 4	29 Jan-30 Apr	8 Feb-30 Apr
Dates for Visit 5	7 Mar-11 Jun	12 Apr-11 May
% 2 visits	3.6	0.0
% 3 visits	0.0	25.0
% 4 visits	3.6	35.0
% 5 visits	92.8	40.0
Average visit length: Visit 1	3.2	3.1
Average visit length: Visit 2	3.5	3.2
Average visit length: Visit 3	4.8	3.8
Average visit length: Visit 4	5.0	3.9
Average visit length: Visit 5	5.2	2.4
Average number of days between first and last visits	142.0	151.0
Average number of weeks between first and last visits	20.2	21.5
Total number of hours spent on visits	21.5	13.4

4.1.2. Total time spent by PDST advisors in working with each school

On average, PDST advisors spent 29.2 hours working with each school during the DLF trial. This includes preparatory work, meetings with the school, communication with the school, and follow-up activities.

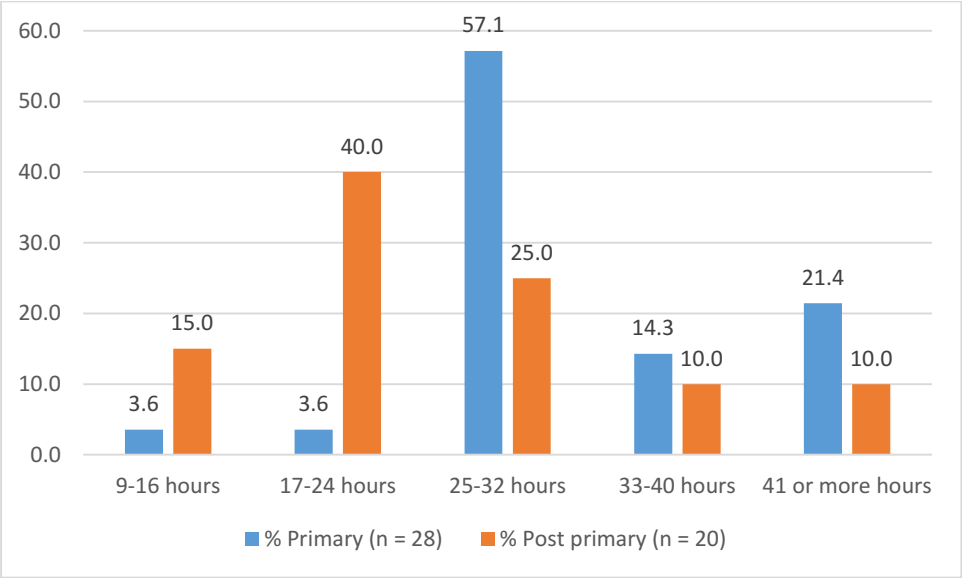
PDST advisors working with primary schools (mean = 32.4 hours) spent significantly more time working with each school than advisors working with post-primary schools (mean = 24.8 hours) (p (t) = .003). This comparison includes schools with fewer than five visits. After excluding schools with fewer than five visits, PDST advisors spent (statistically) the same amount of time on average at primary (mean = 32.9 hours) and at post-primary levels (mean = 32.0 hours) (p (t) = .763).

Therefore, although PDST advisors spent the same *overall* time working with schools at primary and post-primary level, proportionately more of this time was spent on school visits (rather than preparatory and follow-up work) at primary level (as noted in Section 4.1.2).

There was considerable variation in the number of hours spent with each school (Figure 4.1): at primary level, 55% of schools' visit programmes took between 9 and

24 hours, 25% took 25-32 hours, and 20% took 33 or more hours. At post-primary level, the corresponding percentages are 7%, 57% and 36%, respectively.

Figure 4.1. Total number of hours per school spent working on the DLF trial programme by PDST advisors: primary and post-primary



Note. This includes schools that received fewer than five visits (see Table 3.1).

Within post-primary level, there was no significant difference in the number of hours spent working with each school depending on whether schools were working on a Teaching and Learning or Leadership and Management domain. In contrast, at primary level, advisors working with 'Teaching and Learning' schools (mean = 34.6 hours) spent significantly more time on average than advisors working with 'Leadership and Management' schools (mean = 28.8 hours) (p (t) = .039).

Also within primary and post-primary schools there was no significant variation in total time spent working with each school by level of practice at Phase 1 (see Chapter 2, Section 2.5.2) (p (F) primary = .722; p (F) post-primary = .861), or by the principals' reports of the levels of DT infrastructure at Phase 1 (p (F) primary = .795; p (F) post-primary = .632). In other words, there is no relationship at either primary or post-primary levels between the time spent by PDST advisors working with each school and schools' initial levels of practice at Phase 1, or with schools' reported levels of DT infrastructure at Phase 1.

4.1.3. Number of school staff attending the PDST visits

Table 4.2 shows the numbers of staff attending each of the PDST visits at primary and post-primary levels. At primary level, on average, 3-4 members of staff attended the first two meetings, and this increased to an average of 10-12 staff during visits 3, 4 and 5. At post-primary level, an average of 5-6 members of staff attended the first two meetings, and this increased slightly to an average of 8-10 staff during visits 3, 4 and 5. This pattern presumably relates to the involvement of more teachers in the visits as the DLF trial programme progressed, for example in participating in professional learning/training facilitated by the PDST advisor.

In 10.7% of primary schools and 5.3% of post-primary schools, a non-school staff member attended one of these meetings. At primary level, these were a Montessori teacher working with the school and a third level teacher working with the school. At post-primary level, this was a member of the school's technical support company.

Table 4.2. Numbers of school staff attending each PDST advisor visit: primary and post-primary

Primary (n = 28)	*% 1-4 staff*	*% 5-9 staff*	*% 10-15 staff*	*% 16-20 staff*	*% 21-30 staff*	*% 31 or more staff*	*Mean number of staff*
Visit 1	75.0	25.0	0.0	0.0	0.0	0.0	3.25
Visit 2	60.9	39.3	0.0	0.0	0.0	0.0	3.96
Visit 3	29.6	25.9	11.1	7.4	25.9	0.0	11.56
Visit 4	29.6	29.6	11.1	7.4	22.2	0.0	10.89
Visit 5	42.3	23.1	7.7	3.8	23.1	0.0	9.85
Post-primary (n = 20)	*% 1-4 staff*	*% 5-9 staff*	*% 10-15 staff*	*% 16-20 staff*	*% 21-30 staff*	*% 31 or more staff*	*Mean number of staff*
Visit 1	35.0	55.0	10.0	0.0	0.0	0.0	5.75
Visit 2	35.0	55.0	5.0	5.0	0.0	0.0	6.05
Visit 3	25.0	35.0	20.0	15.0	0.0	5.0	9.80
Visit 4	18.8	31.3	37.5	6.3	0.0	6.3	10.38
Visit 5	37.5	25.0	25.0	12.5	0.0	0.0	7.75

4.1.4. Goals and activities of the visits

PDST advisors and DLT leaders were asked to indicate which among a list of 12 activities formed a part of each school visit. Table 4.3 shows the main activities associated with each visit as reported by PDST advisors and DLT leaders at primary level, while Table 4.4 shows this information for post-primary schools.

Both of these tables show a clear progression from unpacking or analysing the DLF, creating a shared vision of digital learning, and creating tools to gather evidence during the first two visits, to analysing the evidence and creating the Digital Learning Plan during visit 3, to reviewing the Plan, reviewing goals and targets, and reviewing progress during visits 4 and 5. Professional learning or training sessions were provided during visits 3, 4 and/or 5, rather than during earlier visits. Information on the precise content of these training sessions was not gathered. The setting of visit-specific goals occurred throughout the visit programme.

Broadly speaking, the reports of PDST advisors and DLT leaders are consistent with one another; however, there are some disparities. For example, during visit 2, at primary level, PDST advisors' reports indicated that 8% of schools received professional learning/training: the corresponding figure reported by DLT leaders is 33%. At post-primary level, 100% of school visits included professional learning/training according to PDST advisors' reports, but this figure is 47% on the basis of DLT leaders' reports. Some of these disparities may be related to differences

in (memory) recall of activities during each visit; however the differences between PDST advisors and DLT leaders' reports of professional learning/training suggest that these two groups have slightly different understandings of what professional learning/training entails.

Based on PDST advisors' reports, a higher number of professional learning/training (PLT) sessions was provided at primary level than at post-primary level (Figure 4.2): 96% of primary schools participated in PLT during two or three school visits while 87.5% of post-primary schools participated in PLT during one school visit only. The difference in the number of PLT sessions provided at primary and post-primary levels is statistically significant (p (chi-square) < .001).

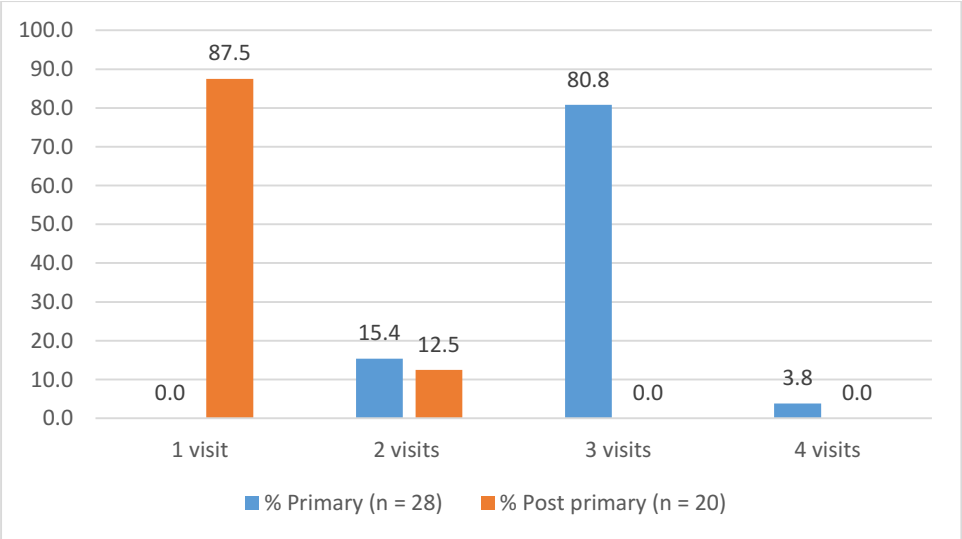
Table 4.3. Main activities of each visit as reported by PDST advisors and DLT leaders: primary schools

Primary (n = 28)	*PDST advisors' reports*					*DLT leaders' reports*				
	Visit 1	*Visit 2*	*Visit 3*	*Visit 4*	*Visit 5*	*Visit 1*	*Visit 2*	*Visit 3*	*Visit 4*	*Visit 5*
Unpacking/analysing DLF domain, statements and standards	100.0	34.6	0.0	0.0	3.8	91.7	4.2	0.0	0.0	0.0
Creating a shared vision of digital learning for the school	92.3	46.2	3.8	0.0	0.0	75.0	37.5	4.2	0.0	0.0
Creating tools to gather evidence	92.3	30.8	0.0	0.0	0.0	58.3	33.3	8.3	0.0	0.0
Analysing evidence gathered by the school	3.8	96.2	7.7	0.0	0.0	8.3	79.2	4.2	0.0	5.9
Creating the Digital Learning Plan	7.7	96.2	7.7	0.0	3.8	25.0	70.8	25.0	10.0	5.9
Reviewing the Digital Learning Plan	0.0	15.4	76.9	80.8	88.5	4.2	20.8	37.5	50.0	70.6
Setting overall goals/targets for the DLF trial	53.8	100.0	3.8	0.0	0.0	58.3	66.7	4.2	5.0	5.9
Establishing overall plan for the DLF trial	65.4	92.3	3.8	0.0	0.0	45.8	58.3	0.0	0.0	0.0
Revisiting/reviewing overall DLF trial plan/goals/targets	3.8	11.5	88.5	96.2	100.0	0.0	16.7	50.0	40.0	76.5
Reviewing/monitoring progress (e.g. evaluating attainment of DLF goals/targets)	0.0	15.4	65.4	96.2	100.0	4.2	25.0	58.3	40.0	70.6
Setting visit-specific goals	61.5	100.0	80.8	80.8	65.4	75.0	70.8	54.2	55.0	29.4
Focused/specific professional learning/training session	0.0	7.7	96.2	100.0	84.6	8.3	33.3	75.0	80.0	64.7
Other	3.8	7.7	11.5	7.7	3.8	4.2	4.2	4.2	5.0	5.9

Table 4.4. Main activities of each visit as reported by PDST advisors and DLT leaders: post-primary schools

Post-primary (n = 20)	*PDST advisors' reports*					*DLT leaders' reports*				
	Visit 1	*Visit 2*	*Visit 3*	*Visit 4*	*Visit 5*	*Visit 1*	*Visit 2*	*Visit 3*	*Visit 4*	*Visit 5*
Unpacking/analysing DLF domain, statements and standards	100.0	50.0	0.0	0.0	0.0	100.0	15.8	0.0	0.0	0.0
Creating a shared vision of digital learning for the school	100.0	87.5	25.0	0.0	0.0	84.2	42.1	15.8	11.8	0.0
Creating tools to gather evidence	62.5	62.5	12.5	0.0	0.0	52.6	42.1	21.1	5.9	0.0
Analysing evidence gathered by the school	0.0	75.0	50.0	12.5	12.5	0.0	63.2	47.4	11.8	0.0
Creating the Digital Learning Plan	0.0	50.0	100.0	0.0	0.0	21.1	63.2	47.4	41.2	27.3
Reviewing the Digital Learning Plan	0.0	12.5	37.5	87.5	100.0	0.0	5.3	42.1	58.8	54.5
Setting overall goals/targets for the DLF trial	87.5	87.5	87.5	37.5	50.0	42.1	52.6	47.4	23.5	36.4
Establishing overall plan for the DLF trial	62.5	62.5	50.0	12.5	12.5	42.1	52.6	47.4	29.4	27.3
Revisiting/reviewing overall DLF trial plan/goals/targets	0.0	25.0	87.5	62.5	100.0	10.5	36.8	52.6	64.7	63.6
Reviewing/monitoring progress (e.g. evaluating attainment of DLF goals/targets)	0.0	25.0	62.5	87.5	100.0	5.3	36.8	63.2	58.8	72.7
Setting visit-specific goals	87.5	75.0	62.5	75.0	37.5	63.2	57.9	52.6	52.9	36.4
Focused/specific professional learning/training session	0.0	0.0	0.0	100.0	12.5	10.5	31.6	63.2	47.1	45.5
Other	0.0	0.0	0.0	0.0	0.0	5.3	0.0	10.5	5.9	9.1

Figure 4.2. Number of school visits that included professional learning/training sessions (PLT): primary and post-primary



4.1.5. Contact with schools between visits

Table 4.5 shows the frequency with which there was contact by phone or electronically (by email or shared cloud-based drive) between schools and PDST advisors for planning and support purposes, as reported by PDST advisors and DLT leaders. Information on the precise nature of this support was not gathered.

At primary level, both electronic and phone contact for planning and support purposes were relatively frequent, mainly occurring between once a month and once a fortnight. For example, on the basis of PDST advisor reports, there was monthly or fortnightly contact with schools for planning by phone (78.5%), electronically (93%), and monthly or fortnightly contact with schools for support and guidance by phone (43%) or electronically (79%) in 43-93% of schools.

In post-primary schools, electronic communication for planning and support purposes was more common than phone contact. On the basis of PDST advisors' reports, there was monthly or fortnightly contact with schools for planning by phone in 37% of schools and electronically in 100% of schools, and monthly or fortnightly contact with schools for support and guidance by phone in 32% of schools and electronically in 90% of schools.

Table 4.5. Frequency of phone and electronic contact with schools between PDST advisor visits for planning and support purposes, as reported by PDST advisors and DLT leaders: primary and post-primary

Primary	**PDST advisor reports (n = 28)**				**DLT leaders' reports (n = 24)**			
	No/ rarely	*About monthly*	*About f'nightly*	*About weekly*	*No/ rarely*	*About monthly*	*About f'nightly*	*About weekly*
By phone: planning work	21.4	71.4	7.1	0.0	41.7	58.3	0.0	0.0
By email or shared drive: planning work	3.6	53.6	39.3	3.6	8.6	66.7	25.0	0.0
By phone: support and guidance	57.1	32.1	10.7	0.0	50.0	41.7	8.3	0.0
By email or shared drive: support and guidance	17.9	39.3	39.3	3.6	25.0	54.2	16.7	4.2
Post-primary	**PDST advisor reports (n = 20)**				**DLT leaders' reports (n = 19)**			
	No/ rarely	*About monthly*	*About f'nightly*	*About weekly*	*No/ rarely*	*About monthly*	*About f'nightly*	*About weekly*
By phone: planning work	63.2	21.1	15.8	0.0	47.4	42.1	10.5	0.0
By email or shared drive: planning work	0.0	75.0	25.0	5.0	5.3	47.4	31.6	5.3
By phone: support and guidance	68.4	26.3	5.3	0.0	52.6	36.8	10.5	0.0
By email or shared drive: support and guidance	10.0	75.0	15.0	0.0	21.1	52.6	21.1	5.3

4.2. Successes and components of success identified by PDST advisors

PDST advisors were asked to rate how successful they felt their work with each school was overall. At primary level, 61% indicated that it had been highly successful, 36% moderately successful, and 4% partly successful. At post-primary level, 45% indicated that it had been highly successful, 45% moderately successful, and 10% partly successful. Hence, perceived overall levels of success were high at both primary and post-primary levels. These ratings can be compared to the overall levels of success reported by DLT leaders in Chapter 2. A cross-tabulation of the PDST and DLT leaders' ratings is shown in Table 4.6.

In general, there is close agreement in the views of PDST advisors and DLT leaders on the overall level of success of the DLF trial in individual schools: 53% of ratings at primary level and 62.5% of ratings at post-primary level were in exact agreement. Where there is a difference in the ratings of PDST advisors, these are almost all due to differences in highly and moderately successful ratings between the two groups. For example, in 37% of primary schools, PDST advisors gave a moderately successful rating while DLT leaders gave a highly successful rating (figure marked in blue in Table 4.6).

Table 4.6. Cross-tabulation of PDST advisors' and DLT leaders' ratings of the overall success of the DLF trial programme: primary and post-primary

Primary: PDST advisor ratings in rows, DLT leader ratings in columns (n = 24)	Highly successful	Moderately successful	Partly successful	Total
Highly successful	**36.8**	10.5	0.0	47.4
Moderately successful	36.8	**10.5**	0.0	47.4
Partly successful	0.0	0.0	**5.3**	5.3
Total	73.7	21.1	5.3	100.0
Post-primary: PDST advisor ratings in rows DLT leader ratings in columns (n = 19)	Highly successful	Moderately successful	Partly successful	Total
Highly successful	**50.0**	8.3	0.0	58.3
Moderately successful	25.0	**12.5**	0.0	37.5
Partly successful	0.0	4.2	**0.0**	4.2
Total	75.0	25.0	0.0	100.0

For each of their schools, PDST advisors were asked to rate 10 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme. These aspects were developed on the basis of key themes emerging from the focus groups in Phase 1 (Cosgrove et al., 2018; Chapter 5). Figure 4.3 shows the percentages of primary and post-primary schools that received a rating for each of these aspects as 'essential for the success of the programme'.

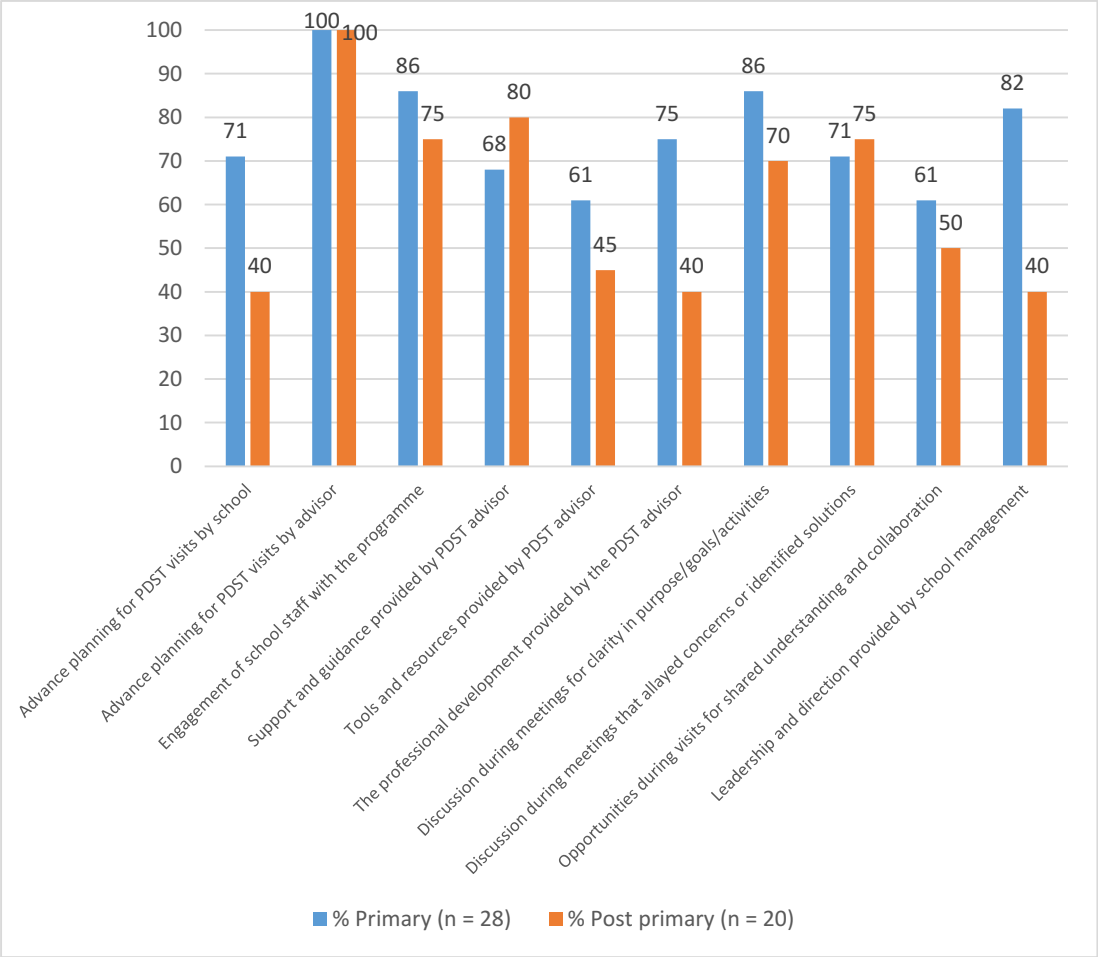
At primary level, all 10 aspects were rated as essential to the success of the programme in a majority of schools (61-100%). Four aspects were rated as essential

in 80% or more of schools: advance planning by the PDST advisor, engagement of school staff with the programme, discussion during PDST visit meetings that resulted in clarity of the programme's goals/purpose, and leadership and direction of school management.

At post-primary level, between 40% and 100% of each of these aspects was viewed as essential to the success of schools' programmes. Four aspects were rated as essential in 80% or more of schools: advance planning by the PDST advisor, engagement of school staff with the programme, support and guidance provided by the PDST advisor, and discussion during PDST visit meetings that addressed concerns that allayed concerns or identified solutions.

These ratings may be compared with the ratings of DLT leaders (Chapter 2, Figure 2.13) and teachers (Chapter 3, Figure 3.10). Ratings of advisors and DLT leaders are generally consistent. PDST advisors' views shown in Figure 4.3 indicate that a range of factors (advance planning, engagement of staff, opportunities for discussion and clarification, and support from PDTS advisors and school management) need to be present in order for the DLF programme to be implemented successfully. This is consistent with the views expressed by DLT leaders and teachers.

Figure 4.3. Percentages of primary and post-primary schools where PDST advisors rated 10 aspects of DLF programme implementation as essential to its success



PDST advisors were also asked to describe in a text response what they felt contributed to the success of the programme in each of their schools. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes are shown in Figure 4.4.

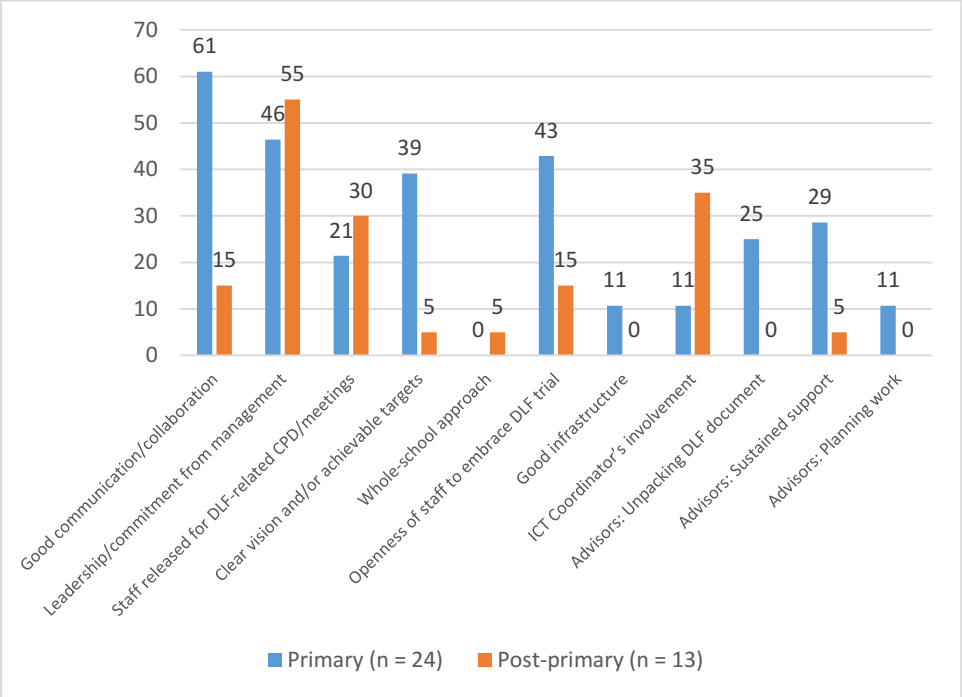
At primary level, the four most commonly-cited aspects or elements contributing to the success of schools' DLF trial programmes were:

- Good communication/collaboration (mentioned in 61% of comments)
- Leadership/commitment from management (46%)
- Openness of staff to embrace DLF trial (43%)
- Clear vision and/or achievable targets (39%).

Three further themes featured in 21-29% of comments:

- Provision of sustained support by PDST advisors
- Input from PDST advisors in unpacking the DLF document
- Staff released for DLF-related training/meetings.

Figure 4.4. Coded themes from PDST advisors in response to the question 'Please describe the things that contributed to the success of the programme in this school': primary and post-primary



At post-primary level, the three most commonly-cited aspects or elements contributing to the success of schools' DLF trial programmes were:

- Leadership/commitment from management (55%)
- ICT Coordinator's involvement (35%)
- Staff released for DLF-related training/meetings (30%).

Two further themes featured in 15% of comments:

- Good communication/collaboration
- Openness of staff to embrace DLF trial.

PDST advisors' commentary on what contributed to the successes of individual schools' DLF trial programmes underlines the findings in Figure 4.3 and also highlights the importance of good communication and collaboration, along with some of the practicalities of implementing the programmes, namely development of a clear vision and achievable targets (at primary level), the involvement of the ICT Co-ordinator (post-primary level), and having staff released to attend PDST meetings and training (at both primary and post-primary levels).

4.3. Main challenges identified by PDST advisors

PDST advisors were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their schools. These items were developed from the key themes emerging from the Phase 1 focus group interviews (Cosgrove et al., 2018; Chapter 5). Responses from primary and post-primary schools are shown in Table 4.7.

At primary level, four of these items were rated as being highly or moderately challenging in 40% or more of schools:

- The overall timeline for the trial
- Dedicated time for staff to implement the steps involved in the programme
- Digital technology infrastructure (e.g. number and quality of computing devices)
- Dedicated time for staff to attend PDST visit meetings.

In addition, five of the six remaining items were rated as highly or moderately challenging in 21-32% of primary schools:

- Sharing the learning of the Digital Learning Team across all staff in the school
- Providing overall leadership for the programme on the part of school management
- Staff level of competencies in managing and using digital technologies in teaching and learning
- Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme
- Broadband connectivity.

The final item, gathering evidence was viewed as highly/moderately challenging in just one school (4%).

Table 4.7. PDST advisors' ratings of ten issues as significant, ongoing challenges in implementing the DLF framework/programme in their schools: primary and post-primary

Primary (n = 28)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	14.3	14.3	14.3	57.1
My level of competencies in managing and using digital technologies in teaching and learning	10.7	21.4	53.6	14.3
The overall timeline for the trial	35.7	17.9	7.1	39.3
Dedicated time for staff to attend PDST visit meetings	29.6	11.1	22.2	37.0
Dedicated time for staff to implement the steps involved in the programme	21.4	21.4	32.1	25.0
Digital technology infrastructure (e.g. number and quality of computing devices)	21.4	21.4	14.3	42.9
Broadband connectivity/wifi connectivity or reliability	14.3	7.1	32.1	46.4
Gathering evidence to support the work of the programme	0.0	3.6	28.6	67.9
Sharing the learning of the Digital Learning Team across all staff in the school	3.6	28.6	0.0	67.9
Providing overall leadership for the programme on the part of school management	17.9	14.3	3.6	64.3
Post primary (n = 20)	*Highly challenging*	*Moderately challenging*	*Somewhat challenging*	*Not at all challenging*
Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme	20.0	15.0	20.0	45.0
My level of competencies in managing and using digital technologies in teaching and learning	15.0	30.0	35.0	20.0
The overall timeline for the trial	65.0	20.0	10.0	5.0
Dedicated time for staff to attend PDST visit meetings	55.0	20.0	10.0	15.0
Dedicated time for staff to implement the steps involved in the programme	55.0	20.0	15.0	10.0
Digital technology infrastructure (e.g. number and quality of computing devices)	20.0	25.0	25.0	30.0
Broadband connectivity/wifi connectivity or reliability	20.0	25.0	15.0	40.0
Gathering evidence to support the work of the programme	0.0	40.0	20.0	40.0
Sharing the learning of the Digital Learning Team across all staff in the school	0.0	40.0	20.0	40.0
Providing overall leadership for the programme on the part of school management	15.0	20.0	15.0	50.0

At post-primary level, three of the items were rated as highly or moderately challenging in 75-85% of schools:

- The overall timeline for the trial
- Dedicated time for staff to implement the steps involved in the programme
- Dedicated time for staff to attend PDST visit meetings.

The remaining seven items were rated as highly or moderately challenging in 35-45% of schools:

- Digital technology infrastructure (e.g. number and quality of computing devices)
- Staff level of competencies in managing and using digital technologies in teaching and learning
- Broadband connectivity
- Sharing the learning of the Digital Learning Team across all staff in the school
- Gathering evidence to support the work of the programme
- Providing overall leadership for the programme on the part of school management
- Staff culture and attitudes towards digital technologies leading to difficulties in 'buy-in' to the programme.

Hence, consistent with the reports of DLT leaders (Chapter 2, Table 2.21) and teachers (Chapter 3, Table 3.13), the main challenges associated with DLF trial programme implementation from PDST advisors' perspective related to time issues and (at primary level) infrastructural issues. Other challenges vary somewhat more depending on individual schools' contexts, but all of these featured in a significant minority of schools (21-33% at primary level and 35-45% at post-primary level).

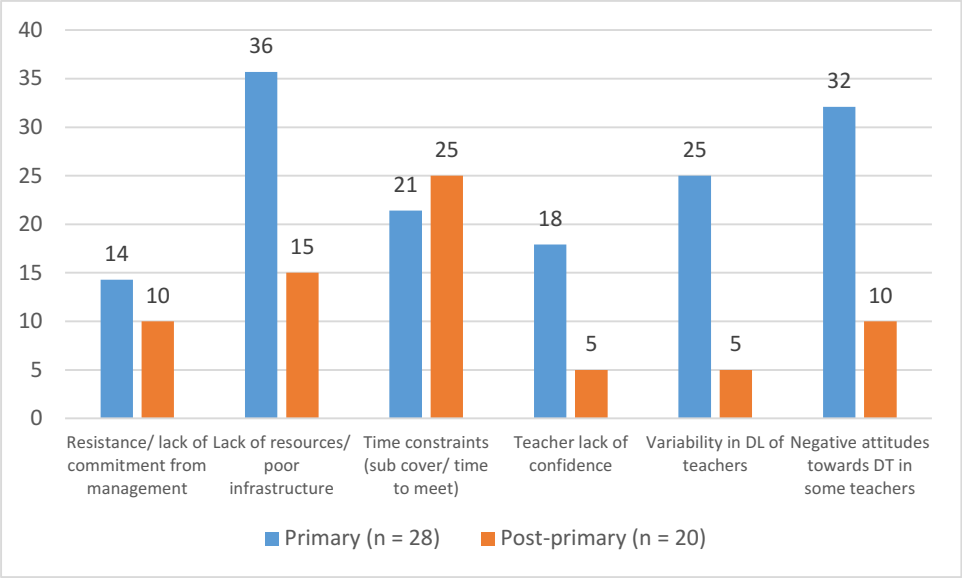
PDST advisors were also asked to describe in a text response what they felt were the challenges affecting the implementation of the DLF programme in each of their schools. The text responses were coded into themes by two researchers at the ERC, and the frequency of these themes are shown in Figure 4.5.

At primary level, the two most common themes related to lack of DT resources or poor infrastructure (36%) and negative attitudes towards DT among some teachers (32%). One quarter of advisors' school commentaries included reference to variability in digital literacy levels/competencies among teaching staff, while 21% referred to time constraints (e.g. lack of substitute cover or time to meet staff). Lack of teacher confidence featured in 18% of comments, while resistance or lack of commitment from school management was mentioned in 14% of primary schools' commentaries.

At post-primary level, the most common theme related to time constraints (25%). In 15% of advisors' school commentaries, lack of DT resources or poor infrastructure featured. In one in ten post-primary schools, PDST advisors cited resistance or lack of commitment from school management and/or negative attitudes towards DT among some teachers as challenges. Just 5% of commentaries (which equates to one school) included reference to teachers' lack of confidence and/or variability in digital literacy levels or competencies among teachers.

PDST advisors' comments on the challenges experienced again underline the issues of time and DT resources/infrastructure; they further suggests that culture around and attitudes towards DT is more of a challenge at primary level than at post-primary.

Figure 4.5. Coded themes from PDST advisors in response to the question 'Please describe the challenges that affected the implementation of the programme in this school': primary and post-primary



4.4. Focus group with PDST advisors

Two researchers from the ERC conducted a focus group with PDST advisors in April 2018. The four primary level and three post-primary level advisors were interviewed as a single group. The main themes emerging from the discussion are summarised in this section. Some serve to further highlight some of the issues identified in previous sections and chapters of this report, while others provide additional insight into the implementation of the DLF trial.

The interview topics that arose are organised in this section under four themes:

- Time and timing
- Roles and supports
- The DLF document
- Leadership, planning and communication.

Where possible, issues that pertain more to primary schools than post-primary schools, and *vice versa*, are highlighted.

4.4.1. Time and timing

PDST advisors made two key points about time. First, the short timeframe for the DLF trial limited schools' ability to fully achieve the aims/objectives of the trial. This led to advisors and schools amending the timeframes for the implementation of schools' DL plans (see Chapter 2, Table 2.8).

We've actually amended our timeframes to make them realistic because the shortness of the trial was not actually long enough for them to actually achieve and to embed it truly into practice.

Second, competing demands on staff time presented a challenge to planning and implementing the programme. This challenge, arguably, could be expected with the implementation of any new programme, but may have been exacerbated by the overall short timeframe and the lack of substitute cover.

[You need to] give it the time to embed because you know, there's so many priorities now and if you put everything a priority, nothing becomes a priority.

They [schools] weren't really maximising what they wanted to give to it because of time constraints.

Sub cover was a massive thing. That's actually why my first school dropped out, because they said, 'how am I meant to release these teachers?' … They said, we can't be releasing this number of teachers without cover.

Advisors also discussed the issue of timing in relation to the ICT infrastructure grant. They noted that the receipt of grant money tended not to be concurrent with DL plan formulation. Consequently, some schools had not received the devices they had planned to purchase and did not have access to them throughout the DLF trial. This was challenging within the context of the DLF trial in the short term. However, the rationale for the long-term was clear: adequate consideration and planning was required before purchasing devices to ensure the best fit for the school.

The schools were waiting for the grant to come in, so that they could purchase [devices]… the teachers are only getting access to that technology now in April going into May, so they're now only getting a chance to start using it, in their daily practice.

I suppose that rationale is that what goes on in the [DL] plan should inform the purchasing decisions… I personally don't see it as an issue that the teachers are only getting the devices into their hands now, because I suppose while they may not have had them throughout the whole school year this year, there will be more perks for engagement with those devices, and more authentic use of it in subsequent years and I suppose we're not necessarily just looking at just the impact of this academic year, but long term into the future.

4.4.2. Roles and supports

There was quite a lot of emphasis on this theme in the PDST advisors' focus group. The main sub-themes arising here relate to:

- Professional learning and sustained support
- Benefits of collaboration

- Variation in levels of digital literacy among teachers
- Infrastructural issues
- Technical roles, support and advice
- Clustering schools for support.

Professional learning and sustained support
There was strong consensus in the group that without appropriate, tailored and sustained (rather than once-off) professional learning/training, the DLF cannot enable change. The group was not asked about the precise type of professional learning/training provided.

For real change to take place in the classroom, I feel they need sustained CPD.

I suppose yes, it's down to teacher interests, willingness, what CPD they have done, but if the CPD isn't available for them to do and it's not available at the level they need it on a continuous basis, then you won't have the buy in and you won't have the implementation of the framework.

Ideally, the group felt, there should be sufficient time allocated for professional learning/training, with appropriate intervals between visits, so that teachers have an opportunity to practise what they have learned, reflect, and then seek further guidance/clarification to adjust, improve, and build confidence.

… the CPD that we did … they got a real chance to actually see, what worked, what didn't work for them, and I was there to help them tweak what worked and what didn't work, but also to get them that confidence boost to actually say, 'I can do it'.

Some advisors were working in a strategic way with schools to develop in-house CPD structures, capitalising on the potential already in the schools in order to build on and sustain the successes of the DLF trial. They noted that a structured, coherent approach is required to achieve this.

There's a huge amount of knowledge in a lot of our schools, so it's trying to actually develop a system within your school where you can actually provide in-house CPD within your staff, share the expertise, get into the collective collaborative approach.

Benefits of collaboration
A highly collaborative spirit was adopted by PDST advisors in their work with schools and the group felt that this achieved positive results. Advisors worked closely *with* staff both in the classroom and in the planning of professional learning sessions. The whole process of implementing the DLF trial was based on an idea of collaborative work. This was more readily embraced by some schools than others, and possibly more so at post-primary than at primary level.

We got a lot of positive feedback from schools just on the way that they were all able to all collaborate.

It was very much everyone was an equal member on this, and it wasn't necessarily that the advisor was coming in and doing the plan… all of us had at least one school like this where there was almost and expectation that, we would do the planning and they would sit there. I don't know if that is reflected in post primary or not, but in primary that was always the expectation as to that's why we're here. We're here to get the plan, so that the plan will let us get the money so that the money will get us the devices. That came across from some [staff].

In promoting a collaborative approach to the DLF trial, PDST advisors noted that this had required the development of their own skills as a facilitator rather than as a leader: this, they felt, was the best approach to sustain change and development.

[I'm more aware of] the importance of facilitation rather than the direction to schools [as a result of the DLF trial], because it's a very comfortable space you know for us to go in and say – oh yeah, we're using this or that's a great tool you should try this, but it has to come from within.

The role of the PDST advisor included bringing in new ideas and approaches from other schools, which were then adopted and adapted within schools' individual contexts.

What's key as well here is the cross-pollination of ideas between schools because they're saying to you, 'What's happening in another school? Can you give us examples?' Not that they want to copy it, but they are just looking for ideas, and they're taking it and building on it.

As noted by the Phase 1 focus groups (Cosgrove et al., 2018, Chapter 5), it was the norm for there to be a 'go-to' person for DT in schools, but if that person leaves, the school is at a loss. This point was made by the advisors to highlight the importance of collaboration and sharing of knowledge among staff for capacity building. However, it was also noted that there could be a reluctance from ICT/DL liaison teachers to share their knowledge with other staff, which challenged the whole collaborative nature of the framework.

[It is important for school staff to] share the expertise, get into the collective collaborative approach. It becomes part of the school, in a lot of our schools I'm sure you've the person who does technology and then they leave and there's no technology in the school anymore. So, a school that looks highly effective until that one person is gone.

[In one school] it's very much controlled by one person who's the expert and the IT person but not letting anybody else in".

Variation in levels of digital literacy among teachers

PDST advisors emphasised that teachers' levels of digital literacy vary greatly, and were all of the view that professional learning/training must be provided at an appropriate level to ensure embedding of DT in practice, particularly when the DLF trial programme involves, for many, a significant shift in attitudes, approaches and skills.

> *A teacher said to me, and it will stay with me: other organisations - if you were in banking, if you're in whatever else, you get a new system in your work, you will be given a week of training and specialised support. We are bringing out a framework which is completely changing, and we are expecting embedding, yet some of those teachers don't know how to add an attachment to emails. And that's not to belittle what they're doing because they're training themselves. It's if you're interested and it's almost seen as an add-on …The training has to be provided at that level if we want them to have effective embedding.*

They observed that the embedding of DT into practice was not simply a case of digital competence, but also what the teacher brought to their profession more generally.

> *If the teacher is a really highly effective teacher without technology and they're engaged in project-based learning and they're engaged in active learning and they're open to change, the technology will enhance it. But if it's a teacher who is disengaged, is not interested in technology, it's [technology] not going to make a difference.*

Infrastructural issues

All PDST advisors were in agreement that the reliability of devices and connectivity is crucial: teachers need to be able to depend on the infrastructure if it is to become embedded in their practice. They felt that this is particularly important when teachers are in the early stages of embedding new techniques and practices into teaching and learning, where technical failures were viewed as a major disincentive.

> *What I've experienced is the actual infrastructure or the tools that they're using lets them down. They can be very apprehensive about you know making a great plan, and having a … realistic timeframe to embed that plan. But the expertise within the school, it mightn't be there to ensure that the equipment they need, for their class every 40 minutes, like is it operating the same ways as, you know, the lights in the classroom? Or is it just an afterthought? …and that's where we can plan plan plan, but it filters back into that big question [of infrastructure] all the time.*
>
> *The infrastructure, the IT infrastructure should be like the toilets and the electricity in the school: if they're not working, we can't do our job.*

The PDST advisors observed huge variation between and within schools in terms of effective practice, and they felt that this is partially related to infrastructure.

If it doesn't work when they go to use it, they are not going to use it.

It was suggested that, ideally, the Department of Education and Skills would take overall responsibility for the provision of adequate infrastructural supports, so that the schools could focus on making and implementing the DL Plan.

Imagine if they didn't have to spend time actually thinking about Wi-Fi … like oh it's coming next week from the department … we don't have to worry about the other stuff because it's going to work, they told us it was going to work.

Technical roles, support and advice

PDST advisors spent time during the focus group discussing issues that they had observed in relation to the more technical aspects of DT. As noted previously, it was the norm in their schools to have one 'go-to' person that looks after technical support and maintenance who does so voluntarily. This was considered both unfair and unsustainable, even with the support of the PDST: it was strongly asserted that PDST advisors and teachers are not technicians.

We don't have the technical assistance or expertise on the ground to deal with problems as they arise…schools don't [either].

We're teachers, we are not technicians, and as an advisor I'm an advisor as a teacher, but not as a technician.

You'd have a conversation with all the teachers, and they're always apologising to one particular teacher who is the go-to person – 'oh we're always annoying them', always.

PDST advisors commented that, while ICT/DT co-ordinator posts do exist, these are optional, and other posts of responsibility tend to take precedence, particularly in smaller schools, especially where there may be a culture of little or no engagement with DT. At post-primary level, the broader structure of the system gave rise to variations in the levels and quality of technical support.

Lots of the schools I suppose, just because geographically in the western region are smaller, any posts they have will be for 'Deputy Principal', 'Literacy and Numeracy', they won't be for ICT, just because they haven't the staff. Larger schools will but small schools probably won't… also some schools would have a history of non-engagement with technology.

Depending on the [post-primary] sector that you're in. For example, if you're in an ETB school, there's a lot of centralised support…. Whereas, if you're in a voluntary secondary or a community comprehensive school, that support isn't there.

PDST advisors were of the view that the Department of Education and Skills should acknowledge both the variation in existing technical supports and the current lack of funding for such support as a significant barrier.

The Minister has great plans for embedding technology throughout primary, post primary and so on. However, if he's really serious about it, he needs to give that [technical] support either in each school, or by clustering schools together and by providing a full-time person, but… I don't believe it can happen, if the current situation prevails.

It's less costly to let schools muddle around in the dark but that's not the best.

The PDST advisors cited a couple of examples from other countries where the roles of a technician and co-ordinator and coach are separate. In Ireland, these two roles are combined into a single role, which PDST advisors felt was overload on a single person.

In the States, there's an instructional technology coach, in the UK, it's technology co-ordinator, in Ireland we call it the ICT co-ordinator but it's everything. They've [separate] technicians in the States and in the UK.

The ICT co-ordinator told me that they could have spent their whole time on this [DLF trial], but they're so busy in teaching and the responsibility for all the other things in relation to IT in the school… they'd like to go into classrooms and show them good practice, but they're being pulled left, right and centre, for other things.

They spoke about the complementary value of the two roles, where the technician provides technical support, and the coach or co-ordinator role is one of a strategic leader of good pedagogical practice using DT.

You can imagine bringing a tech person into a school environment and place them in the school. They are not going to be able to give teachers much advice on the teaching and learning aspect.

It comes back to having a technician, the technician has to be there but also the co-ordinator as the leader of good practice.

The group also felt that schools could benefit from advice regarding the purchase of DT devices. They felt that it was common for principals/DLT leaders to feel uncertain about their knowledge when making decisions about the purchase of devices, and that the responsibility for choosing and purchasing devices fell to principals without the appropriate knowledge/expertise.

It's such a pressurised environment, like an ICT co-ordinator could be a deputy principal or principal, because they would look to us for advice, and as a PDST advisor, it's a serious question to be asked – 'what to actually buy'. I feel that most of

the schools I've worked with struggle on [this]. Who makes these decisions, most informed decisions of what to bring into a school, you know, with the money coming into the schools, who is the expert?

One of the advisors cited an example of a purchase made by a school where this issue was observed in practice:

What the company agreed with the school wasn't the best fit for the school, and… the principal didn't necessarily know how to push for that or didn't get what they needed for the best fit.

PDST advisors cited three examples of commercial technology companies setting the agenda and using commercial marketing strategies with schools. They were of the view that (publicly funded) schools should be protected against (corporate) marketing pressures and enabled to make informed decisions in response to these pressures.

They [the school] asked me would I sit in with their support service company to come in for a meeting. I sat in with the company, and from a teacher's perspective what I listened to was, that the company set the agenda of that meeting. The teachers didn't, right… The support company, they are in it for whatever reasons, but I think why should they set the agenda for any school?

[A school received an email about] A company coming in to conduct an audit on what equipment they have and presumably to see any gaps and to sell something … But, the phraseology of the email was such that it implied that it was … part of the DLF process.

They [the school] contacted the company… and said we want to replace a broken projector, the company then said, 'oh', because they could look up the number of students on the department's website, so they could get a rough estimate of – how much money they got in the grant, and they basically upsold them an interactive projector, which they didn't need.

Clustering schools for support

PDST advisors were of the view that clustering schools was not common practice in general, but creating clusters of schools for delivery of technical and professional support was considered essential. They also expressed concerns about the logistics of creating and co-ordinating clusters.

I would really think that if they set up clusters, it's going to have to be looked at very carefully … It's going to be a logistic nightmare to even identify the clusters… it should be done with a range of constraints and characteristics, as well as what is already sort of existing there like the education centres to work out what might work.

4.4.3. The DLF document

PDST advisors provided some insights into the DLF document in terms of how it worked 'in practice'. There was enthusiasm among the advisors for the DLF's

potential to significantly change the way technology is used in schools, particularly to enhance teaching and learning.

> *I think it's a really good framework to have as a structure for a school to really connect with. The technology for years, people were saying go down to the computer room… type page 5 bold, italic, underline – there is no learning in that. Whereas now this gives you a structure to actually really think, well what is the technology doing? How is it enhancing their learning experience? How is it enhancing everything?*

However, all of the PDST advisors stated that they had struggled with the language and terminology in the DLF document. They noted that despite having a higher-than-average level of interest in embedding DT in their practice, they found it difficult to translate the DLF document into practical actions. This led them to query the feasibility of some schools using the document to enable changes in practice.

> *It took us weeks to unpack all those statements … and then we were thinking, what could this possibly look like in practice in terms of effective and highly effective? In terms of a school who are starting off on this journey, who don't actually know what tools are out there or what we can do… A school that is going into this journey next year with no guidance from a PDST advisor, it's very difficult for them to suddenly now understand what this could possibly look like.*

The PDST advisors observed that it was common for schools to struggle with the document: both with the language and terms and the process of unpacking the relevant domain and mapping it to practice in their local contexts. PDST advisors felt that the addition of concrete or practical examples could benefit the DLF document.

> *We literally just gave them [school staff] one statement, and asked them to try and unpack it, and they didn't get it. They really struggled to unpack it. They were looking at completely irrelevant things to what the actual statement was saying.*
>
> *I understand they were written with vagueness in mind, because there is 3000 and something schools in the country and you have to try and match them to them all, but there's no concrete examples to go along with them.*

Advisors noted that the process of unpacking the DLF domains involves a level of freedom and flexibility that is outside of the norm in many schools, along with a level of uncertainty, which can give rise to anxiety. This can make it challenging for schools to engage with the document without the support and reassurance of the advisors.

> *They're [school staff] not even used to the freedom of being able to think like that. All they want to know is, is there a template, can I see something another school has done and then we'll model it on that... I think the freedom that this offers them scares them as well, because they're not used to it.*
>
> *Teachers don't like to be wrong. Like they don't like to give you an answer unless they're 100% sure, and they're looking to you isn't that right? Well there isn't a right*

answer, there's a couple of right answers and there's that grey area that doesn't even sit well [with teachers].

PDST advisors were of the view that the two dimensions (Teaching and Learning, Leadership and Management) were too detached from one another in the document. The division, they felt, did not reflect the reality of schools' experiences, where there are natural interdependencies between Teaching and Learning and Leadership and Management. They suggested making an explicit link between the two dimensions in the DLF document.

There seems to be a disconnect between the teaching and learning dimension and the leadership management dimension… We're finding that the leadership and management dimensions are being kind of integrated an awful lot with the teaching and learning dimensions, which totally makes sense for the schools.

I think each of the standards in teaching and learning should be in some way linked to those in leadership and management… it should be made explicit, and I think if you go along and you pick a standard from teaching and learning, you should have a corresponding, at least an option in leadership/management, but therefore your focus and your central point is on the teaching and learning, but it's being supported by the leadership.

Linkages between SSE and the DLF were also considered. It was noted that for SSE, schools are not currently focusing on the leadership and management dimension, so some participants felt that this should be the main focus of the DLF trial. However, other members of the group felt that by focusing on Teaching and Learning, a certain level of infrastructure is assumed, and this might not exist in all schools. Therefore the Leadership and Management domain was considered a means by which schools could use the DLF to address infrastructural issues.

I don't know if they are meaningfully engaging with that particular dimension [Leadership and Management], because they haven't been asked to do it for SSE, and I think if we go in there and ask them to do it, it is going to be completely foreign to them. I think if we don't mirror the SSE process, then that is going to be a huge bugbear in the schools as well.

I suppose it's not really appropriate to put in the infrastructural aspects into [Teaching and Learning domains], it fits more naturally within the Leadership and Management [dimension].

4.4.4. Leadership, planning and communication

Endorsement and support from the principal and/or other members of senior management was considered instrumental to the success of the programme by the PDST advisors.

The schools that I built the best relationships with were the ones where leadership – either a deputy principal or a principal – were involved and met me every time I came out to the school. If they were there, and they knew I was coming it worked better.

If you're not getting that sort of feeling of, the management are on board with this, they're leading it, they're involved with this and they promote this, it's going to fall to the side.

Two key aspects of the planning aspects of the DLF trial were viewed by PDST advisors as being critical. The first is the time spent by PDST advisors as a group, where three days were spent planning and developing tools and resources. PDST advisors also worked individually on preparatory activities and collaborated online.

The amount of time we spent together as a group was crucial in preparing for those initial few visits. There'd be a lot of days where you'd be doing work by yourself and everybody could see the results of it.

The second was the development of a Digital Learning vision in each school through a systematic process of identifying an end point and then working backwards to ascertain what was needed to achieve that end point.

The vision was the most important part now looking back on it… It wasn't a case of, 'let's match it to the planning', it was – 'my school wants to be at this point', and then we'll make the plan that works for us, and they're the ones [schools] that have succeeded.

PDST advisors noted a high volume of communication between them and the schools, and acknowledged the high value of the effective use of shared online (cloud-based) folders of tools and resources.

I think I've on average 50 emails, 25- 50 emails over and back with my 5 visits for one school and that's the average. That's a lot.

Between the visits it was very useful in our share of Google drive, Google folders with the schools, we'd have an action document – so what needed to be done between now and our next visit.

4.5. Key points from Chapter 4

Visit dates, total number of visits, length of visits, and staff attending

- Visits took place between November 7, 2017 and June 11, 2018 in primary schools, and between November 6, 2017 and May 11, 2018 in post-primary schools. On average, 20 weeks elapsed between the first and last visit to each primary school, and 21.5 weeks elapsed between the first and last visit to each post-primary school.

- At primary level, almost all schools (93%) received five visits from their PDST advisor. At post-primary level, 40% of schools received five visits, 35% of schools received four, and 25% of schools received three. Reasons for schools receiving less than five visits varied.
- On average, visits took between 3 and 5 hours at primary level and between 3 and 4 hours at post-primary level. Even after accounting for schools with fewer than five visits, PDST advisors spent significantly more time on their visits at primary (mean = 21.8 hours) than at post-primary level (mean = 16.3 hours).
- On average, PDST advisors spent 29.2 hours *in total* working with each school during the DLF trial. This includes preparatory work, meetings with the school, communication with the school, and follow-up activities. There was no difference in total working time per school between primary and post-primary levels. Nor did total working times vary by schools' initial level of DT practice or principals' reports of schools' DT infrastructure at Phase 1.
- At primary level, on average, 3-4 members of staff attended the first two meetings, and this increased to an average of 10-12 staff during visits 3, 4 and 5. At post-primary level, an average of 5-6 members of staff attended the first two meetings, and this increased slightly to an average of 8-10 staff during visits 3, 4 and 5. This pattern presumably relates to the involvement of more teachers in the visits as the DLF trial programme progressed.

Goals and activities of the visits

- PDST advisors and DLT leaders were asked to indicate which among a list of 12 activities formed a part of each school visit.
- Their responses show a clear progression:
    - unpacking or analysing the DLF, creating a shared vision of digital learning, and creating tools to gather evidence during visits 1 and 2
    - analysing the evidence and creating the Digital Learning Plan during visit 3
    - reviewing the Plan, reviewing goals and targets, and reviewing progress during visits 4 and 5.
- Professional learning or training sessions were provided during visits 3, 4 and/or 5, rather than during earlier visits. The setting of visit-specific goals occurred throughout the visit programme.
- Broadly speaking, the reports of PDST advisors and DLT leaders are consistent with one another; however a comparison of their responses suggests that DLT leaders and PDST advisors have slightly different understandings of what professional learning/training entails.
- Based on PDST advisors' reports, a significantly higher number of professional learning/training (PLT) sessions was provided at primary level than at post-primary level. However, number of PLT sessions did not vary by schools' level of practice or level of DT infrastructure at Phase 1.
- Information on the content and focus of the professional learning sessions was not gathered.

Contact with schools between visits

- PDST advisors and DLT leaders were asked about the frequency with which there was contact by phone or electronically (by email or shared cloud-based drive) between schools and PDST advisors for planning and support purposes, as reported by PDST advisors and DLT leaders.
- At primary level, both electronic and phone contact for planning and support purposes were relatively frequent, mainly occurring between once a month and once a fortnight.
- In post-primary schools, electronic communication for planning and support purposes was more common than phone contact.

Successes and components of success identified by PDST advisors

- PDST advisors were asked to rate how successful they felt their work with each school was overall.
- At primary level, 61% indicated that it had been highly successful, 36% moderately successful, and 4% partly successful.
- At post-primary level, 45% indicated that it had been highly successful, 45% moderately successful, and 10% partly successful.
- In general, there is close agreement in the views of PDST advisors and DLT leaders on the overall level of success of the DLF trial in individual schools.
- For each of their schools, PDST advisors were asked to rate 10 aspects of programme implementation in terms of whether they viewed them as essential, important or not important for the success of the programme.
- At primary level, all 10 aspects were rated as essential to the success of the programme in a majority of schools (61-100%). Four aspects were rated as essential in 80% or more of schools: advance planning by the PDST advisor, engagement of school staff with the programme, discussion during PDST visit meetings that resulted in clarity of the programme's goals/purpose, and leadership and direction of school management.
- At post-primary level, between 40% and 100% of each of these aspects was viewed as essential to the success of schools' programmes. Four aspects were rated as essential in 80% or more of schools: advance planning by the PDST advisor, engagement of school staff with the programme, support and guidance provided by the PDST advisor, and discussion during PDST visit meetings that addressed concerns that allayed concerns or identified solutions.
- PDST advisors' ratings indicate that a range of factors (advance planning, engagement of staff, opportunities for discussion and clarification, and support from PDTS advisors and school management) need to be present in order for the DLF programme to be implemented successfully. This is consistent with the views expressed by DLT leaders and teachers.
- PDST advisors were also asked to describe in a text response what they felt contributed to the success of the programme in each of their schools. The text responses were coded into themes.
- At primary level, the four most commonly-cited aspects or elements contributing to the success of schools' DLF trial programmes were: good communication/collaboration; leadership/commitment from management;

openness of staff to embrace the DLF trial; and a clear vision and/or achievable targets.

- At post-primary level, the three most commonly-cited aspects or elements contributing to the success of schools' DLF trial programmes were: leadership/commitment from management; ICT Coordinator's involvement; and staff released for DLF-related training/meetings.
- PDST advisors' commentary highlights the importance of good communication and collaboration, along with some of the practicalities of implementing the programmes, namely development of a clear vision and achievable targets (at primary level), the involvement of the ICT Co-ordinator (post-primary level), and having staff released to attend PDST meetings and training (at both primary and post-primary levels).

Main challenges identified by PDST advisors

- PDST advisors were asked to rate how challenging a range of 10 issues were in implementing the DLF trial programme in their schools. These items were developed from the key themes emerging from the Phase 1 focus group interviews.
- At primary level, four of these items were rated as being highly or moderately challenging in 40% or more of schools: overall timeline for the trial; dedicated time for staff to implement the steps involved in the programme; digital technology infrastructure (e.g. number and quality of computing devices); and dedicated time for staff to attend PDST visit meetings.
- At post-primary level, three of the items were rated as highly or moderately challenging in 75-85% of schools: the overall timeline for the trial; dedicated time for staff to implement the steps involved in the programme; and dedicated time for staff to attend PDST visit meetings.
- The remaining seven items were rated as highly or moderately challenging in 35-45% of post-primary schools. These included DT infrastructure, staff competence in DT, broadband connectivity, and provision of leadership on the part of school management.
- These views, which emphasise time and DT infrastructure as key challenges, are consistent with the reports of DLT leaders and teachers.
- PDST advisors were also asked to describe in a text response what they felt were the challenges affecting the implementation of the DLF programme in each of their schools. The text responses were coded into themes.
- At primary level, the two most common themes related to lack of DT resources or poor infrastructure (36%) and negative attitudes towards DT among some teachers (32%). One quarter of schools' commentaries included reference to variability in digital literacy levels/competencies among teaching staff, while 21% referred to time constraints (e.g. lack of substitute cover or time to meet staff). Lack of teacher confidence featured in 18% of comments, while resistance or lack of commitment from school management was mentioned in 14% of primary schools' commentaries.
- At post-primary level, the most common theme related to time constraints (25%). In 15% of schools' commentaries, lack of DT resources or poor infrastructure featured. In one in ten post-primary schools, PDST advisors

cited resistance or lack of commitment from school management and/or negative attitudes towards DT among some teachers as challenges.

Focus group themes emerging

Two researchers from the ERC conducted a focus group with PDST advisors in April 2018. The four primary level and three post-primary level advisors were interviewed as a single group. The interview topics that arose were organised under four themes:

- Time and timing
- Roles and supports
- The DLF document
- Leadership, planning and communication.

Time and timing

- The short timeframe for the DLF trial limited schools' ability to fully achieve the aims/objectives of the trial. This led to advisors and schools amending the timeframes for the implementation of schools' DL plans.
- Competing demands on staff time presented a challenge to planning and implementing the programme, and may have been exacerbated by the overall short timeframe and the lack of substitute cover.
- The receipt of ICT infrastructure grant money tended not to be concurrent with DL plan formulation. Consequently, some schools had yet to receive the devices they had planned to purchase and did not have access to them throughout the DLF trial. On the other hand, adequate consideration and planning was required before purchasing devices to ensure the best fit for the school for the longer term.

Roles and supports

- The PDST advisors observed large variations in levels of digital competence among teachers. While this is important, embedding DT also depends on effective teaching practices more generally.
- There was strong consensus in the group that without appropriate, tailored and sustained (rather than once-off) professional learning/training, the DLF cannot enable change.
- Some advisors were working in a strategic way with schools to develop in-house professional learning structures, capitalising on the potential already in the schools in order to build on and sustain the successes of the DLF trial. They noted that a structured, coherent approach is required to achieve this.
- A highly collaborative spirit was adopted by PDST advisors in their work with schools and the group felt that this achieved positive results. This had required the development of their own skills as a facilitator rather than as a leader which, they felt, was the best approach to sustain change and development. The role of the PDST advisor also included bringing in new ideas and approaches from other schools, which were then adopted and adapted within schools' individual contexts.
- PDST advisors commented that, while ICT/DT co-ordinator posts do exist, these are optional, and other posts of responsibility tend to take precedence, particularly in smaller schools, especially where there may be a culture of

little or no engagement with DT. At post-primary level, the broader structure of the system gave rise to variations in the levels and quality of technical support.

- They were of the view that the Department of Education and Skills should acknowledge both the variation in existing technical supports and the current lack of funding for such support as a significant barrier. They cited a couple of examples from other countries where the roles of a technician and co-ordinator and coach are separate. In Ireland, these two roles are combined into a single role, which PDST advisors felt was overload on a single person. They spoke about the complementary value of the two roles, where the technician provides technical support, and the coach or co-ordinator role is one of a strategic leader of good pedagogical practice using DT.
- The group also felt that schools could benefit from advice regarding the purchase of DT devices and gave examples of commercial technology companies setting the agenda and using commercial marketing strategies with schools. They were of the view that (publicly funded) schools should be protected against (corporate) marketing pressures and enabled to make informed decisions in response to these pressures.
- PDST advisors were of the view that clustering schools was not common practice in general, but creating clusters of schools for delivery of technical and professional support was considered essential. They also expressed concerns about the logistics of creating and co-ordinating clusters.

DLF document

- There was enthusiasm among the advisors for the DLF's potential to significantly change the way technology is used in schools, particularly to enhance teaching and learning.
- However, PDST advisors had all struggled initially with the language and terminology in the DLF document. They noted that despite having a higher-than-average level of interest in embedding DT in their practice, they found it difficult to translate the DLF document into practical actions.
- It was common for schools to struggle both with the language and terms in the document and the process of unpacking the relevant domain and mapping it to practice in their local contexts. PDST advisors felt that the addition of concrete or practical examples could benefit the DLF document.
- Advisors noted that the process of unpacking the DLF domains involves a level of freedom and flexibility that is outside of the norm in many schools, along with a level of uncertainty, which can give rise to anxiety. This can make it challenging for schools to engage with the document without the support and reassurance of the advisors.
- They were also of the view that the two dimensions (Teaching and Learning, Leadership and Management) were too detached from one another in the document. The division, they felt, did not reflect the reality of schools' experiences, where there are natural interdependencies between Teaching and Learning and Leadership and Management, and suggested making an explicit link between the two dimensions be explicitly in the DLF document.

- Linkages between SSE and the DLF were also considered. It was noted that for SSE, schools are not currently focusing on the leadership and management dimension, so some participants felt that this should be the main focus of the DLF trial. However, other advisors felt that by focusing on Teaching and Learning, a certain level of infrastructure is assumed, and this might not exist in all schools. Therefore the Leadership and Management domain was considered a means by which schools could use the DLF to address infrastructural issues.

Leadership, planning and communication

- Endorsement and support from the principal and/or other members of senior management was considered instrumental to the success of the programme by the PDST advisors.
- Two key aspects of the planning aspects of the DLF trial were viewed by PDST advisors as being critical. The first is the time spent by PDST advisors as a group, where three days were spent planning and developing tools and resources. PDST advisors also worked individually on preparatory activities and collaborated online. The second was the development of a Digital Learning vision in each school through a systematic process of identifying an end point and then working backwards to ascertain what was needed to achieve that end point.
- PDST advisors noted a high volume of communication between them and the schools, and acknowledged the high value of the effective use of shared online (cloud-based) folders of tools and resources.

Chapter 5
Key messages from the Phase 2 focus groups

This chapter describes the main themes from the focus groups conducted in schools in April and May 2018. A high-level summary of the key themes is presented, with illustration of these themes provided by extracts from the focus group interviews. Broad commentary is provided on the consistency of these themes with those from the Phase 1 focus groups. These comparisons are drawn together with the findings from the rest of this report in Chapter 6.

Findings are organised into three sections:

- Profile of the focus group schools and participants
- Findings organised by theme: teachers
- Findings organised by theme: students/pupils

5.1. Profile of focus group schools

Three primary and three post-primary schools took part in the focus groups. The six schools were located across Connaught, Leinster and Munster.

One of the three primary schools was DEIS Band 1 while the other two were non-DEIS. Primary schools varied in enrolment size from medium to very large. Two of the primary schools were focusing on a DLF domain relating to the Teaching and Learning dimension (learner experiences, teachers' individual practice), while the third was focusing on a domain relating to the Leadership and Management dimension (managing the organisation). Two of the primary schools were mixed gender while the third was all girls. Based on their own commentary and the ratings of the PDST advisors described in Chapter 2, two of the primary schools may be described as being at an intermediate stage of embedding digital technologies, while one may be described as being at an advanced stage of embedding digital technologies.

One of the three post-primary schools was in DEIS, while the other two were non-DEIS. Post-primary focus group schools ranged in size from small to large. Two of these schools were mixed gender ETB schools, while one was an all boys' secondary school. Two of the post-primary schools were focused on the DLF Teaching and Learning domain of learner outcomes, while the third was focused on developing leadership capacity in the Leadership and Management dimension of the DLF. Based on the focus group discussions and the PDST advisor ratings, one of the three post-primary schools may be classified as at an emergent stage with respect to embedding digital technologies, while the other two schools can be described as being at an intermediate stage of embedding digital technologies.

All six schools progressed by 1-3 points on the level of practice index during the course of the trial (see Table 5.1; Chapter 2, Section 2.5.4).

Table 5.1. Profile of the six focus group schools

School ID	Level	Region	Enrolment size	DEIS status	Gender comp	Domain	Stage of embedding digital technologies (at Phase 1)	Progress over the course of the DLF trial
A	Primary	South Leinster	Very Large (251 or more)	DEIS Band 1	Mixed	T&L: Learner Experiences	Advanced	Progressed by 2 points on level of practice index
D	Primary	North Leinster	Medium (101 to 175)	Non-DEIS	Mixed	T&L: Teachers' Individual Practice	Intermediate	Progressed by 2 points on level of practice index
F	Primary	Munster	Large (176 to 250)	Non-DEIS	All girls	L&M: Managing the Organisation	Intermediate	Progressed by 1 point on level of practice index
B	Post-primary	Connaught	Medium /Large (501 to 750)	Non-DEIS	All boys (sec)	T&L: Learner Outcomes	Intermediate	Progressed by 2 points on level of practice index
C	Post-primary	Leinster (Dublin)	Small (250 or less)	DEIS	Mixed (ETB)	T&L: Learner Outcomes	Emerging	Progressed by 3 points on level of practice index
E	Post-primary	West Leinster	Large (750 or more)	Non-DEIS	Mixed (ETB)	L&M: Developing Leadership Capacity	Intermediate	Progressed by 2 points on level of practice index

School A (primary) was at an advanced level in terms of embedding digital technologies into teaching and learning. It is located in a new building. There has been significant investment in digital technologies since around 2009, using DEIS funding. Broadband is considered by the focus group participants to be excellent, and teachers have access to desktop computers in each classroom (with cloud-based storage, desktops are more durable and laptops unnecessary); laptops are also available. The school has one iPad for every two pupils. Day-to-day technical support is managed by one member of staff in the school (including software installations), while the server and hardware are maintained by an external technical support company. The school is enrolled in Apple School Manager. Digital technologies are fully embedded in administration (with a virtual staffroom, emails, shared calendar [Google Drive and apps], and electronic archives of children's reports). In teaching and learning, iPads and digital assessment practices are widely used, Beebots have recently been introduced to junior classes and Lego to senior classes. An SEN unit in the school also uses digital technologies extensively with the children.

School B (post-primary) is at an intermediate stage of embedding digital technologies. It has recently made improvements to the number of working devices available to students and staff. Broadband quality was described as 'good' by the focus group in Phase 1. Each teacher has a laptop and each classroom has a

projector and interactive whiteboard; about 7 classrooms have data visualisers. There are around 50-60 computers located in three dedicated computer/technology rooms, and a small number of iPads are available for children with special educational needs; despite this, adequate access to student computers was noted as a challenge. Day-to-day technical support is managed by one member of staff in the school (maintenance, security, software updates), along with 6 hours per week from an external technical support company. The school uses Microsoft 365 for administration and Google Suite (since 2012) for teaching and learning. Amongst teachers in the school, there are variations in the extent to which digital technologies are used: for example, not all teachers use email, students' reports are a mixture of paper-based and electronic, and there is wide variation in frequency and type of apps used. CensorNet (www.censornet.com) is used to restrict Internet access; however, it is viewed as an expensive service and causes difficulties in both teacher access (e.g. YouTube) and teachers' technical knowledge (about how to alter settings). Digital technologies are used extensively in Transition Year with e-portfolios. A digital technology programme was introduced to first years in September 2017. A private company provided professional training to teachers to support this.

School C (post-primary) staff saw themselves at the early or emerging stages of embedding digital technologies into teaching and learning. The principal had recently come from a school where digital technology practices were more embedded in the school culture. The school's administration is largely paper-based and staff did not have access to the school domain email. Previously, Microsoft One Drive was used, but the school had difficulties both with this and with the usage restrictions associated with the ETB network. At Phase 1, use of digital technologies was dependent on teachers' individual preference, knowledge and interest, with some use of software for specific subjects. There is an e-Box in each room and approximately 20 overhead projectors. Teachers' personal laptops and/or phones are used, depending on teacher preference. Students have access to five computer rooms, each with 20 desktops, and students' personal devices are used at individual teachers' discretion.

School D (primary) staff noted that there had been significant investment in digital technologies over the past 5-6 years and at the time of the interview, were at an intermediate stage of embedding digital technologies. E-fibre was installed in Summer 2017, and broadband was described as 'fine' by the group. Internal technical support is provided by one teacher out-of-hours, and external technical support is provided by private company for an annual fee. Digital technologies were embedded into the administrative practices of the school, for example with 'Google Suite' used throughout the school for communication, collaboration, cloud storage etc. This affects new teachers who are required to adapt the digital technology practices in the school. With respect to teaching and learning, there are some common core practices in the school, but also some variations. For example, all pupils in 2nd-6th class have Google accounts; this is co-ordinated with Study Ladder (www.studyladder.com) and is used for typing software and Khan Academy (www.khanacademy.org). In contrast, use of apps and software varied across

teachers, with more frequent usage among teachers of senior classes. The school is currently in the process of embedding digital technologies in a systematic way into the teaching and learning of SESE, which is now textbook-free and follows a 4-year plan to ensure no overlap from year to year.

School E (post-primary) was at an intermediate stage of embedding digital technologies. Digital technology usage is focused on iPads, which were introduced four years ago to encourage students to have an active role in their own learning, and to aid the transition to post-primary school. In addition, there is a desktop in in every classroom and two computer rooms. Each teacher is expected to purchase their own iPad and each student has their own personal iPad, purchased using the first year registration fee. Student iPads are purchased from an external company, which also covers maintenance and repair. Insurance costs have been high and will be transferred to the students in future. Members of the Digital Learning Team in the school are responsible for software-related technical support, while an external technical support company is responsible for hardware issues. Digital technologies are embedded into administrative practices, with Microsoft 365 and One Drive used throughout the school. The whole school uses Schoology (https://app.schoology.com) for teaching and learning, and student iPads come pre-loaded with apps requested by teachers in the school. At Phase 1, staff noted variations in the extent to which iPads were integrated into teaching and learning.

School F (primary) noted that at Phase 1, the emphasis on digital technology usage had largely been with children with special educational needs. They would consider themselves as approaching an intermediate stage of embedding digital technologies into teaching and learning. There is an interactive whiteboard in each classroom and all teachers have laptops. There are two pupil devices per class (1st-6th) and SEN teachers have access to additional digital technology resources. The broadband connection is supported by two routers and is somewhat inconsistent. School management provides day-to-day technical support. Additional support is provided where necessary by an external company on a needs basis (€90 per hour). The school was at the early stages of embedding digital technologies into administrative activities at Phase 1, with most activities paper-based or reliant on face-to-face communication or USB sticks for information transfer. The use of digital technologies in teaching and learning is not structured or consistent across the school. However, since last year, all pupils (1st-6th) use typing.com. SEN teachers used a range of apps with the children depending on children's need.

5.2. Conduct of the focus group interviews

Focus groups were conducted by two researchers from the ERC (one guiding the discussion, and the other taking notes) during late April and the first half of May, 2018. Interviews were recorded with the permission of the participants and subsequently transcribed verbatim. Names of schools, persons and places were retracted in the interview transcripts to protect the anonymity of participants.

Seven focus group interviews were carried out with staff in the six schools. In one school, a second group of staff was interviewed in lieu of a group of pupils. In that

school, the principal felt that, since the DLF programme was focused on a Leadership and Management domain, a focus group with pupils was not relevant/warranted. The number of participants in the Phase 2 staff focus groups ranged from three to eight. The profiles of participants varied between schools and included school management, members and non-members of the Digital Learning Teams (DLTs). The focus group interviews with staff followed the structure shown in Table 5.3. Interviews lasted an average of 42 minutes.

Table 5.2 Details of participants in Phase 1 and Phase 2 Focus Groups

School identifier	Level	Region	Phase 1 Participants	Phase 2 Participants
A	Primary	South Leinster	5 members of staff	3 members of staff (non- members of Digital Learning Team [DLT]); 6 pupils from 3rd class
D	Primary	North Leinster	7 members of staff	8 members of staff (all members of DLT); 9 pupils from 4th, 5th & 6th class
F	Primary	Munster	3 members of staff	8 members of staff (4 members of DLT, 4 non-members of DLT)
B	Post-primary	Connaught	5 members of staff	6 members of staff (both members and non-members of DLT); 8 students
C	Post-primary	Leinster (Dublin)	6 members of staff	7 members of staff (both members and non-members of DLT); 3 Leaving Certificate students
E	Post-primary	West Leinster	7 members of staff	5 members of staff (members of DLT); 8 students (3 from 1st year, 4 from 2nd year & 1 from 5th year)

Table 5.3. Staff Focus group interview structure and questions

Part 1: Opening
1. Introductions
2. Purpose of focus group
3. Confidentiality, anonymity and permission to record
Part 2: School's digital context
1.Have there been any changes made in any areas of the school's digital context as a result of taking part in the DLF trial?
Part 3: The Digital Learning Framework document and resources
1. Have your initial impressions of the DLF document changed? (If so) in what way?
2. Have you used the Planning Guidelines during this trial? What are your views on them?
3. Have you used the Planning Template during the trial? What are your views on it?
4. Have you looked at any of the exemplar videos during the trial? What are your views on them?
5. Do you have any suggestions for improvements to any of these resources – the DLF document, the Planning Guidelines, the Planning Template or the exemplar videos?
Part 4: The school's programme for the Digital Learning Framework
1. Which domain and standard(s) was your school's programme focused on?
2. Can you describe how you implemented the programme? Who was involved, what was done to translate the domain and standard(s) into practice?
3. Was the development of the programme linked to or influenced by the school's self-evaluation processes?
4. Have the programme's goals been realised? At what level of practice would you describe the school now?
5. Can you describe how the PDST visits contributed to or helped your programme? Would you suggest any changes or improvements to this element of the programme?
6. What were the factors that contributed most to the success of the programme?
7. What were the biggest challenges in implementing the programme? How did you address them?

Table 5.3. Staff Focus group interview structure and questions (continued)

Part 5: Thinking ahead to the national roll-out
1. What are the lessons learned from taking part in this trial that you would like the Department to take on board when the DLF is rolled out nationally?
2. Would you recommend the DLF and support materials to colleagues in other schools not in the trial? Why? Why not?
Part 5: Close

Five focus groups were carried out with students and pupils – three in post-primary schools and two in primary schools. The number of participants in these focus groups ranged from three to nine. The interviews followed the structure outlined in Table 5.4, and lasted an average of 35 minutes.

Table 5.4. Pupils'/Students' Focus group interview structure and questions

Part 1: Opening
1. Introductions
2. Purpose of focus group
3. Confidentiality, anonymity and permission to record
Part 2: Discussion
1. What do you like most about your school?
2. What do you not like so much about your school?
3. In school, do you use digital technologies? In what ways?
4. In what subjects do you use digital technologies? Can you give us some examples?
5. Can you think of an example where you used digital technologies in class over the past two weeks? What new skills did you learn (if any)?
6. Do you like using digital technologies? Why? Why not?
7. Do you think digital technologies help you learn better or not? (If so, in what ways?)
8. Do you use digital technologies when you are doing homework or studying? In what ways?
9. Have you noticed any changes in how digital technologies are being used in your school over the past 6 months or so? (If so, what changes have you noticed?)
10. In an ideal school, how would digital technologies be used?
Part 3: Close

5.3. Findings organised by theme: Teachers

In this section, the findings from the focus group interviews with teachers are presented. They are categorised under six main themes:

- Digital Learning Framework document, planning guidelines/template and exemplar videos
- Successes/positive changes resulting from the DLF trial
- Culture and attitudes
- Supports for the implementation of the DLF trial
- Challenges to the implementation of the DLF trial
- Looking to the future.

5.3.1. Digital Learning Framework document, planning guidelines, planning template and exemplar videos

In the Phase 2 focus groups, teachers were asked about their views on the Digital Learning Framework document, planning guidelines, template and exemplar videos. Teachers' initial impressions of the DLF document had been captured in the Phase 1 focus groups. The Phase 2 focus groups aimed to investigate whether these views had changed over time, as well as recording teachers' opinions of the associated resources (planning guidelines, template and exemplar videos).

Overall, the quality of the Digital Learning Framework and the associated resources was considered good, but the quantity was considered somewhat overwhelming. This relates to a broader challenge of time required to implement the DLF, which is explored in greater depth later in this chapter.

> *They're excellent, maybe too much. This is too much material coming at us… I don't even know what's here … it's kind of confusing.* (School B)

5.3.1.1 Digital Learning Framework document

Teachers' impressions of the Digital Learning Framework (DLF) document remained largely the same as those expressed in Phase 1 (see Cosgrove et al., 2018, pp. 93-95). In Phase 1, the three most common observations from the focus group schools concerning the framework (mentioned in all groups except one at post-primary level) were that:

- The content is too technical or overwhelming, particularly for school staff working with lower levels of digital literacy and/or in school contexts with lower levels of digital technology practices.
- There is duplication within and across the domains – for example the four teaching and learning domains could be collapsed to two; the distinction between levels of effective and highly effective practice is unclear.
- The framework lacks important practical information to aid its interpretation – for example, there are no concrete examples of effective or highly effective practice; there are no suggested timelines.

Participants in the Phase 1 focus groups made some positive comments about the framework. Three of the six groups felt that the DLF is a useful tool to encourage reflection on current levels of practice, to identify areas for improvement, and/or to introduce digital technologies into the school.

There were also some suggestions made as to how the DLF could be improved. Below is a list of suggestions made by two or more of the groups in Phase 1:

- Develop guidelines for entry-level schools that will enable them to reach a baseline of digital technology practice that will, in turn, allow them to work on achieving a level effective practice in a given domain.
- Provide practical guidance, such as sample timelines.

- Provide step-by-step case studies that include administrative aspects of digital technologies, not just examples for teaching and learning.
- Provide clearer guidelines on how the DLF is to be used.
- Provide a clearer distinction between levels of effective and highly effective practice e.g. through exemplars.
- Integrate and cross-reference the domains through the use of visual graphics.
- Improve the labelling of dimensions and domains (e.g. accompany them with numbers or letters).

Discussions of the DLF document in the Phase 2 focus groups were broadly reflective of those in Phase 1. In five out of six focus groups, when asked by the interviewer if their opinions of the document had changed since phase one, the most common response was "no" or "not really". One primary school offered more feedback – therefore much of the commentary below comes from this school (School D).

Some positive views were expressed, and the document was generally considered a useful resource. However, issues of comprehensibility and practicability re-emerged in the Phase 2 focus groups.

> *It's a valuable document – it's great on paper, but it hasn't really worked out… It's a super document. But that's along with so many other documents we got as well.* (School B)

Upon revisiting the DLF document during/after the implementation of the Digital Learning Plan, teachers did not find it more accessible or easier to understand.

> *I sort of had to remind myself what was in it… so, I did go back to it and no it wasn't [easier], and you'd think coming back to it, it would be easier the second time.* (School D)

Teachers noted the length of the DLF document and the density of its content as a barrier to full engagement with it. This is consistent with their initial impressions of the document expressed in Phase 1.

> *I was a bit confused by reading it – there was a lot of information there and … by the end of it I didn't know what I was meant to have known* (School F).

In Phase 1, it was noted that there is some duplication within and across the domains, and that the distinctions between levels of effective and highly effective practice are somewhat unclear. These points were reiterated in Phase 2.

> *We found it very arduous and repetitive with a lot of crossover in the different standards* (School D).

It was suggested that, in some cases, the divisions between the different standards seem forced, particularly the distinct separation of teachers' and learners' experiences. Although the rationale for making clear distinctions was understood, it

was not considered reflective of the reality of the interdependencies that exist between these areas:

> *See, it's very hard focusing on, say, the teacher using this, but … when you introduce a new thing for the teachers, it has a knock-on effect. The children are going to improve in different areas and ... to keep them separate seems very unnatural, but I know what they were trying to do. They were trying to take one area and focus on that ... but there was more linkage.* (School D).

Translating the DLF document into practicable actions, relevant to each school context, was considered challenging. Like in Phase 1, this was related to a lack of concrete examples or clear steps outlining how to progress from effective to highly effective practice.

> *What are some real-life examples? What are they actually talking about?* (School D)
>
> *There was only effective and highly effective. There wasn't like a proper road or path, you know.* (School D)

Some of the suggestions provided in Phase 1 for possible improvements to the DLF document were reiterated in Phase 2, including the addition of labels or numbers to standards and domains, and a preference for simplified, visual representations of the information. Teachers offered a new suggestion in Phase 2 – that an initial, in-person meeting would be held (e.g. between a PDST advisor and a group of staff from each school), at which the DLF should be explained to all staff, rather than sending out the DLF document to teachers to read.

> *We labelled them with 1 A, B, C, D whatever, so that we could link them… We knew which one was linked to the 'highly effective' and the 'effective'… So, to be able to write down, we're tipping on 1A and 3C you know, just a little bit more manageable, clearer.* (School D)
>
> *There's just so much in it and you're looking at it going 'what?' You need something straightforward… like a little chart or something… A route for success within the digital learning framework.* (School E)
>
> *There doesn't seem to be any diagrams or anything in it, maybe some visual representations would be handy.* (School A)
>
> *[It would be useful] to have that kind of meeting where you actually explain what is going on and as a staff can decide what the steps are needed in the school… to have a meeting to explain what it is, like that, instead of having to send out a word document.* (School F)

The important role of the PDST advisor in introducing and unpacking the DLF document and planning guidelines was also mentioned, and will be further discussed in section 5.3.5.

[We felt that we were] given these guidelines and then, I don't know, pushed out to just implement these guidelines yourself … [without the PDST advisor] we wouldn't have known where to start. (School C)

5.3.1.2 Planning Guidelines, Planning Template and Exemplar Videos

Generally, teachers' levels of familiarity with the Planning Guidelines, Planning Template and Exemplar Videos were low. This may be related, in part, to the timing of the release of the Planning Guidelines, which was after the beginning of the trial, around the time of the second PDST advisor visits.

We didn't have them at the start… They are quite good, I did look at them. They are good, but too late. (School D)

Where the Planning Guidelines, Template and/or Exemplar videos had been used, they were viewed favourably. The exemplar videos, in particular, were considered a very useful resource for finding ideas for how to implement the DLF – however, it was noted that the 'search' function does not facilitate easy access to the relevant content.

Searching through them can be challenging, the filtering isn't great, even [PDST advisor name] couldn't find one she wanted to show us … but there are brilliant examples. (School D)

5.3.2. Successes/positive changes resulting from the DLF trial

Staff in all six schools expressed the view that overall, in spite of challenges, their participation in the DLF trial had been successful and worthwhile. Each school's Digital Learning Plan was unique in its structure and focus. However, there are clear commonalities in the successes/positive changes reported by each school. These include:

- Increased collaboration among staff
- Increased motivation to engage with digital technologies
- Enhancement of teachers' personal teaching practice
- Improved student/pupil experiences
- Improved focus and structure provided by the DLF
- Practical benefits of engaging with the DLF.

Participants in all of the focus groups reported that collaboration among staff had increased as a result of taking part in the DLF trial. This increase in collaborative practice was characterised by improved communication and sharing of information, knowledge and resources between staff. In the focus groups, teachers emphasised the need for sustained, inclusive collaboration between staff to ensure the longevity of the Digital Learning Plan.

There is a collaborative thing too, like it's the first project we as a staff have gotten involved in where we all sat down at the same time, with the same equipment, and ploughed through, and learned and talked. (School F)

It has hugely impacted on the intra [sic] teacher communication in the school. The intra teacher communication has increased. (School C)

[We need to] each year build up on what we've done in the previous year, and that's going to take feedback from the staff asking the digital team 'can you show us this?' Or, 'how can we improve on this?' … and you put it up on the Classroom and share, and get everyone involved in the process, and we learn from each other. (School C)

Three out of six of the focus groups schools organised peer-delivered professional learning/training as part of the DLF trial. This kind of collaborative work was considered particularly effective, because staff members were able to draw on their knowledge and understanding of the school context to tailor sessions to meet the needs and interests of their colleagues.

It [peer-delivered training] was probably, like, one of the best 20 minutes of CPD, like, we had all year, because it was someone who was from the school explaining it to us how we'd need to hear it, and showing us… the practical side of it. (School A)

[One staff member addressing another] Your talk at the staff meeting worked very well … I know one teacher who never used Google Classroom who is using Google Classroom after seeing that in the staffroom, and they're using it quite regularly in school. It's only one but it's a small success and that is one of the ones who would never engage with videos or anything like that and has seen the benefits and started using it. (School B)

Participants from all six schools also mentioned an increased motivation or openness to engage with digital technologies as a result of taking part in the DLF trial. This was reflected in a change in teachers' thinking about integrating digital technologies in classroom activities, as well as more frequent and open communication on the subject.

Since we had the training and the upskilling, the way we think about our classroom and how we can incorporate stuff, I would say it has shifted an awful lot more. I think maybe the conversations are beginning to open up. (School E).

Another positive outcome of the DLF trial related to an enhancement of teachers' personal teaching practice, or greater confidence to try new things in the classroom. This was mentioned in five out of the six focus groups. The interdependency between teaching and learning was alluded to in secondary references to improved student experiences.

I definitely think everybody has been motivated in some way within their classes to try new things. (School D).

I know for me personally it's a success, because I've become a better teacher from the upskilling I've got. If I've got better then it's only going to make the students better (School E).

More specific references to improvements to the students'/pupils' experience were also made by teachers in five out of the six focus groups. These improvements related to pupils'/students' eagerness to engage with digital technologies, and their demonstrated levels of independent learning. The interdependency between teaching and learning was again clearly expressed, as teachers described being motivated by their students' enthusiasm.

There is great willingness from the students when you do show them something. I found anyway that they are willing to go and use it and you know, and they can see the benefits. (School E)

The things that we learned with [PDST Advisor] that they're [pupils] doing now, they want to do it and are interested in doing it and you can see the results, and that's a motivator for us as well, because they're motivated. (School F)

I've learned a lot this year, and I'm using it more and I can see the kids have learned and they're a lot more independent, especially with the e-portfolios. Now they're able to put up work when they have free time or things like that. (School D)

Teachers acknowledged the benefits of the focus and structure provided by the DLF trial, with one school suggesting that the DLF trial acted as an initial catalyst for developments which were a priority but may not have been implemented so quickly in the absence of the DLF trial.

We would maybe have made these gains but not as quickly as part of the project… there were deadlines to be met so it definitely gave us a focus or a goal to achieve them. (School F)

Practical benefits resulting from participation in the DLF trial were cited in three out of six focus groups. Paperless distribution of notes to learners is one such benefit – it was considered more convenient, reliable and efficient compared with paper notes, which are easily lost and time-consuming to photocopy.

It's paperless now and all the kids will go straight into Google Suite and look for all the notes. It's much better because they're always losing paper.

Often they'll come in and [say] I was out yesterday, and I don't have the notes. It's a great time saver to just say go to Google Classroom rather than having to leave the classroom for 5 minutes to photocopy you know, so, it's much more time efficient. (School C).

Regarding the digitisation of administrative processes, staff remarked on the convenience of storing large volumes of information in the same place (attendance,

reports, results etc.), as well as the objective and structured presentation of pupils'/students' results, which enabled easier communication with parents. It was also suggested that a digital storage system for pupil/student records makes it easier to ensure security and confidentiality, and allows for the transportability of pupil/student data (e.g. in the event of a pupil/student moving to another school).

> *The process is so much easier, all the information is there, there's test results, you don't have to…, you can look individually at a child to see their attendance, see their results, see their past reports.*
>
> *It puts it on the report for the parents, so you don't have to make a comment because the factual information is there. You don't have to engage, whether it's 'fair' or 'good' or, you know. It takes the heat off us.*
>
> *There's a confidentiality aspect as well, like, documents being left in rooms here and in classrooms – now there's no need for that.*
>
> *I remember last year I'd two girls moving on from 6th class, and I spent ages photocopying reports one day, and that's all gone now. Even if they don't have a similar system, you can still give them a USB key.* (School F).

5.3.3. Culture and attitudes

Culture and attitudes varied significantly across the six school communities, and were important influences on the implementation of the DLF trial. Certain cultural and attitudinal features were identified as enablers of successful implementation. These included a pre-existing culture of collaboration, openness to change, and flexible attitudes. Negative attitudes towards digital technologies and resistance to change were noted as potential barriers to the success of the programme. Different leadership styles were seen as being more/less supportive of the DLF implementation.

Teachers in School E regarded their DLF trial as very successful. This was partially attributed to a pre-existing culture of collaboration in the school, which they believed had facilitated the involvement of a majority of teachers in the programme. A whole-school approach was adopted in spite of the challenges posed by resistance from some staff. The collaborative culture made it easy to develop and deliver in-house supports and workshops to enable knowledge-sharing and capacity-building. Staff seemed to frequently engage in continuous reflection and evaluation. The approach taken in the school to the DLF trial appeared more facilitative than prescriptive, focusing on empowering teachers and students to maximise their use of technology. Members of the Digital Learning Team were motivated and ambitious, with an openness to continuous change and development. A similar culture was described by staff in School A.

> *I think the environment we have in this school is that we're kind of learning from each other and that we're evaluating the process to make it better each and every time.*

Trying to bring the resisters with you, that's kind of the main thing. It would be so easy just to leave [name] down the back … he can do it his way, but it's trying to get everybody together to kind of upskill, and even a little bit. There's no point having the students fully upskilled either without having the teachers to be able to use the technology.

Maybe just at times they haven't had the experience or they haven't been pointed in the right direction. I think what we're really aiming to do is to point to students and staff just to what you can do.

What we're doing is so small compared to what we can do, that's the thing, so it's just trying to take one small step at a time and see where we go. (School E)

We're in a school where, like, we've always been a little bit ahead of things that are digital… so we'd be very open to it as well. (School A)

A sub-theme of leadership was also present – it was suggested that teachers' engagement with the DLF is likely to be influenced by the manner in which it is presented to them. Leading by example and committing to a process of incremental change were noted as characteristics of a leadership style which would foster positive attitudes and encourage buy-in from teachers. It was suggested that clear presentation of the benefits of participating in the DLF was essential for buy-in, and that digital technologies should be presented as something to enhance teachers' current practice, rather than completely redefining or replacing it.

There's no point going from here to there really fast, you kind of have to bring everybody together because if you don't people are going to fall off, everybody will fall off, the whole staff will fall off … we need to take those baby steps and teach people slowly.

One of the things we thought might be difficult is for teachers to buy into it, because initially it sounds like extra work. And I suppose it is for some people, to get used to signing into their accounts and checking the drive, to put their reports on the [Google] Drive, to communicate with the teachers, to get used to the structure and the platform. But… once teachers were reassured that it's not a huge ball of work to begin with… the benefits became clear very quickly.

I suppose the message that needed to go across to somebody who … could be starting off in their teaching career, or somebody who is in the latter stages of their teaching career, is that digital technologies embedded in the school is not to replace a whiteboard or a chalkboard, it's there to support your pedagogical practice. (School C)

Flexible attitudes among staff and openness to the idea of continuous change, development and upskilling were identified as important factors influencing the successful implementation of the DLF trial. School E also emphasised student-/pupil-led learning, and discussed the importance of nurturing the reciprocity of the

teacher-learner relationship to promote continuous development and progress. The exchange of ideas between teachers and learners is especially pertinent in the area of digital technologies, where students may sometimes be more digitally literate than their teachers.

If you want to get involved you have to keep going with technology more, we have to keep buying into it, or else you're lost. (School C)

I think with this you can't really can't come to a standstill with it because you kind of need to keep moving forward and maintaining what you're doing as well as looking for the next thing. (School E)

You'll find you'll learn something that you didn't know, and it has to open to them [students] that I'm not the one who knows more. And I think once you kind of accept that as a norm, then I think you can get better. I think if you just put that restriction that 'I have to know more than them', if that's the kind of psyche, you know, then I think you're going to restrict yourself into how good you can become, I suppose. (School E)

Attitudes vary within and between schools, and it was noted that resistance or negative attitudes from staff could challenge the implementation of the DLF. For example, in School A, teachers suggested that, broadly speaking, the school has a culture of embracing digital technologies. However, open and positive attitudes are not shared by all staff members. Age was considered one source of influence on teacher's attitudes towards digital technologies, with older teachers perhaps less comfortable or willing to engage than younger teachers. School B also reported reluctance to engage from some staff members. School B proposed a more uncompromising leadership style to overcome this challenge – suggesting that engaging with the DLF should be made mandatory for all teachers.

It wasn't all positive by everyone… Like I asked two different teachers, one said 'amazing', one said 'oh I'm finding it so difficult'. And the two teachers were next door to each other, and that's the answer you know. I suppose it's just not being used to it. (School F)

I don't want to be ageist but, maybe a lot of older staff, they don't see the value of it as much. (School A)

The largest group of people are the ones who are not digitally literate, who therefore won't engage with the online videos or anything like that, and whom you must simply sit down in a room, a computer room and go through the thing with them, and then you'll engage with it, most of them will at that point… you need something that is going to force teachers, basically. (School B)

5.3.4. Supports for the implementation of the DLF trial

Three main sources of support for the implementation of the DLF trial were mentioned in the focus groups (PDST, management, peers). The support provided by

PDST advisors clearly emerged as the most important source; management and peer support among teachers appeared as secondary sources and are referenced less frequently.

Teachers in five out of the six focus groups emphasised that the support from the PDST advisor was fundamental to the implementation of the DLF trial. They expressed the views that:

- The in-person experience of working with the PDST advisor was highly valuable and was important for making real improvements to teachers' confidence with digital technologies.
- The wealth of knowledge and experience brought by the PDST advisor, as well as their responsiveness to teachers' questions and needs, were appreciated by staff.
- Given the constraints and competing demands on teachers' time, it would not have been possible to implement the DLF trial without the support of the PDST advisor. The deadlines created by the PDST visits were seen as essential for sustaining momentum and motivation.
- The advisors' assistance in unpacking the DLF document was crucial for the creation of a shared vision for the school.
- As an external figure, the PDST advisor brings an interesting perspective to the school's work, which was highly valued, particularly by management.
- The reassurance provided by the PDST advisor was greatly appreciated by staff during the implementation of their Digital Learning Plans. The advisor's slightly more distant position from the school environment was considered useful for providing teachers with an accurate measure of their progress, as it can often be difficult to self-evaluate.

The facilitator came into the classroom in one of the lessons, and I found that beneficial, you know, even watching… To be in the classroom watching what was going on, that was a huge help. It's alright to be told, but to physically see it and be physically there… (School D)

He worked at what we wanted as well, like he asked us what we wanted to focus on. (School F)

They [advisors] were vital… we don't have the time to go and research and put everything together and come in and present it to everybody else. (School E)

It would have taken us I don't know how long to have gotten to where he already was. (School C)

I think the advice that we got from the PDST Advisor was invaluable … If it [DLF] was to be rolled out and we didn't become part of the trial … we wouldn't have stood a chance, it was just the driving force and it kept deadlines. Deadlines become nothing if you have nobody else steering them. (School C)

He [PDST advisor] kind of broke it [DLF document] down so we could understand it better… It translated the statements of practice into localised effective practice. (School C)

It's a new voice… They're not coming in with any agenda, or it's not me going to the staffroom – 'well I want you to do this'. It's 'have you ever thought about trying this?' It's just a fresh take on it… It's nice to have somebody different come in and share their expertise, or a different approach. (School D)

It's only when you get some feedback you kind of go, well maybe we are doing something right… It's great to have someone to kind of confirm that. (School E)

In one school (School A), teachers were dissatisfied with their meetings with the PDST advisor:

- They found a lack of clarity in the demonstrations provided by the PDST advisor.
- They found that the content of the sessions did not meet their needs and was not appropriate for their level of digital literacy.
- They were disappointed that they did not gain the knowledge or skills that they were expecting from the PDST visits.

This raises issues around the type of support provided to schools for the implementation of the DLF, and the manner in which it is provided. The feedback from School A suggests a need to tailor the support to each school's needs and digital context.

I kind of felt like [PDST advisor] was starting where [one] might start with a school who had no experience.

I was really thinking 'oh great, like we'll come out of here now knowing about Google Classroom' and barely touched on it.

They need to do a background check on the school prior to training. (School A).

Teachers made a second point relating to the nature of support provided to schools in implementing the DLF – that is, the distinction between a coach/coordinator and a technician. They strongly felt that the delineation of these roles is important, and that both roles are necessary sources of support for the integration of digital technology in schools.

The role of a technician, responsible for servicing and maintenance and upgrade of digital technology hardware in the school, was considered vital. It was not considered essential for there to be one such person in every school, but perhaps there could be a designated person for a group of schools. Neither was it considered essential for this person to have a background in teaching/education.

The role of the coach would be based on the strategic development of digital technology practices across the school (e.g. planning, providing advice and guidance

on suitable devices, programmes and applications for the school, supporting staff in learning to use these).

It was acknowledged that the vast majority of teachers would not have the knowledge or skills required to perform the duties associated with the 'technician' role. Moreover, it was perceived as potentially problematic for the role of coach/co-ordinator to be assigned to a full-time member of teaching staff with expertise in digital technologies in education, as the problem of limited time to share such expertise would remain.

> *Servicing the machines and stuff – that's a different ball game altogether because if that was a post the person would have to be fully qualified to go into the machines and all in the first place. I think there's a lot of different skills you need to have as a technician.* (School C).
>
> *There might be one teacher per school, or one teacher in an area of schools, who would be really well trained.* (School F)
>
> *Technician stuff is one thing. Coaching, as you mentioned, it is another thing. I still need an awful lot of coaching to get the skills.* (School C)
>
> *When? If the teacher has the expertise, on the staff, when do they get to share that expertise?* (School D)

Support from the school principal or management was also considered important for the success of the trial. In School D, particular reference was made to the time commitments made and facilitated by the principal. Peer support amongst staff was facilitated by school leadership and relates to the broader theme of collaboration.

> *The time [was made available], because [name] gave up principal days.* (School D)
>
> *We tried to free up a few teachers to go and watch other things that were going on in the other classes so at least they got a taster, so that they knew what we were talking about.* (School D)
>
> *Not just the mentoring from the PDST but I think the mentoring from the staff was very beneficial as well, but I suppose the leadership has enabled the staff to pass on the learning.* (School E)

5.3.5. Challenges to the implementation of the DLF trial

Teachers described a number of challenges to the implementation of the DLF trial which related to time constraints, inadequate infrastructure, a lack of technical support, and the variability of teachers' levels of digital literacy.

Participants in all six focus groups emphasised the difficulties caused by time constraints. These included:

- The logistical challenge of coordinating substitution and/or supervision to release teachers to attend meetings/professional learning workshops.

- A lack of dedicated time for teachers to upskill and share their expertise.
- The time necessary to unpack and understand the DLF document and related resources, in the context of other new initiatives and curricular changes.

The problem was that the whole team could never meet us, when [PDST advisor] came down, he could maybe get two, it depends who was off at the time or who was free that day… If you had the time I think it would work perfectly… We just haven't like, it's impossible. You don't get cover, you don't get the time to do it and that's the reality of it. (School B)

Even if we could have maybe have got to use the tools maybe a little bit more, and to have time to mix more ourselves… I suppose the days are kind of jammed… The biggest commodity on the planet is time. (School E)

Upskilling was a challenge as well... there isn't actually time for you to do it, you do have to do it yourself. (School F).

There's 54 pages [in the DLF planning guidelines] – time again… Not getting time really to read the document. (School B)

I just think there's a lot as well coming out between the [new primary curricula for] Maths and language and the digital framework. I just think at the moment everyone feels kind of a bit overburdened. (School F)

Inadequate infrastructure was cited as a problem in three of the six focus groups.

- The problems most often related to an insufficient number of devices and tools, or recurrent problems with them.
- The challenge of ensuring that all students have access to the technology to engage fully with digital learning extends beyond school computer rooms; it cannot be assumed that learners will have access to devices at home to support digital learning. This can limit the extent to which teachers can fully embed digital technologies in their practice.
- Teachers also remarked that unreliable infrastructure hinders effective teaching and learning, and can undermine the pro-digital technologies message that they are trying to share with students/pupils.

I suppose the feeling overall is that our infrastructure isn't sufficient or well organised enough for the school. (School C)

It's very difficult as you said the amount of computers we have and if they're not all working or if they're not available… like I can't get access to the computer room this year. (School B)

If they don't have the technology in the classroom, obviously you're not going to have it at home, and it's a disadvantage straight away. (School C)

They'd [pupils] written a story and they were typing it up and then all of a sudden two of them at the same time had issues with the laptops and we spent so long just

trying to fix whatever was going on that the lesson was over, and they didn't have a lesson… I'm trying to show kids that IT is the way to go… and then you're wasting so much time. (School F)

Closely related to infrastructural issues was the challenge of a lack of technical support. Participants in four out of six focus groups described a situation where *ad hoc* technical support is provided on a voluntary basis by one or more members of staff who have no formal training in this area. This was seen as unfair and unsustainable. The expense of external technical support was noted as a barrier to fully embedding digital technologies in practice. Like in Phase 1, it was pointed out that in many other sectors, organisations using similar numbers of digital devices have formal, dedicated technical support. It was suggested that the absence of such support in schools goes largely unquestioned, despite the difficulties that it causes.

We support each other on a daily basis and the amount of volunteerism has grown… there's only so much a teacher can do by good will and volunteerism, and they can't be called on the drop of a hat to be leaving their class groups. (School C)

I mean we have a company who come in, and what we do is – because it's €60 an hour but that's the standard rate – so we tend to build up two to three issues. But then there's an odd time, you know, you've x amount of time where certain things are broken, and it's not efficient to bring in somebody for one issue. (School F)

[Name] is our IT administrator, she's working and teaching, and you know, people are emailing 'here can you fix this and that?' She's doing it in her own time… If you compare it to any sort of industrial or commercial setting – where there's somebody in charge of IT, or a whole group of people – it's nothing short of insanity. (School B)

And then you think you've done it but it's still not working again. Sure, then the mouse stopped working on all the computers yesterday and you've to ask someone else. Like someone else in the staffroom at lunchtime said, 'oh try this', but I haven't done it yet but like those kind of things, you're in the middle of teaching and you're trying to get them to do something and decide and then 'but I can't do this, the printer is not working', and then the next day the printer prints off the pages. (School F)

Variability in levels of digital literacy among staff was experienced as a challenge to the implementation of the DLF trial in three of the focus groups, and noted as a potential challenge in a fourth focus group. Digital literacy – that is, levels of competence and confidence in using digital technologies – is linked to culture and attitudes regarding digital technologies. Three of the schools noted that differences between teachers' levels of digital literacy made it difficult to create an inclusive Digital Learning Plan. In School B, teachers reported that the greatest engagement with the Digital Learning Plan was among those who already had a relatively high level of digital literacy, but a large number of teachers had not engaged. Schools F and A described challenges in addressing teachers' low confidence. They felt that

time was needed to allay their concerns, and the teachers themselves needed time to upskill.

School D had not experienced a challenge in this regard, as their staff were starting from a relatively high level of digital literacy; however they raised the issue in acknowledgment of the fact that this high level of digital literacy across the whole staff may not be the norm in most schools.

> *The only people who this touched shall we say were the two groups: very digitally literate or pretty good. It didn't really engage anybody else. We're [the DL team] fairly digitally literate, the large group of teachers there in the school haven't engaged with this.* (School B)
>
> *It's around, kind of, teachers' confidence with ICT, especially I know certain older teachers, like, get really frazzled when we mention anything about ICT and whiteboards, so it's going to be very hard for a certain generation of teachers to adapt to all of this.* (School F)
>
> *I just go home, and I log on because I wouldn't be familiar enough with it myself to be able to teach it.* (School A)
>
> *We're very lucky, because they all have quite a good level of ICT… What do you do if you don't? If you don't, it's not fair.* (School D)

5.3.6. Looking to the future

Participants were asked for their views on the future rollout of the DLF. Factors relating to sustainability and future implementation on a broader scale were discussed in all six focus groups. These included:

- Acknowledgment of the variability of schools' digital contexts
- Provision of training and adequate time
- Other supports (PDST, technical support, leadership from the DES).

In five out of six focus groups, teachers expressed the view that the significant variation in the digital contexts of schools is an important point with regard to scaling up the DLF for a sustainable national rollout. The two main features to which teachers referred were connectivity and infrastructure; these were considered important foundations for the implementation of the DLF. Schools D and E regarded themselves as lucky that their connectivity and infrastructure could support the implementation of the DLF, but were unsure as to how it could be implemented in schools where the connectivity and infrastructure are less well developed.

> *It will be a huge challenge… we're lucky from the base point that we started at … you can imagine in other schools as well that … don't have even the basics like the Wi-Fi, the projectors and stuff like that or the devices. How are they going to get up to, I suppose, the level that we're even at currently? It's going to take a huge amount of*

time and a huge amount of money, and a huge change in the mindset to get that far. (School E)

If you're planning to put this out at national level to every single primary school, I think we're very fortunate to be in a position that we're in, even having the broadband and to be able to try out. Imagine going to another school that has no broadband, or even trying out any of the apps, or any of the applications, it's just not going to work. (School D)

Other participants referred directly to their own experiences and to the sustainability of the DLF within their own schools. Despite positive experiences with the PDST advisor, staff in School F noted that the level of infrastructure in their school was not sufficient for them to apply what they had learned to their teaching practices. In School B, it was noted that inadequate infrastructure in the school created difficulties in facilitating the equal engagement of all students with DT. In the absence of a sufficient number of devices in the school, students without access to devices at home are at a disadvantage.

I suppose if you look at what [Name] did with us, a lot of it sounds wonderful in theory but I don't have an iPad in my room apart from my own iPad, the two laptops are reconditioned laptops that we raised money for through bag-packing… so we don't really have the IT support to support the level of information say that we've obtained from PDST or you know? (School F)

Say if you give assignments in the classroom, some of them might not have access to computers at home so they're going to have to use it at lunchtime, and then if there's not a certain amount of computers there, they don't get to it. So, it's very hard to roll out something like that when the problem is we don't have the infrastructure there and the students aren't able to actually take part in the rollout of it. (School B)

In four out of six focus groups, participants emphasised the necessity of providing ongoing professional learning for teachers so that they can reach and maintain the necessary level of skill and confidence to embed digital technology in their practice.

For us to actually implement this stuff properly, we need training. (School F)

We rely on our staff to take it upon themselves to learn these tools and how to use them, and I don't think that's altogether fair … Here we are being asked to implement, in natural ways, ICT, not have it as an added extra. But yet they're not willing to give the time to train people on how to. Some people – lots of us – are not naturally just able to do that… we're all very different, but yet we all have a certain level of intelligence, we're all capable of learning, but they need to provide that training. (School D)

As discussed in section 5.3.5, dedicating time to the DLF trial was complicated by time constraints, a very full curriculum and new curricular initiatives (mathematics and language at primary level). Accordingly, participants in the focus groups also

emphasised the necessity of providing adequate time for teachers to complete professional development, preferably through substitution cover.

They need to come into the schools, or they need to set up training days for the teachers, if this is the way we're going, there needs to be training provided properly. (School D)

Unless time is set aside, and you have cover for it, it's very hard to do at lunchtime or after school. Time, I think, is going to be the biggest factor to fix then when bringing it to other schools. (School E)

For such a good plan, and for so much investing in the PDST and people, they could have just gone the extra small mile with the substitution. (School B)

Recognising the variability of schools' digital contexts, as well as teachers' level of digital literacy, was considered important for the design and delivery of effective training to support the national implementation of the DLF. It was suggested that training would need to be delivered at a level that is appropriate to the school's digital context/culture.

You're going to have so many different people coming in from so many different angles, different resources, different how far they've gone themselves with their digital plans and that. (School D)

[We need] More training but I suppose for them [DES] to remember that schools are at complete polar opposites in terms like this – you have schools who might have a laptop at the top of the room for the teacher, like, and that's it, compared to schools out here where we have a big background in [digital technologies]… If a small other school goes to the meeting and it's all about iPads and ICT screens, they're not going to bring that back to their schools with whiteboards and open laptops… that is why training needs to be set at different levels in accordance to the schools that are at those levels. (School A)

Although the need for professional learning in the area of DT emerged as a clear message from a majority of the focus groups, teachers expressed mixed opinions about the manner in which this training might best be provided. A particular difference of opinion related to whether training should be made mandatory or whether teachers should engage in training on an interest basis.

You need to put them in the computer room, and if you show them then, well then most of them I think would take it on board… you need something that is going to force teachers, basically. (School B)

[A teacher would] Go off on a two-week course on this and explicitly train in networking and servers, if they're interested. (School F)

I'd be worried that if it is made mandatory it'd cause a bit of an uproar… you can't force somebody to do something … you can show people the potential of stuff, but they have to ultimately open the door and walk through it. (School E)

Participants in the focus groups also pointed to other sources of support for the future rollout of the DLF. It was suggested that the success of the DLF rollout depends on human resources and clarity of roles relating to digital technologies. The fundamental role of the PDST advisor was expounded by participants in five out of six focus groups, and is discussed in section 5.3.4. Similarly, four out of six focus group interviews contain references to the unsustainability of voluntary technical support provided by teachers, which is explored in Section 5.3.5.

Without the human resources to back it up, it's probably not going to be as successful as they wish… I think the formalising of roles for teachers, or for additional tech support in place, would be valuable. (School C).

Teachers in three of the focus groups suggested that good leadership from the DES would enhance the national rollout.

Maybe the department need to show more leadership then … so it's coming from the top down. (School E)

It's so important that if we're placing so much value on it that they need to invest properly time-wise, and expertise-wise and support-wise. (School D)

It was suggested that, for schools to be enabled to fully embed digital technologies in teaching and learning, the DES could standardise the provision of certain software and programmes for all schools. A DES-produced list/database of educational apps for use by teachers was proposed as a useful resource to assist with the implementation of the DLF.

Not every school has it [digital administration system] because it's so expensive, so the department should be providing a system like that.

I just would like to have more of a bank of choice [of applications] … It seems ridiculous that there isn't one and for all schools… and it should be forever evolving… for everything, for all areas. (School F)

5.4. Findings organised by theme: Students and pupils

It is important to note a difference between the focus groups with staff and those with students and pupils. All staff members who took part in focus groups would have been familiar with the Digital Learning Framework, whereas students/pupils were not expected to be aware of the Framework. As a result, the focus groups with students and pupils were necessarily pitched at a more general level. However, some of the content of the focus groups may be linked in a broad way to aspects of the DLF. Where this is done, we refer to the relevant domain(s)/standard(s).

In this section, findings are presented from the five focus groups conducted with students and pupils. The findings are presented according to the following five themes:

- Experiences of digital technology in school
- Benefits of using digital technology (in school and in general)
- Limitations of digital technology (in school and in general)
- Ideas for use of digital technology in school
- Views on the education system.

Broadly speaking, the first three themes can be linked with the Teaching and Learning dimension of the Digital Learning Framework under domains 1 and 2 – Learner Outcomes and Learner Experiences. The final two themes contain observations and comments made by students/pupils which, although not directly relatable to the Digital Learning Framework, are nonetheless relevant to the broader context in which the DLF trial was implemented. They give an impression of young people's perspectives on the role of DT in education.

5.4.1. Experiences of digital technology in school

Across the five focus groups, the nature and frequency of students'/pupils' experiences of digital technologies in school varied considerably. However, certain commonalities were evident. That is, in three out of five focus groups (two post-primary and one primary), students/pupils described using digital technologies for group work. Projects tended to be split into discrete tasks and assigned to each individual. Therefore it is difficult to say how much collaborative work may have taken place.

Individual project work was also mentioned in three of the five groups (two post-primary and one primary). This tended to involve students/pupils researching a specific topic and creating a presentation or multimedia product using software such as Book Creator.

It depends because sometimes our teacher likes us to work better by ourselves. If she told us to write stories or poems on the computer we could work as a group, but then

if we're doing projects, she'd probably say to us, everyone has their own thing to do, or else you can work together. (School D)

Sometimes, we assign ourselves to what we're doing. We're doing a project called 'Tír Na n-Óg', on the computer and … everybody has a different thing. One-person says what they type, one-person types it in, one person puts the pictures in. (School D)

We're in groups of 2 at our own iPad station or whatever you wanted, but the two of us work together so, you know you're just paired and you just have to do it… We just did by slides, the 1st slide and the other one would do the 2nd slide at the same time then say you'd do 2, 4 and 6, I did 1, 3 and 5. (School B)

Across all five focus groups, students/pupils cited a variety of programmes and applications that they used both in classroom and for study and homework. These included Google Classroom/Schoology (multi-app, cloud-based learning management systems), Screencastify (screen video recorder), YouTube, Book Creator (multimedia document editor), Khan Academy (interactive online Maths app), Scratch (programming language for creating interactive stories and games) and Quizlet (general learning and revision tool).

Teacher shows us lots of different things like Book Creator and Screencastify and different things to use. (School D)

My favourite thing is Khan Academy because instead of teacher always writing down and all of us having to write it down and remember it, we can use Khan Academy to digitally use Google Classroom and do it as well. (School A)

On Quizlet you've to make an account and then if you just read your information off Schoology, you can just type it in yourself or you can just copy and paste it onto a flash card, and you can make tests for yourself as well (School E).

YouTube is brilliant for Irish for the oral, you know… They have videos of people sitting down and doing the exams with somebody and it's very good to get experience. (School C)

You can upload your presentation onto the e-portfolio, like there's a link and you can copy this link or whatever. (School B)

In three out of five focus groups (one primary school and two post-primary schools), students/pupils described issues with the digital technology infrastructure in their schools. These related to slow or unreliable devices, shortage of devices or devices being underused.

It takes a while to log onto the computers... When you type in your password and stuff, and then it just takes a while to actually get into it. (School B)

Sometimes when you're typing something up for, like, projects, but some of the computers are old now, so you can type something and then it will type something random, and then sometimes it would just change lines by itself. (School D)

Sometimes say if there is, since our classroom has like 25 pupils, sometimes there's not enough computers. (School D)

It takes a while to log onto the computers... When you type in your password and stuff, and then it just takes a while to actually get into it. (School B)

[We use] Google Classroom sometimes, but all the other digital stuff doesn't seem to work, like. Those whiteboards and all, like, have never been used. (School C).

Students in two of the focus groups at post-primary level had noticed an increase in the use of DT in their schools over the course of the school year, which corresponds with the DLF trial period. They commented on the variability of individual teachers' levels of competence and confidence using digital technologies. They noted that this can affect their experiences as learners, since the extent of their use of DT in class can be limited by their teachers' digital literacy and level of motivation.

I think the teachers just learned how to use the computers … so now they do have Google Classroom, they're able… to set it up or whatever, so they'd see it as more of a tool to give out assignments or whatever… Not all teachers use it, but now like most of our teachers will use it. (School B)

It's not, like, consistent … Some teachers don't use it at all really… Some teachers kind of just dumped a bunch of stuff on it at the start of the year… it hasn't been updated, like, really. I feel like not every teacher in our school is super tech savvy, it has a lot more potential than what we're using it for. You can do like discussions and stuff on it and like post your own stuff, but we don't really do that. (School C)

Obviously students are quite equipped to work with technology but the teachers… might need some sort of education on computers. (School C)

5.4.2. Benefits of using digital technologies (in school and more generally)

Students and pupils across the five focus groups expressed clear opinions regarding the benefits of using digital technologies. Most of their responses were focused on the use of digital technology in school, but they also spoke about the benefits of digital technologies more generally. The most commonly mentioned benefits are described below.

- Digital technologies facilitate easy access to information – students/pupils in three out of five focus groups (two primary and one post-primary) felt that this was a significant benefit of digital technology, making particular reference to the speed with which information can be gathered, and the volume of information available online.

I like to use the iPads because whenever we need something, and we don't like, say we didn't know an Irish word and none of us knew it, we'd look it up on Google. (School A)

I'd say because you can look things up I guess, and instead of having like a dictionary or an encyclopaedia you would have to look. So ok, looking for a word in alphabetical order, ok it's this book so then you have to go searching through all the pages for it. (School D)

There's more access to information on computers then, like a book is limited, but on the internet there's more. (School B)

- Digital technologies help students/pupils engage more with their learning – in three of the five focus group schools (two primary and one post-primary), students/pupils remarked that digital technologies can make learning more engaging and interesting. Interactive educational games were specifically mentioned as elements of digital technology which enhance the learning experience in three out of the five focus groups. These comments directly relate to the first standard in the Learner Outcomes domain of the DLF: students/pupils enjoy their learning, are motivated to learn and expect to achieve as learners. One primary school pupil seemed to enjoy the independence and freedom of working on an iPad (quote from School A below). The pupil's comments imply a sense of ownership of his/her learning – "it's all your own thing that you do". This suggests a link with the Learner Experiences domain of the DLF, which states that students/pupils develop a sense of ownership and responsibility for their learning. This is consistent with the high emphasis on pupil-led learning mentioned by School A staff, particularly in Phase 1.

It [DT] helps us more because there's interactive games and you'd press the buttons and all yourself… I feel like it's more educational than just writing stuff down. (School A)

You're bored in school and you just don't want to listen. You want to go home. Just educational stuff … say if it was in the puzzle, then that would be better. (School D)

With the language games instead of just looking at your copy and reading it over, you can play games on it, so it's more, like, fun to learn… it's more interactive. (School E)

I think it's really handy because when you're doing it by yourself and no one's helping you, there's no right or wrong thing that you do. It's all your own thing that you do. (School A)

- Digital technologies are useful for storing and transporting information – these observations were made by students in the three post-primary schools,

but were not mentioned by primary school pupils. Students considered digital storage of important information (e.g. class timetables) more reliable than paper copies, which are easily lost. Students also talked about the benefit or potential benefit of using tablets and e-books rather than hard copies of text books, in order to reduce the weight of the load in their schoolbags.

At the start we'd get a page with our timetable on it, and then you can write it down on your iPad and set it as a wallpaper, but then if you lost your page, you'd have it on your iPad anyway because you can take a picture of it and save it on your iPad so you can never lose it. (School E)

It's more compact like, if you were writing an essay and you wrote it on paper, you would have to keep track of the paper and where it was and everything, but if you just type it out, you can access it from anywhere. (School B)

It's good, like, if you lost notes or anything, it's up there… I like that it's portable and I've always got my phone on hand so it's handy to just do a browse. (School C)

In the few weeks leading up to the exams – say I was studying all day, and my mam would be like do you want … to go shopping or something like that, and I have my phone with me and I have Schoology on my phone, so I'd be sitting in the car looking at my notes instead of having to bring everything with me. (School E)

People would get back problems from carrying all their books, so if they had all their writing stuff on their iPad they would be able to carry stuff like that in your bag, they could just have small copies for your homework and stuff. (School E)

- In two of the five focus groups (both post-primary), students commented on the potential for them to apply what they learn in school about digital technology in other contexts, describing the ability to work on computers as a "life skill". This links with the Learner Experiences domain of the DLF, which describes pupils having experiences to develop the skills and attitudes necessary for lifelong learning.

It's a life skill as well to have to work on computers. (School B)

Before when we didn't have iPads and we didn't know how to do word documents and stuff like that or PowerPoint, and that's useful for the future. (School E)

5.4.3. Limitations of using digital technologies (in school and more generally)

As well as recognising the benefits of using digital technologies, students/pupils displayed a keen awareness of the limitations of DT, both in an educational context and more generally.

- Two post-primary groups made several points which highlight a critical awareness of the role of DT in teaching and learning. One student commented that when listening to a teacher he learned more.
- Another student commented that one of his 'best' teachers did not seem to use DT at all.
- In School C, there was a discussion about students' preferences for revising and retaining information. The general consensus was that they preferred working off hard copies of notes rather than digital copies for this purpose.
- Some students questioned the value of adopting the use of digital technologies uncritically, i.e. in the absence of a clear sense of purpose or vision. They also suggested that the use of DT does not guarantee enhanced learning, that it depends on the manner in which a student engages with DT.

I learn more from teaching because you can just read something. If you're talking to someone, you're more focussed. (School B)

The best teacher who I have hasn't even talked to me about Google Classroom at all. He hasn't even mentioned it, and we haven't used it at all. Like I think he just says he finds it to be unnecessary just in the … way he teaches or whatever. (School C)

I like actual physical copies because you can't write your own notes on Google Classroom or highlight things. (School C)

Look at this new Google Classroom – how great is it – but what are we actually using it for? It seems like a little built up a bit too much to be honest … It's like innovation for innovation's sake but what are we using this for? (School C)

I think it depends how somebody or a student uses Google Docs … if you're somebody that says, 'oh I have my phone, I don't have to do anything', yeah then it can be a waste, because you don't really absorb anything from it. But if you use it to its potential then like I think it can be handy, but not as handy as a text book. (School C)

- At primary level, pupils in School A did not want to use DT all the time, and pupils in School D discerned specific activities which they felt were not enhanced by the use of DT – mostly repetitive tasks such as learning spellings. A link can be drawn here with two standards of the Learner Experiences domain of the DLF, which are concerned with students/pupils reflecting on their progress as learners and engaging purposefully in meaningful learning activities.

I'd like to use it [DT] … not too much, but like, only when we need to, not all the time because then our eyes go really badly, and no one would be able to have fun using it. (School A)

I don't like doing homework or doing spellings on the computer. I don't like doing that, you know the word and you've to type it over and over again because you already know the spellings. (School D)

In two of the focus group schools (both post-primary), students suggested that one limitation of using DT in schools is the potential for students to become distracted when using digital devices in class. They suggested that it is easy to become distracted from the topic of interest while researching online due to the ease of access to such large volumes of information. Social media apps were seen as being distracting and students also described how the behaviour of their classmates can be distracting when digital devices are used in class. Some students agreed that social media apps should be blocked in schools to prevent this from happening.

Personally I liked the iPads as well, but it [social media apps such as Instagram] was very distracting to me in 1st, 2nd year and 3rd year. (School E)

It can be very distracting when you're trying to listen to teacher and the person in front of you is on YouTube watching. (School E)

Students and pupils in two of the five focus group schools (one primary and one post-primary) demonstrated an understanding of the need to be aware of general safety, privacy and targeted advertising while online. They saw these as general life skills. The development of this kind of awareness links with the knowledge and skills required for lifelong learning, as described in the Learner Experiences domain of the DLF. Some of the views expressed by students and pupils are described below.

- Concerns about internet safety/inappropriate content were evident across both primary and-post primary pupils. Pupils in School D expressed an awareness of the potential for children and young people to be exposed to inappropriate content when they are using DT. They felt that it is important that measures are taken to block inappropriate content, and that this should be discussed in schools.

Sometimes children could just search up, say, any letter, and then something rude could come up and they don't know what it is and then they click into it and read it, but instead of doing that, it should be blocked. It should depend on, just say in school now, they should maybe block anything inappropriate or rude so children searching for machine guns, it wouldn't come up … and [we should] talk about different types of things like internet safety, blocking things and don't friend people that you don't know. (School D)

- Concerns about privacy and targeted advertising: Students in School C and pupils in School D both expressed frustration at the ubiquity of advertisements online. The post-primary students also referred to issues of privacy and targeted advertising, and discussed the need to balance the benefits and risks associated with DT.

I would like the computers to block all the ads that we don't really need to see. (School D)

You know the Alexa thing, the robot personal assistants, and people will say that they talk about – oh they keep talking about cat food the whole day or something… and then suddenly they start getting ads for it. (School C)

It's the difference between like 'oh iPads are good for schools because they save trees' or whatever, and then like you have a personal robot assistant, wiretapping the entire time for Google. (School C)

- Concerns about technological unemployment: Students in School C discussed the automation of labour/technological unemployment. They were concerned about the pace of technological advancement and the implications for their future employment, expressing concern that an increasing number of jobs would be automated in the future.

Like we need students coming out of school being able to be creative and stuff because automation and jobs aren't going to be there for people who know information and stuff, like it's not necessary anymore like… there's robots that can do journalism now and stuff, on football matches and stuff. Like everyone thinks that it's just going to be like for everyday jobs, like factory jobs. (School C)

5.4.4. Ideas for use of digital technologies in school

In the focus groups, students and pupils were asked to think about how digital technologies would be used in an "ideal school". They gave a variety of responses, revealing both practical and creative ideas. These are presented below.

- The most commonly expressed idea (three post-primary and one primary school) was that, in an ideal school, students and pupils would have their own individual digital devices. This appealed to post-primary students as a way to reduce the weight of their schoolbags, as electronic versions of books could be digitally stored. Primary school pupils suggested that individual devices could be tailored to the needs of individual pupils, and that this would help to ensure account security.

Just have something like a Tablet or iPad in every class for all the students that had all the books on it already. (School B)

I know some schools do the thing where you don't have books you just have an iPad and that's cool in theory because you don't have to carry all your books around. (School C)

Maybe like having less books for like writing because that way, people would get back problems from carrying all their books, so if they had all their writing stuff on their iPad they would be able to carry stuff like that in your bag, they could just have small copies for your homework and stuff. (School E)

You could have a computer to yourself and, like, your name on a computer and it would be like a computer for everybody... everyone would be able to choose what they want, some people would want a bigger screen and then some people would want a smaller screen. (School D)

If everyone had their own computers, it may be better because sometimes people, our teacher has this list of people's passwords and numbers and then sometimes students can see that and then they could try to hack into someone else's account and then see their password. (School D)

- Pupils in School B expressed a desire for a choice in the type of activity they engage in while using DT, implying the potential for DT to enable a greater level of student-/pupil-led learning. The pupils' desire to choose indicates a sense of ownership or responsibility for their own learning, which is one of the standards in the Learner Experiences domain of the DLF.

What I would like is if instead of having a certain thing to do on computers, the teacher would give you a few options. Like let's say typing club, reading theory and quizzes that would be choices. (School B)

- Students and pupils suggested several possible ways of incorporating DT into their learning across a range of different subjects. Students in School E were especially forthcoming with their ideas. It was suggested that technology could be used to bring new experiences to certain subjects e.g. Zumba in PE. They suggested that 3D printing could be used for Technical Graphics or Design and Communication Graphics. Teleconferencing could be used to connect with students in other countries to help with learning languages, learning more about other cultures, and gathering information for surveys. Digital drawing could be part of Art as students suggested this would be a useful skill to learn.

Have like a projector in the PE room with someone doing Zumba on it and we would have to copy off.

[Teleconferencing could be useful] if you wanted to learn a language or something... [or] when you're trying to learn different cultures as well for History and stuff like that... if you're doing a survey and you want to get things.

I think the printer would be quite useful, the 3D printer… There's also like apps you can use for art, so learning about those would be good because today most

commissions could be digital instead of like hand drawn… So, I mean, that would probably be better. (School C)

5.4.5. Views on education system

Post-primary students also took a broader view and expressed some more general opinions on the education system. As stated at the beginning of this section, it is acknowledged that these comments do not relate directly to the DLF. However they provide important insights into students' perspectives on their own experiences as learners.

- Opinions on completing examinations online: students in both schools expressed a preference for paper-based written examinations, since they are more accustomed to handwriting for lessons, homework and examinations. They suggested they might feel differently if they had been learning to type since the beginning of post-primary school. The idea of examinations being marked by a computer was considered in two different ways – some students perceived a possible benefit of eliminating the element of human subjectivity, while others were concerned that if a computer were to mark an examination, it would not understand a person's logic/reasoning to the same extent that a human would, and would be less likely to give marks for attempted responses.

You're faster writing than typing. (School E)

When I study, I like to get a page and start writing down say in History a few notes down and I'm more used to writing something down. And maybe when I get a sheet during an exam I'm just picturing me then when I was writing and studying. (School E)

I wonder if that could be like some sort of digital thing for marking exams because I always get so stressed because teacher will be talking about examiners and it will be like, oh if they're nice they might give it to you… and I was like I don't want to rely on the kindness of my examiner for my Leaving Cert. (School C)

With computers it probably does have one or two answers that it would have as correct or if it was like a teacher correcting it, they might understand the reason behind something that actually works with that. (School E)

- In one of the post-primary schools, students perceived too much emphasis on knowledge- and exam-based education, suggesting instead that different skills were more important in today's world, such as communication skills and use of DT.
- They favoured a system based on critical thinking, opinion-based questions, presentations and continuous assessment.

- They were of the view that systemic change is necessary to fully support and embed the use of DT in education.

It's not as important to know knowledge anymore, and other things are important, I think.

Like, when you think about it, actual work, how necessary is all this stuff? … Like, I want to do Business in College. When you go to work in an office or a business, like, how necessary is the stuff that you're learning? … like knowing definitions and stuff isn't really that important when it's about being able to talk to people and stuff.

I think this system doesn't really work, like, because it's always focussed on the exams.

There probably should be more of opinion-based stuff like in all the subjects and that comes back to the point where you can just Google that information whenever you want, but you can't Google like someone's ideas.

I know somebody who is studying for the Junior Cert. now, she's doing like class-based assessment for English and part of her grade is like giving a presentation to her class. I think that's really important for work nowadays to get any practice of that like.

I feel like the whole school system would have to change to really use technology properly within it. (All from School C)

5.5. Key points from Chapter 5

5.5.1. General observations on the focus group interviews

- The enthusiasm and professionalism of the members of staff who participated in the focus groups deserve recognition. Their willingness to engage with the DLF, and the projects which have been undertaken throughout the trial period, are to be commended.
- Similarly, students'/pupils' willingness to participate in the discussions, as well as their critical evaluation of the role of DT in their lives, were striking. It is acknowledged that some of the themes from the focus groups with students/pupils do not directly relate to the DLF. However, they provide valuable insights into young people's perspectives on DT in education and learning.
- Some of the issues and topics raised by focus group participants are reflective of challenges in the broader context of digital technologies in education. However, all comments have been included to provide a complete context for interpreting DLF-specific findings.

- It should also be noted that some of the themes which emerged from the focus groups in Phase 1 have re-emerged in Phase 2. A summary of the main themes from the Phase 2 focus groups is presented below.

5.5.2. Key findings emerging from the focus groups with teachers

- **DLF Document, Planning Guidelines/Template and Exemplar Videos**
    - Teachers expressed ambivalence about the DLF document and related resources; their views remained largely unchanged since Phase 1.
    - The DLF was considered a useful tool for reflection on current levels of practice.
    - However, the content of the document was considered heavy, dense and lacking in practical guidance.
- **PDST Advisors**
    - Teachers in five out of six schools gave very positive feedback about the PDST advisors, and considered their support to be vital to the planning and implementation of the DLF trial.
    - The PDST advisors were valued for their knowledge, experience and the reassurance they provided to staff.
    - Teachers valued the objective perspective that advisors brought to their schools, as well as the insights and suggestions that they were able to provide from their work with other schools. Their involvement also helped to maintain staff motivation to meet deadlines.
    - In the one school that had a less positive experience, problems arose from the feeling that the PDST advisor's input was not tailored to the school's specific needs.
- **Increased staff collaboration**
    - In all six focus groups, teachers mentioned an increase in collaboration during the DLF trial, which was characterised by improved communication and increased sharing of knowledge and resources among staff.
    - Three of the six schools mentioned peer-delivered professional learning/mentoring as an especially effective form of collaborative work, as staff could draw on their shared experiences and knowledge of their own school's context.
- **Teachers' attitudes**
    - Teachers noted that their own attitudes could affect the implementation of the DLF trial. The willingness of staff to engage and their openness to change were considered enablers of successful implementation. Conversely, more negative attitudes and resistance to change were considered barriers to the success of the trial.
    - All six schools noted an increase in staff motivation and openness to engage with DT as a result of taking part in the DLF trial. Teachers in five out six focus groups reported feeling more confident to integrate DT in their practice since taking part in the DLF trial. They also

perceived an enhancement of the student experience, which further increased their motivation as teachers.

- **Time**
    - In all six focus groups, time was a significant challenge. Time constraints made it difficult for staff to engage fully with the DLF trial.
    - It was considered difficult to find the time to read and unpack the DLF document and to familiarise themselves with the other resources (e.g. Planning Guidelines, exemplar videos).
    - School staff found it difficult to co-ordinate supervision and/or substitution to allow time for teachers to attend DLT meetings/PDST advisor workshops.
    - A lack of dedicated time for teachers to upskill and share their expertise with their peers was noted as a challenge to embracing collaborative practice.
- **Problems with infrastructure**
    - Inadequate infrastructure was considered a challenge to embedding DT in teaching and learning.
    - Problems with infrastructure (insufficient number of devices; unreliable devices; poor connectivity) were noted by staff in three of the focus group schools.
    - It was also noted that it cannot be assumed that students/pupils have access to DT at home; this means that teachers can be limited in the extent to which they can fully integrate DT in their practice (e.g. they may not be able to assign homework through DT).
- **Lack of technical support**
    - Technical support emerged as a theme in four of the six focus groups, reinforcing the prevalence of this theme in the Phase 1 focus groups.
    - Schools tend to rely on one or more members of staff who provide informal technical support on a voluntary basis, usually with no training.
    - Staff saw this as being unfair and unsustainable.
    - However, the expense of professional, external technical support was considered a barrier to engaging with such services.
- **Leadership**
    - Leadership emerged as a theme in two ways. Firstly, leadership within schools was considered an important influence on the implementation of the DLF trial; leading by example and committing to a process of incremental change were considered features of a leadership style that would support successful implementation.
    - Secondly, the need for leadership from the DES was mentioned with regard to the sustainability and upscaling of the DLF implementation.
- **The future of the Digital Learning Framework**
    - In all six focus groups, teachers discussed their views on the sustainability and future implementation of the DLF.

- As well as the need for leadership from the DES, teachers mentioned several other factors that they considered necessary for successful national rollout: the support provided by the PDST advisors, the provision of technical support, the provision of training and adequate time for teachers to engage, and the acknowledgment of the variability of schools' digital contexts.

5.5.3 Key findings emerging from the focus groups with students/pupils

- **Experiences of DT in school**
  - There was considerable variation in students'/pupils' descriptions of their experiences of DT in school.
  - DT was used in three out of five schools for individual and group projects. When students/pupils worked in groups, projects tended to be divided into separate tasks and assigned to individuals; hence it is difficult to identify the amount of collaborative work taking place.
  - A variety of programmes and applications are used by students and pupils both in school and for homework, including Google Classroom/Schoology (multi-app, cloud-based learning management systems), Screencastify (screen video recorder), YouTube, Book Creator (multimedia document editor), Khan Academy (interactive online Maths app), Scratch (programming language for creating interactive stories and games) and Quizlet (general learning and revision tool).
  - Students in two post-primary schools noted an increase in the use of DT in their schools over the course of the DLF trial period. These students commented on the impact that their teachers' level of confidence and competence with DT can have on their learning experiences. This echoes the teachers' own observations that their levels of digital literacy and motivation can influence the extent to which DT is used in the classroom.
- **Problems with infrastructure**
  - Students/pupils in three out of five focus groups (one primary and two-post primary schools) mentioned issues with their school's DT infrastructure (slow, unreliable devices; underuse of devices; shortage of devices). These reflect the issues raised in the staff focus groups in Phases 1 and 2.
- **Benefits of DT (in school and more generally)**
  - Students and pupils in three of the five schools (two primary and one post-primary) considered the speed with which one can access a large volume of information to be one of the greatest benefits of DT.
  - In one post-primary and two primary schools, students/pupils remarked that DT can make learning more engaging and interesting. Interactive educational games were considered particularly beneficial

to their learning experience. In one primary school, pupils described feeling more independent when they work with DT in class.
    - In all three focus groups at post-primary level, students mentioned the benefits of digital storage of information. They suggested that hard copies of notes are easily lost, and e-books would significantly reduce the weight of their schoolbags. These benefits were not mentioned in the primary school focus groups.
    - Students/pupils in three out of five focus groups (one primary and two post-primary schools) viewed learning to use DT as a valuable life skill and a major benefit of the use of DT in school. Their comments related to the use of particular software (e.g. PowerPoint for presentation skills), and also to more general skills such as avoiding inappropriate content and protecting one's privacy online.
- **Limitations of DT (in school and more generally)**
    - Students in two of the three post-primary schools demonstrated a critical awareness of the limits of the role of DT in teaching and learning. They expressed the following ideas:
        - Some students learn better when listening to a teacher.
        - Good teaching need not be reliant on use of DT – one student remarked that his 'best' teacher never uses DT.
        - Use of DT does not guarantee enhanced learning – the manner in which it is used by the student will determine whether or not learning is enhanced.
        - Students generally seem to prefer working with paper copies of notes, rather than digital copies, for revising and retaining information.
    - At primary level, pupils also identified certain tasks which they felt were not enhanced by the use of DT (e.g. repetitive tasks like learning spellings).
    - The potential for becoming distracted from the topic/task of interest when using DT was noted by students in two post-primary schools. This was related to ease of access to a large volume of information, social media apps and the behaviour of classmates when personal digital devices are used in class.
    - Concerns about internet safety, inappropriate content, privacy and targeted advertising were raised at both primary and post-primary level.
    - Students in one post-primary school were concerned about the pace of technological advancement and the implications for their future employment, in the context of increased automation of labour.
- **Ideas for use of DT in school**
    - In four of the six focus groups (three post-primary and one primary school), students/pupils suggested that, in an ideal school, students and pupils would have their own individual digital devices. This was

appealing for different reasons at primary and post-primary level; primary school pupils suggested that devices could be tailored to their individual needs and it would be easier to ensure account security, while post-primary students saw it as a way to reduce the weight of their schoolbags with e-books.

- Students and pupils suggested several possible ways of incorporating DT into their learning across a range of subjects. Some of these are listed below:
  - A projector could be used in PE to show a Zumba class and students could follow along.
  - 3D printing could be used for Technical Graphics or Design and Communication Graphics.
  - Teleconferencing could be used to help with learning languages, learning about other cultures and gathering information for surveys, by connecting with students in other parts of the world.
  - Digital drawing could be incorporated into the Art curriculum.

- **Views on the education system**
  - In two post-primary schools, students took a broader perspective and expressed some general opinions on the education system.
  - Students in both schools expressed a preference for paper-based written examinations. They felt they would be more confident writing an examination by hand since they are more accustomed to it, but thought they might feel differently if they had been learning to type since they started post-primary school.
  - The idea of examinations being marked by a computer was considered favourably by some, who perceived a possible benefit in eliminating human subjectivity from the process. Others, however, thought that this subjectivity was essential for understanding logic and nuance, and that a computer would be less likely to give attempt marks.
  - One group of students perceived a disproportionate emphasis on knowledge and exams in the education system, and suggested that different skills are more important in today's world (e.g. communication skills, competency with DT).
  - These students favoured a system based on continuous assessment, presentations, critical thinking and opinion-based questions.
  - They suggested that systemic change is required in order to fully support and embed DT in education.

Chapter 6
Conclusions and implications

Conclusions

Overall, the DLF trial can be considered a significant success. A large majority of DLT leaders, teachers and PDST advisors indicated that the trial had been highly or moderately successful in achieving its goals. Within the short six-month trial period, over 90% of schools made measurable progress in their levels of practice in embedding DT (as indicated by the standards of the domain that their school was focused on for the DLF trial). Furthermore, the DLF document and associated resources such as the Digital Learning Planning Guidelines have been generally positively received: for example, school staff welcomed the fact that the structure of the DLF aligns with that of the Looking At Our School framework.

A number of positive changes were noted in this report. In addition to the measurable improvements in levels of practice and changes observed by DLT leaders and teachers, it seems that the most significant positive impact of the trial relates to significant enhancements in communication between and collaboration among teachers as they worked towards planning and implementing DT in their practice.

The main contributors to the success of the trial may be summarised as the highly effective work of the PDST advisors, high levels of engagement of the members of the schools' DL Teams in the programme, the collaborative and facilitative approach between PDST advisors and schools, the high engagement of a large majority of schools' Digital Learning Teams, and the support for and endorsement of the DLF by most schools' management staff.

The main challenge which impeded implementation was the high time requirement. DLT leaders, teachers and PDST advisors reported difficulties in finding the available time for planning and implementation: the timing of the DLF trial was not ideal in terms of overall school planning activities, and no substitute cover was provided for attendance at PDST visit meetings or planning. Infrastructure (connectivity and the numbers and quality of devices) was also a significant issue, but not in all schools. Broadly speaking, in approximately one in five schools, these two issues posed significant challenges and in a further one fifth of schools, these were seen as moderately challenging. There is also evidence that the model of technical support and maintenance is not effective in many schools, particularly at primary level. The combined role of technician and co-ordinator for a single staff member in the school, often on a voluntary basis, was widely viewed as unfair and unsustainable.

A summary of findings is presented in the Executive Summary at the beginning of this report and is not reiterated in this chapter. The remainder of the chapter considers implications for national rollout of the DLF programme.

Implications for national rollout

Seven themes or issues emerge very consistently throughout this evaluation. We consider these here in terms of their implications for national rollout of the DLF programme. They are:

- DLF document, Digital Learning Planning Guidelines, and other DLF resources
- Time
- PDST support and Professional learning
- Technical support and maintenance
- Infrastructure
- Measuring and evaluating progress
- Students' and pupils' views on DT.

DLF document, Digital Learning Planning Guidelines (DLPG) and other DLF resources

Although, generally speaking, DLT leaders and teachers had positive views about the DLF document and DLPG, comments from some respondents in the questionnaires, and participants in the focus groups (school staff, and, to a lesser extent, PDST advisors) suggest that improvements might be made to these resources. Having said this, it should be borne in mind that the Digital Learning Planning Guidelines were not available at the outset of the trial (but were available from around the time of PDST advisors' second school visits onwards). In both Phases 1 and 2, a range of suggestions was made to improve these resources. The suggestions here reflect the most common difficulties reported by respondents/participants.

Implications:

The results suggest that the following points need to be considered in enhancing the DLF document, DLPG and other resources.

- Development of schematic information such as an infographic or diagram that illustrates the DLF process from beginning to end, and which cross-references the various tools and resources that are available to assist with the different stages of this process.
- Undertaking a review of the DLF with the aim of supporting the reader more in the interpretation of technical (DT-related) terms, for example by providing explicit linkage to examples.
- Including a practical 'how-to' description of the process of unpacking individual DLF domains in the DLPG.
- Elaborating on the examples provided in the DLPG to include a range that covers all eight domains (currently, the DLPG uses illustrative examples from two of the eight).
- Providing a short section offering specific and practical guidance to schools that may be early in the process of embedding DT (i.e. beginning to work towards a level of effective practice), some of which may also be smaller schools.

Through its planning work in the national roll-out of the DLF, the PDST has already addressed the first four of the five points above and the authors commend their work and effort. The www.dlplanning.ie website brings all of the resources into one

place and includes tools to assist schools in obtaining a quick overview of the DLF process, such as a Gantt chart that describes the steps. The booklet provided to schools during the seminars planned for national roll-out (*Using the Digital Learning Framework to Embed Digital Technologies*) provides a user-friendly, structured set of steps and exercises to assist schools in the process of implementing the DLF and developing their Digital Learning Plans. The DLPG will be supported with the addition of more case studies that illustrate all domains on www.dlplanning.ie during 2019, and this web resource will also include evidence-gathering tools that cover all eight DLF domains.

However, it is the view of the authors that the development of further guidance and resources may be necessary to support (smaller) schools which are early in the process of embedding DTs. Solutions or further guidance may emerge in the course of the seminars that are planned for the national roll-out of the DLF, in response to the identification of issues and how best to address them.

Time

It was noted that the overall timeline for implementation was short, spanning around 6 months. In fact, in a majority of schools, planning for the DLF trial programme entailed an extension of the initial six-month DLF trial programme timeline and, in most schools, the programme is expected to run for one or more years in total. The reports of DLT leaders, teachers and PDST advisors indicate that progress (in some cases, substantial) has been made in a large majority of schools. This has required considerable time investment on the part of teachers, DLT leaders, and PDST advisors. On average during the six-month trial period (November 2017-May 2018), DLT leaders spent 28 hours and teachers spent an average of about 17 hours working on the DLF trial in their school.

The main issue with time is therefore not the overall timeline of the trial, but rather the creation of adequate opportunities for school staff to meet as a group for planning, implementing, reviewing and learning. Staff also need time to review and consolidate new software, apps and skills, develop or enhance lesson plans, and revise them after trying them out. The lack of substitute cover was cited by all groups as a significant barrier to implementing the programme.

Implications:

The Department of Education and Skills has acknowledged the importance of this work, but needs also to recognise the time it requires by providing supports or further guidance on time management for meetings, planning and professional development/training. In turn, schools will benefit from building in planning time for implementing the DLF within their overall school development and planning process, for example during Croke Park hours or staff meetings (where DT/DL could feature on the meeting agenda).

PDST support and Professional learning/training

The strong and unanimous view from DLT leaders, teachers and the PDST advisors themselves was that the implementation of the DLF trial programme in schools would not have been possible without the support and guidance of the PDST.

The evaluation provided information on what this entailed and what kinds of guidance and supports were perceived to be the most helpful.

- The support provided by PDST advisors was clearly tailored and multi-faceted, and required skilled facilitation to enable change to occur from *within* the school.
- It required knowledge and competence in a range of areas:
    - an in-depth understanding of the DLF and its application in order to facilitate its 'unpacking'
    - a knowledge of common difficulties experienced by schools in their efforts to embed DT, as well as a means to identify workable solutions to these difficulties
    - skilled communication and the ability to provide reassurance in order to overcome uncertainty and resistance
    - in-depth knowledge of many of the apps and software in use in schools
    - some degree of technical knowledge.
- This kind of support was also sustained, in that the PDST advisors guided the process from the initial unpacking of the DLF domain, to the creation of a school vision for DT, to evaluating progress made.

On average, PDST advisors spent about 33 hours working with each school assigned to them for the trial.

The observations above are highly consistent with a recent review of characteristics of effective teacher professional development (contained in Weir et al., 2017, pp. 23-28), namely, they:

- Incorporate active learning
- Are coherent (integrated with and building on existing knowledge and skills and aligned to reforms/developments at local and national levels)
- Are sustained (longer in duration, including follow-up activity and frequent contact between learners and those delivering the professional development)
- Incorporate collective participation and collaborative learning
- Incorporate pedagogical content (i.e. how learners learn).

Implications:

There was a very strong consensus that the PDST support was essential for the implementation of the DLF trial. On average, PDST advisors spent a little over 30 hours working with each school assigned to them over the six-month DLF trial period. It is highly unlikely that the level of support provided by the PDST during the DLF trial is sustainable in the context of national rollout, although PDST support

should remain a core component of PLT for the DLF. Overall, professional learning should be viewed in a systemic way, with PDST support occurring alongside other forms of PLT such as peer-to-peer learning, online resources (e.g. webinars) and collaboration among staff across clusters of schools. Within a systemic view of professional learning, schools play an active role in identifying and meeting their own professional learning needs and goals. The

There is also a strategic leadership role to be played by the Department in streamlining the rollout of professional learning/training across multiple players (e.g., the NCCA, Colleges of Education) and across various national initiatives and developments.

Technical support and maintenance

It is a fact that DT is becoming more complex and the requirements for fast and reliable connectivity have increased. There are also new data protection protocols required of schools in terms of the General Data Protection Regulation (GDPR). These issues are very technical in nature, and, in the views of all participants, beyond the reasonable grasp of individuals who work as teachers, school managers and PDST advisors. PDST advisors and school staff recognised the need to reconfigure the role of ICT/DT co-ordinator as distinct from technician and PDST advisors noted that this division of roles was present in the US and the UK.

In the course of the DLF trial, we encountered teachers with an enthusiasm and vision for DT who reported frequently feeling overburdened with schools' technical problems to the expense of sharing their own knowledge with other staff and leading developments in the use of DT in teaching and learning.

If the issue of technical support were easy to address, perhaps it would not have emerged quite as strongly in the DLF trial evaluation. The technical support challenge was flagged in the report on the ICT 2013 Census (Cosgrove et al., 2014a) which notes that several earlier reports dating back to 2008 highlighted an urgent need to address the provision of technical support in schools.

Cosgrove et al. (2014a) go on to comment (p. 38): "The 2013 Census indicates clearly that technical support and maintenance continue to be significant issues for schools and teachers. The Digital Strategy for Schools should put forward clear and specific proposals with clear targets for an integrated, system-wide approach to technical support and maintenance."

Implications:

Further work is needed to identify cost-effective, efficient models and solutions to providing equitable technical support to schools. Technical support had previously been identified as a key challenge in the 2013 ICT Census of Schools (Cosgrove et al., 2014a, b). In response to this, the Digital Strategy provides for a review of Technical Support provision in schools.

From the perspectives of school staff and PDST advisors, technical support, ideally, will be provided by technicians, leaving schools' DLT leaders freer to focus on the strategic leadership of DT, in order to enable schools to develop a culture in which teachers can more effectively embed DT in teaching, learning and assessment.

The DES has established an Expert Group to deliver on the key Digital Strategy objective of technical support solutions. The Expert Group (Technical Support Solutions for Schools) will identify and evaluate technical support options in consultation with the relevant stakeholders, including management bodies, in order to develop a model of technical support that will meet the varying needs in the system. It is envisaged that the outcome of this work will provide recommendations for the implementation of technical supports to meet the needs of schools. It is expected that this Expert Group will consider the findings of this DLF trial amongst the evidence that it reviews; in particular, the views of the DLF trial participants.

Infrastructure

In a large minority of schools, difficulties with connectivity and limited numbers of (working) devices presented real and significant barriers to implementing the DLF trial. It was interesting, however, that primary schools had reported significant improvement in *perceived* levels of DT infrastructure between Phases 1 and 2. It is not clear whether this change in perception was as a result of teachers making more effective use of existing infrastructure as they became more familiar with how to effectively use DTs, or whether this was due to the ICT infrastructure grant received in February 2018, or a mixture of both of these factors.

Implications:

As noted above (under implications regarding the DLF document and other resources), schools that are very early in the process of embedding DT into teaching, learning and assessment may benefit from specific and practical guidance relating to DT infrastructure (devices and/or connectivity).

In addition, schools may benefit from additional guidance or support to:

- Identify and plan for progressive development in infrastructural elements of DT
- Develop awareness of and resistance to corporate marketing pressures in the purchase of DT.

Measuring and evaluating progress

Individuals from all three groups (PDST advisors, DLT leaders, teachers) commented that the DLF is difficult to translate into practice and that it is difficult to see what the standards and statements of practice would look like in real life.

This view was confirmed in the large differences in the ratings of level of practice provided by DLT leaders and PDST advisors.

Implication:
For the DLF to achieve its aims, the Department needs to clarify what levels of effective and highly effective practice might look like and promote a shared understanding of their meaning, perhaps by illustrating them 'in action' in a range of examples. Without a shared understanding of effective and highly effective practice, monitoring the implementation of the DLF would be problematic.

Students' and pupils' views on DT

The focus groups with students and pupils conducted as part of the trial evaluation clearly demonstrated that students and pupils have clear preferences about how they would like to use DT in their learning. They also demonstrated awareness of the limitations of DT as a teaching and learning tool.

Implication:
As the rollout of the DLF progresses, further information on the views of learners should be gathered. It is the view of the authors that the most efficient way to gather this information is within Ireland's existing national and international educational assessment programmes, i.e. as part of the forthcoming cycles of the Programme for International Student Assessment (PISA 2021, post-primary), national assessments (2020, primary), and the 2021 cycle of the Progress in International Reading Literacy Study (PIRLS, primary). With respect to PISA, the international project consortium intends to develop and enhance the student ICT questionnaire component for 2021. Nationally, Ireland can add to this component with specific, tailored questions. A similar strategy may be applied to the PIRLS pupil questionnaire.

Research and design implications

The findings of this evaluation have a number of research and design implications which, if adopted, have logistic, administrative and data management consequences.

It is recommended that the evaluation of the national rollout of the DLF should occur within an overall longitudinal framework that covers a minimum period of two years.

The study should ensure to include:

- Reliable information on the progress of schools in their levels of practice in embedding DT
- The ways in which the DLF was used to facilitate change
- A mechanism to incorporate learners' views on DT in learning and assessment through, for example, triangulation with national and international assessment programmes
- The gathering of detailed information on how the DLF is linked with SSE efforts in individual schools
- The collection of information on the nature of professional learning that occurs throughout the process.

Furthermore, in order to enable the interpretation of progress over time, the study design should include a consideration of the following:

- If progress is to be evaluated, measures of level of practice at baseline (as suggested by the statements in the DLF) should be provided by schools and PDST advisors with follow-up measures of progress from at least two time points (see example questionnaire in Appendix)
- In order to interpret progress in context, a mechanism to record and document schools' DT infrastructure is needed (see example questionnaire in appendix)
- Similarly, a mechanism for gathering of information on schools' current technical support arrangements would be helpful to understand progress over time (see example questionnaire in Appendix).

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Appendix: Sample questions for aspects of national roll-out of the DLF

Level of practice

Q1. Based on the standard(s) of the domain that my school is focused on for initial implementation of the Digital Learning Framework, the school is *currently* using digital technologies in teaching, learning and assessment in a way that is best described as:

Entirely below the statements of effective practice	☐
Mostly below the statements of effective practice	☐
Partly below and partly at the statements of effective practice	☐
Mostly at the statements of effective practice	☐
All at the statements of effective practice	☐
Partly at the statements of highly effective practice	☐
Mostly at the statements of highly effective practice	☐
All at the statements of highly effective practice	☐

General infrastructure and engagement

Q2. How would you rate the following aspects of digital technologies in your school?

	Excellent	*Very good*	*Good*	*Fair*	*Poor*
Number of computing devices (desktops, laptops, tablets)	☐	☐	☐	☐	☐
Age and condition of computing devices (desktops, laptops, tablets)	☐	☐	☐	☐	☐
Availability of digital devices such as whiteboards, digital projectors	☐	☐	☐	☐	☐
Availability of digital tools such as data sensors, cameras, assistive devices, robotic toys (e.g. BeeBots)	☐	☐	☐	☐	☐
Awareness of suitable software for teaching and learning	☐	☐	☐	☐	☐
Availability of suitable software for teaching and learning	☐	☐	☐	☐	☐
Broadband connection/speed	☐	☐	☐	☐	☐
Technical support and maintenance	☐	☐	☐	☐	☐
Teachers' overall level of knowledge and skills in using digital technologies for teaching and learning	☐	☐	☐	☐	☐
Teachers' overall level of use of digital technologies for teaching and learning	☐	☐	☐	☐	☐
Pupils'/Students' overall level of knowledge and skills in using digital technologies for learning	☐	☐	☐	☐	☐
Pupils'/Students' overall engagement with digital technologies as part of teaching and learning	☐	☐	☐	☐	☐

Technical support

Q3. How is technical support provided in your school?

- All technical support is provided for by a member of school staff ☐
- All technical support is provided for by an external technical support company ☐
- Technical support is provided for by a mixture of internal and external support (e.g. member of staff looks after software and external company looks after hardware) ☐
- We have no technical support arrangements at present ☐
- Technical support is available in some other form (please type a description below) ☐

_____

Q4. Is a member of staff who is responsible for technical support in your school?

- Yes – member of staff has been assigned this role as a **post of responsibility** ☐
- Yes – this role is **informally** held by one or more members of staff ☐
- No – we have **no-one assigned** to a technical support role, either formally or informally ☐
- Technical support is looked after by staff in **some other way** (please type a description below) ☐

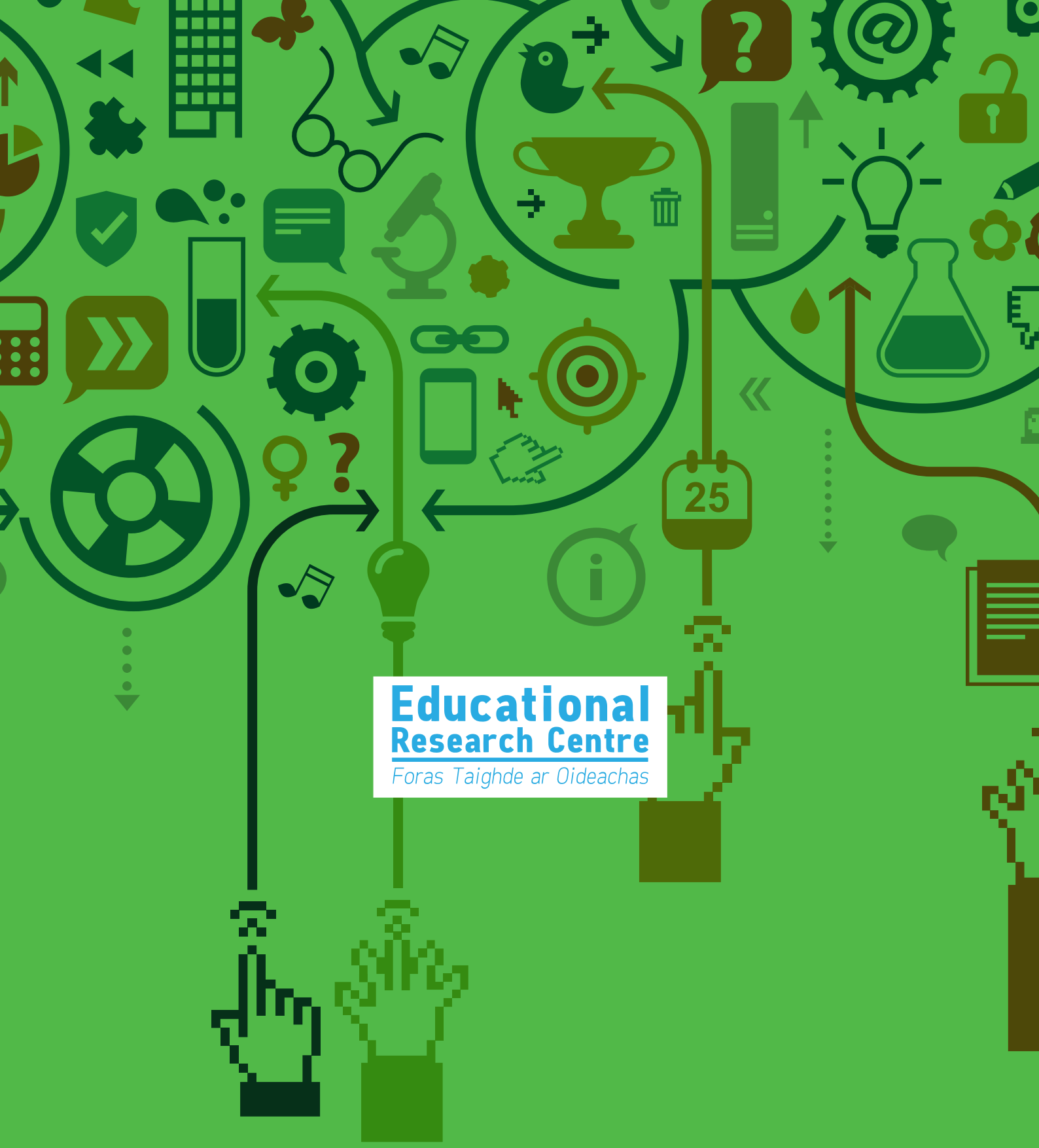
_____

Q5. How would you rate the effectiveness of the technical support at your school at present?

	Highly effective	*Quite effective*	*Somewhat effective*	*Not effective*
For keeping computing devices in good repair	☐	☐	☐	☐
For keeping devices up to date with software, virus scans, etc.	☐	☐	☐	☐
For keeping other devices (e.g. printers, projectors) in good repair	☐	☐	☐	☐
For maintaining connectivity	☐	☐	☐	☐

Q6. How much, approximately, does technical support cost per school year?

- Less than 500 euro ☐
- 500-1,000 euro ☐
- Between 1,000 and 1,500 euro ☐
- Between 1,500 and 2,000 euro ☐
- Between 2,000 and 2,500 euro ☐
- More than 2,500 euro ☐



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ISBN: (PDF) 978 0-900440-65-6