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Apprentices' experiences of studying online during the Covid-19 emergency in Ireland: A report of research findings

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Apprentices' experiences of studying online during the Covid-19 emergency in Ireland

A report of research findings

September 2021

Author

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The author returned to the Technological University Dublin in September 2021 after serving two terms of secondment as Assistant General Secretary in the Teachers' Union of Ireland. While in TUI the author had responsibility for the Apprenticeship Working Party engaging with national agencies, key stakeholders, social partners and EafA, as well as managing and organising Erasmus+ study visits and strategic partnership projects. In February 2022 he was appointed as Structured Lecturer (Apprenticeship) in the Dublin School of Architecture, TUDublin.

Abstract

In March 2020 the Irish government introduced emergency measures to stop the spread of the highly contagious Covid-19 virus. The change was immediate, and the protection of public health was paramount. All citizens were requested to cooperate and adhere to the restrictions. Key features included, restricted movement within the country, all non-essential workplaces to close and where possible move to remote working, the closure of all schools, training centres and universities, education was to be provided by online means. This research focused on a specialised section of the Irish education system - the Standard Based Apprenticeship - and how apprentices experienced the move to online provision during the lockdown periods. A mixed-method research approach of online questionnaire and telephone interviews was used to explore the facilities, supports, wellbeing, teaching and learning materials, and communication. The sample group was apprentices in off-the-job training and education phases during the closure periods (N=3,000). The responses received were - survey N=362 and interviews N=11. From the data, respondents acknowledged the need to move provision online however, they were concerned that normal informal peer learning could not occur in the absence of meeting each other and having practical skills demonstrations in centre/college workshops. Respondents identified the types of supports made available by employers and education/training providers. However, they also noted issues relating to the digital divide and lack of access to IT equipment and broadband. Some respondents reported concerns about isolation and personal wellbeing. A key concern that respondents identified was matters to do with the provision of timely information and communication. The research suggests there is a need to develop a comprehensive communications platform to facilitate up-to-date information flow from all stakeholders, a need to host a repository of technical and learning resources relevant to each trade area, and provision of a mechanism for apprentices to actively engage with each other to enhance informal peer learning. In addition, apprentices' experiences of their studies and work should be regularly gathered and reported

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Summary

To limit the spread of the highly contagious Covid-19 virus, the Irish Government introduced national measures, based on public health advice, to reduce social contact including sector specific lockdowns, restrictions on movement, social distancing, face covering and other emergency measures. Since March 2020, education and training sectors were subject to two lockdown periods. Emergency remote teaching was used to maintain education provision during periods when premises were closed.

This research explored apprentices' experiences of studying online during the Covid-19 restrictions. The research approach was 'mixed method', using an online survey questionnaire and telephone interviews. The sample population was drawn from registered craft apprentices engaged in study during the lockdown periods. The survey used opportunity sampling and received N=362 responses, while the interviews applied an expression-of-interest sampling method and had N=11 participants. The research was designed to explore apprentices' experiences during Covid-19 including matters to do with access to equipment, learning material, supports, and any challenges that arose during this time.

From the data it is clear respondents were aware of the Covid-19 restrictions and understood the reasons why training centres and colleges were required to close. While respondents accepted that online provision of courses was the only option available to maintain education and training during the lockdown periods, they did raise concerns, issues and some benefits relating to platforms, resources, and Wi-Fi access. Respondents also noted that an online learning approach was not compatible with the applied, practice-based learning approach of learning while doing. Respondents considered practical workshops and face-to-face classes facilitated a better learning environment compared to online and theory-only classes. Respondents noted that their level of theoretical knowledge was adversely affected by the lack of practicals. Respondents also reported concerns about the lack of communication, and particularly lack of advice and guidance relating to programme changes and information on progression. Some respondents reported excessive delays experienced in moving through the difference phases of their apprenticeship. Respondents did, however, acknowledge the support they received from employers, teachers, and trainers during the lockdown periods. Some respondents disclosed they experienced isolation and mental health issues during the restrictions. Most respondents were looking forward to a return to on-site training and education including practical workshops and on-the-job work tasks. Respondents emphasised the importance of engaging with other apprentices for support, collaborative learning by discussions, and for social connections.

Introduction

On the 12 March 2020 Taoiseach Leo Varadkar informed the nation that emergency measures would be introduced to limit the spread of the highly contagious Covid-19 virus. These measures included the temporary closure of schools and colleges up to the 29th of March¹. During the lockdown period education provision was expected to continue where possible by

¹ See full statement made by the Taoiseach at Gov.ie <https://www.gov.ie/en/speech/5a280b-statement-by-an-taoiseach-on-measures-to-tackle-covid-19-washington/>

online means and by remote working. The Secretary General of the Department of Education and Skills on the 13 March sent a communication about the Covid-19 closures to schools and colleges stating: *'In order to minimise the impact on teaching and learning all schools are asked to continue to plan lessons and, where possible, provide online resources for students or online lessons where schools are equipped to do so. Schools are asked to be conscious of students that may not have access to online facilities and to consider this actively in their response'* (2020²). The Higher Education Authority received clarification that the closures included further and higher education institutions and noted that: *'Physical classes in universities and higher education facilities will not be held during the closure. Institutions can make other arrangements for teaching and learning and other activities in line with their business continuity plans and contingency planning'* (2020³). This was the first time that the whole education system (primary, second level, further education and training and higher education) was instructed to close schools, training centres, colleges and campuses, and to move to online provision of education and training.

The emergency measures presented significant and immediate challenges for the education system, students, families, and teaching staff. The timeframe imposed allowed little or no time for adequate preparation and organisation of resources and activities within the education sectors. Students, families, and carers were put in a difficult situation when education was moved online as some did not have the required IT equipment (computers, laptops, tablets, phones) or broadband to gain access to learning material and to maintain contact with teachers. The teaching staff in the education sectors had to rapidly adjust their teaching materials and adapt professional practices to cope with the challenges of teaching at a distance by means of new, and in many cases, unfamiliar online learning environments. The focus of schools and colleges was to maintain communication and engagement with students and to provide a learning experience to assist students to continue their studies remotely.

These new remote classrooms (learning spaces) were located in kitchens, sitting rooms, bedrooms, and other spaces available to students (and to teachers/trainers). Lessons could only be accessed by means of an electronic device (smart phone, laptop, tablet, PC), and the necessary software and broadband. Matters relating to equality of access to the virtual learning environment emerged quickly: limited broadband access, use of devices not designed for learning environments, sharing of devices, and competing demand for bandwidth in households where several people were working remotely accessing the same Wi-Fi. The OECD in their 2001 report stated, *'...the digital divide refers to the gap between individuals, households, businesses, and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities'* (OECD 2001, p5). The Department of Education and Skills (DES) was aware of the impact the digital divide was having on marginalised and disadvantaged communities, and additional funding⁴ was made available to primary and secondary schools to purchase ICT equipment and to support

² See full text of Seán Ó Foghlú's letter <https://www.education.ie/en/Schools-Colleges/Information/National-Emergencies-Public-Health-Issues/scoilnet-and-pdst-letter-to-principals-130320.pdf>

³ See text of HEA update at <https://hea.ie/2020/03/10/covid-19-coronavirus-update/>

⁴ For example, see Minister's Department of Education and Skills press release on top-up funding for ICT equipment <https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/PR20-04-22.html>

students who needed it. The Department of Further and Higher Education Research, Innovation and Science (DFHERIS) also made available additional funding⁵ to provide students with laptops for online learning.

While the DES and DFHERIS were providing more resources to the sectors to assist students with ICT equipment needs, it was not apparent if the students in need were aware of the schemes and how they could access them. There are examples of initiatives that were introduced by providers to make available IT support for students to reduce the digital divide in the form of equipment loan schemes, reduced prices or loans. Some examples were Tech2Students⁶, Student Laptop Scheme⁷, Laptop Loan Scheme⁸ and Covid-19 Grant Scheme⁹.

The online learning environments did facilitate teaching staff to continue provision of education services to students by either broadcasting live to students or providing pre-recording lessons which were shared with students online. Due to the rapid change from face-to-face teaching to online learning, and without any preparation time, teaching staff experienced significant additional workload trying to convert learning materials which were originally developed for face-to-face classrooms into materials suitable for online learning. In addition, teaching staff had to consider changes to their pedagogical practices moving from a planned and prepared approach to an on-the-go process, a form of trying-by-doing in real time. This included learning how to use the technology of the online platform as well as how to teach within the online environment. Teaching staff had to assess what worked and to make changes as required to enhance the learning process and the service provided to students. Maintaining provision online under Covid-19 emergency proved to be both resource-intensive and complex.

It is arguable that online learning is mostly appropriate for subjects which are theory based. Practical-based subjects in general are not suitable for virtual learning environments. The lack of access to practical workshops proved very problematic for certain groups within the education sectors including those who needed access to laboratories, equipment, rehearsal space, studio space and workshops. In particular, apprenticeship students were at a disadvantage with no access to workshops for practical work. The apprenticeship model is based on a balance between practical skills learning and applied theory. Apprentices gain practical work-based skills while working on-the-job, the theoretical component including practicals is usually provided off-the-job in training centres for colleges. Even during their off-the-job education and training apprentices are required to demonstrate practical skills in the workshops and theoretical knowledge in the classroom. The Standards-Based Apprentice programme curriculum has a high degree of integration of theory and practical work. Theory is included in classroom lessons and in the workshops during practical skills work. The apprenticeship learning process is more akin to application of applied theory and practice in

⁵ See for example the Minister DFHERIS funding announcement for laptop support scheme for students <https://www.gov.ie/en/press-release/7143d-minister-harris-announces-17000-laptops-ordered-to-assist-students-with-online-and-blended-learning/>

⁶ Trinity College Dublin scheme <https://www.tcd.ie/trinityaccess/tech2students/>

⁷ TUDublin scheme <https://www.dit.ie/campuslife/studentssupport/studentlaptopscheme/>

⁸ LyIT Laptop Loan scheme <https://www.lyit.ie/News-Events/Article/lyit-laptop-loan-scheme-2020>

⁹ CMETB Covid Grant scheme <http://cavanmonaghan.etb.ie/latest-news/cmetb-receives-once-off-covid-19-grant-to-support-disadvantaged-students-in-fet-sector-in-accessing-ict-devices/>

action, a form of learning by doing. Work-based learning and learning by doing are key components of the apprenticeship system. During the lockdown periods some apprentices did not receive work-based learning due to company closures, and in addition they did not attend practical workshop as the colleges were closed. Apprentices' learning provision was moved online with a focus on theory. Solas¹⁰ informed apprentices that '*...Government advice to minimise movement over the coming weeks, the Further Education and Training sector will be restricting onsite attendance and delivering programmes primarily online. There will be exceptions for activities not capable of being delivered through alternative means and are time-critical for learners during this period*'.

This meant that apprentice programme delivery for Phases¹¹ 2, 4 and 6 would be provided online for the theory content: all practical classes and workshops would be closed. The first closure occurred in March 2020 and impacted on apprentices finishing term¹² two of their block release, and on those scheduled to start in term three. The second closure was in January 2021 and affected apprentices scheduled to commence their term 2 block release (Phases 2, 4 and 6). It is estimated that the closures effected 3,000 apprentices from Phases 2, 4 and 6. During the block release periods apprentices are assigned to a training centre or college to undertake theoretical and practical studies relating to their craft area. Each craft area has its own national curriculum which is validated by the national awards authority Qualification Quality Ireland (QQI¹³). The curriculum content and learning outcomes for craft apprenticeship programmes include (on average) an equal amount of theoretical and practical learning units. The designated craft-based apprentices programmes are placed on Level 6 of the National Framework of Qualifications¹⁴. To complete their apprenticeship and obtain a Level 6 national award apprentices must pass all required theoretical and practical examinations including skills demonstrations. Due to the Covid-19 closures and the move to online delivery apprentices were unable to undertake their practical subjects or the related skills demonstration and practical examinations. Without practical components apprentices could not move to the next Phase of their apprenticeship. This caused a delay in progression. These delays resulted in a reported growing backlog of apprentices who had their original learning and training schedule changed and have not yet completed all components of their apprenticeship (theory and practical) resulting in a delay to progress through the Phases, and/or in the completion of their apprenticeship. Concerns about apprentices' experiences of studying during Covid-19 were raised by both Connect Trade Union¹⁵ who represents apprentices and the Teachers' Union of Ireland¹⁶ who represents apprentice teachers. Both

¹⁰ Solas is the statutory agency responsible for administration of apprentices, see their statement on Covid-19 closures at <https://www.solas.ie/information-covid-19>

¹¹ The Standard Based Apprenticeship has seven Phases, On-the-job Phases 1,3,5,7, and Off-the-job Phase 2,4 and 6 in Training Centres and Colleges.

¹² The Standard Based Apprenticeship system is structured into blocks of on-the-job and off-the-job the education and training block releases are Phase 2, 20 weeks, Phases 4 and 6, 10 weeks each. The Blocks are scheduled into terms for education and training providers, Phase 2 has two terms and Phases 4 and 6 both have three terms.

¹³ Quality Qualifications Ireland website contains resources on quality assurance and validation reports of apprenticeship programmes <https://www.qqi.ie/>

¹⁴ Information on the National Framework of Qualification can be found at [https://www.qqi.ie/Articles/Pages/National-Framework-of-Qualifications-\(NFQ\).aspx](https://www.qqi.ie/Articles/Pages/National-Framework-of-Qualifications-(NFQ).aspx)

¹⁵ For more information about Connect Trade Union see <https://www.connectunion.ie/>

¹⁶ For more information about the Teachers' Union of Ireland see <https://www.tui.ie/>

trade unions reported making representations at different fora: the DES, DFHERIS, Solas, Higher Education Authority (HEA) and providers. In addition, matters were also discussed with the Irish Congress of Trade Unions (ICTU). Initial concerns related to the implementation of Public Health Advice and the health and safety of members (staff and students). Key guidelines and advice documents were agreed at stakeholder fora with the Further Education and Training and Higher Education. Through engagement with providers, localised operational health and safety matters were put in place with a view to preparing for limited return to on-site activities for time-critical and examinations purposes. Some delivery of practical training was organised in 2020 both before and after the lock down period. In 2021 the practical workshops were closed from January to April. There was a gradual return of practical workshops in April and May 2021 for Phases 2, 4 and 6. During the closure periods apprenticeship education and training was provided online and was theory-based only.

Connect Trade Union and TUI wanted to understand the experiences apprentices had during their online periods of study. Both trade unions have previously worked together on apprenticeship matters, including hosting the European Alliance for Apprentice (EAfA) conference in Dublin in 2018 where over 200 participants attended from 13 European countries. Both trade unions are active members of the EAfA and affiliated to ICTU. For them it was important to capture the opinions of apprentices on their experiences of the Covid-19 closures and their studies. Both Connect Trade Union and TUI accepted the research approach proposed by the researcher, mainly to survey and interview apprentices to gain their experiences during the closure periods. Connect Trade Union also agreed to provide administrative support.

Research approach

The research approach was located in social science research and practitioner-based research (Robson,1993), exploring the opinions of actors located in the social world and undertaken by practitioners involved in that social world who have expert research skills. The applied research approach was based on an empirical investigation which used a social interpretive perspective. Combined research methods were utilised, whereby a quantitative questionnaire was administered to a sample population, and qualitative interviews were held with a limited number of participants from the sample population. Combining quantitative and qualitative data allowed for a more in-depth exploration of the research themes and for the gathering of numerical data from a large sample, and qualitative data from a smaller sample. The combined approach was structured to run simultaneously to provide data for a deeper analysis. In addition, an open answer option was provided to participants to seek further information on survey questions. By combining numerical and non-numerical data the research approach sought to gain a wider range and type of data from the participants. The approach provided opportunities for participants to draw attention to additional information on matters not directly raised in the research questions.

Method

In order to adhere with the Government's Covid-19 Level 5 restrictions and to reduce the potential spread of the virus, all research activity for this research was organised remotely either online or by telephone: there were no in-person meetings. The questionnaire was developed with the intention of hosting the questions on an online platform. For this particular research, the online survey platform chosen was SurveyMonkey. The

SurveyMonkey's updated General Data Protection Regulation (GDPR) compliance Statement¹⁷ was acceptable for the research, mainly due to two facts. Firstly, the research did not require participants' names or identities, and secondly, the tracking mechanism was turned-off and the results were uploaded and then deleted from the platform. These measures protected the personal data of participants and their anonymity. A letter of invitation to participate in the survey which had the survey link was designed and readied for distribution. Similarly, a letter of invitation to participate in research interviews was prepared for circulation. The interviews were all conducted by telephone. A digital recorder was used to store the data for transcription. All data were stored on a secure and encrypted PC.

Confidentiality and informed consent

The research approach to confidentiality and consent was informed by Piper and Simons (2005, pp 53-63) ethical responsibility in social research. The research assured confidentiality by not requesting participants to disclose their identity. The participants were not asked to identify their employer, or the training centre or college they attended. Also, the 'track responses' function was not used on the survey platform. The researchers did not have direct access to the email addresses or lists of the participants. This information was maintained by Connect Trade Union. The researchers were provided with contact detail of those who volunteered to take part in research interviews. These personal data were deleted once the interview was completed and no-name identity was used on the interview transcripts other than a number, gender, and age range. This research report is confident that participants' confidentiality was protected in this research. All participants were required to provide informed consent in order to participate in the survey and the interviews. It was recognised that participants had a right to withdraw from the research up until the data were completely anonymised, at which point the data could not be linked to any specific individual.

Survey

The questionnaire was designed for online survey use. It contained 14 items, consisting of a range of question types including closed questions, multiple choice, and open text boxes. The question items explored profile questions (age range, gender, and Phase), a range of items relating to access to broadband, online study experience, communication and information, support provided, personal circumstance and additional information or comments. The online survey invitation letter with the URL link was circulated to the apprentice's sample in May 2021.

Interviews

A 'research interview' (Gillham 2007) technique was used. The interview structure was systematic and adhered to specific guidelines and a set schedule of questions. The question items were designed to elicit data from the participants relevant to their experience of a real-world situation. The interview style was non-pressurised and based on a professional conversation between those with a mutual interest and understanding of the subject area. The interview schedule contained 11 questions and some prompts: these were in line with the question topics used for the online survey. The question type used were open to provide the participants with a scope to answer in accordance with their own experience and opinions. The invitation to participate in telephone interview was issued in May 2021.

¹⁷ See SurveyMonkey GDPR compliance statement at <https://www.surveymonkey.com/curiosity/surveymonkey-committed-to-gdpr-compliance/>

Analysis approach

The numerical data were extracted from SurveyMonkey and loaded into SPSS¹⁸ Version 27. The raw data were cleaned and labelled in preparation for analysis. The data analysis included descriptive, frequencies and statistical. The survey comment and text boxes data were exported to a text document for analysis, including coding, clustering, and thematic analysis. The interview data were transcribed into a text document for each individual case. The text documents were initially coded by text number and question numbers. The texts were then clustered under each individual question and a thematic analysis was carried out. The next stage of data analysis included a combination of the numerical data and text data. In reporting the data, direct quotes from participants (both the interview data and text data from the questionnaire) were used throughout in order to provide an insight to the authentic voice of the apprentices.

Sample and response rate

Sampling

The survey sample population was apprentices from Phases 2, 4 and 6 who studied online during the Covid-19 emergency periods. The sample population was estimated to be 3,000 apprentices. The sampling approach could best be associated with 'opportunistic sampling', Connect Trade Union distributed the survey link to their apprentice members. TUI members who work with apprentices informed their students about the survey. CheckMarket¹⁹ was used to estimate the required sample size to provide a high level of confidence 95% and a good margin of error at 5% the result suggested N=341 responses were required. The number of responses received was N=362 when calculated the margin of error was 4.83%. This was within the expected margin of error. The response rate (sample population/number of responses) was 12%. This allows for appropriate statistical generalisation within the sample population. The telephone interviews did not use a response rate calculation. Instead, a target of 10 interviews was set. Apprentices interested in participating in an interview were requested to forward their details. In total N=16 requests were received from apprentices indicating they were willing to take part in a telephone interview, of which N=11 took part in an interview. The reasons for the N=5 who did not participate included: had already completed their apprenticeship; had not studied online; could not arrange a suitable time for interview; and no response to requests.

Responses

The profile section of the survey requested participants to indicate their gender, age range and phase of study. For the gender category participants indicated: male 96.1%, female 3.3 % and Nonbinary/Non-conforming .6%. In terms of gender balance, craft apprenticeships in Ireland are very unbalanced with a low rate of female participants. In 2020 only 5% of the apprenticeship population was female. The survey response sample is generally reflective of this imbalance (apprenticeship population 95% male, survey response sample 96% male). The survey also respected participants right to either decide not to declare gender or to choose

¹⁸ See information on IBM SPSS statistical software package at <https://www.ibm.com/analytics/spss-statistics-software>

¹⁹ See the CheckMarket website resources at <https://www.checkmarket.com/sample-size-calculator/>

Non-binary/Non-conforming. The telephone interview response sample (N=11) consisted of 2 females (18%) and 9 males (82%). The gender imbalance in apprenticeship is a matter of concern. The DFHERIS *Apprenticeship Action Plan 2021-2025*, sets out in Objective 3 (2021, p29) to have the profile of the apprenticeship population more closely reflect the profile of the general population, including improved gender balance, increased access routes to apprenticeship for disabled, ethnic, and marginalised groups (2021 pp 29-32).

The survey also invited participants to indicate their current Phase of study. 45% of participants indicated they were in on-the-job Phases (1, 3, 5 and 7) and 55% were in off-the-job Phases (2, 4 and 6) in either training centres or colleges. The largest cohort of participants indicated they were in Phase 4 of their studies (25.9%), Phase 6 (20.4%) and Phase 1 (15.4%). The smallest cohort of participants were in Phase 7 (3.3%). In terms of age range participants indicated, 54.5% were between 18-24 years, 40.2% were 25-34 years while .6% were under 18 years and .3% were 45-54 years of age. A cross-tabulation of participants age range and Phase of study is presented in Table 1, this shows the largest cohort of participants (N=54) are in Phase 4 and their age range is 18-24 years, and the second largest cohorts are (N=37) age range 25-34 years are in Phase 6. The participant who identified the oldest age range 45-54 years was in Phase 5 (on-the-job) and the two participants in the youngest age range (under 18 years) are in Phase 1 (on-the-job). There was also a small group of apprentices (N=3) in the 35-44 age range who were just starting their apprenticeship in Phase 1. In terms of the female participants (N=12), the majority were in the 18-24 age range (N=8) and a large number were in Phase 3 of their apprenticeship (N=7).

Please indicate what stage you are at in your apprenticeship * Please indicate your age group Crosstabulation

Count

		Please indicate your age group					Total
		Under 18	18-24	25-34	35-44	45-54	
Please indicate what stage you are at in your apprenticeship	Phase 1 On the job training	2	35	16	3	0	56
	Phase 2 Training Centre Education Training Board	0	17	13	1	0	31
	Phase 3 On the job training	0	29	16	2	0	47
	Phase 4 College, Higher Education Institute	0	54	37	3	0	94
	Phase 5 On the Job training	0	23	22	3	1	49
	Phase 6 College, Higher Education Institute	0	34	37	3	0	74
	Phase 7 On the job training	0	6	5	1	0	12
Total		2	198	146	16	1	363

Table 1 Response numbers by Age and Phase

Data

The online survey provided both numerical data from the responses to the questions and text data typed into comment boxes. In addition, the telephone interviews provided text data from the transcripts. The data were processed separately using SPSS for the numerical data,

with statistical analysis and content analysis for the text data. The sets of data were collated into six thematic areas:

1. *Online learning experience and facilities*: this theme explored items such as learning materials, the platform, learning resources, exams, facilities to engage with instructor/teachers and other apprentices.
2. *Learning online*: this theme looked at engaging with other students and teachers, learning theory without the aid of practical work and how this impacted on knowledge building, work-based problem solving, and health and safety matters.
3. *Resources required for online learning*: this theme considered items such as the availability of broadband, the IT resources required, study space and who pays for these resources.
4. *Communications and information*: this theme explored items relating to whether apprentices were satisfied with the advice and materials sent by the key stakeholders including Solas, providers, trade unions, employers, and the students' union.
5. *Supports and impact*: items in this theme explored the supports made available to apprentices including tutorials, counselling and medical and wellbeing²⁰.
6. *Other comments and contributions*: both the survey and interviews allowed participants to provide additional comments relating to their experience of online learning.

The data are reported under each of the thematic areas and presented as a combination of both numerical and text data including direct quotes. A mixed-method analysis was applied, using both qualitative and quantitative data to provide depth and range to the results.

In addition, to the above thematic areas, interview participants (N=11) were asked why they decided to become an apprentice and what they enjoyed about their trades. Their responses provide some interesting context of relevance to the main research themes. As noted previously anonymity was assured to the participants, they are identified in the data by number only. The research also explored why participants decided to become an apprenticeship in the first place. Some of the participants had attended higher education institute²¹ courses and then decided to move to an apprenticeship while others had made the decision to seek an apprenticeship after they had completed second level school²². From the interview data Participant 1 stated that '*...a college course just didn't really interest me'... 'I was more interested in taking on an apprenticeship early in secondary school'*. While Participants 4 and 9 noted that they attended a college course, however, after some time they both left to take up an apprenticeship. Participant 2 noted that he/she/they had considered going to college and applied, however, after hearing about an electrical apprenticeship reconsidered and instead sought an apprenticeship, as it offered a way to earn money while learning. A similar point was also made by Participants 4, 5, 7 and 10 that learning on the job while earning money was a key factor in deciding to obtain an

²⁰ The Health Service Executive (HSE) provided advice on how to maintain wellbeing and mental health during the Covid-19 lockdown periods, including information on how to MANAGE stress and exam pressure <https://www2.hse.ie/wellbeing/mental-health/covid-19/minding-your-mental-health-during-the-coronavirus-outbreak.html>.

²¹ Higher education institutes include universities, institutes of technology, technological universities and colleges see <https://hea.ie/higher-education-institutions/?v=1>.

²² The Leaving Certificate examination marks the end of the Second Level Senior Cycle <https://ncca.ie/en/senior-cycle>, the results achieved may be used to apply for a higher education programme through the Central Applications Office <https://www.cao.ie/>.

apprenticeship. It is a well-established fact that the apprenticeship model provides opportunities for apprentices to use both practical skills and theoretical knowledge in real work situations. Participant 8 stated, *'I've always being interested in working with my hands so and I was always interest in electronics and stuff, so I choose apprentice electrician'*. Some participants suggested that information on how to become an apprentice was not readily available in their schools,²³ while others sought advice from their families and friends. Participant 3 noted that the information on how to become an apprentice as a career choice was not given in school and pointed out that he/she/they would have considered it sooner had the option been given. Some participants pointed out that after leaving school they were unemployed and figured out what they wanted to do from family members who worked in the trades. The decision to become an apprentice for Participants 3, 5, 10 and 11 also came from advice of family members and friends who worked in trades: *'When I think about it, it is when I started I haven't a clue what was going on I didn't even know what I was going to be getting into and when I basically went on the site I was just put with a fella and the fella I was put with was very good. I just learned off him and each day was a learning curve for me... we had a connection and he started to let me do things, so I was becoming more confident in doing them'* (Participant 10).

All the participants interviewed agreed they had made the right choice to become an apprentice. Overall, the participants expressed the view that they were enjoying their chosen apprenticeship for different reasons, for some it was the work tasks and solving work problems, others it was the combination of practical and technical work, while for some it was earning a wage while learning. Participant 2 stated, *'It's great, like I have learnt an awful lot I've being doing it now for four and a half years, it is very enjoyable, it's kinda nice combination of technical and practical, so yeah I do enjoy it'*. For others, the work provided a challenge, solving technical problems and carrying out new tasks and learning new things kept their interest. Participant 4 stated *'...the satisfaction I get when I completed something to a high standard. I like a challenge and the satisfaction afterwards'*. For Participant 1, *'It's just the fact you're not given the same thing every day, it's a constant change, constant learning'*.

While the participants enjoyed the learning content of their apprenticeship, they identified issues relating to delays in the scheduling of apprentice Phases. Participant 6 said that he/she/they were enjoying it so far, however the pace of learning within their apprenticeship stages was more delayed than they had anticipated when they started. They point out, they were aware that pre-Covid there was a delay in relation to backlogs, *'...it's just a bit over-whelming now at the moment because I am actually going into my fourth year in September, and I only have Phase 2 done since the start of December... I'm kind of worried in the fact that I've only got a little bit over a year in a four-year apprenticeship, and I still haven't even got half the training done you know'*.

From the data some of the participants interest in becoming an apprentice was based on information they received from family and friends, and their attitude towards engaging in practical work tasks. The participants did note the lack of visible information in schools about apprenticeship options and how to become an apprentice. For them apprenticeship was an attractive option as it offered a route to learning while earning a wage and also because of

²³ Solas and stakeholders through Generation Apprenticeship are seeking to raise awareness of apprenticeship opportunities in Second Level schools see <https://apprenticeship.ie/news-events/news/competition-in-second-level-schools-and-centres>

the opportunity to combine practical skills and theoretical knowledge in real work setting. The participants reported gaining a sense of achievement by using their skills and knowledge to resolve work problems and complete work tasks. In addition, participants reported they enjoyed learning the technical aspects of their trade and then applying this learning in practice within the workplace. Participants noted that apprenticeship provided opportunities to learn new things and skills in both the workplace and during off-the-job education and training. The participants enjoyed the challenges of the work tasks and the changing nature of the work. Participants reflected on why they decided to become an apprentice, noting they wanted to engage in practical work tasks. Apprentices also noted that they have a positive experience in their employment carrying out skilled activities before Covid-19. The experiences of apprentices during the Covid-19 emergency restrictions brings new perspectives to how apprentices engage with the learning process in a virtual environment and in most cases without access to practical work and skills development. For some apprentices online learning was the only available option during the Covid-19 lockdown periods. Their experiences of this significant change in work and study were obtained in survey data and interview data with analysis of those data reported in the following thematic areas.

Theme 1: Online learning experience, platform, materials, library, and exams

The Covid-19 emergency restrictions sought to reduce the spread of the corona virus by limiting the movement of people and reducing the opportunities for people to meet together. This included the use of what was termed as 'lockdowns', requiring people to stay at home, work from home, limit exercise to 5kms, not to meet with other people outside of their immediate family or pod as well as other measures. During lockdown the education sectors were required to close premises to students and reduce access for staff. Education providers were requested to, where possible, continue education delivery online. The providers of apprenticeship education and training (Education and Training Boards, Institutes of Technology and Technological Universities) moved teaching and learning of theory components of the curriculum online. This movement to online learning was done very quickly and occurred without any time for planning, preparation, or training. Apprentices who were in the block releases (Phases 2, 4 or 6) in March 2020 were directed not to attend training and education in their centre or college and instead directed to stay at home and login to their course by online means. This was a new type of teaching and learning experience and environment for both the staff and apprentices. There was no time for a transition stage to move towards online learning and teaching, just an immediate commencement date. The online experience presented new challenges and issues for both students and staff which had to be worked out while doing the job, a form of learning-by-doing. It was not an ideal teaching and learning situation, however, under the circumstance it was the best that could be provided to maintain some form of programme delivery for the apprentices. The experiences of apprentices during this period of online teaching and learning are central to this research. Under this thematic area the research explored the apprentices online learning experiences including the platform used and resources provided. From an apprentice perspective the research studied what were provided in terms of a teaching and learning online environment and how they engaged with each other and their instructors and teachers in the online environments. The quantitative data provides insights into levels of satisfaction about the

participants experience of online learning and the facilities they used, while the qualitative data provides an opportunity for apprentices to voice their opinion of their online experience. A summary of the numerical data is presented in both Figures 1 (Learning material, Access to Library, Online platform, Online exams) and Figure 2 (Engaging with apprentices and teachers, classroom engagement and activities), additional statistical analysis is provided as well as the qualitative analysis of the interviews and the text comments.

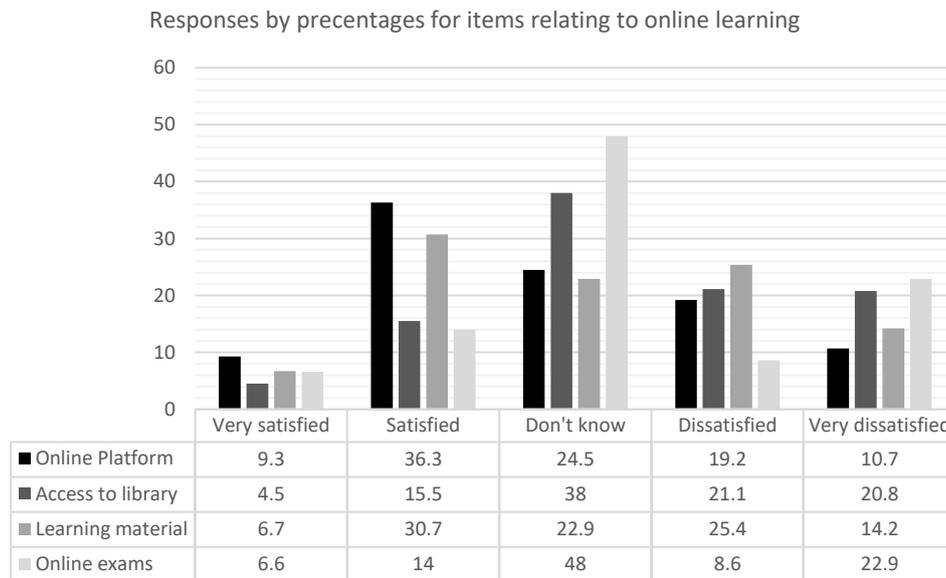


Figure 1: Satisfaction levels, materials, library, platform, and exams relating to online learning.

In relation to the first four online learning items (Materials, Library, Platform and Exams) it is important to note that each provider had to develop their own solutions to online delivery, and there was no centralised virtual learning environment or online resources for apprentices. It could be argued that the emergency highlighted the lack of an appropriate national IT infrastructure and platform for apprentices to access and gain information and materials about their learning and progress. Providers in a similar way did not have access to a national apprentice management system to assist in the coordination of programme delivery and communications.

For the apprentices, the online provision was not uniform or standardised: rather it was based on the local systems and platforms used by the individual providers. From the interview data, participants reported a wide range of online platforms were used by providers. These included, Moodle, Zoom, Canvas, MS Teams, Brightspace and Blackboard. Some participants also noted that providers also gave them an email account for information and communications. Other participants stated that Solas used the apprentices private email address for communications and information purposes. Thus, apprentices had to access and monitor a range of different emails accounts relating to their apprenticeship. In addition, as apprentices move through their Phases the providers can also change, which may mean a different email account had to be set up for each Phase. For Participant 3 the range of platforms used was confusing. Participant 6 pointed out that having to have college-related passwords was difficult for the apprentices to use and time-consuming for the tutors to sort out when passwords were forgotten saying that one tutor *'was trying to run around and jump*

through hoops trying to get lads to stay online and recover passwords ...so it could definitely be better but when you were in Moodle it was very good'. Whereas Participant 8 used Zoom, *'for doing all the power points, quizzes and stuff. It was grand, easy enough*'. However, Participant 10 pointed out not everyone in the class could afford laptops or tablets stating that *'one or two lads in my class had to buy a laptop and they had to start using that then just for the course because they hadn't got one before*'. From the survey data the participants' satisfaction ratings for the online platform used by providers were 9.3% Very satisfied, 36.3% Satisfied, 10.7% Very dissatisfied, 19.2 Dissatisfied with 24.5% Don't know. Nearly 1 in 3 of participants (29.9%) indicated they were unhappy with the online platforms. The age range that was most dissatisfied with the online platforms was 25–34 years (N=50) whereas the 18–24 years cohort reported a high level of satisfaction (N=93). Where the satisfaction with the online platform was explored by Phase of apprenticeship, participants indicated a good level of satisfaction at Phase 4 (N=53) compared to a high level of dissatisfaction at Phase 6 (N=37). In addition, 49.4% of apprentices indicated that they had difficulties trying to access the platform provided for online learning. In the survey text comments, concern was expressed relating to the online platform, one participant added, *'Online isn't very practical, we just get notes, and we teach ourselves. I don't have a laptop so was even more of a struggle. Just overall not the same as learning in the college'* and *'I was unable to do the technical drawing at home. I don't think it's a subject to be done online and my classmates were the same'*. Others also expressed that they did not have a positive online class experience. One participant suggested that *'the phase 4 has been a disaster to try and learn'*. While some participants suggested that it was harder to concentrate online than in a classroom environment.

An established component of any learning process is access to learning resources (books and publications). These materials are usually available to apprentices in the providers' library or resource room in the training centres or colleges. Apprentices can access hard copies of core textbooks and relevant theory manuals in these facilities. Additionally, apprentices can gain access to study spaces to do their theory assessment and general study work. However, with the closure of premises due to Covid-19 these physical facilities were not available to apprentices and with the move to online learning it is reasonable to explore what service (if any) was provided to apprentices to gain access online to the required textbooks and other learning resource materials. From the survey data over 40% of participants were not satisfied with the service provided (20.8% Very dissatisfied, 21.1% Dissatisfied) compared to 20% who indicated they were satisfied (4.5% Very satisfied, 15.5% Satisfied). The high levels of dissatisfaction were from Phase 4 apprentices (N=50) and Phase 6 (N=44) whereas Phase 2 indicated a level of satisfaction (N=12). From the survey text data, it was suggested that apprentices were not aware of online access to textbook and other relevant materials. Although one apprentice suggested that access was not needed. For the standard-based apprenticeship system, national theory examinations are held during Phase 2, Phase 4, and Phase 6. Apprentices are required to study for these examinations, part of normal preparation for exams is to access the required study materials and textbooks. Without access to the appropriate study materials, examination performance can be affected. It would seem from the data that apprentices were unhappy with the service provided and in some cases were unaware that an online library service was available.

The Standard-Based Apprenticeship System curriculum is organised into Phases of on-the-job work experience and off-the-job education and training. Delivery of the off-the-job Phases is

by means of face-to-face classes and workshops in the training centres and colleges. The pedagogical approach is based in technical vocational education and training and the learning process is a combination of the application of theory (knowledge) and practice (doing). By engaging in classes and workshops the apprentice has the opportunity to learn by doing, the technical subject knowledge is discussed in the class and then practical skills are applied in the workshops and laboratories. While the curriculum has distinct learning outcomes for both theory and practical elements, the learning process is applied and requires an integration of both theory and practice to gain a full understanding of the technical knowledge and skills required to undertake the work-related tasks specific to the trade area. Apprentices also engage in collaborative learning working with each other on projects and share knowledge and experience about work practices and tasks. During the lockdown periods and the move to online learning apprentices were confined to studying theory without access to practical workshops and, in most cases, they had to study on their own. From the survey data 37.4% (Very satisfied 6.7%, Satisfied 30.7%) of participants indicated they were generally satisfied with the online learning material supplied whereas 39.6% were Not satisfied (14.2% Very dissatisfied and 25.4% were Dissatisfied). Those that were most dissatisfied were from Phase 4 (N=47) and Phase 6 (N=46) compared to most satisfied in Phase 2 (N=20). Also, participants who indicated they had access to poor quality Wi-Fi were dissatisfied with the online learning material (N=62). From the survey text data participants expressed they would rather study face-to-face and did not really like the online delivery of classes. One participant noted about their online experience, *'The lectures did the best they could under the circumstances, but a lot of the course work would have been a lot easier to understand in class'*. Another participant added, *'I cannot fault the material provided by the tutors, however it is very difficult to teach mechanics over a webcam no matter how much material is provided'*. Other participants reported that they found learning online very hard and it was difficult to maintain concentration. From the interview data participants noted several issues that concerned them. For some it was the immediacy of the move to online as Participant 11 said, *'then everything went online, and our instructor would upload a series of videos everyday it'd be about an hour's worth of watching and we'd watch them and then do the test at the end of every week'*. Additionally Participant 10 said: *'I need to be in the class to do these things I can't learn over a screen'*. Furthermore, some participants considered online learning placed them at a disadvantaged and caused stress, Participant 6 stated they preferred hands-on learning to online learning pointing out that: *'with the Covid lockdown and all it was much harder than I anticipated because you were kind of trying to get stuff off a book and then later on go to the workshop, whereas its always been the other way round for me and that's how...I find I learn best'*. Similarly, from the survey text comments, one participant stated that their preferred way to learn while on their apprenticeship was in the class and workshop. A participant remarked, *'...when you're doing a trade, you have to have the theory and practical hand-in-hand. We have to see the practical to understand the theory. When we were online for the first 8 weeks of a 10-week phase it's hard to try learning something without it in front of us to understand how it works'*. Another participant said, *'...often just told... read this do that... no explaining done or feedback given on work in some classes sometimes classes didn't even last 10 minutes, really paranoid about my theory exams over it'*. In general, respondents indicated their preference was to learn by doing, whether this was done in the workplace, in the workshop or the classroom. Apprentices considered that their learning occurred by applying theory to real situations and tasks. Whereas the online approach used during Covid-19 did not facilitate the applied nature of the learning process inherent in the apprenticeship

model. Although, it was accepted by the respondents that under the circumstance of the Covid-19 emergency the only option was to move to online delivery.

While the respondents had concerns with the online mode of teaching, they were also apprehensive about online assessment and exams. From the survey data 31.5% indicated they were not satisfied with the online exams process although, 48% indicated Don't know and only 6.6% chose Very satisfied. Of those who indicated Very satisfied with the online exams process N=31 were in Phase 4 and N=31 were in Phase 6. From the text data it seems respondents were unhappy that the exams were not delivered online, one participant observed *'...same level of learning is expected when a lot of apprentices said they were struggling with online learning'*. Other apprentices agreed with this point: *'We should be doing online exams if we are learning through online, it's very unfair to go to the exam hall, a big disadvantage'* and *'didn't do exams online have to do them written which is very unfair as the whole course was online and an inconvenience for everyone'*. The general suggestion from the text data was, where a course is delivered online then the exam should also be provided online. Other participants noted that they did not participate in online classes or exams and had concerns about the information provided, *'I'm currently waiting for phase six since last September and I haven't heard anything about it, and I have not done any Solas phases online, just within my company studies'*. Another participant pointed out that, *'I was not informed on any online learning or updated on any changes in my place for off the job learning'*. Participants voiced they were concerned about the delay to their studies that Covid-19 was causing. From the interview data some of the apprentices suggested they were behind schedule in the completion of their phase, with Participant 3 saying that they had a lot of work to catch up on pre-Covid and were only now, with the employers' help, catching up on the workload. It was observed by one participant that, *'It's been a hard year of not really knowing where you stand, Not having access to the internet or a laptop to get this or that done, so it has been a bit of a struggle'*. The issue of lack of appropriate IT equipment (access to laptops/PCs) was raised by several participants, not having access to equipment and good quality Wi-Fi had a negative impact on some apprentices' ability to engage in online learning activities. From the survey data just over 1 in 3 participants reported they had issues with Wi-Fi access, indicating it was slow or they did not have access and had to travel to other locations to gain access to Wi-Fi. In addition, 1 in 3 participants indicated they were not satisfied with the online platform used. Also, 39% of the participants indicated they were not satisfied with the online material provided and 41% indicated their dissatisfaction with access to online library resources. The survey data shows a large number of apprentices did not have a satisfactory experience of the resources provided for the move to online learning, including the platform used and access to Wi-Fi.

The next section further explores the online learning experience and the facilities provided to enable student engagement.

Theme 2: Learning online, engaging with students, teachers, and class activities

This section explores participants' level of satisfaction with online learning relating to specific components of the learning process such as the facilities and software provided to engage with teachers and students, to ask questions and enable participation in class activities. During face-to-face classes (pre-Covid-19) apprenticeships were able to engage with their

teacher during lessons and with each other either during class or break periods. As well as theory presentation, classes also included some practical demonstrations, discussions, teamwork projects and problem-solving activities. In the classroom apprentices could learn from each other’s experiences from the workplace as well as from the instruction provided by the teacher. The classroom was a setting for discussion on workplace theory and practice and for interactive engagement to resolve work-related tasks and procedures. Theme 2 considers how well this component of the apprenticeship learning process was facilitated by online means and what was the apprentices’ experiences of the new virtual learning environment. The data presented in Figure 2, provides a summary from the survey data relating to apprentices’ responses to four items, 1) the online facilities provided to facilitate engagement with other apprentices, 2), the online facilities provided to engage with the teacher, 3), the online facility provided to allow apprentices to ask questions during classes and 4), the online facility provided to allow apprentices to engage in class activities.

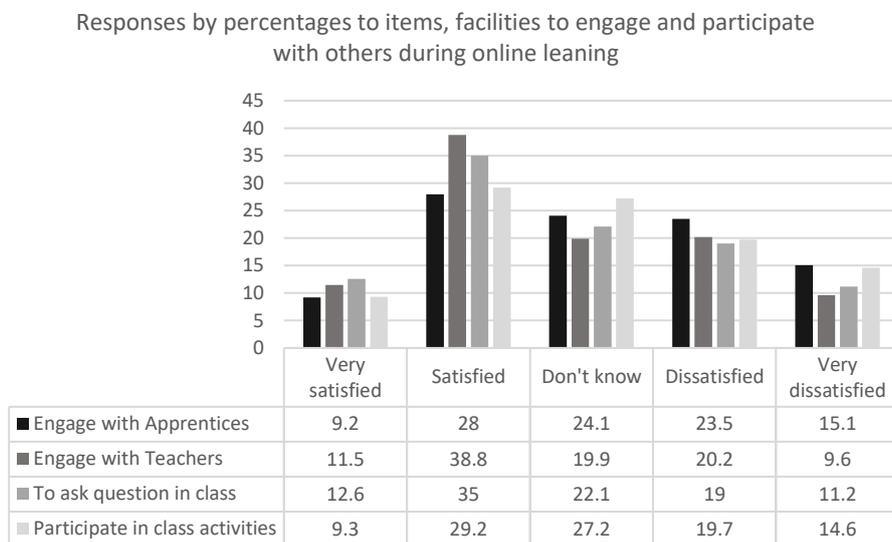


Figure 2: Satisfaction levels facilities to engage with teachers, students, and class activities

As noted earlier, education and training providers used a range of different platforms to support online learning during the Covid-19 restrictions periods. Each platform type had different functionalities, resources, and communication options. The platforms had different requirements for IT equipment specifications to gain access and needed varying amounts of bandwidth to maintain connectivity. In addition, education and training providers at the time had different levels of experiences and capacity regarding the use and delivery of online learning. Also, apprentices would not have had prior experience of studying online during Phase 2, 4 and 6 of their apprenticeship. As such, apprentices may have had different experiences of engaging in virtual learning environments due to some or all these factors.

Apprentice’s experience of their engagement with other apprentices

As part of the standard face-to-face learning process apprentices engage with each other during their time in the training centres and colleges. This general engagement between apprentices occurs during class time, and when apprentices are involved in self-directed studies and informal activities. However, during the move to online learning apprentices did not have access to the normal ways of engaging with each other. They were instead reliant

on the online facilities provided by the providers. From the survey data apprentices had mixed experiences of the online facilities provided, 38.6% indicated they were Not satisfied while 37.2% were Satisfied with the facilities made available by providers. When the data was explored by age, those most satisfied were N=58 from the 18–24-year age group while N=38 from the 25-24 age group were dissatisfied. Of those dissatisfied N=32 were from Phase 4 and N=24 were from Phase 6. Of those who indicated they were satisfied N=58 had access to fast Wi-Fi. While apprentices had some concerns about the facilities provided, they also used their own methods to stay in contact with each other. From the interview data apprentices expressed that they kept in contact with their peers mostly through 'WhatsApp Groups' that were set up prior to school closures for example one participant noted, *'previous to Covid we had built up relationships we had gotten each other's numbers we had gone out for couple a few drinks or gone out to play football or whatever like that so we were all friends so we had a WhatsApp groups were we were comfortable with talking to one another'* (Participant 6). While Participant 11 pointed out *'even though a lot of us had never met each other we could all help on that and yeah there was fair amount of engagement with other apprentices.'* Furthermore, Participant 10 said that they enjoyed engaging with apprentices on an online group project and the way in which they supported one another *'...so when we came to that topic then it was handy to have somebody there that was able to put me in the right direction and help me'*. Additionally, Participant 4 suggested that the WhatsApp group they were part of *'...nearly created a classroom effect'* and on several occasions the group would send in general work-related questions which would be answered by someone in a matter of seconds. The platform was also used to share information about the subject matter and exams. Participant 7 suggested that sharing this information, *'...gives you more clarity going into phase two, so you know what you're going into...'*. In relation to sharing information about exams Participant 1 said *'It was all individual chats more or less trying to see what was happening for dates for exams through the WhatsApp'*. For Participant 2 keeping in contact with other apprentices was more social rather than college-related while Participant 3 said, *'I find since Covid we haven't seen each other in a year as a group so you do lose touch with them'*. Although the apprentices used both the providers facilities to engage with each other and their own means to maintain communication with one another during the closure period there was a sense of disengagement due to the remote nature of online learning and the requirement to work from home. Some apprentices reported that they were experiencing isolation. Participant 9 suggested that *'... its totally different this time round there's no socialising whatsoever, like when we were doing our practical's we can meet or talk to anyone. It's kind of isolated'*.

Apprentice's experience of their engagement with instructor/ teacher online

Normal engagement with the teacher/instructor in the classroom is central to the learning process for apprentices. Most teachers/instructors in the apprenticeship area would hold a qualification in one of the craft areas and would have a high level of both theory and practical knowledge of the workplace and practices. During face-to-face classes and workshop demonstrations teachers/instructors relay examples of relevant work-based practices. Sharing their expert knowledge of work practices and particularly in discussions on how to identify and resolve technical work-related tasks. However, the dynamic of in-person teaching and group interaction within a classroom setting is not really transferable to the online mode of delivery in the same way. Although, the survey data shows that 50.3% of apprenticeships

were satisfied with the online facilities provided to engage with their teachers/instructors, whereas 29.8% indicated they were dissatisfied. When data was explored by placing participant responses into their individual Phase there was relative high level of satisfaction indicated for engagement with teacher/instructor, Phase 2 N=14, Phase 4 N=54 and Phase 6 N=30. Those aged between 18-24 years indicated a high level of satisfaction with the online engagement N=85 and similarly, those with fast Wi-Fi were also satisfied N=75. The engagement with teachers/instructors was not confined to use of the online platform provided, it also included the use of email and other social media methods. From the interview data some apprentices stated that they corresponded with their tutors through WhatsApp, *'... was always available via text or what's app and he was fairly helpful'* (Participant 11). It was noted by Participant 6 that *'...the lecturer tried his best, throwing us out material and all. There's only so much he can do through webcam or on Zoom or whatever, he tried his best to teach us with the slides and videos that was presented to us all'*. For Participant 1 and 5 there was a lack of information about the exam process. From the text data one apprentice noted that, *'every effort was made to make engagement as active as possible, starting with turning on cameras and also providing lots of feedback on assignments'*. However, it was also argued by two apprentices that their lecturer found it hard to use the webcam, illustrate drawings online, and use the platforms to explain difficult information. It was suggested that being in the classroom made it easier to engage and learn with one apprentice suggesting that some subjects engaged well online, while others did not.

Experience of online learning activities

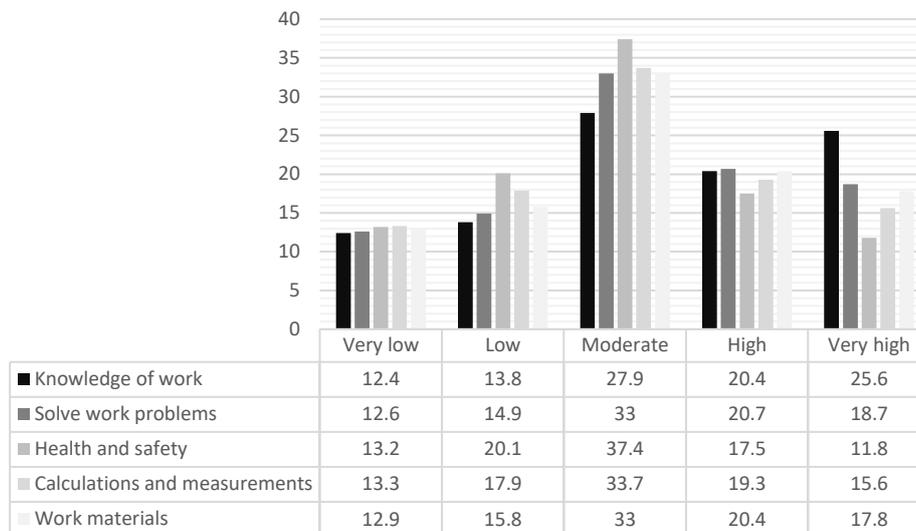
Engaging with the teacher/instructor in the classroom and the workshop by asking questions and participating in activities is crucial to enhancing the learning process for apprentices. How and if this was achieved during the online delivery was explored in the research. From the survey data 47.6% of apprentices were Satisfied with the facilities provided which enabled the asking of questions during the online class were as 30.2% were Dissatisfied. The Phases that had a high level of satisfaction were Phase 4 N=44 and Phase 6 N=27. While nearly 1 in 2 apprentices indicated they could ask questions in class, just over 1 in 3 (34.3%) were dissatisfied with the facilities to participate in class activities. Of those apprentices not satisfied, N=39 were from Phase 4 and N=43 were from Phase 6. In relation to online learning activities some participants suggested that they had little or no experience of online activities. From the interview data, Participants 2 and 10 said they did assignments online and Participant 4 done multiple-choice questions. For Participant 9 the process of asking questions to the tutor and receiving answers was hard as it was different than asking questions in person. This difficulty was also reflected in Participant 6 response *'I found it was very difficult for me initially, when you are in a class you can ask your lecturer questions but then you can also chat to the lads, and you can kind of find out stuff between us'*. Some participants identified the lack of informal engagement with other apprentices as an issue that effected their learning. From the text data one apprentice stated, *'we could converse with lecturers but wasn't as hands-on as the classroom'*. For others it was difficult to participate and communicate over a computer. In some cases, the apprentices argued that the pace of the classroom was too quick to ask questions. Asking questions online caused challenges for apprentices as one noted: *'Very hard to ask questions as very little time is given to type out questions. Our topic has changed by the time you have questions typed'*.

The Participants interviewed expressed that they preferred learning with their peers and seeing how things are done first-hand and learning by doing. Comparing their experiences before Covid Participant 6 noted that *'...from November 2018 to March 2019 we were in the class fulltime, and it was great we were learning'*, then the Covid restrictions closed the schools down, at first everyone thought the closures would be for a short time, but the classroom did not meet again till late October 2019. For them, this six-month gap was hard to deal with on return to classrooms, as they tried to get back to learning by hitting the ground running and picking up where they left off. They found this process was difficult because their workshop class was split in two groups (due to the Covid-19 2 metre distance requirement) which impacted on the learning support other students brought to the class *'...it was little things that like not having the lads there not having everyone there that you could bounce ideas off and that kind of thing that you miss...'* (Participant 6). Participant 3 said, *'it definitely not as easy as it would be in a workshop in a small group, the online learning we are getting is done over a Zoom call with a hundred other apprentices. It's a lot harder than having maybe six lads in a room spending a couple of hours trying to figure something out'*. For Participant 10 learning with others in the workshop and hearing explanations in person gave them a better way to gain understanding. While apprentices accepted the need to move to online delivery of classes during Covid-19, they did not experience a seamless transfer, most considered that face-to-face classroom and workshop demonstrations best supported their style of learning.

Theme 3: Learning online, theory and practicals

A key component of the Standard Based Apprenticeship System is the mixture of practical and theory within the course curriculum for off-the-job education and training. In general, the curriculum for apprenticeship courses contains 50% practical and 50% theory content, although this may vary upwards to 60% practical in some courses. There is a high degree of integration of practical and theory content within the curriculum. In addition, there is a logical structure to the progression of work based off-the-job elements and the on-the-job training and education courses. Apprenticeship courses offer a practice-based learning process by combine practical learning by doing and theory learning by knowing. During the Covid-19 emergency closures, apprentices did not have access to workshops for practice-based learning in the training centres and colleges, and in some cases, they could not attend work. As such, they could not undertake practical work relating to their course curriculum. The research considered what, if any, impact the absence of practical based work had on apprentices' theory-based studies during online delivery.

Responses by percentage to items relating to how lack of practical workshops effected theory subjects

**Figure 3: Impact of no practicals on theory areas**

Apprentices were asked to indicate the impact that not having access to practical-based work (including workshops) had on their online theory studies. Preferences were placed on a five-point scale, which ranged from Very low impact to Very high impact. The focus was on the following items: knowledge of work tasks, solving work related problems, work-based health and safety, work-based calculations, and work-based materials (see figure 3 for the results). The survey data indicates that having no practicals had a strong Moderate impact on theory learning (online) for all five items (Knowledge of work 27.9%, Solve work problem 33%, Health and safety 37.4%, Calculations and measurements 33.7% and Work materials 33%). One in four apprentices (25.6%) indicated a Very high impact on their knowledge of how to carry out work practices. While one in five claimed there was a High impact on solving work-based problems, as well as work-based calculations, measurements, and understanding of work-based materials. Apprentices indicated that studying for theory without access to practicals was having an adverse impact on their learning. Practical work was seen by the apprentices as a key factor to assisting their understanding of the course theory, from the interview data Participant 1 stated *'...you do the practical work; you're learning it by doing it...'*. The apprentices suggested that while some elements of their course, such as theory, could be studied online *'...I think theory is doable definitely there's no problem with that...'* (Participant 3) however overall, the apprentices suggested that *'...unless your actually in the class it doesn't really make sense'* (Participant 2). Participant 6 argued that some of the course they were studying could be updated although they did think that the multiple-choice questions should remain and practical videos as well as theory showing the nature of the work task were of assistance (Participant 11). Although apprentices did not consider they had the same motivation to learn online compared to face-to-face classes. Participants 1 and 11 suggested that they were motivated to learn in the same way as face-to-face classes. Generally Participant 3 felt online learning was alright *'but I think you just miss the craic there's less of a feeling of I can't wait to go in to see the lads ...you miss the interaction part of it... I think it's kind of easier to drift away when you're sitting in front of a laptop and there's no one to really see you... it's not like you're sitting in a classroom in front of someone that is quite different*

but overall, it was alright'. In contrast to these opinions half of the Participants argued that online learning did not motivate them in the same way as classroom-based learning: *'I got on with it and done the job but face to face I would be a lot more motivated'* (Participant 8). The reasons these apprentices were not motivated varied from *'you couldn't ask a question you had to try figure it out for yourself...'* (Participant 2) to *'it was just sort of turn over, turn up in the morning, turn on the computer and sit there and listen'* (Participant 10). From the text data, two apprentices pointed out that they had completed their practicals in class. Although eleven apprentices stated that they did not have any practical workshops online for various reasons including not being called for their Phase and that they were on the job training. It was noted by one apprentice that they *'Haven't got call for college yet! 3rd year on September 1st, 2021'*.

The apprentices stated that they found not having first-hand experience of practicals very difficult, it impacted their ability to learn theory online. This opinion was expressed by one apprentice who said, *'We need to have subject we are learning about in front of us. Normally we would cover theory on one subject and straight after being in the workshop doing the practical tasks related to that. It does not work by doing multiple weeks of theory on different subjects then covering all of the practical on those different subjects. It is important to cover one subject at a time covering the practical and theory to allow for a good understanding and I think that is something a lot of us are struggling with now'*. In addition, an apprentice pointed out that *'since returning to centre-based learning, I realised how little I understood of the course content from online learning, making me feel like it was a waste of time'*. Apprentices indicated that learning about their craft was best facilitated by a combined approach where theory and practice were provided in the classroom and workshop on site in the training centre or college. Apprentices considered their learning was limited by the provision of theory online without actual practice. They viewed practicals as a key component in the learning process, learning by doing enhancing the understanding of theory.

Theme 4: Resources for online learning

To engage in online learning environments learners need access to Wi-Fi, ICT equipment and a study space. However, not all learners have equal access to these resources. The digital divide concept highlights the gap between those that have access to good quality broadband, equipment, and software with those that do not. This research explored apprentices access to these resources and considered who paid for these resources during the move to online learning due to Covid-19. From the survey data 1 in 2 (51.2%) of participants indicated that they had access to Fast Wi-Fi, while 26% had access to Slow Wi-Fi and 3.6% had either no access or had to travel to gain access to Wi-Fi (see figure 4).

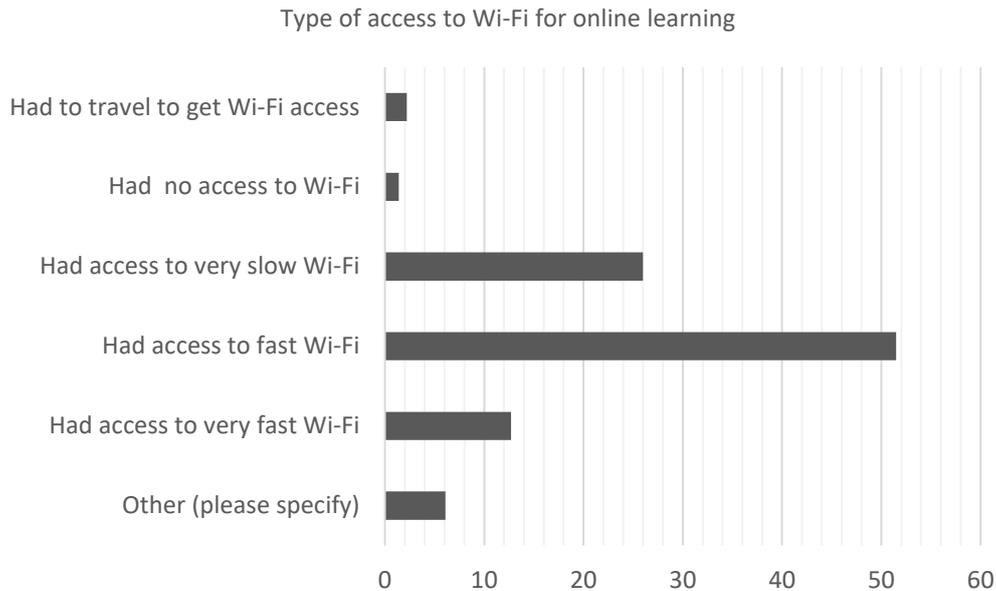


Figure 4: Type of Wi-Fi access

From the interview data apprentices have generally good overall access to Wi-Fi, however, some apprentices shared the broadband with family members who were also working remotely from home. From the survey data 59% of apprentices indicated they had difficulties accessing Wi-Fi due to having to share broadband with others in the household. In cases where several people in the same household were accessing the Wi-Fi bandwidth, capacity issues arose, causing the Wi-Fi to slow down. This was resolved by some by paying to upgrade the broadband package. Overall, participants reported their experience of broadband connection as good. Participant 4 suggested that they did not really need a super-fast connection as there weren't many education and training videos to watch. However, Participant 6 pointed out that they lived in a city whereas those apprentices living in the country may not have good broadband service. The rural divide issue relating to access to broadband was supported by the text data, with some apprentices having to travel to locations outside of their household to gain access to Wi-Fi. This was a matter of concern particularly when the Covid-19 travel restriction of 5 KM was in place. In some cases, apprentices remained in their car to study once they got access to Wi-Fi. Two apprentices found their Wi-Fi for online learning satisfactory, whereas poor internet speed made other apprentices' engagement within the online class difficult, and one apprentice said that their Wi-fi was *'hit and miss at times'*. Two apprentices used their mobile phones to access online learning while five apprentices pointed out that they had to gain access to online learning by using a hotspot from their phone as one apprentice noted, *'Had to use my phone no laptop or Wi-Fi'*. Additionally, one apprentice highlighted their employer allowed them to come in onsite to access faster Wi-Fi so they could engage in online classes.

In relation to the provision of support to purchase IT equipment the majority of the survey participants 90.1% stated they paid for the equipment themselves, while others either got financial support or were provided with IT equipment from their employer (6.5%) or the education and training providers (3.4%). The majority of apprentices (97.5%) stated they paid their own mobile phone costs. They used the mobile phone to access classes directly or to set

up a Mobile Hotspot for their laptop. In addition, 95% of participants bought their own study equipment and 96% paid or contributed to the costs of electricity and heat while remote working. In addition, 46% of survey participants indicated that they had to share the laptop/PC used for online learning with other members of the household.

From the interview data, most of the apprentices suggested that they received limited support from Solas but some support from the education and training provider and their employer. While Participants 2 and 7 argued that they received no support from their employer, Solas or the Education and training provider. Support from the employer came in the form of days off (Participant 1) and Participant 3 pointed out that *'we get an awful lot of support from the ESB'*. Participant 5 made the point that their employer told them to contact Solas and the education provider, *'it seemed everything was being passed around there for a while until I got on and I suppose hassled them'*. However, Participant 10 said that he had to tell his employer that the course duration was extended *'so I don't know now if I'm going to go back and have the same position as I had before because they were expecting me back, I don't know what's going to happen'*. The apprentices recognised the support they received from their instructors/teachers, they were contactable by email, WhatsApp or phone and some apprentices received extra maths classes. Participant 6 noted: *'...the instructor did everything that they could to make it easy on us all, he did his best, but we weren't given any devices to use. We had to use our own mobile phone. I know a couple of lads who had to buy laptops and this and that. It was a bit stressful but it is what it is, I suppose it would be handy if Solas was able to do something ... some type of device some financial help to get devices'* (Participant 6).

The main equipment used for online study by the apprentices interviewed were personal smart mobile phones and laptops, *'I used a laptop; it belonged to my mother'* (Participant 1) and *'I used my own laptop'* (Participant 2). It was noted by Participant 9 who purchased a laptop to study that *'at the start I had to use my phone I didn't have a laptop. We weren't given anything'*. Other apprentices also had to purchase laptops to study online, *'I bought a laptop when I knew we were going to be working from home so that was 700-euro. A lot of lads wouldn't have that money to just go out and buy a laptop. At this stage that laptop would be obsolete'* (Participant 6). It was pointed out that some employers were assisting with access to laptops, *'I know the ESB are rolling out iPads for apprentices to give us access to their systems so that's a huge thing, a huge help'* (Participant 3), also *'...another thing is I suppose is if money is a problem in certain households, it wouldn't be the most ideal thing, if someone doesn't even have data on their phone, they'd have to get a different phone plan which would cost more money, it all depends on the situation in the household which I suppose would put a bit of pressure on people...'* (Participant 4). From the text data apprentices noted the cost of engaging in online learning was covered by themselves, one apprentice pointed out that his parents paid for it. The apprentices pointed out that they had to cover other expenses such as Wi-Fi, printing, and rent for accommodation that they did not use and college fees, *'Yeah paying 1000-euro college fees to pay for what to sit at home and struggle through a course'*. One apprentice reasoned *'I think all apprenticeships that had to do online class should get money off their fee's as we have not had the full use of the college or its facilities'*.

Apprentices used different locations to engage in online classes. From the interview data apprentices stated they studied in their bedrooms, kitchens, and shared home office space. Participant 1 said *'I was at home, so I just studied in my bedroom. I'd rather work on my own, it suited me'*, whereas Participant 2 said, *'in my bedroom, it was difficult to switch off when it's your study space'*. For Participant 3, *'I shared the kitchen for a while and then I used my room if it's over the phone. Working from home, Living at work'*. While another apprentice revealed that they went to their grandparent's house to study as it was quieter. From the survey data 58% of apprentices indicated they did not have a suitable and quiet place to study. Some apprentices seemed to have an adequate space to engage in online learning and study, while others had to manage a shared space with others who were also working from home. For some apprentices their study space was their bedroom. In some cases, apprentices preferred to have their camera turned off during online classes to maintain privacy of their living space/study space.

Some apprentices reported experiencing delays in being scheduled to participate in the next Phase of their apprenticeship programme. The delays in progression through their phases was a matter of concern and frustration for apprentices. From the text data it was noted by three apprentices that they have not participated in online learning classes: one apprentice had not yet attended Phase two and will be a 3rd year in October with another apprentice stating, *'Was not called for phase 6 despite waiting an extended period between all phases. My apprenticeship should have been complete before covid began'*. Furthermore, it was argued by an apprentice that the delay between phases was a financial issue, *'our rate from 4th year to qualified won't go up until after phase 6. Also, my "time" is up since last December'*.

Theme 5, Communications and information

Throughout the Covid-19 emergency period government and national agencies engaged in a wide-ranging communication campaign providing consistent and precise information on a regular basis by means of a variety of medias. The provision of accurate and timely information provided a degree of confidence and assurance. The research asked apprentices to indicate their satisfaction levels with the information and communication they received relating to online learning from Solas, the education and training providers, their trade union, the student's union and their employer, a summary of the survey results is presented in Figure 5.

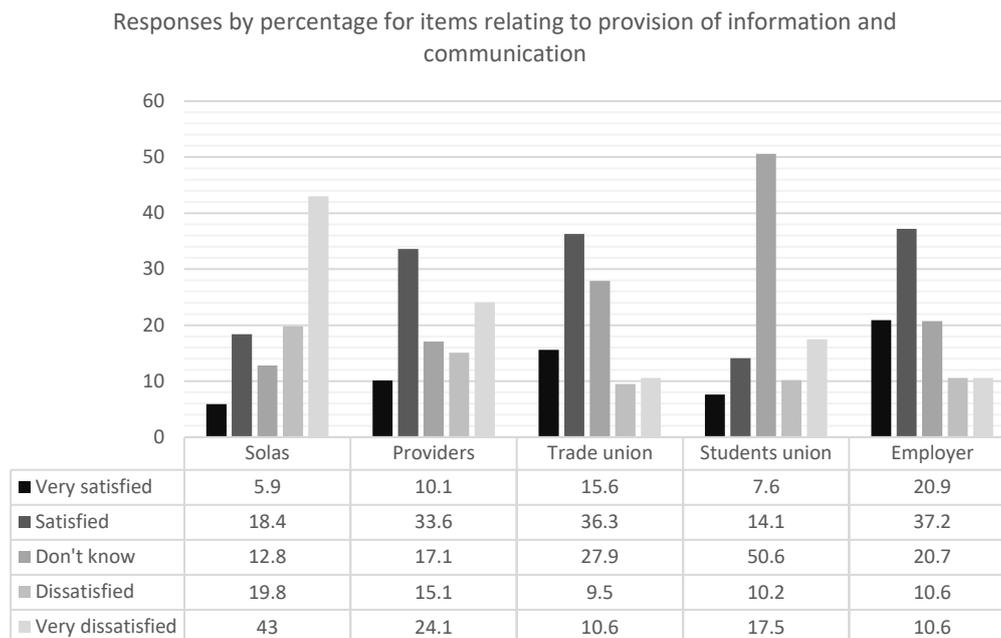


Figure 5: Satisfaction level regarding information and communication

Apprentices indicated mixed levels of satisfaction with the information that was communicated to them during Covid-19. From the survey data a significant number of apprentices were Very dissatisfied (43%) and Dissatisfied (19.8%) with the communication from Solas the national agency. Of those Very dissatisfied with the communication from Solas N=51 were from Phase 4 and N=42 were from Phase 6. While apprentices were generally Satisfied (33.6%) with the information provided by the education and training provider there was also a high level of very dissatisfied (24.1%). Apprentices indicated generally high levels of satisfaction regarding communication from their employers (37.2%) and trade union (36.2%). While there was a strong Don't know (50.6%) indicated for communication from the student's union, with 22.4% stating they were generally Satisfied. One apprentice stated in the survey text option, *'Nobody told us anything during any of this until the very last minute. Zero contact from any of the above mentioned'*. Interview participants were also asked if they received sufficient information about online learning from Solas and the education and training providers, Participant 2 said, *'Yeah, I think so yeah, I got an email explaining you need to do this, this, and this'*, while Participant 11 noted, *'Just from the instructor so I suppose I did yeah'*. Other apprentices argued that they had received no information explaining how online learning operates from Solas, *'It wasn't great to be honest. I wouldn't find Solas very helpful at all to be honest nearly from top to bottom there was several occasions where I made phone calls about different things regarding my time in college and when or if I'm going to be released and I wasn't getting straight answers I was being told I was getting calls back and ring this person ring that person and it just seemed like a never-ending cycle in some cases I wouldn't find them very helpful at all to deal with'* (Participant 4). In agreement Participant 8 stated: *'I haven't really got anything from Solas no, Solas haven't really updated us at all in regard to telling us how things are working with the online and stuff like that. There are no updates from Solas in regard to if we come out of lock down how classes are hanging and stuff like that there's nothing from them'*. Furthermore, Participant 1 said that they had received no information explaining how online learning operates from either Solas, or the Education

and Training provider before moving to online learning: *'No, we didn't. This was the problem I had with Solas we received no information what's so ever till like a week before the exam we were going to sit. Throughout the apprentice[ship] the lack of communication from Solas has been very poor. More communication, if an email is sent to them just, I'd like to see a reply. We have training instructors that don't engage with us at all which they should, every apprentice has been assigned a training instructor who should be in contact with them throughout the apprentice[ship], which doesn't seem to be happening with most apprentices throughout the country'* (Participant 1).

From the text data there was a shared understanding by the apprentices that certain matters relating to Covid-19 would change their apprenticeship and that Solas had to wait on government responses to the pandemic however, there was disquiet at how little or no communication about their courses was relayed by Solas to them. An apprentice noted: *'I am aware it is a difficult time, but it has been a long year and still there seems to be no knowledge (or at least I have not been told anything) about how much longer our apprenticeship will be or when our next phase will be. Even if there are no definite answers it would be nice to have some communication to let us know someone is thinking about these things.* For one apprentice this lack of communication was very disheartening when they were trying to finish a four-year apprenticeship with another stating that they were *'very dissatisfied with the lack of information and guidance from Solas regarding the whole online and coming back to class'.*

The communication process and transparency between service providers was also criticised by the apprentices and how this impacted the flow of information that they and their employer received. One apprentice said, *'it was a game of email tennis between...CIT and Solas neither knew...what was going on but both were saying it was up to the other and neither wanted to give us answers'* and *'Solas, poor, never got in touch with employers, and I was asked to go back to work on our original finish date I then had to inform my employer I wouldn't be finished for a number more weeks'.* Additionally, an apprentice pointed out that: *'My employer has extended my contract twice already. Solas have not offered us any information unless we chase them for it. They have delayed my apprenticeship with no regard to our qualification. I still need to do phase 6 in college and spend 12 weeks when I come back "gaining experience", have I not gained enough experience doing an extra year and a half of my apprenticeship because Solas can't organise anything?'* Furthermore, one apprentice noted that they had yet to receive a call for college although they were in third year in September 2021 additionally for another apprenticeship, *'these delays are making us apprentices disinterested and frustrated. Friends are thinking of leaving'.* Another point made by an apprentice was that online learning could have been utilised to tackle the backlog and reduce the extended time now required to complete the phases suggesting, *'While covid has extended this period most of us were already well overdue completion... allowances must be made for when a class can realistically start ...this should only be a matter of months not years'.* Respondents were frustrated with the delays experienced in progressing through the different phases of their apprenticeship. It is arguable that delays existed in the system because of increased demand and reduced capacity, the Covid-19 emergency measures further compounded the issue, significantly extending the delay periods. Apprenticeships which should normally be completed within four years were extending to more than five years and, in some cases, up to six years.

Theme 6, Supports provided and wellbeing

As part of the normal provision of services to students many education and training providers included additional supports such as pastoral care, medical, counsellors and as required extra tutorials and educational supports. The research explored whether provision of these services continued during the period of online learning due to the Covid-19 closures.

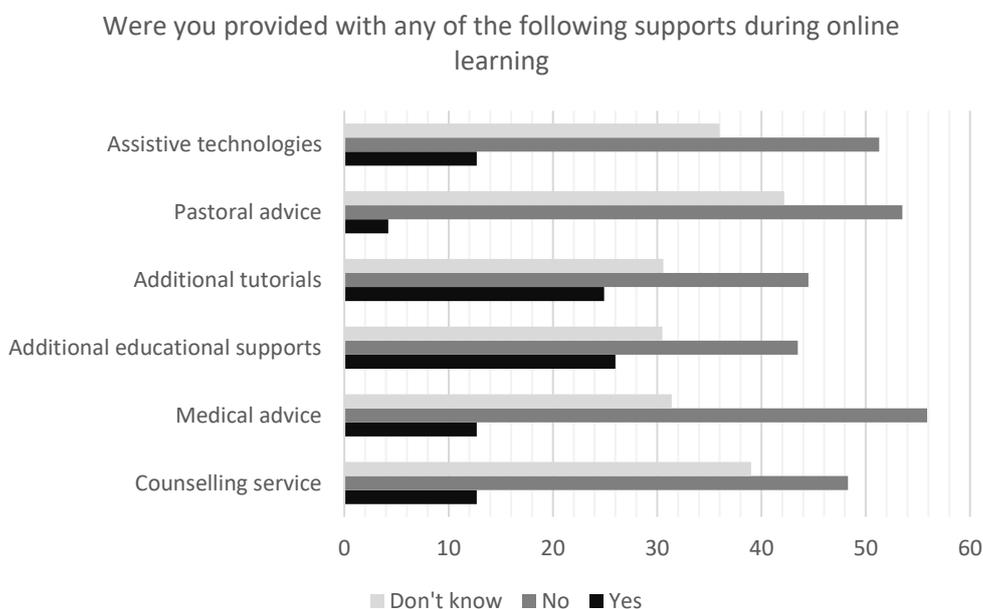


Figure 6: Supports provided by education and training providers

From the survey data it seems that a significant number of apprentices did not have access to educational support services. Survey participants indicated, they were not provided with additional tutorials 43.3% of which N=9 were in Phase 2, N=44 were in Phase 4 and N=40 were in Phase 6. In terms of access to additional educational supports, 42.4% of respondents indicated No they were not provided with access to additional supports. When the data was explored by Phase of study, Phase 2 indicated a majority Yes N=17 whereas both of the other Phases 4 and 6 indicated No (N=44 and N=41). Regarding the provision of assistive technologies there was a significant No 49.9%, the limited number that did receive assistance (12.7%) they were from Phase 2 N=5, Phase 4 N=9 and Phase 6 N=6. From the survey text data one apprentice stated that they received an extra tutorial class a week during the online learning period, in comparison another apprentice stated, *'nothing was provided or even mentioned'*. From the interview data apprentices noted that they were provided with additional classes, Participant 11 expressed, *'Yeah, well we were offered online maths classes as well for people struggling with the maths side of things...'*. There was also support provided by the instructor and employers as Participant 8 notes, *'My training instructor is very helpful if you send him an email, he will get you something and send it on straight away if he can, the employer is grand as well, if you ask them everything gets sorted straight away'*. In addition, some employers provided time off to allow apprentices to study. Although for Participant 9 the information about supports was limited, *'No. The college was in contact, we went in for the first week and they just told us everything would be online...'* nothing about other services. In terms of other support services offered by education and training providers apprentices

seemed to be either unaware of the service or it was not provided during the lock down periods. From the survey data apprentices indicated that education and training providers did not provide the following support services; Medical (No 55.9%), Pastoral (No 53.5%) and Counselling (No 48.3%). Less than 7% of participants indicated that they had engaged medical service (Phase 2 N=3, Phase 4 N=13, Phase 6 N=9), Counselling service (Phase 2 N=5, Phase 4 N=13, Phase 6 N=7) were as under 2% engaged with Pastoral service (Phase 2 N=2, Phase 4 N=3, Phase 6 N=1). Access to these services during the lock down period may have assisted apprentices to cope with matters arising from the Covid-19 restrictions. The survey asked participants to indicate whether they were experiencing any of the following: anxiety, isolation, loneliness, or depression, during the lockdown period (see summary results Figure 7).

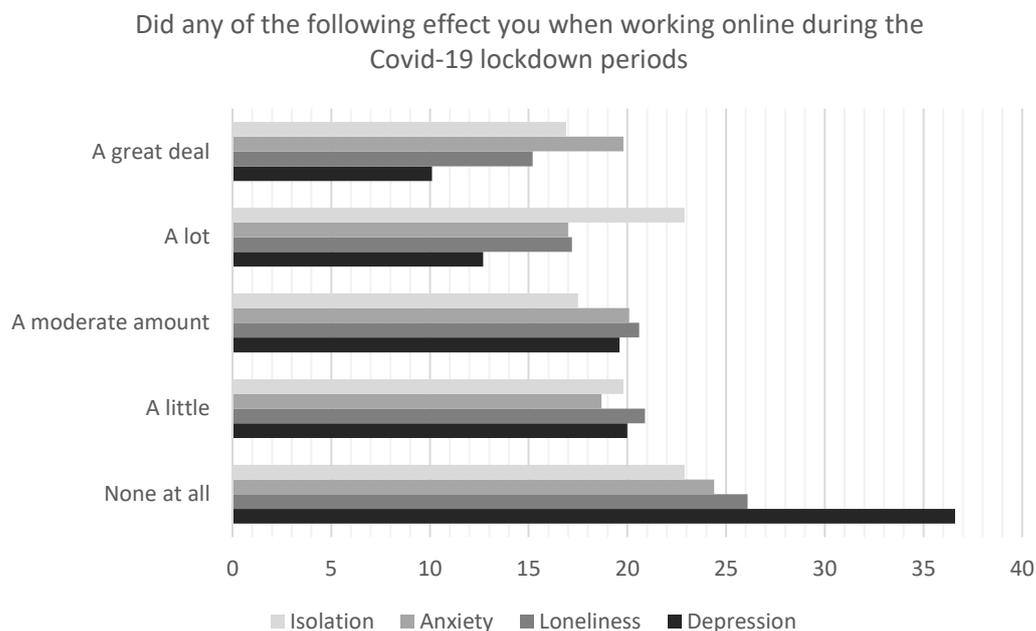


Figure 7: Levels of isolation, anxiety, loneliness, depression experienced during lockdown periods

From the survey data nearly 1 in 4 participants did not experience isolation during the lock down periods, of the 77% who did experience isolation 22.9% indicated 'A lot' and 16.9% stated 'A great deal' of the time. Experiencing some level of anxiety during the same period was reported by 75.6% of participants, with nearly 1 in 5 experiencing 'A great deal' of anxiety. Experiencing some level of loneliness was reported by 74.1% of participants with 15.2% experiencing 'A great deal' and 17.2% experiencing 'A lot'. Over 36% indicated they did not experience depression during the lock down period compared to 10% who experienced a 'A great deal' of depression and 12% who experienced 'A lot' of depression. From the interview data, some apprentices expressed that they had felt isolated and experienced feelings of loneliness during the remote online delivery of classes, 'Yeah, definitely you do feel a bit isolated, yeah 100 per cent' (Participant 6). Furthermore Participant 9 added 'Its isolating like you don't talk to anyone now, you can't pick up your head if you're doing online the whole time'. Talking about online classes Participant 10 said: 'Yeah, I felt the days were too long sometimes you're on classes from nine in the morning to and you'd have your half an hour break or whatever during the day but then you weren't finishing till five or six in the evening and its freezing cold, and you wouldn't be able to go out and get a bit of fresh air after being

sitting at a screen and totally drained'. Whereas, Participant 8 said *'No not really, I didn't really come across that no'*, and Participant 4 added *'No I don't think so I didn't find it too bad like I would be a people person I love meeting up with people. That was the one thing I loved about college going in and meeting people, I used to love school, meeting people that's the one thing I did miss but I suppose there would be a lonely aspect to it you are meant to be in a training centre with new people and meeting people every day instead of sitting in your room'* (Participant 10). Additionally Participant 2 noted that *'I was lucky in that I was still going into work at that time so you get some interaction there, but I'd say if I was at home only studying, I think it would be very, very lonely'*. Among the apprentices interviewed there was an awareness that first year apprentices did not share the same college experience that they had in their first year *'No, because I was still in contact with my class, see the fact is that I already met my classmates before it moved online so if that weren't the case, I suppose you would feel isolated because you wouldn't have met your classmates, because you wouldn't know them'* (Participant 1).

From the text data, some apprentices stated that they had experienced feelings of loneliness, isolation, anxiety, and depression. For one apprentice studying online was very hard as they had lost close relatives during the lock down periods. While other apprentices noted they had experienced some of these feelings due to being let off work because of the Covid restrictions. The lack of information about the courses caused some apprentices anxiety. They stated that they were worrying about what was happening with the course and that they could not commit to a job, accommodation, or evening courses. Having to use a computer and gaining access to a printer was stressful for one apprentice. An apprentice pointed out that they suffered with anxiety and depression which they said, *'accelerated massively due to how I was treated during the semester'*. In agreement a different apprentice stated *'The entire process deteriorated my mental health and wellness'*, for another apprentice *'the anxiety of not knowing what was around the corner was horrendous'*. Additionally, an apprentice stated *'it does become extremely difficult when doing nothing but online studies at home for weeks and weeks. Some found it hard to speak out in an online class as one apprentice noted, '...as students feel they would be interrupting other students! In a class environment students can talk to each other through different problems they may face!'*. One apprentice concluded by noting *'...it was easier to study when you're with lads from the class so was nervous going into exams without that'*. While more supports were gradually provided to apprentices as the lock down periods rolled on, it would seem that information about these supports was not communicated to all apprentices as there was a low level of awareness about the services available.

Theme 7: Any other comments

Benefits to online learning

Self-learning and having your own space at home without distractions that might happen in a classroom situation was seen as a benefit to online learning by Participant 1 who also pointed out that this method may not suit everyone. For Participant 4 *'...when you learn online you have to learn on your own initiative... I think there's a difference between teaching*

yourself something and being taught something... You kinda have to wrap your head around it yourself without too much help from others'. Whereas Participant 10 argued that due to the global aspect to the pandemic online learning would become more popular and students would have to try and understand it better. However, for them online learning would not be their first option as they preferred classroom-based learning and learning by doing to understand things. Five Participants suggested there were personal benefits to online learning such as not having to travel to the course, not having to be present in a class each day and time efficiency of class time, *'being away from home and all, you know, it's an added expense and it's just the comfort of being at home but other than that to be honest with you I don't think there's any added benefits'* (Participant 6). Participant 3 also thought that it was now easier to reach out and contact an instructor by phone while Participant 9 did not see any benefits to online learning. From the text data several apprentices who studied online stated that for them there were no benefits to their online learning experience. One apprentice explained they *'found it hard to understand how things worked without practically seeing them. For example, the assembly of a motor'* and *'hard to understand online work and can't talk about the problems with people as you do them'*. One apprentice noted that *'Absolutely none for me personally. It was and continues to be an awful experience'*. While another apprentice argued that studying online for them was a *'Total disaster this emergency teaching, teachers were not ready for it'*. An apprentice suggested that *'No, you can't learn through a screen, it has to be a tutor and his students in the classroom in case some students have learning disabilities'* as noted by another apprentice who said *'there are no benefits to online learning. I am dyslexic'*. The apprentices expressed that they preferred class-based learning over online learning as they themselves were more focused and engaged in a class situation (face-to-face), could see first-hand the practical solutions, and had the support of their tutor and peers. One apprentice stated *'The best way I find to learn is through doing the task and using the classroom-based learning in the practical classes'* and *'Absolutely none the whole experience ruined my Phase 6. I have a short attention span so sitting behind a laptop screen is no good I needed to have a teacher in front of me to help me'*. Additionally, a participant said, *'in my opinion, no there are none due to the nature of my apprenticeship being hands-on (carpentry & joinery)'*. In agreement another apprentice did not see a benefit to online study noting *'No none, as needed to do the practical to make sense of the theory'*. Furthermore, another point made by apprentices who did not consider that there were benefits to studying online was that while classes were held online the exams were not with some apprentices stating that this was unfair and for them made no sense. It was felt by two apprentices that they had missed out on their learning experience with one apprentice arguing *'None. This is my last phase of off-site training and I feel like I have lost out on a lot of learning'*.

Challenges to online learning

Participant 3 experienced challenges due to a lack of access to internet to attend classes online and the extra financial cost of having to buy a laptop for their college work. The main difficulty Participant 4 faced was the time gap between asking a question in relation to their course and receiving an answer which they suggested could affect their understanding of the issue throughout their time in college. Another challenge for Participant 10 was that they felt that asking questions online interfered with the class and that the *'lads'* that already knew it would be getting fed up as the instructor had to repeat the answer whereas in the class the

topic was easier to understand. Participant 8 agreed that *'attentiveness and understanding some of the skills'* online was a challenge. A point made by Participant 6 was that the reason people are drawn to apprenticeships is the hands-on learning element of the course especially for people who may not be strong with theory-based learning. They point out that the course moved very quickly to online learning which they expressed as over-whelming and daunting. This for them was a big disadvantage as they had to write about the task without seeing and learning the practical side first-hand. While You Tube videos were helpful *'but it wasn't really in action... it was a video it was kind of like a medium between theory and practical'* (Participant 6). The challenges faced by the apprentices include having no Wi-Fi, weak Wi-Fi, and poor connection to access online classes. One apprentice noted that accessing Wi-Fi in a rural area was difficult. Trying to learn course work such as technical drawing at home caused challenges for some apprentices. Other challenges included sharing living space with children in the house meant it was very hard to focus and the expectation to have money to buy new laptops or phones. Participant 1 and 8 wanted to add that they thought that the lack of communication and contact from Solas about how they are moving forward with the apprenticeships and changing between online classes and in person really needed to be looked at. Both apprentices noted that they had been in contact with Solas multiple times without receiving a reply to their phone calls or emails. This lack of information Participant 9 argued put them in an awkward position with their employer because throughout the country other apprentices are back in class *'they didn't even give you any information how they were going to operate or what way they were doing it. I know it was because of Covid and no one knew what was going on, but still they must have had some plan like. And like even to this day, they still haven't'*. Some participants suggested that running theory classes online could help relieve the backlog, noting that they will be doing their apprenticeship for five years or more and suggested that in some cases apprentices are being told the course will take seven to eight years and stressed that this issue needs to be acted on, *'...I mean next year I read or heard a thing on the radio that they want to bring in 15,000 new apprenticeships next year across the board... they can't cater for the amount of apprentices that are there at the minute I don't know how they are going to manage that you know... when you are in the electrical apprenticeship, and you finish your phase six in college you have to go back to site for three months to get your papers now I think that they should scrap that if you have your four years done. They should scrap that three-month period if you come out of college and you have your four years done, just get your papers that day you've four years done at the end of the day that's holding people back from going abroad and onto different things like that'* (Participant 4). Participant 7 added *'I think it's stupid really doing it over its going to take five years it's kind of a joke like. When I started it was meant to be over four years you would have your phases done and you would have to do phase seven till your time was up but I'm a long way off that now. You wouldn't even mind two or three months you could get over that, but this is ten or twelve like. You're missing out on a lot of money as well like I haven't failed any of the exams or anything like that as if that was what was holding me back Its just the way things are'*. For Participant 5 the lack of information relating to their apprenticeship completion date impacted on their work, *'I couldn't go to them and ask for the extra few bob whereas, I felt that I was entitled to it I know that I haven't passed all my exams but if I'm doing the work or the equivalent to the other workers, I wouldn't see why I'd be getting stuck for it'*. While Participant 10 noted, *'I just wanted to get the point across that it wasn't successful for me anyway, I don't know for other people but talking to the lads in my class they were the same as me they were saying they would have rather been in the class...it works out better, you're*

doing this course four years now and all of a sudden the last bit you're thrown information at you that you probably have never seen before over a laptop that you've no clue what they are talking about, Other than that it wasn't too bad'. The move to online provision of teaching was a matter of concern for many apprentices specifically relating to lack of equipment, costs incurred, lack of practical work and the delays in progressing their apprenticeship. There seemed to be a general concern with the limited information and advice provided regarding the move to online provision.

Conclusion

The sudden move to online learning in March 2020 was unprecedented in an Irish context. Education and training providers had no opportunity to commence preparations to facilitate the move to online provision. Providers were expected to commence emergency remote teaching with only a few days' notice. Some providers did not have an online learning platform in place, nor the necessary in-house staff trained to deliver a virtual learning environment. In addition, due to these unprecedented remote teaching practices being introduced many staff did not have the equipment or Wi-Fi in their homes to begin online teaching. Similarly, apprentices had no arrangements in place to engage in online learning. While respondents acknowledged the need to move learning online and appreciated the difficulties experienced by providers. However, they were not really satisfied with the online experience. Respondents reported issues relating to the lack of facilities provided such as learning resources and access to an online library. The responses highlighted the lack of consistency in this area. Some providers had online libraries or repositories while others had none. Apprentices experienced different levels of access to learning resources depending on the provider they were assigned to. Additionally, as providers used different virtual learning platforms apprentices noted there was a lack of continuity of access to resources when they moved to another provider's platform. Each time an apprentice was moved to a different provider for their next Phase of off-the-job education and training they had to register on a new platform and could not access material they had previously saved on another provider's platform.

In general, the learning material provided online was considered satisfactory regarding the theory content of the course. Although, without the practical skills component of the course developing an in-depth understanding and applied learning of the theory was reported to be difficult. Apprentices also noted that their learning style included the application of theory and practice, learning by doing, as well as undertaking practical tasks on-the-job or off-the-job reinforced theory learning and enhanced technical knowledge and understanding of work processes and practices. Engaging in online learning only (without practicals) during emergency remote teaching limited the depth and range of the apprentices' learning experiences. Some apprentices pointed out that one of the main reasons they decided to pursue an apprenticeship was to engage in practical work tasks and skilled work whilst also learning the technical information and theory related to the trade. Through work-based learning apprentices gain knowledge and skills which can be classified as informal learning, which can be transferred to the formal learning process in the training and education centres and colleges. The combination of work-based learning and formal education and training was the key attraction to be an apprentice. During the lockdown periods a large number of apprentices did not have access to their workplace and could not engage in their work-based

learning. Their only learning option was online theory classes. This created a challenging learning experience for some apprentices.

In addition, to the learning concerns, the move to online learning presented other challenges to apprentices relating to access to equipment, broadband and personal wellbeing. All apprentices had access to mobile phones, some were supplied by the apprentice's employer. In most cases the apprentice paid for the phone running cost (either bill pay or the ready to go) using different tariff options and data allowances. Mobile phones were the main device used by apprentices for communication purposes, including, social, work-related and education and training. Some apprentices only had access to their mobile phone to engage in online learning, while others had to purchase either a laptop or PC. In some cases, employers provided laptops to their apprentice to facilitate online learning. When funding became available some providers did offer either loan schemes or part purchase options for apprentices to obtain laptops. For others access to broadband was the key issue: in some rural area's broadband was either not accessible or very slow. Even where broadband was available the bandwidth was reduced due to demand, as all those working remotely in a household were accessing the broadband Wi-fi at the same time. Some apprentices used their phone as a hotspot for tethering to their laptops, however, the data usage exceeded their limit adding to their cost package.

While apprentices used their mobile phone as the primary device to access information and for communication, they expressed concerns about a lack of information and communication relating to changes to their apprenticeship programme and the move to online learning. While information was received, it was either lacked detail or was circulated very late. When questions were submitted about the information provided there was limited responses received. The absence of clear and timely information and responses to requests left many apprentices unsure of how to proceed with their studies. Some apprentices did, however, receive detailed and timely information from the education and training providers. Others stated their employer kept them in the communication loop. It was also noted that separate email addresses were supplied by Solas and each provider, this caused some confusion. Apprentices did acknowledge the receipt of information from their trade union on Covid-19 matters. There was also a lack of awareness that apprentices could seek information and support from the local students' union in their college.

Despite having access to phones and other electronic devices apprentices experienced feelings of isolation and loneliness during the lockdown periods. Not being able to meet and engage with their peers was a matter of concern relating to their personal health and wellbeing. Apprentices did provide support to each other by means of different electronic apps and platforms, however, it was felt that this could not replace the informal social gatherings and general banter at work or in education and training centres. Some apprentices acknowledged their provider did make supports available, a help email address or phonenumber. Some apprentices noted that could gain access to online medical advice from the provider's service. However, in general the supports made available to apprentices for wellbeing and mental health from the national agency and providers seems to have been limited.

In terms of the communication, apprentices noted while information was posted on the websites of national agencies and providers, there was limited direct communication circulated to their email or text messaging. Most of the information posted was general advice and guidelines on Covid-19 rather than specific information relevant to the apprentices'

courses. Although, it was reported that some teachers/trainers did set up WhatsApp groups and provided up-to-date information about the courses and advice on study materials. Apprentices identified text messaging which includes WhatsApp as the preferred medium to receive notices and information. Apprentices raised some issues relating to difficulties experienced when trying to access email accounts issued to them by the national agency and providers. Apprentices suggested that a single communication channel with one email address should be agreed between the national agency and providers, where notices could be sent by text messaging and information including learning material sent by email.

Most apprentices acknowledged that they learnt more effectively when both practical and theory was combined: learning by doing, a form of practice-based learning, gaining skills and knowledge in the workplace and then refining this learning during their Phase releases. However, with no access to workplaces and practical workshops, and only online tuition, apprentices considered their learning process was adversely affected. In circumstances where access to practical skills development is not available then other forms of skilled related experiences should be considered for example virtual reality or augment real environments or even gaming programmes which focused on practical skills. This would, to some extent, assist theory learning by enabling a form of practical learning to combine with theory. This would require investment in the development of virtual learning environments which contained stimulation programmes relevant to practical skills areas. In addition, apprentices pointed out that they also learnt practical skills from their peers during teamwork in the workplace and group work in training. Furthermore, during the lockdown periods they had no direct access to other apprentices or work colleagues. A form of group work could be supported during these periods by the provision of virtual team-working facilities. This could be facilitated by the provision of accessible software for group communications and the development of curriculum to include online teamwork and group assignments for assessment.

Developing a coherent approach to the provision of digital services for apprentices needs to be addressed at national level in consultation and cooperation with education and training providers. This could include a platform to facilitate active communication and relevant information to support the apprentice from commencement to completion. This could contain both general information relating to each apprenticeship and have a facility to provide information that is relevant to the individual apprentice. Registered apprentices should have access to the platform for the duration of their studies. The platform could provide information on training and education schedules for both on-the-job and off-the-job, the curriculum and learning outcomes and recommended texts for each trade area, quality assurances and marks and standards procedures, information about providers and their procedures for registration and supports available. Each apprenticeship should have access to details about their individual learning path including Phase schedules, examination results and expected completion dates for each Phase of their study. In addition, information should be provided to the individual apprentice relating to financial supports provided during off-the-job training and education such as, allowances, attendance record, payments, deductions, and fees.

While apprentices seem to be proficient in the use of general word processing and social media, there is a need to provide a range of digital skills training options to enhance digital

skills levels and provide a foundation for the new digital skills required in the workplace. Digital skills for work could be provided by a flexible training facility, which would enable apprentices to update their digital skills levels by means of self-directed learning at a time that is suitable to the apprentice. A Digital Skills for Work suite of micro-credentials could be developed for apprentices. This would provide recognition for completion of short training sessions and as a pathway to progress to more advanced training. The micro-credentials could be accumulated and stacked to gain a higher-level award.

Promoting tripartite communication between key stakeholders - employers, providers and social partners - is crucial to the successful provision of quality apprenticeship programmes. During the crisis, social dialogue (between national agencies, employers, and social partners) proved essential to gain consensus on measures and practices required to reduce the risk of the virus spreading. Both employers and social partners played a major role in providing apprentices with updated information on Covid-19 guidelines for workplaces. This progressive partnership-type working relationship should be promoted and mainstreamed. Although, to maintain a stakeholder engagement process resourcing and facilities will be required to facilitate social dialogue in appropriate fora.

The apprenticeship model provides opportunities to gain extensive work-related skills and access to formal accredited education and training, in a structure pathway which has been described a 'earn while you learn'. The applicants are attracted to apprenticeships because of the practical skills experiences gained both on-the-job while working with colleagues in the workplace and off-the-job at education and training centres. The unique characteristic of apprenticeships the combination of using practical skills which applied theory is appealing to many. While apprentices engage with new technologies, materials procedures, and processes, and are familiar with the digital environment, they seem to prefer to learn by doing rather than learning online, exploring how best to utilise the potential of digitisation in the apprenticeship model is a matter for further investigation.

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