

Understanding the use of digital technology in the career development sector

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Moore, N. (2013). *Improving Lifelong Career Guidance and ICT Support Project Croatia: Manual of Operational Procedures (Quality Standards)*. Zagreb: Croatian Employment Service.

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Executive summary

This research, funded jointly by the UK's Career Development Institute and the University of Derby, has been conducted at a time of rapid change in the availability and use of digital technologies. For the purposes of this report this is defined as electronic technology that generates, stores, and processes data. A recommendation to develop digital skills to harness technology is not new and was first suggested by The Careers Profession Task Force (2010). This research aims to determine what progress has been made over the last nine years since the recommendation was made and seeks to determine:

- How practitioners and managers use digital technology to deliver career development services
- The potential for digital technology to deliver career development services; and
- The training needs of career development practitioners so that they can use digital technology to deliver services, innovate solutions and solve problems in service delivery.

The knowledge developed through this research will be used to develop professional support and training activities and services to organisations and individual career development practitioners. It will also be used by policy makers in the UK and beyond, who are tasked with the development of modern, cost-effective and client appropriate career development services.

Literature examined during the early stages of the project notes the rapid advancement of digital technology as a tool to support individuals career development, as a medium which provides new opportunities for gainful employment and as a means of delivering career development support and services. The literature describes the skills needed by individuals who wish to advance their careers and also by those who support them. The landscape of digital knowledge and skills is complex and requires practitioners to be both competent and confident in a range of skill areas.

The research gathered information from several sources including a survey of 205 career development practitioners across the UK and focus groups and telephone interviews with 14 career development practitioners from England, Scotland and Wales.

Digital technology and associated applications can represent a cost-effective means of delivering career development services, particularly in remote and isolated areas, and there is a

strong policy steer for organisations delivering career development services in England to make greater use of internet-based services (Bimrose, Barnes, and Attwell, 2010), however this may not always be the case as technology can be expensive. During the research, some concern was expressed about the assumption that this would be the direction of travel for all career development services. There was a recognition that these services would only be effective if both practitioners and their clients were proficient. The research finds that practitioners are using a wide range of digital devices and applications to deliver services to their clients and to manage their businesses however, whilst some feel very confident about their abilities in this area, this is not uniform across the sector. There is a tendency for older workers to be less confident compared to their younger counterparts. That said, there was much enthusiasm amongst research participants to develop their digital skills. Practitioners revealed that they would like to receive training in the following areas:

1. Applications

- Social media applications particularly LinkedIn.
- Software for creating content including video editing and infographics.
- Microsoft Office applications such as Teams, Project, PowerPoint, Publisher, SWAY, EXCEL and advanced word processing functions.
- Webinar and communications technology such as Skype.
- Collaborative documents and applications such as Google Drive, One Drive and Dropbox, Pinterest and Padlet.
- Referencing software such as Reference Manager, Endnote or Mendeley.
- Designing surveys and using online polling software such as Google Forms, or Mentimeter.

2. Professional practice

- The implications and ethical use of digital technology.
- Digital pedagogy.
- Approaches to evaluate online information.
- Legislation governing how information can be used and replicated including copyright law.
- Protecting personal identity and data.
- Sources of support to further develop their digital skills and knowhow.

The findings from this research indicate that practitioners wish to receive training in this area to improve their performance and service delivery. Whilst this responsibility is shared between practitioners, employers, training providers and the CDI, practitioners will need support to become confident and proficient in their use. What is clear from the research is that time and resources are a barrier to enabling practitioners to develop these new skills and many are using their own time and resources to experiment and develop. Policy makers should take heed of the limited resources available to the development of programmes of digital skills development and programmes of ongoing support. If the sector is to meet the governments ambition to provide twenty-first century digitally enhanced career development services, it will need financial support to help realise the vision.

Of course, training practitioners in these skills is only part of the solution and the research notes that the responsibility for improving the use of digital technology is shared amongst individual practitioners, their employers and the Career Development Institute. The research has resulted in a number of recommendations:

Organisations including the CDI should

- Provide equipment and surroundings which are suitable for the delivery of career development and business interventions using digital technology.
- Engage in conversations about the training needs of their staff so that they are fully able to use the digital technologies required of them.
- Develop meeting charters which encourage individuals to use digital technologies to participate.

The CDI should specifically

- Review the framework of ethical guidelines and support materials which they provide to ensure that the ethical tensions introduced by the growing use of digital technology in the provision of career development services are highlighted and responded to.
- Develop a position statement which sets out their stance on the provision of a range of approaches to engaging with, and addressing, the needs of a wide range of clients.
- Support the review the national occupational standards, The Blueprint of Learning Outcomes for Professional Roles in the UK Career Development Sector (CDI 2016) and

the learning outcomes for the Qualification in Career Development (CDI 2019) to ensure that these standards reflect the emerging requirements for digital skills and know how.

- Develop some guidance for organisations who wish to improve the digital skills of their work force through their job descriptions.
- Explore ways of providing support for practitioners working in small organisations or as lone traders to develop their digital skills. This may be through the provision of courses, or by signposting to sources of support for digital skills.
- Explore ways of providing a network for those practitioners who need to access support or share their digital practices.
- Explore the extent to which their role extends to supporting organisations to develop their own digital strategies including guidance on the inclusion of digital skills in job descriptions.
- Continue to publish articles in Career Matters with a digital focus.
- Develop their training and develop programme to improve the digital knowledge and skills of the workforce.
- Lobby government to fund a digital training programme for career development practitioners.

Policy makers should

- Review their support to organisations leading and delivering programmes of professional development to ensure that career development practitioners can develop their digital skills and know how.

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Introduction

This report sets out the findings of research which explores the use of digital technology in the career development sector. The research has three objectives which are:

- To develop an understanding of how practitioners and managers in a range of settings (Schools, colleges, universities, community settings, and companies offering and supporting career development activities) use digital technology to deliver their services.
- To explore the potential for digital technology to deliver career development services.
- To identify the training needs of practitioners so that they can use digital technology to deliver services, innovate solutions and solve problems in service delivery.

The purpose of the research is to:

- Develop new knowledge about the career development sector which can inform the development of policy and practice.
- Undertake a training needs analysis which can inform the training and development programmes offered by a range of organisations across the sector.
- Develop recommendations to policy makers and service providers which will support the development of new approaches.

About the project

The idea that career development practitioners should take heed of the need to develop their practice using digital skills is not new. In 2010, The Careers Profession Task Force recommended that initial training for career development practitioners and opportunities for continuing professional development should address amongst other things, information and communications technology (Careers Profession Task Force 2010: 22). The recommendation is set within the context of rapidly changing internet-based technologies and communication devices. The Task Force cite research by Bimrose, Barnes, and Attwell, (2010) however, in the eight years since this research was published, many of the changes which were imagined have been realised and we are now confronted with a new range of challenges. The use of, and reliance on, digital technologies in career-related activities has increased rapidly. This has led

the careers sector to recognise the need to expand its understanding of new technologies, and to modernise its services as they admit that for many people, using technology still poses a challenge (Moore, 2018). Several researchers have emphasised that it is important that career practitioners gain competence and confidence in existing and emerging technologies to utilise their usefulness and potential for clients (Bimrose, Hughes, & Barnes, 2011). Given the rapid developments in the use of technology, new research is therefore needed which explores how the sector has responded to the changes which have happened in the provision of digital and communications technology and how members of the sector are innovating, imagining their future practice, driving development and developing the skills which they need.

The Career Development Institute (CDI) is the leading professional association for the career development sector in the UK. It drives the quality of professional practice, is the guardian of the national occupational standards for Scotland, Northern Ireland and Wales, The Blueprint of Learning Outcomes for Professional Roles in the UK Career Development Sector (CDI 2016) and guides the sector in providing ethical practice. The CDI Board have launched a digital strategy with the following vision:

“To embed digital literacy in every aspect of the work of career development practitioners.”

CDI 2018 (1)

They set out three imperatives for setting out a digital strategy. These are:

- As a thought leader for the career development sector.
- As a guardian of the occupational standards for Scotland, Northern Ireland and Wales, and The Blueprint of Learning Outcomes for Professional Roles in the UK Career Development Sector (CDI 2016).
- As a business operating in a competitive commercial environment.

The project is timely. The government launched its Careers Strategy in December 2017 in which the CDI's digital strategy is profiled alongside a three-year action plan which:

‘will set out a vision for the sector to imagine new ways of working, using digital technology and to set out their training and development needs’.

DFE 2017: 33

This research is one of the first activities which underpin this strategy. It is important that the CDI understand how practitioners are using technology and what its potential is for practice so that they can review the standards, code of ethics and training and development provision so that it is fit for purpose in this new digital age. This report sets out new information about the digital literacy skills of those working in the careers development sector in the UK. This research has national and international importance and the findings are set into the context of what is known about the roles and impact of digital technologies on career development, and those who provide career development services.

Defining terms

Throughout this document and project, several terms are used which need to be defined:

- The term **career development** is used as an umbrella term which describes a range of interventions, delivered in schools, universities, colleges, training organisations, public employment services, the workplace, community or voluntary sector and the private sector that support individuals to make and implement their career decisions.
- **Personal career guidance** is used to describe one to one support offered by career development practitioners.
- **Careers education** refers to educational interventions which take place in a variety of settings including educational establishments, community settings, and within companies.
- **Career management skills** are competencies which help individuals to identify their existing skills, develop career learning goals and take action to enhance their careers (ELGPN 2012).
- **Digital technology** electronic technology that generates, stores, and processes data
- **Digital literacy** refers to an individual's ability to find, evaluate, and compose information through writing and other mediums on various digital platforms
- **Digital platforms** are products that serve or enable other products or services
- **Digital applications** are specific pieces of such software sometimes referred to as an app. Specific application are referred to in the text, and these have been grouped together in a glossary at the end of the report (Appendix 3) with a description of each of the applications and their use.

Policy and context

Introduction

The review of literature which supports this research has included a search of academic, policy and practice literature as well as unpublished works of literature, found through social media databases. The review explores:

- The use of digital technology to deliver personal career guidance.
- The use of digital pedagogy in careers education.
- The role of digital technology in the provision of career and labour market information.
- The teaching of digital career management skills.
- The future of work and digital skills
- The skills required to operate in digital spaces
- The UK career development sector perspective of digital technology and its application in career development

Understanding digital literacy

The differences between competency and literacy have been identified by Poyton (2005), where competency is defined as skills that can be measured and observed and literacy is defined as the application of knowledge and application of technological competency. The idea that career development practitioners should note the need to develop their practice using digital skills is not new. In 2010, The Careers Profession Task Force recommended that initial training for career development practitioners and opportunities for continuing professional development should address amongst other things, information and communications technology (Careers Profession Task Force 2010: 22). The recommendation is set within the context of rapidly changing internet-based technologies and communication devices (Bimrose, Barnes, and Attwell, 2010).

Previous research has examined the potential which digital technologies have for career services (Hooley, Hutchinson, & Watts, 2010; Bimrose, Hughes and Barnes, 2011). This research suggests that technology, especially social media tools, have substantial potential in

the career development sector, but are not exercised to their full potential (Hooley, Hutchinson and Watts, 2010). An implication of this research is that more research is required to develop a model designed to support professionals that allow them to use existing development practices with new technologies (Osborn, Dikel, and Sampson, 2011). Additionally, there is a strong possibility that practitioners will need a different type of training to tackle careers development in this area as it is vastly different to the type of face to face interaction, they are familiar to (Tickle, 2011).

The use of digital technology to deliver personal career guidance

Kettunen, Vuorinen and Sampson (2013) outline that the use of digital technology to deliver personal career guidance has potential advantages, regarding it as desirable even indispensable to the sector. What's more in setting out an exploration of the use of social media in career development practices, Kettunen, Sampson and Vuorinen (2015) provide a reminder that social media are not simply a place to discover information and network but provide an opportunity for individuals and groups to develop common understanding and meaning with different content, and communities. Beetham and Sharpe (2013) highlight the growing use of mobile technology in accessing web-based applications and note that for 16-24-year olds, using social media is now the main online activity. They highlight that social media provides an intervention in which career development practitioners can engage with their clients in new and innovative ways however they draw on the research of others (Bimrose, Barnes and Atwell, 2010) to highlight the need for more training for career development practitioners in the use and potential of this technology.

The prospect of introducing online practices undeniably polarises views (Goss and Hooley, 2015). There are several explanations for this, for example Howieson and Semple (2013) argue that this may be because there is a lack of data on its use in the careers development sector. Hooley, Hutchinson and Watts (2010), however argue that it is both a lack of skills and a lack of pedagogic knowledge which are a barrier to the integration of digital applications into practice. There are also concerns by some who argue that the integration of communication technology can become impersonal and automated and seek to replace human interaction (Anthony, Nagel and Goss, 2010). Bimrose, Hughes and Barnes (2011) who found that issues of safety, security and privacy for the users of online services along with issues around data protection and confidentiality were all issues which impacted on the use of digital technology in career development practices. Whilst organisations such as schools are implementing firewalls, they

noted that this has the impact of restricting the use of certain applications such as social media by young people during school times. This in turn limits the ability of career development practitioners to reach out and communicate with young people using these applications, an approach set out by the Careers Profession Task Force (2010) who note that information and communications technology is a “highly effective medium for communicating with people using career services”

The use of digital technology in careers education

Digital pedagogy can be defined as the study and use of digital technologies in teaching and learning. It can be applied to online, blended, and face-to-face learning interventions. Digital pedagogy will often involve the use of open education resources and the publishing and peer review of materials, and requires educators to engage critically with online materials, not simply to use them but exploring the extent to which these are effective in the process of teaching and learning. Morris and Stommel (2017) write that online materials are no different from the information derived through more traditional modes in that they are fraught with political inference and power dynamics. They draw on the writing by Shuall who writes the introduction to the work by Freire (1993) and note that there is “no such thing as a neutral educational process”. Critical digital pedagogy requires practitioners to engage with and interrogate the political and power dynamics of online materials and ensure that they are appropriate for the purposes they are being used. Morris and Stommel (2017) write that the internet is making educators rethink about the way in which the space that they interact with learners impacts on their practices. They note that interactions through screens still constitute ‘face-to-face interventions’ however the way we use screens requires new ways of thinking about how we use them to engage and educate.

Educational interventions which promote career learning can take place in a variety of settings including the classroom, the community and through the provision of work-based activities. Each of these contexts provides an opportunity to integrate digital technology into teaching and learning practices. Morris and Stommel (2017) note the need for educators to rethink their pedagogies in the light of recent technological developments and set out the argument for exploring the effective use of technology in both teaching and learning activities. In order to maintain relevance as educators, it is unavoidable that career development practitioners try to accommodate the apparent change in the way that young people are engaging with learning in all of the different contexts in which career learning takes place (Meij and Merx 2018). Mayes

and Freitas (2013), write about the way in which the internet has allowed individuals to engage in learning at group and individual levels in a way which did not exist before the advent of social media including those which offer collaborative content. Whilst social media present opportunities for career development practitioners to provide services to young people on platforms that are popular and familiar to them. they are only able to do so because of their educational expertise, technological skills and digital literacy (Jiménez, García & de Ayala, 2016). Mayes and Freitas (2013) suggest that there is a need for educators to engage with the new opportunities learning that the internet offers in order to design learning activities which allow learners to engage not just as receivers of information but as co-constructivists of their learning.

Some writers note that not all learners are equipped the necessary digital skills to engage in digital learning. Thanaraj (2012) for example developed digital literacy in students using e-portfolios. The process of creation and the skills required to maintain these e-Portfolios are quite involved and so support materials were created in the form of online videos to ensure that learners had points of reference for their digital learning. Shahriar, Pelesverger, Zafar, Bailey and Johnson (2016) proposed the concept of digital badges as a way for students to be engaged in digital learning.

The role of digital technology in the provision of career and labour market information

The use of labour market information (LMI), in an effective career development process, has been enhanced by digital technology particularly in terms of the quantity of information widely available (Bimrose, Wilson, Barnes, Owen, Li, Green, Bosworth, Millar, Holden, Attwell, Rustemeier, Elferink, and Higginbottom, 2015). However, the quality of this information could be found to be variable as resources need to be found carefully, be selected using clear criteria and deployed by counsellors with professional knowledge and skills . The internet and digital technology have changed the way labour market information is being dispersed, and improved the flow of labour news around the world, potentially creating a new international workforce; to organise workers over the web outside of workplaces; and provide access to new career opportunities that would not have been available without the internet (Freeman, 2002).

Digital career management skills

Digital career management skills have evolved from the concept of digital career literacy, introduced by Hooley (2012), who suggests that the internet is shifting the context within which individuals pursue and develop their careers. He introduces the internet as:

- A careers library through which individuals can search and source information.
- A marketplace where individuals can find and apply for opportunities in learning and work.
- A space for establishing and maintaining contacts and networks.
- A media channel through which individuals can raise their profiles and manage reputations.

To take advantage of the career opportunities the internet offers, individuals need to develop their digital career literacy to research, to make contacts and to build a positive professional reputation. Hooley sets out a framework of seven competencies; The seven C's of digital career literacy:

- **Changing** - the ability to understand and adapt to changing career contexts.
- **Collecting** - the ability to find and retrieve career information.
- **Critiquing** - the ability to evaluate, analyse the provenance of and assess the usefulness of career information.
- **Connecting** - the ability to make contacts, build relationships and establish networks online that support career development.
- **Communicating** - the ability to interact across a range of different platforms, to understand the 'netiquette' of different interactions and to use them in the context of careers.
- **Creating** - the ability to create online content that represents your interests, skills and career history.
- **Curating** - the ability to develop, review and edit your online presence.

There are multiple online courses to develop digital career management skills, this is also apparent in many university courses and additional workshops that students can attend. As the digital world grows it is essential to adapt alongside it and evolve digital skills to stand out in the job market. This is as true for career development practitioners as it is for their clients.

The future of work and digital skills

There are constant new developments in career opportunities for individuals to undertake. In this digital age, jobs in the GIG economy¹ and deriving income from becoming a social media personality are becoming more prevalent. A good example of this is the 8-year-old millionaire YouTuber, Ryan Kaji (Ryan ToysReview), who, according to Forbes (2018) was listed as the highest paid YouTuber, bringing in \$22m of revenue. This audio-visual space has become a lucrative career path which has mainly been adopted by adolescents. A recent report from Ofcom (2017, p.85) found that YouTube is the content provider which the highest proportion of 12-15s say they 'ever' watch (85%). It also found that 45% of 8-11-year olds and 43% of 12-15 years olds use YouTube to help them find out about things that they are interested in however, it must be considered that this platform may not be a realistic career for most individuals as there is little reliable career and labour market information regarding the type of skills and knowledge needed to navigate the complex world of social media influencers. Deriving an income through podcasting is another new career which requires technological skills which have not been needed in previous more traditional careers. The term "podcasting", introduced in 2004 by the BBC journalist Ben Hammersley, is a term to describe the phenomenon of production of audio content and publishing this on the internet using specific software (Bonini, 2015).

It might be said that career practitioners may not know extensively about these roles, may not know how to guide a person to develop their career in these areas and may focus instead on traditional careers because they lack the knowledge about these new roles. Career development practitioners are required to be impartial in the service that they provide to their clients and these new careers which use online technology to create popular content may appear precarious and difficult to 'get in to'. Consequently career development practitioners may not include information about these careers during the conversations which they have with their clients. However, there are millions of media influencers worldwide, and some of these create revenue that can be considered a sustainable income (Burgess, Green, & Rebane, 2016).

NatCen have defined the gig economy as a means by which individuals and companies exchange labour for money and which is highly dependent on the use of digital platforms that actively facilitate matching between providers and customers (Department for Business, Energy and Industrial Strategy 2018). The NatCen Panel found that approximately 2.8 million people or 4.4% of the population in Great Britain had worked in the gig economy in the last 12 months. Over half of those involved in the gig economy (56%) were aged 18 to 34 compared to 27% of

the sample population. The length of involvement in the gig economy varied, but those involved tended to have started providing services through apps and websites with 38% indicating that their involvement had been in the past six months. Nearly a quarter (24%) had been working in the gig economy for between six months and two years. Just 14 per cent had been involved in the gig economy for more than two years. This frequent involvement (at least once a month) was present in 55% of those working in the gig economy and 9% of people reported that they were involved in the gig economy daily, 14% at 1 to 3 times a year, and 14% said their involvement was a one off. The median income was £375, forming a small proportion of most gig workers' annual income (Department for Business, Energy and the Industrial Strategy 2018).

A central challenge for policy-makers is how to provide more opportunities to enable those who are working in the gig economy, due to a lack of choice or decent alternative offers of employment, to develop the skills they need to find higher-paying or better-quality work. Overall, the survey suggests the demand for future skills development is high, with 57% of gig economy workers and 64% of other workers believing they will need to develop more skills or take part in additional formal training or learning during their working lives. Younger workers are particularly likely to think this is the case, with 74% of workers aged 18–29 reporting they will need to develop new skills, compared with just 35% of workers aged 60–70. The RSA found that young people (aged 16-30) are particularly attracted to the idea of gig work – one in four said they would consider some form of it in future.

The age population undertaking gig work are predominantly young, with over half of those involved in the gig economy (56%) aged 18 to 34. This signifies that those who may be starting further education or who have just left the education system could be part of this population who are gig workers, career development practitioners could therefore inform students on how and where to advertise themselves to secure the most interest in what they are offering.

As gig working is becoming more popular, it is important for career development practitioners to consider this as a valid option for their clients and they should understand the roles and skills required. However, it is not clear whether career development practitioners have this essential level of digital literacy to advise others on these roles. It is more important than ever that career practitioners hold the required digital literacy to perform their roles effectively.

Developing digital skills for the delivery of career development

The Careers Profession Task Force (2010) recommended that initial training for career development practitioners and opportunities for continuing professional development should address, amongst other things, information and communications technology (DFE, 2010). However, in the nine years since this research was published, many of the changes which were imagined have been realised and we are now confronted with a new range of challenges. Kettunen, Sampson Jr and Vuorinen (2015), note in research conducted in Finland and Denmark that career development practitioners located the competences required to use social media to deliver career development services fall into four categories:

- An ability to use social media for delivering information with an emphasis on understanding the operation of technology for delivering information.
- An ability to use social media for delivering personal career guidance with an emphasis on using technology as a means of communicating.
- An ability to utilise social media for collaborative career exploration with an emphasis on the use of technology teaching and learning and amongst group members.
- An ability to utilise social media for co-careering with an emphasis on the use of technology to enable group members to share and develop common understandings and solutions to career development problems.

In order to operate across all of these inter-related areas of practice, career development practitioners require a combination of competences across cognitive, social, emotional and ethical factors.

Moore and Hanson (2018) in research across five European countries found that the area which career development practitioners most wanted training in was developing and using digital technologies to support career learning and development. The same research noted that participants preferred to receive their training through face to face training providing practical activities aimed at sharing practice and through e-learning through MOOCs and platform-based activities. Whilst these approaches were not exclusive to the delivery of digital skills, it is indicative of the approaches which are generally favoured.

This research explores how the sector has responded to the changes which have happened in the provision of digital and communications technology and how members of the sector are

innovating, imagining their future practice, driving development and developing the skills which they need.

The development of a sector wide digital strategy

The CDI launched its digital strategy in January 2018. Currently, there is no clear understanding of the career development sectors current use of digital solutions or of the training needs of the workforce. This research has therefore been established to develop an understanding of how practitioners and managers in a range of settings (Schools, colleges, universities, community settings, and companies offering and supporting career development activities) currently use digital technology to deliver their services; explore the potential for digital technology to deliver career development services; identify the training needs of practitioners so that they can use digital technology to deliver services and innovate solutions and solve problems in service delivery.

This research is one of the first activities which underpin this strategy. It is important that the CDI understand how practitioners are using technology and what it's potential is for practice so that they can review the standards, code of ethics and training and development provision so that it is fit for purpose in this new digital age.

Summary

The review of literature sought to explore the evidence for the potential of digital technology to deliver career development interventions. It also sought to determine what processes were required to ensure that career development practitioners could exploit this technology to improve their practice

The literature suggests that the use of digital technology to deliver development interventions is not without contention. Whilst some note that the internet provides an un-precedented opportunity to engage with those seeking career development in new and innovative ways, there is some concern by others that basing career development interventions entirely on digital technology could reinforce some aspects of social inequality. Not all service users have access to digital technology or the internet or have the skills to use them. This means that digital technology can only be part of the story when developing client facing services. Furthermore,

not all career development practitioners have the knowledge and skills to utilise digital technology in an effective way. The implications are three-fold:

1. Career development practitioners need to be able to engage critically with digital technology and the applications which it offers to provide effective and appropriate personal career guidance and career teaching and learning interventions.
2. Career development practitioners need the knowledge and skills to use technology and develop resources, materials and approaches in new and innovative ways.
3. Career development practitioners need to work with other educationalists to ensure that service users develop the digital skills required to manage and enact their careers using digital technology and applications.

The need to embrace digital technology to deliver career development is not new and was set out as an area that needed to be strengthened as long ago as 2010. The Career Development Institute recognises the need to develop the career development sector's competency in the use of digital technology to deliver career development and have set out a national digital strategy. There has been little research in the UK to determine the extent to which career development practitioners are using technology to deliver career development, the skills which they have or the training needs which need to be recognised and met. The following sections explore these issues in further detail.

Methodology

The project uses a mixed methods approach which includes data gathering using digital technology, as well as more traditional methods of data collection such as interviews and focus groups. The project involved several inter-related phases including:

- A rapid review of literature.
- A survey of 205 career development practitioners across the UK. The survey was based on that created by Jisc (a UK organisation which supports organisations to develop their digital capabilities).
- Focus groups and telephone interviews with 14 career development practitioners from England, Scotland and Wales (Despite best efforts the researchers failed to recruit career development practitioners from Northern Ireland to participate in the research as focus group participants).

A table setting out the demographics of the research participants can be found in Appendix 1.

Data was analysed using two approaches. Survey data was analysed in Excel. The responses from survey participants which indicated that a participant either agreed or strongly agreed were conflated to provide a record of positive rather than negative responses. Open text boxes and the detailed notes taken from interviews and focus groups were analysed thematically beginning with the research objectives and then creating sub codes which were used to group responses together to create emerging themes. The coding schema can be found in Appendix 2.

The methodology for this study was not without its limitations. One limitation related to the self-selection approach to identifying research participants. Relying on a convenience sample can introduce bias and it is quite likely that this was the case with this study as individuals who had more of an interest in digital technology may have been more enthusiastic participants than those who were not. This would naturally bias the findings towards those who are already using digital technology in their practice and ignore the views of those who were less confident. The research endeavoured to gather data from the whole of the UK however, there were few opportunities to gather data from participants in Northern Ireland and whilst there were only 2 out of 205 survey responses from individuals in this part of the UK and no focus groups took place there. As career development is a devolved responsibility it is unfortunate that the views of Northern Ireland career development practitioners were not included however this does not invalidate the study as there is much

to learn from the responses of the other participants and the findings can be largely generalised.

A second limitation of the methodology is regarding the self-completion nature of the survey. Swain (2017) notes that some individuals may wish to give a good impression or try to be helpful when completing a survey and this may distort their answers. In the case of this research, it is possible that individuals both self-selected and answered the survey questions in such a way as their intention was to be helpful however there was no coercion and individuals were free to leave the survey at any stage once they had understood the nature and content of the questions. Partially completed responses were removed from the data as were any responses which included responses which suggested there was a lack of serious intent or those from outside the UK. Individuals were asked for demographic data however they were only asked to volunteer their names if they wanted to be involved in focus groups. In this way individuals were able to preserve their anonymity thus reducing the need for individuals to try and improve the views of the researchers of their own capabilities. These strategies were adopted to try and improve the validity of the data and thus the findings of the research.

The research methodology was submitted for ethical approval by the University of Derby's ethics committee and the process of scrutiny ensured that the tools and approaches were valid and founded in good ethical research practice.

The final report will be shared widely and used to inform the development of the CDI's digital strategy. The following sections set out the research findings.

Using digital technology to deliver services

Introduction

This section sets out the research findings in relation to the current use of technology in delivering career development services. The research found that technology was used in two main ways:

1. To deliver services - directly with clients
2. To manage the activities of practitioners and the organisations that they worked for.

This finding is significant for practitioners themselves, those that set out the standards which career development practitioners demonstrate and for those that employ them. Career development practitioners are required through the CDI code of ethical practice (CDI 2019) to maintain their knowledge and skills through continuing professional development and this applies to professional career development skills and the wider skills needed to innovate and develop practice such as digital skills. It could be argued that those tasked with supporting the development of professional practice through initial and continuing programmes of professional development have a responsibility to ensure that practitioners have the skills to deliver career development services using digital technology. Finally, it is a responsibility of those employing organisations who mandate the use of business applications to ensure that their staff are competent to do so. The following sections explore these themes in more detail.

Delivering service to clients

Seven out of the fourteen focus group participants noted that the introduction of digital technology had made them more efficient and the delivery of their services more cost-effective. There were several reasons for this:

- Being able to access work platforms and resources removed the need to travel back to office bases because remote access allowed the completion of administrative tasks where the practitioner was working.
- Working with clients in rural and isolated areas can prove difficult in terms of meeting clients face to face and digital solutions helped to resolve this. This is because more clients can be seen remotely than when practitioners must travel to see them.

Digital solutions were used in a variety of ways to support both personal guidance (for example communications technology such as email, video calling and webinar technology) and for teaching and learning activities (for example presentation software, collaborative platforms and social media). Research participants indicated a variation in their confidence in the use of digital technologies across a range of aspects of their work. Practitioners are confident in their ability to use devices and many software applications however are less confident about creating digital content, writing for social spaces, and using digital technology in their teaching and learning practices. Career development practitioners are also less confident about managing their own online identities. Practitioner confidence is addressed in more detail later in the report.

Personal guidance

One of the most frequent uses of digital applications to support personal guidance was Skypeⁱⁱ with three focus group participants indicating that they used this application regularly and in one instance, Skype was also used to provide mock interviews (interview practice). In one case a practitioner noted that the interview rooms which they used were all enabled with the hardware and software needed for this type of intervention. This is an important factor for organisations to consider if they are to adopt this technology to support their personal guidance provision. Whilst using Skype is a useful addition to the practitioner's toolkit, it does not suit all practitioners and is used to different extents.

Email was noted as an alternative to face to face or telephone personal guidance as it is seen as providing a service which is less immediate and can be accessed over a period of time at a client's pace. One practitioner noted that email was also popular with disabled students for these reasons.

Social media is a growing phenomenon and career development practitioners are increasingly utilising social media to engage in new ways with their clients. The research found that on a one to one basis, digital technology was used innovatively to support Curriculum Vitae (CV) development with 'virtual' or 'video' CV's growing in popularity. One practitioner noted that LinkedIn profiles were also gaining importance as an alternative form of CV and that they had been offering to review clients LinkedIn profiles in the same way that they offered a CV review service as part of their provision. This practitioner noted that their client information system has been adapted to record LinkedIn reviews as a separate intervention which can now be recorded and tracked in the same way as the number of CV reviews can be monitored. This may be an important adaptation for organisations wishing to capture these new types of intervention. Further to this, as Kettunen, Sampson Jr and

Vuorinen (2015) note, the use of social media requires new skills and knowledge and the sector will need to respond appropriately to ensure that career development practitioners are equipped to work in new ways with social media.

One redundancy worker noted that their organisation had begun to consider the use of chatbots to provide initial advice to individual clients. This is an interesting idea however it may raise some important ethical issues such as the impartiality or client centredness of this type of intervention. It will be important for the CDI to take notice of this growing phenomenon and explore the ethical issues associated with this development and set out a response to this ethical challenge.

Pedagogy

Technology is used to create spaces for discussion and sharing information. The social media applications Facebookⁱⁱⁱ, LinkedIn^{iv} and WhatsApp^v were all used as a means of generating discussion and for sharing information within specific groups.

Technology is used to deliver small, facilitated group work sessions. This is usually done using webinar technology including such applications as Blackboard Collaborate^{vi} (in Higher Education (HE) settings), or Adobe Connect^{vii}. Several practitioners noted that online technologies allowed the incorporation of online, interactive polling technology such as Mentimeter^{viii} or Turning Point to aid learner engagement.

Technology is also the topic for some taught sessions. One HE practitioner had delivered a LinkedIn boot camp for students reaching the end of their courses to help them develop a positive, professional, online presence. Several practitioners ran sessions of managing online identity. Whilst it was not clear from the research what teaching approaches were used to deliver this type of activity it is clear that teaching and developing digital career management skills are becoming standard practice for some career development practitioners. This demands not just a knowledge of digital applications by career development practitioners, but active use and engagement with digital media and the development of the appropriate knowledge and skills to do so effectively.

Using digital applications to provide career and labour market information

Digital applications are used both to identify, locate and curate information but also to provide and present labour market information (LMI) in new and innovative ways for example

by creating and sharing video and podcasts, to create engaging presentations, and infographics, and writing for social spaces.

When signposting clients to sources of information, practitioners were more likely to do this using online resources and websites. It is not just the provision of information through the written word however, and practitioners noted that they regularly signposted clients to YouTube^{ix} and TED^x videos and LinkedIn learning for additional help.

Identifying, locating and curating information

Most practitioners used online searches to identify sources of information to use during their practice. HE practitioners noted that this helped them particularly when providing guidance to international students whom they were able to advise about opportunities in their home countries. The internet was also a good source of information about Visas and other travel issues. Many practitioners spoke of having a 'stock' of online sources which they regularly referred to such as Graduate Prospects, redundancy services, Citizens Advice or sector specific websites. One HE practitioner spoke of webinars that he had used to update his career and labour market information knowledge and had found this useful.

Providing and presenting information

Practitioners spoke of several approaches to providing information, for example using virtual reality software to provide virtual job fairs and volunteer events, through to using different types of presentation software such as Powtoon^{xi}. Infographics is a developing area of interest and several practitioners spoke of using infographic software such as the free application Piktochart^{xii} or Camtasia^{xiii} for video making.

Using information to support personal guidance interventions is still an important feature of most practitioner's work. One practitioner spoke eloquently of the power of using online information:

"The core of my practice is personal guidance but there are times when it is powerful to refer to LMI and to do this online. It can help people think about the reality of a role. The websites often have short videos which can give more insights into a role and can challenge preconceptions."

Higher Education career development practitioner

Promoting career development services

Practitioners noted that they were using social media and websites to promote the services which they were providing across all irrespective of the part of the sector in which they were operating. The approaches varied from listing opening times to creating video animations and client case study 'talking heads' videos to encourage redundant workers to seek help. These approaches are a useful way of appealing to different information needs and styles. One practitioner noted the use of Microsoft Office 365^{xiv} application 'SWAY' which they used to create web-content which was an eye catching, appealing and effective way of telling students about the personal career guidance interview and how this differed from a standard student support interview.

Using digital technology to support professional activities

Using digital applications for networking

Focus group participants spoke of using social media for networking and for updating themselves on current issues. This was largely limited to two applications: Twitter^{xv} and LinkedIn. Many noted their participation in LinkedIn interest groups to support their practice. Practitioners enjoyed the opportunity that social media provided to network with those outside their organisation. Practitioners select specific people to 'follow' whom they think are attuned to their own interest areas and are knowledgeable.

Some practitioners noted that their organisations gave a lead on which social media channels to use and had set up corporate Skype for Business accounts, Yammer^{xvi} and Trello^{xvii}. There was also a growing move towards Microsoft Office 365 application 'Teams^{xviii}' for supporting team networking and document sharing.

One organisation noted that they had a 'virtual meetings' charter which required all meetings to include the opportunity for people to join the meeting virtually.

Social media platforms provide practitioners with a range of networking options. Practitioners spoke of targeting specific groups using social media, for example one redundancy worker spoke of using LinkedIn to identify managers in businesses where media coverage had suggested that a firm was experiencing difficulties and whom might wish to offer their employees support.

Another popular way of using media for maintaining networks was by being on mailing lists to receive updates and intelligence.

Using digital applications to manage business

Digital technology is now an option for managing a range of business functions. Practitioners use:

- Data bases and spreadsheets to plan and monitor performance.
- Client information systems to record interventions.
- Microsoft products such as Word, Excel and PowerPoint and Project^{xxix}.
- Office 365 applications such as SWAY, TEAMS and Yammer.
- Skype and webinar technology to manage meetings.
- SharePoint One Note and Google Drive^{xx} for collaborative working and file sharing.
- Adobe Spark^{xxi} for creating newsletters.
- Yammer for maintaining communication between team members.
- Eventbrite^{xxii} for managing events.
- Barcode scanners to monitor attendance at lessons or sessions in schools, colleges or universities.
- Apps to manage and record the time spent on different projects.
- Global positioning system technology (GPS) and other navigational tools to plan journeys.

This represents a large pool of expertise and indicates the direction of travel in terms of business management. There is clearly a responsibility for employer organisations to ensure that their staff are trained to use these applications where their use is a requirement of people's jobs. That said, the CDI has a role to play in supporting innovation in the delivery of services and therefore this may be an opportunity for the provision of continuing professional development (CPD) in the use of a range of applications. This will be explored further in later chapters.

Summary

The research sought to determine the extent to which digital technology could be used to deliver career development services. Technology is increasingly used to deliver services to clients however, this is not the only way that practitioners and their organisations use digital technology. Applications are used widely to manage various aspects of work and practitioners noted that this is making them more efficient and cost-effective in delivering their services. Digital technology enables practitioners to work remotely and enable services to be delivered to clients who would otherwise be unable to access them due to their remote

location. However, some practitioners noted that technology was not always the best solution and its use depended not only on the skills and confidence of the practitioner but also of their clients.

Technology is now being used to deliver both personal and group guidance through applications such as webinar technology and communications technology such as Skype. One interesting finding has been that the importance of creating the correct visual spaces for this type of activity which are equipped with the necessary technology. This helps to improve the experience for both clients and practitioners and a requirement of any organisation who expect this type of technology to be used to deliver services.

The research notes the growing use of LinkedIn as an online alternative to the traditional CV. This is an interesting finding with implications for practitioners who now need to be fully versed in the use of LinkedIn, not just for their own use in promoting their online presence but so that they can support their clients to develop their own. The competent use of LinkedIn therefore emerges as a training need for many practitioners and will be covered later in this report. LinkedIn is not the only social media platform which career development practitioners are using and as Kettunen (2015) notes, social media is a growing phenomenon which can be used for a range of career development activities and requires specialist and new skills to use effectively.

The development of chatbots to deliver career development interventions does raise some ethical issues, particularly around the ethical stances of impartiality and the client focused nature of career development services. This is an issue which the CDI need to consider and incorporate into the framework of ethical guidelines and support materials which they provide.

The research shows that some practitioners are developing their confidence in using a wide range of applications for delivering career and labour market information. This includes signposting to information sources, and the presentation of information. Nine years after the Careers Profession Task force noted that career development practitioners needed to improve their use of digital technology to deliver career development it seems that practice is responding. Practitioners are also using technology to manage their business. This includes for the purposes of developing their networks and managing and promoting their services. The use of digital technology is not however uniform, and the research finds that not all career development practitioners are enthusiastic about all applications and are in some instances resistant to some ways of using digital technology in their work.

The recommendations which have emerged through an analysis of how practitioners and organisations are using technology are:

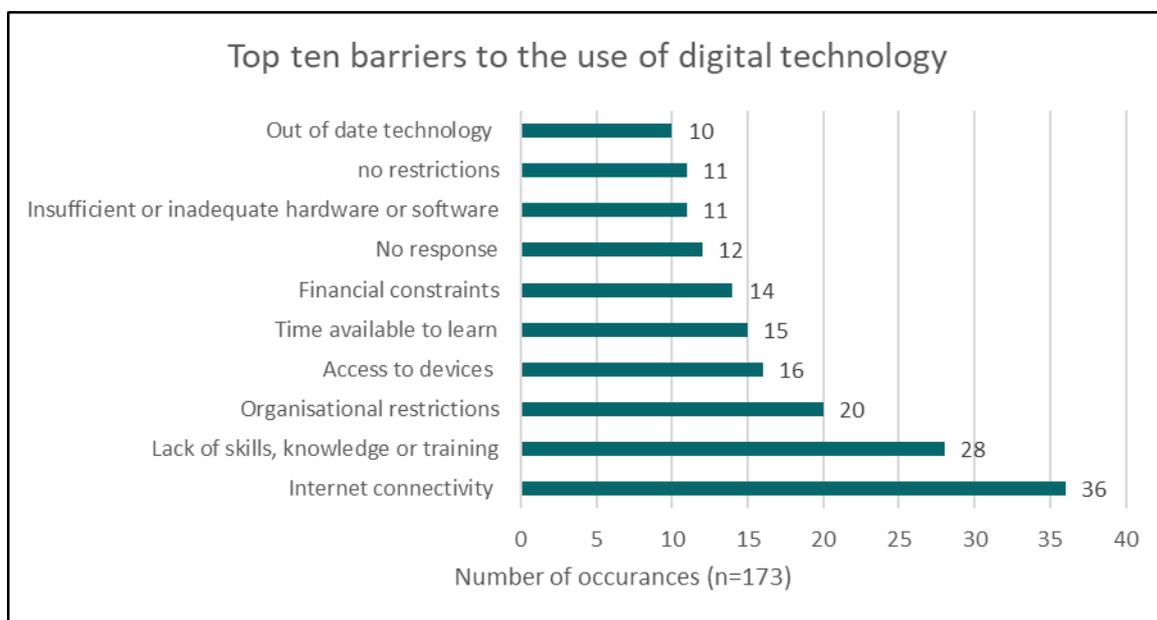
1. Organisations including the CDI should
 - Provide equipment and surroundings which are suitable for the delivery of career development and business interventions using digital technology.
 - Engage in conversations about the training needs of their staff so that they are fully able to use the digital technologies required of them
 - Develop meeting charters which encourage individuals to use digital technologies to participate.
2. The CDI should specifically
 - Review the framework of ethical guidelines and support materials which they provide to ensure that the ethical tensions introduced by the use of Chatbots to provide personal career guidance are represented.

The barriers and enablers for the use of digital technologies

The barriers to using digital technology

Practitioners were asked to describe the main barriers to using digital technologies in their roles. Figure 1 below shows the survey participants top 10 most frequently cited barriers and indicates the most frequent barrier is around internet connectivity. The second most cited barrier is a lack of skills, knowledge or training.

Figure 1: The top 10 barriers to the use of digital technologies



Focus group participants elaborated on the barriers.

Connectivity and technology failures

Practitioners noted that they often felt personally responsible for technology failures as it felt like a reflection of their own practice. Whilst this is a global problem, organisations need to have the infrastructure in place, such as help lines and chat bots to help staff deal immediately with technology failures. This was particularly prevalent in rural and isolated areas where practitioners are often reliant on tethering^{xxiii} which can be unreliable. One practitioner operating in a rural setting noted:

“The impact of technology failure puts you off. If you meet someone face to face, there is no risk other than them not turning up. If the technology fails, you can both

be there are at the right time but still not be able to interact effectively. This damages your confidence. You feel personally responsible”.

Self-employed practitioner working in a rural and isolated setting

Lack of competence to use digital technologies

There was a recognition that practitioners needed ‘to move with the times’ and be supported to try new things. One practitioner noted that technology offered the opportunity to breathe new life in to established, tried and tested approaches. A negative mind-set was often described by the participants as the main barrier. One Higher Education practitioner noted that they had heard someone say, ‘Why would I use Teams when I can use a post it note?’

That said, several practitioners noted that they had low confidence in the use of digital technology. This was often related to the age of the practitioner. The older the practitioner, the more likely that they are self-taught, and one noted

“It wasn’t there when I went to school. It wasn’t part of our daily lives.”

Higher Education practitioner

Most research participants noted that to become confident in new technology required time, although practitioners involved in the research had at least one Smart phone and had become competent in the use of these in a variety of ways, for example making calls, checking emails, using social media accounts and online shopping. Whilst many were excited by the introduction of digital technologies, many felt frustrated that the time needed to become confident and to explore the potential of the technology was often lacking and this impacted on their ability to innovate.

The ability of clients to use digital technology can also prove to be a barrier to its use. One practitioner noted that if a company wanted to move towards using digital technology as its main mode of delivering career development services, it was incumbent on the organisation to ensure that its service users could use the applications as well as providing training for the practitioners.

Organisational restrictions

Where organisations are working across several Local Authority areas their employees find that because each might have a different policy on the use of digital technology they recommend specific software solutions to schools. This means the provider organisation

must adapt to each approach rather than being able to use one solution across all the schools or colleges which it might work in. This was particularly the case in Wales where staff from Careers Wales noted that there were 240 different schools, and each had its own policy on using digital technologies. As a result, Careers Wales is using the 'Wales-wide' hub to deliver and support career development services. Although this remained a good option for schools, the colleges in Wales did not all use the Hub and this meant that there is a lack of consistency across all phases of education. A further implication for this type of approach is that it can result in practitioners having to use multiple emails, for example a Careers Wales practitioner noted that they had a Careers Wales email address and a Hub email address and keeping track of these was proving difficult.

Some Local Authorities or schools block the use of social media and other digital applications by restricting the band width for the schools, or they may determine how much access to the internet is allowed. Some schools restrict direct access to the internet for pupils. These restrictions limit the ability of career development practitioners to engage with their clients using all of the options available to them.

Availability of and access to resources

The resources required to introduce and implement technological solutions are both time and money. The time required to embed new technologies is often not calculated to ensure that staff are fully confident to utilise both new hardware and software. Some participants noted the need to interrogate the use of digital technology and ensure that the cost benefits of using it outweighed the disadvantages. One participant noted that a move to using predominantly digital approaches needed to be managed carefully so that it was done with quality and resources, not just for infrastructure but for the training and confidence development that was required to make it effective.

One self-employed participant noted the cost of keeping abreast of digital advances and spoke of their willingness to pay for training if it was going to have a marked impact on their ability to deliver their services.

Ethical issues

There are two ethical issues which emerged during focus group conversations. The first was a frustration expressed about the tensions posed by policy makers and strategists who wish to digitise all services without understanding the digital literacy of the clients and staff who

would use services. The implications are that career development services should still be available in range of formats and approaches. This issue requires a response by the CDI who should set out the implications of the insistence by some policy makers on the use of digital technology as the main mode of delivery of career development interventions.

The second issue was the rapid rise in the use of virtual assistants such as ‘Alexa’ ‘OK Google’ and ‘Siri’. Practitioners were concerned by the lack of knowledge about how data was used by the organisations behind these assistants and the potential for these devices to ‘listen in’ to activities which were taking place in their presence.

“I steer away from digital assistants. Not comfortable with the data that these things collect.”

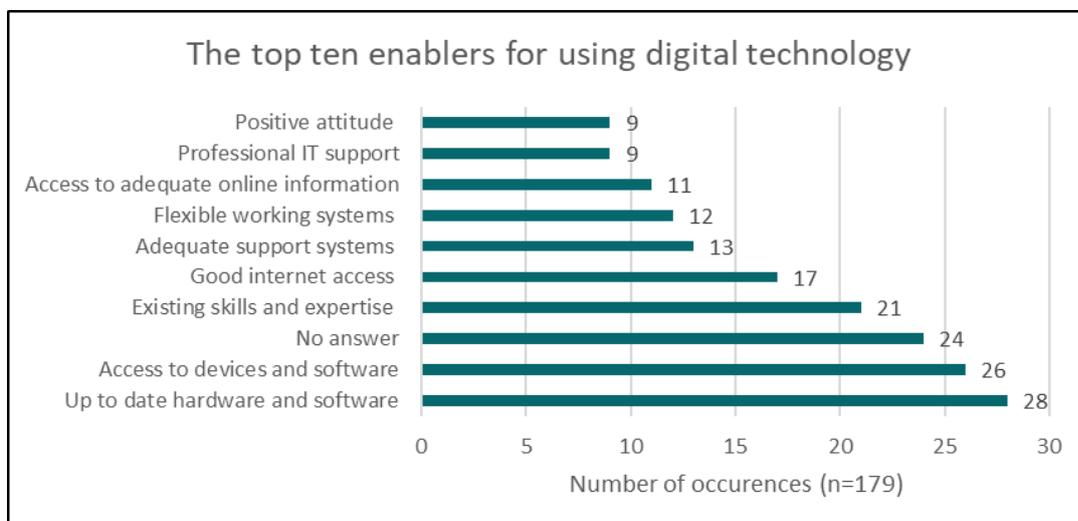
Higher Education career development practitioner

The latter issue has been largely fuelled by media coverage, which suggests that privacy may be compromised through the presence or use of voice activated digital assistants. This is an ethical issue which the CDI need to address as this has the potential to compromise the ethical requirements of confidentiality.

The enablers to using digital technology

Figure 2 below shows the top 10 enablers to the use of digital technologies provided by the survey participants. The responses indicate that access to up to date hardware and software is the most cited enabler to the use of digital technology.

Figure 2: The top 10 enablers for the use of digital technologies



Focus group participants elaborated on the enablers to the use of digital technologies.

The provision of hardware and devices

The provision of a variety of devices is seen as a benefit to practitioners and particularly those who are working remotely. Focus group participants noted the use of Smart phones, laptops, and tablets which could be used to access the internet either through tethering or using SIM Cards^{xxiv}. These are advantageous to practitioners and are considered a means by which they develop confidence and engage in innovative practice.

Skills and expertise

Participants noted that there was increased focus on new recruits across all elements of career development delivery and support having digital competences. One HE career development practitioner noted that having strong digital skills could now be the deciding factor in whether someone was recruited to a post.

Two organisations (one a university and one a company providing career development services to a range of individual clients and education providers) had recently employed specialist members with a careers background who also had an interest in the use of technology to develop new approaches to the use of digital technology to deliver services. Other organisations had identified digital champions to provide support to team members. A further careers specialism is in the development of materials and approaches for websites and social spaces.

One participant noted the need to amend job descriptions of staff on an annual basis to include digital skills. This would ensure that digital technology became integrated into professional activities. They noted:

“They need to weave it into your job description. Maybe asking in an annual review ‘what use have you made of digital technology this year’? It is about communicating an expectation that this becomes part of your guidance toolkit.”

Higher education career development practitioner

This may be an issue which all organisations delivering career development services need to consider and one which the CDI could take leadership of. This may involve supporting the review of the national occupational standards and the learning outcomes for the Qualification in Career Development to ensure that digital literacy is visible. It may also involve providing

guidance to organisations who are introducing requirements for digital skills into job descriptions.

Organisational strategies and practices

One focus group participant noted that their organisation had a visible digital skills strategy which ensured that all students have access to training in core digital skills and access to specific discipline specific digital skills. All departments must have a digital element to their programmes. This includes careers work and has implications for the digital competence of career development practitioners.

Use of digital technology means that practitioners are more flexible, able to work from a wider range of delivery points and can work from home. The latter improves the work life balance of practitioners although one noted that it can sometimes be *'hard to turn off'*. One participant noted that the organisation which they worked for had developed a 'home working' policy to support staff.

Summary

There are significant positive reasons for using technology to deliver career development services, however, there are several barriers which affect the ability of career development practitioners to the use of technology across the range of functions required in a contemporary and future focused career development sector. Some of these barriers are beyond the control of practitioners, such as school's policies on the use of social media or the need to work across several local authority areas each with different policies, platforms or approaches. There may be a role for career development organisations or members of Career Hubs or Local Enterprise Partnerships to address this at local or regional levels.

There are some barriers which have a direct impact on the behaviours of practitioners. Many spoke of the feeling of helplessness or responsibility when technology fails. Not only does this have an adverse impact on practitioners' sense of well-being and professionalism, this can also impact on the confidence that clients have in the career development system. One way of overcoming this is to have immediate support available for practitioners who use technology in their practice through well provisioned 'help desks' which could be accessed through telephone or messaging services.

The second most cited barrier is a lack of skills, knowledge or training. Writers for example Morris and Stommel have noted the need for training so that career development practitioners can develop the knowledge and skills required to use digital technology appropriately in educational settings and Beetham and Sharpe remind us that the effective use of social media within a career development context requires new knowledge and skills if it is to be used effectively. This can be addressed through the provision of a variety of initial and continuing professional development opportunities, both face to face and online. This is a shared responsibility between individuals, local and regional providers and national organisations including the government and the CDI. This will require a review of, and commitment to, the resources required to 'upskill' the career development workforce. This is discussed further in later chapters.

There are several ethical issues around the use of technology in the career development sector and these will need to be addressed by the CDI. These are:

- The movement towards digital technology as the preferred approach to delivering career development interventions which may prove to be a barrier to access for some clients if they have neither the skills nor digital hardware to access these services. The use or presence of digital assistants in the personal career guidance space and their potential to breach the requirement for client confidentiality.

There are a number of enablers to the use of digital technology in the career development sector. The most regularly cited are the provision of, and access to, devices and software. Of course, where organisations provide such resources and there is an expectation that these will be used, there is a similar requirement to ensure that staff are trained to use them. One interesting idea which emerged was that some organisations are now incorporating the need for digital skills when recruiting new staff and there may be an opportunity for the CDI to provide support through the provision of guidance for organisations who wish to do this.

There is a willingness by practitioners to improve and develop their use of technology but there are issues which this research raises which will need to be addressed if they are going to be able to maximise the benefits that technology represents. The recommendations which have emerged to address these barriers and enablers are:

The CDI should

- Develop a position statement which sets out their stance on the provision of a range of approaches to engaging with and addressing the needs of a wide range of clients.
- Explore the ethical issues raised by the growing use of virtual assistants and incorporate this into the code of ethics possibly as a case study.
- Support the review of the national occupational standards for Scotland, Northern Ireland and Wales, The Blueprint of Learning Outcomes for Professional Roles in the UK Career Development Sector (CDI 2016) and the learning outcomes for the Qualification in Career Development (CDI 2019) to ensure that these standards reflect the emerging requirements for digital skills and know how.
- Develop some guidance for organisations who wish to improve the digital skills of their work force through their job descriptions.

Issues around the provision of training and development will be addressed in later chapters.

Digital competence

The following sections set out the research findings using the digital capabilities based on those produced by Jisc, the UK organisation which supports the development of digital capabilities in the higher education sector. The section explores the confidence that those working in the career development sector have in each area of competence. The data finds that research participants indicated that their confidence was variable across and within all the areas of competence. For example, research participants indicated that whilst they were confident in Digital productivity and proficiency skills, they were less confident in contributing to Blogs and public webpages. Whilst information, data and media skills were strong, career development practitioners were less confident when it came to producing eye catching and engaging content. Although career development practitioners are enthusiastic about using digital technology in career learning interventions, this was usually restricted to using web-based information and social media for delivering information rather than engaging with the full range of digital pedagogies.

Digital productivity and proficiency

This competence is defined as being able to demonstrate the confident use of devices, applications, software and services and the ability to stay up to date as technology changes (Moore 2018). This includes the confident use of devices, applications, software and services and the ability to stay up to date as technology changes. It also requires career development practitioners to use digital applications to carry out a range of tasks and problem solving.

The use of devices to manage work and life activities

The survey responses indicate that the majority (131 individuals, 63.9%) agreed or strongly agreed that they find it easy to use new devices, updates and applications. Focus group participants indicated that they used a wide variety of devices in both a work and personal life context. The most regular uses for phones (other than for calls) were as a barcode scanner, a means of accessing information, as a navigational aid, and a source of entertainment. A variety of additional devices were used including:

- Tablet PC's
- Laptops
- USB sticks

- Barcode scanner

Participants reflected a general sense that organisations were moving away from fixed desk top PC's and were moving towards the use of devices which could be used flexibly and remotely. Applications for work included:

- Microsoft Outlook^{xxv} for emails task lists and for managing diaries.
- Microsoft Teams, Dropbox,^{xxvi} OneDrive^{xxvii}, SharePoint^{xxviii} or Google Drive^{xxix} for collaborative tasks.
- Client management systems.
- Social media applications such as LinkedIn, WhatsApp and Facebook.
- Data management systems such as EXCEL.
- Presentation applications such as Prezi^{xxx} or PowerPoint.
- Communication applications such as Skype.
- Reference software such as Reference Manager^{xxxi}, Endnote^{xxxii} or Mendeley^{xxxiii}.
- Video calling and conferencing using webinar technology.
- Lecture capture using applications such as Panopto^{xxxiv}.
- Applications for personal use included.
- Shopping Apps.
- Games Apps.
- Digital fitness Apps.

Noticeable is that some practitioners now use multiple devices to access some applications such as email. Participants reported a high level of confidence in using devices for basic activities, however, some were more experimental than others. Survey participants were asked a series of questions about their innovative use of technology and the responses indicated a low level of confidence in trying out technology for design (61 individuals, 29.8%) indicated that they agreed or strongly agreed that they did this. Low confidence was also the case for sketching or mapping out ideas (40 individuals, 19.5%) either agreed or strongly agreed with this.

Confidence in using new devices or software

Although it is empowering to give people new technology to perform their jobs, it is not without risk as individuals also need the time and support to understand how to use their new device confidently. A small number of survey participants indicated that they would be the first in their team to use a new application - 40 individuals (19.5%) either agreed or

strongly agreed with this. A practitioner from one organisation noted that colleagues had been given new devices but lacked confidence and the devices therefore stayed unused.

Some individuals are nervous of technology and are easily put off using a device if they encounter a difficulty, but it is not just about having the technological confidence. One practitioner noted that basic ICT skills were just as important as they often affected a practitioner's ability to apply some applications in a practice situation

"I have a few basic skills, but even my typing needs to be developed. This is a barrier when using digital solutions to communicate in a live situation."

Redundancy worker

Problem solving

The responses indicate a high level of confidence amongst the participants in trying to resolve technical issues themselves (131 individuals, 63.9%) either agreed or strongly agreed that they tried to do this. Furthermore, participants indicated that their confidence extended beyond trying to resolve hardware issues. Participants indicated a high level of confidence in finding short cuts and time saving using digital systems (124 individuals, 60.5%) either agreed or strongly agreed that this was the case. Additionally, finding alternative applications was a popular approach if they could not complete a task using the first application selected (166 individuals, 81%, either agreed or strongly agreed that they would do this). Participants were also asked if they had routines for backing up their files and again, 132 individuals (64.4%) indicated that this was the case.

Participants fell into four groups when it came to resolving problems that they had encountered:

Those who would have a go themselves to resolve a problem

A number of participants noted that they would try and draw on their own experience to try and resolve a problem with a device or application.

Using online sources of help such as chatbots, self-help videos or YouTube videos

Watching online self-help videos or using chatbots to gain answers to questions was a popular approach to problem solving.

“I watch YouTube, self-help videos, if you have a problem understanding something, it’s guaranteed someone else had the same problem and knows how to solve it. I go straight to YouTube.”

School based careers practitioner

Asking a work colleague or friend

Individuals feel nervous of being exposed as incompetent with technology and are more likely to go to a friend or colleague to resolve simple issues.

“I am pretty good at figuring things out. I will always have a go. If I can’t do this and I can’t find a ‘go-too’ person there is a lot of help online in related forums or YouTube clips.”

Higher education career development practitioner

People noted that they were less likely to seek help outside of work from an experienced person and would give up more readily in the use of personal devices and applications.

Asking for professional help

Participants noted that there was a definite order in which they would access help. If they were unable to resolve a problem themselves or through online help services, they would first go to a trusted friend or colleague and if this did not resolve the problem, they would access help from IT specialists.

Digital communication, collaboration and participation

This competence is being able to demonstrate the capacity to communicate effectively in digital media and spaces (Moore 2018). This includes the ability to use text-based forums, online video and audio, and social media; to design digital communications for different purposes and audiences. It also requires career development practitioners to be able to participate in digital teams and working groups and to collaborate effectively using shared digital tools and media (CDI 2017).

Organisational policies

Individuals working with organisations noted that company policies dictated how digital solutions were used for communication. In Wales for example, there is a dual language

policy so that all communication needs to be conducted using both Welsh and English. This could limit the spontaneity of social media communication as posts need to be planned in advance and translated prior to being sent out. Another participant noted the policy for creating a 'firewall' between personal and professional social media accounts and this presented a difficulty in that some platforms would only allow one account per email address. The outcome of this is that practitioners would choose one application for personal use and a different one for private use. The most popular form of communication was through email, but these could be emails directly to a practitioner or through a platform such as a hub or to group email accounts.

Using social media to communicate.

For the providers of career development activities to have a comprehensive policy on the use of social media is difficult because the extent to which communication through social media is acceptable can be affected by individual school, college or local authority policies. Social media are used to signpost clients to events and activities. This is the case for both self-employed and employed practitioners. There is a move to use some applications such as Facebook and Skype for live streaming of activities and events.

Some educational establishments have Twitter and Facebook accounts which are used for communicating with students and parents. There is variation between which platforms or applications educational establishments prefer.

Practitioners noted a distinct difference between the accounts and platforms they used in their professional roles (LinkedIn and Twitter) in comparison with those they used for personal use (Facebook). Video calling using applications such as Skype and WhatsApp were used for both professional and personal use.

Some practitioners expressed concern about using WhatsApp because of the need to protect people's privacy. One noted that there needed to be an administrator for each WhatsApp group, and this could also create problems if people moved on. The survey participants indicated that there was a high level of confidence in communicating with (messaging) an individual directly using social media sites (81% indicated that they agreed or strongly agreed that they were able to do this).

Whilst social media are a valuable tool to use to engage with people who are remote it can be difficult to time-manage and can result in time-wasting behaviour. There are applications which can be used to overcome this such as Tweetdeck^{xxxv} and Hootsuite^{xxxvi}.

Using social media to educate

Some practitioners noted that they were using platforms such as Moodle and Blackboard to develop and implement programmes of study. Higher Education providers are providing platforms and hardware for practitioners to use webinar technology to deliver content and interventions. Several participants noted the sites which they used for resources including Pinterest^{xxxvii} and blogs such as Outstanding Careers. When asked to respond to the question 'I regularly contribute to blogs or public webpages', only 32.25% of survey participants indicated that they agreed or strongly agreed with this statement.

Using social media to connect people in groups

Survey participants were asked about their level of confidence in undertaking webinars and other applications which can be used to connect groups. The results showed that 69.7% of participants either agreed or strongly agreed that they were comfortable taking part in online meetings for example using webinar technology.

Using technology to collaborate

In some organisations, particularly higher education providers, there is a move to use Microsoft teams for collaborative working to replace shared drives, emails and social media groups. Survey participants were confident in using these technologies, with 153 individuals (74.6%) agreeing or strongly agreeing that they found the use of applications for collaboration effective in supporting their team work.

Information, data and media literacies

This is the capacity to find, evaluate, interpret, manage, curate, organise, analyse and share digital information and data. It requires the ability to apply copyright laws and creative commons licensing.

Information literacy

Survey participants indicated a high level of confidence in assessing the quality and validity of online information. When asked if they had a range of strategies for judging the credibility of online resources, 150 individuals (73.2%) either agreed or strongly agreed with the statement. Focus group participants were able to provide examples of the strategies which they adopted. Two practitioners referred to the process they used to evaluate information using the acronym CRAAP^{xxxviii} (Blakeslee, 2004 - current, reliable, authority, accuracy and purpose test), to think about information resources. Others chose resources based on recommendations from colleagues and by nationally recognised experts through links in social media and newsletters. Individuals working within larger organisations noted that information practitioners provided a filter for the use of online resources as they would select and recommend specific resources. There was a level of trust for certain websites such as those provided through sector skills councils and industry-related websites.

One practitioner explained that he had his favourite websites and whilst he knew that they provided quality information, the over reliance on a limited range of sources could limit his effectiveness. One practitioner noted the importance of LMI for all as a national resource but lamented the fact they found it difficult to locate quality local and regional labour market information.

One practitioner noted the need to undertake 'Google' searches for information and the selection of relevant search terms was important in locating relevant information. The survey participants indicated that this was an area where they were less confident than in other areas of information literacy. For example, only 139 individuals (67.8%) either agreed or strongly agreed with the statement 'I can run advanced Google searches (e.g. by using filters and advanced search tools)'. Whilst this is still quite a high percentage it does suggest that there may be a training need here.

One focus group participant noted their use of social bookmarking facilities to collate and organise resources and information. Practitioners are also very good at sharing resources which they find useful with their colleagues. Survey participants for example showed a high level of cooperation in this way - 155 individuals (75.6%) either agreed or strongly agreed that they liked to collect and share resources. The survey participants indicated a high level of confidence when asked about respecting copyright law and referencing sources correctly (154 individuals - 75.1% - either agreed or strongly agreed with this statement) although

some focus group participants expressed some concern about breaking copyright law when using images gained online. This may be an area which requires further support.

Data literacy

The focus group practitioners were not managing quantitative data on a regular basis for research purposes, however, some did use applications to monitor and calculate their activities such as timesheets, expense claims and resource allocation. The survey participants indicated that many were confidently using spreadsheets and data bases to analyse data and create reports (147 individuals - 71.7% - either agreed or strongly agreed with this statement).

Applications to undertake these activities were:

- Excel for basic tasks.
- Client management systems through which searches could be used to select data.
- Online survey tools such as Survey Monkey and Riddle for creating surveys, polling and for event monitoring.

For most practitioners interviewed in the study, the nature of their research related to gathering information to help them understand the career and labour market. Survey participants were less confident about gathering new data for example, only 100 individuals (48.8%) said that they agreed or strongly agreed with the statement that they understood the principles of good survey design, whilst 132 individuals (64.4%) either agreed or strongly agreed with the statement that can put questions to experts through their online networks. This would suggest that as career practitioners are required to gather data for a range of purposes such as for providing career and labour market information or for the evaluation of specific career development activities, the use of online survey tools and the principles of good survey design is an area for further training and development

Practitioners noted the tensions which the need to gather data introduced. Many lamented the need to take time away from career development activities to collect and analyse data. Several noted however that nowadays there was a wealth of data which could be used to inform practice development.

Focus group participants expressed anxiety about protecting data although this was not evident in the responses from survey participants. Here 162 individuals (79%) agreed or strongly agreed that they knew how to manage data responsibly and 153 individuals (74.6%)

of survey participants indicated that they agreed or strongly agreed that they understood the law in terms of freedom of information and how it affected their work.

Focus group participants spoke of the need to use secure devices and this concern was reflected in the number of people who had software at work (89.9%) and home (89.3%) to protect data, such as anti-virus software. Few participants were familiar with approaches to encrypting data. All focus group participants were familiar with the General Data Protection Regulations (GDPR) and this finding was corroborated by the survey data where 177 individuals (86.3% of survey participants) either agreed or strongly agreed with the statement 'I understand how the EU General Data Protection Regulation (GDPR) impacts on the work that I do' although some spoke of the need for further training.

One area where participants indicated a lack of confidence was in knowing what to do if their data had been hacked. Only 122 survey participants (59.5%) felt that they knew what to do if this occurred and this again would suggest a training need.

Media literacy

The survey data indicated that participants were generally interested in the use of different media types to present ideas (137 individuals, 66.8%) for example, through graphics and video content. Practitioners indicated a range of materials and approaches to developing resources. This included:

- Creating video content using applications such as Kinemaster^{xxxix} or Powtoon^{xl}.
- Creating collaborative spaces for the sharing of information such as Padlet.
- Developing infographics to present information.
- Content within social spaces such as blogs and social media platforms.
- Presentations shared through SlideShare and LinkedIn.
- Embedding content within webpages and presentation slides.
- Lecture capture software.
- Recording webinars and creating podcasts.
- Creating YouTube videos to support the application process in higher education.

Nonetheless, producing materials using different materials was one area where practitioners expressed a lack of confidence with only 82 survey participants (40%) stating they could design materials which are accessible. One focus group participant noted the need to make information accessible to clients and this required an understanding of the different ways of

delivering information and how this aligned with different learning styles. One focus group participant noted the need for specific media skills training:

“We make videos and use mobiles to do this and use these through our social networking sites. We have had training on how to create videos using smartphones. There is someone in the university who provides media training to do this. We learned how to perform on camera and how to be interviewed.”

Higher education career development practitioner

Participants also noted the need for good design skills if content is to be created which is effective and visually appealing. Several options for improving skills and managing content included:

- Unsplash and Flickr^{xii} for storing photographs.
- Office 365 has a wizard which creates graphics.
- Canva^{xlii} for help with design.
- LinkedIn tutorials.

The responses indicate that developing the skills to be effective in the use and design of media is an area for further development.

The extent to which practitioners were prepared to innovate was dependent on how much they enjoyed using devices and applications. Where this was the case individuals operated as digital champions within their work space, often locating and learning new applications and then sharing these with their colleagues. Participants did note the need to be discerning because new technology might not be the solution to their problems and could take time to master.

Digital learning and development

This is the capacity to design, participate in and benefit from digital learning opportunities. This section sets out the research findings from two perspectives: Career development practitioners as the users of technology for their own learning and development and secondly their use of digital technology to deliver learning and development activities to others.

Using technology to support own learning and development

The most regular cited use of technology used for the purposes of learning and development was webinar technology. Most survey participants (69%) indicated that they either agreed or strongly agreed with the statement 'I'm comfortable taking part in online meetings using video, screen sharing and applications such as Skype. This positive figure masked a concern however as the focus group participants indicated that they were happier to be involved in a webinar for example than in setting one up and running one. Survey participants indicated that most enjoyed the flexibility of online learning packages (145, 70.7%, either agreed or strongly agreed) and regularly listened to podcasts or online videos (141 individuals, 68.8%). Some focus group participants noted that their organisations had provided mandatory online training programmes on such topics as equality and diversity, health and safety and GDPR. Others noted the professional support made available through the professional associations of AGCAS, The Institute of Student Employers and the CDI. YouTube and LinkedIn were also a popular source of online learning.

Another way of updating knowledge and skills is by joining an online community. Survey participants indicated that this was a popular way of sharing and learning with 151 individuals (73.7%) indicating that they either agreed or strongly agreed with the statement 'I have taken part in an online community'.

Online learning does present problems for some and one focus group practitioner noted that specific learning difficulties, such as dyslexia, made accessing online learning programmes quite difficult although transcriptions did improve the situation when they were made available.

Using technology to support others learning and development

Using technology to deliver learning and development activities was an area in which survey participants indicated a lower level of confidence. Whilst the majority noted that they regularly used digital technologies to deliver careers education and personal guidance activities (132 participants, 64.4%, agreed or strongly agreed that this was the case), very few considered themselves to be good online facilitators who knew how to get contributions from everyone (63 individuals, 30.7%). Furthermore, only 83 individuals (40.5%) either agreed or strongly agreed with the statement 'I have created and shared my own online teaching materials.

The data suggests that there is an appetite for using technology to deliver career learning activities, however, there appears to be a lack of both skills and confidence in the use of technology to do this which would suggest a training need.

Digital identity and well being

This is having the capacity to develop and project a positive digital identity or identities and to manage digital reputation (personal or organisational) across a range of platforms. This also requires career development practitioners to look after personal health, safety, relationships and work-life balance in digital settings and to act safely and responsibly in digital environments, to negotiate and resolve conflict and to act with concern for the human and natural environment when using digital tools (CDI 2017).

Digital identity

Practitioners separate their professional identity and personal identity through the use of different social media platforms (187 individuals, 91%, indicated that they either agreed or strongly agreed that this was the case) although one focus group practitioner noted the increasing difficulty in separating the professional from the personal online.

There is an awareness of the need to take security measures such as managing privacy settings - 172 individuals, 83.9% of the survey participants said that they agreed or strongly agreed that they managed their privacy settings. One focus group participant noted that they were conscious of the issue of personal branding although this was not replicated in the survey responses which showed that only 87 individuals (42.4%) either agreed or strongly agreed that they regularly checked their impact on social media and only 80 individuals (39%) agreed or strongly agreed that they updated their online profiles whenever they did something new. Two focus group participants noted that they sought feedback from colleagues on their online identity, particularly on LinkedIn profiles. There was a general view that LinkedIn was a growing phenomenon and practitioners needed to become more proficient themselves with this in order to help their clients. One practitioner noted that they regularly review someone's online presence before meeting them.

The findings from the research indicate that practitioners have a training need in the area of online identity management. This would have an impact in two ways. Firstly, practitioners would improve their own online identity and secondly, they would be in a better position to support their clients in doing this.

Digital wellbeing

Although focus group participants did note a need to 'switch off' from screens and devices, they noted that it was difficult to manage the difference between digital activities for personal use and those for work. That said, 156 individuals (76.1%) of survey participants either agreed or strongly agreed with the statement 'I know when to switch off from digital media and when to engage' suggesting that practitioners are managing their digital well-being.

One practitioner noted that they had 'unfriended' individuals who had posted content which did not align with their values and beliefs. Whilst 'unfriending' is a relatively covert way of rejecting the behaviour of others, more overt attempts at challenging the online behaviour of others appeared to be more difficult with only 91 individuals (44.4%) of survey participants indicating that they either agreed or strongly agree with the statement 'I've challenged online behaviour (mine or someone else's) when I saw it having a negative impact'. The negative impact of screen use could be extended to the occasions where practitioners are delivering development activities to groups of students who persist in using their screen during the session. One focus group participant indicated that this was a problem as this affected the morale of the practitioner.

Focus group participants described their attempts at supporting others digital wellbeing as being limited to supporting their children. This did include limiting the amount of screen time they themselves engaged in, in front of their children.

Although practitioners seem to be able to manage their own digital wellbeing, it appears that there is an issue with a lack of confidence to challenge others, particularly when their use of digital technology has a direct impact on their own wellbeing. This is more a question of being assertive and having the confidence to challenge and so whilst this is not directly linked with a training need relating to digital technology, it should form part of an overall discussion about the wellbeing of practitioners.

Summary

The research indicates that there is an increasing move away from traditional, desk-based ways of working and traditional working spaces. Practitioners are increasingly working flexibly, using a range of devices or 'screens' such as laptops, telephones, and tablet PC's, from home and community settings. The increased use of digital applications suggests that there will be practitioners who need to become familiar with new ways of working. This is not

new and several researchers (Bimrose, Barnes and Atwell, 2010; Kettunen, Vuorinen and Sampson 2013; Beetham and Sharpe 2013; and Morris and Stommel 2017) have noted the need for practitioners to develop new skills to use the growing range of digital technology and applications.

The research shows that whilst there are some skills and expertise in most of areas of competence this is inconsistent both across and within these areas. There are also areas which need further development. Despite the limitations of the research in terms of the convenience sample and self-completion of the surveys by participants, the findings are indicative of the UK career development sector and a useful source of information for those tasked with developing programmes of initial and continuing professional development. The findings from this research are aligned to findings across Europe which suggest that career development practitioners are less confident in their ability to deliver career development services using digital technology and wish to receive training in this area to improve their performance and service delivery. Whilst this responsibility is shared between practitioners, employers, training providers and the CDI, practitioners will need support to become confident and proficient in their use. What is clear from the research is that time and resources are a barrier to enabling practitioners to develop these new skills and many are using their own time and resources to experiment and develop. Policy makers should take heed of the limited resources available to the development of programmes of digital skills development and programmes of ongoing support. If the sector is to meet the governments ambition to provide twenty-first century digitally enhanced career development services, it will need financial support to help realise the vision.

In summary:

- Digital productivity and proficiency skills are strong with the exception of contributing to Blogs and public webpages.
- Information, data and media literacies are strong with the exception of running advanced internet searches, copyright law, survey design and the use of online survey tools, and reacting to being 'hacked'. Practitioners also suggested that they would appreciate training on fundamental design skills for producing eye catching, engaging and effective information products such as infographics, presentation slides, posters and leaflets.
- Digital learning and development skills were less strong generally, although there were some strengths in the use of digital applications to support own learning.

Practitioners are less confident in using technology to support the development of digital materials and the delivery of learning activities.

- Digital identity and wellbeing skills are strong; however, practitioners are under confident in managing their own online identity and in challenging unacceptable behaviours of others in the use of digital applications.
- There is a will amongst members of the sector to develop programmes of professional development and support for digital skills however resources are limited, and policy makers will need to provide resources if the sector is to help the government realise its ambitions.

The recommendations which emerge from the analysis of practitioner's competence are:

- There is a need for signposting to sources of help for some digital applications which could be provided by the CDI.
- The CDI should develop their programme of training and support to encourage and help practitioners and others to develop their digital skills (set out in the following chapters).
- The CDI should lobby government to fund a digital training programme for career development practitioners.
- Policy makers should review their support to organisations leading and delivering programmes of professional development to ensure that career development practitioners can develop their digital skills and know how.

Training and support in the use of digital technology

This section explores how practitioners and others feel about their digital skills, the extent to which they would like to develop their digital skills and the modes and content that they would like to receive.

Interest in developing digital skills

Most survey participants felt positive about updating their digital skills (171 individuals, 83.4%) indicated that they agreed or strongly agreed with the statement 'I feel more positive than negative about updating my digital skills'. The survey responses showed, however, that whilst remaining positive about improving digital skills, only 56% (115 individuals) of participants indicated that they had undertaken any training to improve their digital literacy and 54.1% (111 individuals) indicated that they kept up with new technologies.

Survey participants listed several topics on which they had received training including:

- European computer driving licence.
- Degree.
- Turning point.
- New digital resources .
- Cyber security and programming.
- Office 365 applications.
- Using individual programmes such as Skype, Powtoon, Moovly^{xliii}, Webnex^{xliiv}, Virtual learning environments, collaborative workspaces, or NVivo^{xliv}.
- General Data Protection Regulations (GDPR).

The focus group participant's responses indicated that the provision of training and support to use digital technologies could be divided into three broad areas:

- Organisational provision.
- External provision.
- Individual exploration innovation.

These are explored in more detail below.

Organisational provision

Employer organisations provide training and support for the development of digital skills through a number of different approaches.

Courses such as that provided through webinar technology provided opportunities for participants to see first-hand how digital applications could be used and this inspired them to have a go and to innovate.

Most participants noted that where they worked in larger organisations, they were able to access IT help through telephone or email. This was not the case for self-employed individuals or sole traders who needed to find other sources of support for their training needs. This source of support was used more specifically for hardware problems and for software issues where the applications had been supplied by the employer. Practitioners sought other sources of support for issues with social media, or online applications.

Practitioners are often innovative and try out new digital applications and solutions. Participants noted that the implementation of digital technologies could only be successful where there was a willingness for team members to share their new-found expertise so that all team members could benefit.

Practitioners noted that if they were given access to training and support from a colleague this impacted positively on their confidence in using technology. One noted that they were beginning to understand the potential of Facebook for improving the way they connected with their clients and felt that they would like to learn a little more about this. Practitioners noted that they adopted several tactics for improving their knowledge and skills and this included:

- Asking a colleague.
- Seeking help from IT department staff.
- Using online searches to find the solutions to problems with accessing applications.

One participant noted the need to provide help in different formats to appeal to the different ways which people preferred to access information, for example written materials, video and audio help, chatbots and seeking help from a supportive colleague. Focus group participants noted that information about new technologies was largely gathered through colleagues and through social media such as Twitter LinkedIn, and Facebook. Signing up to organisations

newsletters and industry magazines was also cited as a regular method of learning about new applications.

Organisations and teams, either formally or informally, refer to digital champions when they need help with both hardware and software issues. Some champions focus on social media and will sometimes take the role on behalf of the team and on other occasions will provide support to their colleagues who wish to use a social media application. Others may specialise in digital pedagogies or the development of career and labour market information.

In some instances, practitioners noted that support with social media had now been integrated into the role of the marketing team and they offered bespoke support to individuals or teams who wished to use social media platforms.

External provision

Signposting to sources of support

Throughout the research, participants shared different ways which they accessed support from external sources. This included the help pages of websites such as NESTA^{xlvi}, chatbots, the training pages of social media sites such as LinkedIn and partner organisations such as Job Centre Plus or the Citizens Advice Bureau. Signposting by colleagues was seen as a facilitator for both staff and clients.

One practitioner noted that working as a 'sole trader' meant that there was a lack of immediate support provided within companies and that they had needed to become innovative in seeking support. YouTube was seen as a useful source of support as were commercial companies such as Microsoft who had help desks and video support.

Individual exploration and innovation

Having a go

Confident individuals noted that they enjoyed 'having a go' at resolving their own IT issues before seeking help. One Higher Education career development practitioner noted

"I am tenacious in that respect and will try to problem solve - I enjoy tinkering and fiddling to try and find a way through."

Higher education career development practitioner

Developing networks of support

Several participants noted that they had forged very strong relationships with members of their IT departments. This was a deliberate strategy to try and gain access to ready and willing sources of help with digital technology issues. One participant noted

“I have found that I have networked with members of technology and digital learning teams in the university and these are my ‘go to people.’”

Higher education career development practitioner

Selecting sources of help and support

During the research, participants discussed a variety of types of support and the characteristics of ‘good’ support. All noted that the provision of many types of support which addressed specific and general training and support needs was vital if organisations were to realise their strategic aims around digital technology.

Characteristics of good support

Good communication skills are the central pillar to good support with queries about digital applications. Participants used words such as approachable, a sense of humour, patience and good at listening. Participants suggested that individuals who understood the range of experiences and expertise of the people who sought help, and could tailor their approach accordingly, was a necessity in those providing IT support.

Other features of good support is its immediacy – it needs to be available when it is needed. Given the flexible nature of many employees in the career development sector and the expectations of clients this suggests a 24 hour

Participants acknowledged that not all ‘good’ support was of a personal nature. Practitioners used support online and found this to be helpful if it was accessible. Google and YouTube were the websites most cited as providing useful support.

Professional and specialist support

One practitioner noted that there was a difference between immediate support, for example through telephone help-lines, and ongoing professional support such as training and mentoring. One participant noted that IT helpdesk staff have a narrow remit, usually

focussed on the applications and hardware adopted by the organisation, rather than being able to provide support to a range of online applications. This was perceived to be frustrating.

Practitioners working in higher education settings noted that library services were often a good source of support for a range of digital applications.

Most participants spoke of the need for those supporting them to be knowledgeable and to have experience. This included experience in the application of digital technologies but also in providing support services. People were more likely to seek out support from individuals who were seen as having a 'track record' in the area in which they were seeking support.

Opportunities to undertake formal or informal training was valued as it offered an opportunity to share practice and break down 'silo working'.

Preferred approaches to receiving training and support

Focus group participants noted a range of activities which had helped them to improve their digital literacy including:

- LinkedIn training.
- Microsoft Teams.
- Blogging.
- Video content.

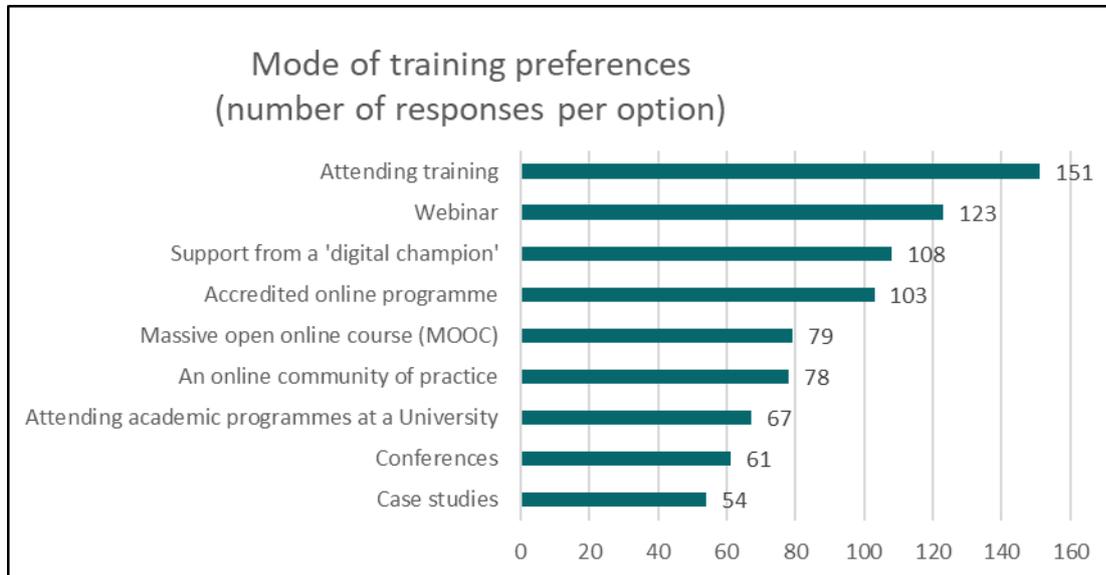
This was corroborated by survey responses which indicated that the following modes of learning had been used by practitioners:

- Self-directed study.
- One day course.
- Webinars.
- Social media training programmes.
- In house courses.

Survey participants were asked the question 'How would you like to receive training on enhancing your digital skills?' and were asked to select any approaches which they favoured from a list of options. The results are set out in Figure 3 and indicate a clear preference for attending training programmes, with 151 individuals selecting this option. Receiving CPD

through webinars was the second most popular way to receive training with 123 individuals choosing this option.

Figure 3: Mode of training preferences



These findings were corroborated by the focus group participants. The key messages which emerged regarding providing training and support to career development practitioners were:

- There needs to be a variety of approaches to suit different preferences including self and group learning options (webinar and face to face in real time) practical demonstrations, articles and video materials.
- Conferences are not always the place to provide practical skills workshops as the audiences for these were limited, however, participants could return and share their new skills with others.
- Keep training simple.
- Provide ongoing and immediate support for people who wanted to have a go.
- Provide regular and ongoing training and support for example a help desk.
- Interventions should be at times when practitioners can access them (i.e. flexible, regular and at different times of the day).

Webinars are a popular form of learning however several participants noted that these were regularly of one-hour duration and that this was too long. People expressed an interest in short 30-minute videos, and one noted that

“Usually webinars can take 60 minutes. The market wants short, sharp good content. 10 - 20 -minutes. Why does it have to be an hour? TED talks are often only 20 minutes, and this is for a reason!”

School-based career development practitioner

Several participants noted that digital skill development was also an area for peer support. One noted that in their organisation

“Every Friday afternoon we would down tools and research something we wanted to find out. We would then share this with our colleagues”.

Student career development practitioner

Another noted that interns were often a good source of new ideas

“We have events and the intern was showing how you can use your phone on a tripod and use this to record the event in different ways. Would like to receive more training on how to use the video facilities on my phone and iPad”.

Redundancy worker

The need to pool knowledge and support each other to develop skills was a clear theme.

Support from the CDI

There were several suggestions on how the CDI could support the development of digital skills. One participant noted that there could be an area of the CPD section of the website specifically for digital skills.

Another participant suggested that the CDI could provide guidance to other organisations on how to develop their own digital strategy.

Summary

The research has revealed an appetite for developing digital skills and knowledge, however, practitioners are not undertaking training. The research found that continuing professional development (CPD) was offered through a number of modes:

- Organisational provision.
- External provision.
- Individual innovation and sharing.

Companies provide formal and informal training and development opportunities and many practitioners noted the ongoing support from IT helpdesks was very welcome. Practitioners are resourceful when it comes to developing new skills. Their tactics included seeking help from colleagues, or by going online to seek help through video and help sites. The both survey and focus group participants noted the importance of being able to access support from skilled but approachable digital champions. Whilst this is an important element of support that larger companies are able to provide, this may be difficult for small organisations and lone traders. The CDI will want to discuss their role in providing support to this group of practitioners.

Rather than simply searching online to find solutions for immediate problems, practitioners also access more substantial online training courses. These are provided through social media sites such as LinkedIn, through organisations such as NESTA, through some civil organisations such as the Citizens Advice Bureau or Job Centre Plus or through software providers such as Microsoft.

Some practitioners are more confident around digital technology and enjoy experimenting and innovating. For this group, developing networks of support is particularly important and again the CDI may wish to review its role in supporting this group, possibly through a social media community of practice. This would add to the pool of knowledge and skills and aid with sharing practice.

Research participants noted the need for immediately accessible help and support at a time of their choosing and need. Support from knowledgeable, patient individuals with good communication skills add to practitioner's confidence when seeking help and support. Being able to access a 'digital champion' was high on the list of research participant's requirements.

Research participants also noted that they had received training and support through a number of methods, however, there was a clear preference for attending training sessions or participating in webinars. Using the internet to access support is a popular approach, not just through participating in webinars, but through online accredited programmes, MOOCS, or communities.

Focus group participants noted the rapid change in technology and the need to keep abreast of these changes. Online reviews in other areas of digital life were noted as one way of developing confidence in products such as ratings on holiday or retail websites. One

participant noted that virtual reality was becoming a mainstream and that they would like to understand this more. Another participant noted the plethora of 'Apps' and wanted help in understanding what was available. The articles in Careers Matters were cited as a good way of finding out what was happening in the digital world of career development.

The recommendations which have emerged from the analysis of practitioners training and support needs are that the CDI should:

- Explore ways of providing support for practitioners working in small organisations or as lone traders to develop their digital skills. This may be through the provision of courses, or by signposting to sources of support for digital skills.
- Explore ways of providing a network for those practitioners who need to access support or share their digital practices.
- Explore the extent to which their role extends to supporting organisations to develop their own digital strategies.
- Continue to publish articles in Career Matters with a digital focus.

Training and support needs

Throughout the research, participants discussed their wide use of digital applications, however, there were many instances throughout where they discussed their lack of confidence in the use of particular applications. Regularly, participants were proficient in some areas but lacked the knowledge or skills to operate confidently across all areas of competence. Sometimes this was about a lack of knowledge of specific digital solutions or applications and at others, participants had no knowledge that these solutions existed. Whilst there is an acknowledgement that the responsibility for the development of skills lies variously with the individual, their employing organisations or the CDI, there is a need to support the digital skills of the career development workforce in the following areas:

Applications

- Social media applications particularly LinkedIn.
- Software for creating content including video editing and infographics.
- Microsoft Office applications such as Teams, Project, PowerPoint, Publisher, SWAY, EXCEL and advanced word processing functions.
- Webinar and communications technology such as Skype.
- Collaborative documents and applications such as Google Drive, One Drive and Dropbox, Pintrest and Padlet.
- Referencing software such as Reference Manager, Endnote or Mendeley.
- Designing surveys and using online polling software such as Google Forms, or Mentimeter.

Professional practice

- The implications and ethical use of digital technology.
- Digital pedagogy.
- Approaches to evaluate online information.
- Legislation governing how information can be used and replicated including copyright law.
- Protecting personal identity and data including the General Data Protection regulation.

- Sources of support to further develop their digital skills and knowhow

Summary

The research came at a time when there are increasing demands on a small sector whose interface between education and employment requires them not just to understand how digital technology is changing the nature of employment, but to model this in their own practice delivery. The drive to improve the digital skills of the workforce was first highlighted in 2010 by the Careers Profession Task force and this research provides an insight into the progress made. Research in 2010 and 2011 noted that the career development sector presented many opportunities to utilise digital applications and technology, however, at that time this was under-utilised. On this basis, the CDI has developed a digital strategy which sets out the intention to improve the digital skills of the career development workforce.

This research sought information on:

- The current use of digital technology and applications, and the digital skills of the career development workforce.
- The potential for the use of digital applications to deliver career development services.
- The training needs and preferences of individuals working across the career development sector.

The research finds that practitioners are already using a wide range of devices and applications to deliver development services and manage their businesses, although the landscape is not uniform and this inconsistency results in a comprehensive list of training needs across the sector. There are many ways of undertaking continual professional development and practitioners are already undertaking training support provided through their employers, through external formal training provision and training and information provided via the internet (and usually provided free). The research finds that attending courses and webinars are the two most popular ways to receive training in digital skills. As previously noted, a lack of immediate support can undermine practitioner's confidence and the research finds that support needs to be continuously available and provided by supportive and knowledgeable individuals. Practitioners also approach colleagues who are deemed to be skilful and knowledgeable for help and support; the idea of having access to digital champions emerged as a recommendation. This role needs to be recognised and supported so that it can have the maximum benefit.

Digital technology offers economies to organisations who work across multiple geographical locations and organisations. It also presents new opportunities to reach out to colleagues and clients and has the potential for new approaches in delivering career development (both personal career guidance and careers education). The research notes that whilst digital technology offers practitioners opportunities for creativity and innovation, it should not be seen as the only route to delivering a modern career development service but rather as an approach which adds value to the more traditional, face to face approaches to delivering personal services.

Whilst the sector can upskill and deliver services using digital applications, this approach will only ever be effective where clients and members of other stakeholder organisations are also as skilled in the use of technology. Career development practitioners have a role to play in role modelling the use of digital technology with their clients and stakeholders. However, whilst research participants are enthusiastic about developing their digital skills, and many are already using digital technology to deliver aspects of their provision, there are barriers to this. Some of these barriers are structural and relate to the availability of suitable accommodation (meeting and interview rooms) which are equipped with reliable equipment. Whilst equipment is important, reliable access to the internet and instant access to help desk support is critical in building practitioner's confidence. Many participants spoke of the damaging affect that equipment and WiFi access failure had on inspiring them and their clients to use digital solutions and this is particularly a problem when working remotely; a growing phenomenon.

Other barriers are related to skills and expertise and whilst there is enthusiasm to learn new skills, there is a need for companies to be clear on their expectations around the use of technology and provide sufficient time and resources to enable their employees to use technology proficiently. Finally, there are ethical issues around the use of digital technology which require further exploration, such as the growing use of virtual assistants and the covert gathering of data. The CDI will need to explore these issues further and provide guidance on how these issues can be incorporated into the existing code of ethical practice.

There are several frameworks which help set out the digital skills required by individuals working in educational and career development settings. This research uses the Jisc framework as a basis which has been elaborated to include Hooley's 7 Cs of digital career literacy (Hooley 2012). This provides a comprehensive model for assessing the digital skills of the career

development workforce and to make recommendations for developing programmes of training and support.

The research shows that organisations are beginning to take note of the need for practitioners to have digital skills and these requirements are now being incorporated into job descriptions and recruitment strategies. Whilst this is good news, it is already nine years since the Career Profession Task Force (2010) set out a recommendation that initial training and opportunities for continuing professional development was needed to address the skills shortage in the sector and the sector as a whole still has more work to do until it can be considered to have integrated digital technology across the range of opportunities available. .

Throughout the research, participants identified areas and activities for further development which would help the CDI to meet its aims of raising the use of and proficiency in digital technology and skills. These are set out in the next section.

Recommendations

There is a recognition that the responsibility for developing digital knowledge and skills is not the responsibility of any one individual or group, but is divided between practitioners, employers and the professional association, the Career Development Institute (CDI). In some cases, the CDI operates as an employer as well as the sector leader for skills and standards and where this is the case the recommendations include specific reference to this. These are set out below.

Organisations including the CDI should

- Provide equipment and surroundings which are suitable for the delivery of career development and business interventions using digital technology.
- Engage in conversations about the training needs of their staff so that they are fully able to use the digital technologies required of them.
- Develop meeting charters which encourage individuals to use digital technologies to participate.

The CDI should specifically

- Review the framework of ethical guidelines and support materials which they provide to ensure that the ethical tensions introduced by the growing use of digital technology to provide career development services.
- Develop a position statement which sets out their stance on the provision of a range of approaches to engaging with and addressing the needs of a wide range of clients.
- Support the review of the national occupational standards for Scotland, Northern Ireland and Wales, The Blueprint of Learning Outcomes for Professional Roles in the UK Career Development Sector (CDI 2016) and the learning outcomes for the Qualification in Career Development (CDI 2019) too ensure that these standards reflect the emerging requirements for digital skills and know how.
- Develop some guidance for organisations who wish to improve the digital skills of their work force through their job descriptions.
- Explore ways of providing support for practitioners working in small organisations or as lone traders to develop their digital skills. This may be through the provision of courses, or by signposting to sources of support for digital skills.
- Explore ways of providing a network for those practitioners who need to access support or share their digital practices.
- Explore the extent to which their role extends to supporting organisations to develop their own digital strategies including guidance on the inclusion of digital skills in job descriptions.
- Continue to publish articles in Career Matters with a digital focus
- Develop their training and develop programme to include:

1. Applications

- Social media applications particularly LinkedIn.
- Software for creating content including video editing and infographics.
- Microsoft Office applications such as Teams, Project, PowerPoint, Publisher, SWAY, EXCEL and advanced word processing functions.
- Webinar and communications technology such as Skype.
- Collaborative documents and applications such as Google Drive, One Drive and Dropbox, Pinterest and Padlet.
- Referencing software such as Reference Manager, Endnote or Mendeley.
- Designing surveys and using online polling software such as Google Forms or Mentimeter.

2. Professional practice

- The implications and ethical use of digital technology.
- Digital pedagogy.
- Approaches to evaluate online information.
- Legislation governing how information can be used and replicated including copyright law.
- Protecting personal identity and data including the General Data Protection regulation.
- Sources of support to further develop their digital skills and knowhow
- Lobby government to fund a digital training programme for career development practitioners.

Policy makers should

- Review their support to organisations leading and delivering programmes of professional development to ensure that career development practitioners can develop their digital skills and know how.

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Appendix 1: Research participants

Focus group participants

Country base	Role	Number	CDI Member	How involved in research?
Wales	School based career practitioner	3	Yes	Focus group
	Careers work related learning coordinator in school	1	Yes	Focus group
	ICT systems development	1	No	Focus group
	Business engagement practitioner	1	Yes	Focus group
	learning and development coordinator	1	Yes	Focus group
England	HE career development practitioner	1	Yes	Telephone interview
	HE career development practitioner	1	Yes	Telephone interview
	HE career development practitioner	1	Yes	Telephone interview
	HE career development practitioner	1	No	Telephone interview
Scotland	MA Career Guidance student	1	Yes	Webinar
	PhD Student and self-employed practitioner	1	Yes	Webinar
	Redundancy support worker	1	Yes	Telephone interview
Total		14	12	

Survey participants

In total there were 277 responses. Of this, 72 responses were deleted due to there being less than 50% of the questions for that individual completed. This left 205 valid responses to the survey. The following tables set out information about the survey participants

Table 1: Roles of survey participants

Role	Number (n=205)
Career development practitioner (including career counsellor, coach or practitioner)	119
Careers leader in a school or college	23
Student	18
Provider of training and development activities to the careers sector	15
Career service manager	9
Researcher	6
Careers educator or teacher	6
Other (please specify)	5
Information developer or manager	3
Administrator	1
Total	205

Table 2: Survey participant qualifications

Qualification	Number (n=205)
A level 3 qualification such as A level or NVQ level 3	1
No response	2
A level 4 qualification such as an HND (SCQF equivalent level 8)	8
A level 8 qualification such as a PhD or EdD (SCQF 12)	14
A level 6 qualification such as a bachelor's degree (SCQF equivalent level 9 or 10)	69
A level 7 qualification such as a Masters degree or the Qualification in Career Development (SCQF 11)	111
Total	205

Table 3: Participants career development qualifications

Qualification in career guidance and development	Number (n=205)
Qualification in careers education	5
Qualification in Career Guidance and the qualification in careers education	6
More than one specialist careers work qualification	8
Qualification in Career Guidance and the Qualification in Career Development	11
Qualification in Career Development	24
No specialist award in careers work	36
Qualification in Career Guidance	115
Total	205

Table 4: Geographical location of survey participants

Geographical location	Number (n=205)
Predominantly in Northern Ireland	2
No fixed place of work	6
Work outside the UK	8
Predominantly in Scotland	33
Predominantly in Wales	46
Predominantly in England	110
Total	205

Table 5: Employment status of survey participants

Status	Number (n=205)
I act in an HR capacity within an employing organisation	1
I am a sole trader	8
I work in several contexts within the careers sector	8
None of the above	8
Student and not yet employed	9
Several of the above describe my current status	9
I am employed by a third sector organisation such as charity	12
I am solely employed by a college of FE	12
I am employed by a local authority	14
I am employed by a nationally funded organisation such as Job Centre Plus	16
I am solely employed by a University	29
I am solely employed by a school	33
I am employed by a company who provide career development services	46
Total	205

Table 6: relationship with the Career Development Institute

Are you a CDI member?	Number (n=195)
Yes	144
No	51
Total	195
Are you on the CDI register?	Number (n=197)
Yes	100
No	97
Total	197

Appendix 2: Data analysis

The following table sets out the coding schema for the thematic analysis of the qualitative data gathered during the research. This approach was used to understand the patterns which emerged from the data.

The approach to analysis has been referred to by Braun and Clarke (2006) as a top down or theoretical thematic analysis driven in the first instance by the research questions. As the data was gathered using semi-structured interviews using question schedules which were developed to address the research questions this was a relatively straightforward activity. Within each research area however, data was gathered which required a more inductive approach, allowing emergent themes to be identified and coded. These codes then evolved into a framework for analysis across the whole data set.

The hierarchy of codes are set out below

Research question 1: How do practitioners and managers use digital technology to deliver their services?

- Delivering service to clients
 - Personal guidance
 - Pedagogy
 - Using digital applications to provide career and labour market information
 - Identifying, locating and curating information
 - Providing and presenting information
 - Promoting career guidance services
- Using digital technology to support professional activities
 - Using digital applications for networking
 - Using digital applications to manage business

Research question 2: What is the potential for digital technology to deliver career development services?

- The barriers to using digital technology

- Connectivity and technology failures
- Lack of competence to use digital technologies
- Organisational restrictions
- Availability of and access to resources
- Ethical issues
- The enablers to using digital technology
 - The provision of hardware and devices
 - Skills and expertise
 - Organisational strategies and practices

Research question 3: What are the training needs of practitioners?

Confidence in the use of digital technologies

- Digital productivity and proficiency
 - The use of devices to manage work and life activities
 - Confidence in using new devices or software
 - Problem solving
 - Having a go themselves
 - Using online sources of help
 - Asking a work colleague or friend
 - Asking for professional help
- Digital communication, collaboration and participation
 - Organisational policies
 - Using social media to communicate.
 - Using social media to educate
 - Using social media to connect people in groups
 - Using technology to collaborate
- Information, data and media literacies
 - Information literacy
 - Data literacy
 - Media literacy
- Digital learning and development
 - Using technology to support own learning and development
 - Using technology to support others learning and development

- Digital identity and well being
 - Digital identity
 - Digital wellbeing

Training and support in the use of digital technology

- Interest in developing digital skills
- Organisational provision
- External provision
 - Signposting to sources of support
- Individual exploration and innovation
 - Having a go
 - Developing networks of support

Selecting sources of help and support

- Characteristics of good support
- Professional and specialist support
- Preferred approaches to receiving training and support
- Support from the CDI

Training and support needs

Appendix 3: Glossary of digital applications.

ⁱ The GIG economy is one characterised by short-term contracts or freelance work as opposed to permanent jobs.

ⁱⁱ Skype is a telecommunications application that specializes in providing video chat and voice calls between computers, tablets, mobile devices, the Xbox One console, and smartwatches via the Internet. Skype also provides instant messaging services. Users may transmit text, video, audio and images. Skype allows video conference calls.

ⁱⁱⁱ Facebook is a social networking website where users can post comments, share photographs and post links to news or other interesting content on the web, chat live, and watch short-form video.

^{iv} LinkedIn is a social network for professionals

^v WhatsApp messenger is a freeware, cross-platform messaging and Voice over service owned by Facebook. It allows users to send text messages and voice messages, make voice and video calls, and share images, documents, user locations, and other media.

^{vi} Blackboard Collaborate is a real-time video conferencing tool. It allows users to share applications and files and provides an interactive whiteboard

^{vii} Adobe Connect is software used to create information and general presentations, online training materials, web conferencing, learning modules, webinars, and user desktop sharing.

^{viii} Mentimeter and Turning Point are an online polling tools

^{ix} YouTube is a video sharing service where users can create their own profile, upload videos, watch, like and comment on other videos.

^x TED is a not-for-profit organisation devoted to spreading ideas, usually in the form of short, powerful online talks

^{xi} Powtoon is web-based animation software.

^{xii} Piktochart is a web-based infographic application.

^{xiii} Camtasia is a software suite for creating video tutorials and presentations directly via screencast, or via a direct recording plug-in to Microsoft PowerPoint

^{xiv} Office 365 is a line of subscription services offered by Microsoft as part of the Microsoft Office suite. SWAY is one of these products which allows the user to create visual representations of data.

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- ^{xv} Twitter is a microblogging and social networking service
- ^{xvi} Yammer is a social networking service used for private communication within organisations.
- ^{xvii} Trello is a web-based list-making application
- ^{xviii} Microsoft Teams is a communications platform that combines workplace chat, video meetings, file storage and collaborative documents and files.
- ^{xix} Microsoft Office is a suite of applications which are used for a range of business-related activities including word processing (Word), data processing (EXCEL), presentations (PowerPoint), and project management (Project) and collaborative folders and documents (OneNote)
- ^{xx} Google Drive is a file storage and synchronization service developed by Google
- ^{xxi} Adobe Spark is an integrated suite of media creation applications for mobile and web content.
- ^{xxii} Eventbrite is an event management and ticketing website. T
- ^{xxiii} Tethering, is the sharing of a mobile device's Internet connection with other connected computers.
- ^{xxiv} A SIM card, also known as a subscriber identity module, is a smart card that stores identification information that links a smartphone to a specific mobile network.
- ^{xxv} Microsoft Outlook is a personal information manager from Microsoft, available as a part of the Microsoft Office suite.
- ^{xxvi} Dropbox is a file hosting service that offers cloud storage and file synchronization.
- ^{xxvii} Microsoft OneDrive is a file hosting service and synchronization service operated by Microsoft.
- ^{xxviii} SharePoint is a web-based collaborative platform that integrates with Microsoft Office
- ^{xxix} Google Drive is a file storage and synchronization service developed by Google
- ^{xxx} Prezi is a presentation tool that create engaging presentations
- ^{xxxi} Reference Manager is an application which allows people who want to share a central database of references and need to have multiple users adding and editing records
- ^{xxxii} EndNote is a commercial reference management software package, used to manage bibliographies and references when writing essays and articles.
- ^{xxxiii} Mendeley is a free reference manager and academic social network that helps to organise research and to collaborate with others online. It automatically generate bibliographies. .
- ^{xxxiv} Panopto is a software company that provides lecture recording, screen-casting, video streaming, and video content management software, which is often used in E-learning environments.
- ^{xxxv} TweetDeck is a social media dashboard application for management of Twitter accounts

xxxvi Hootsuite is a social media management platform which takes the form of a dashboard, and supports social network integrations for a range of other social media applications

xxxvii Pinterest is social media network that allows users to share images associated with projects, goods, and services, and to visually discover new interests by browsing images others have posted.

xxxviii Blakeslee, Sarah (2004). "[The CRAAP Test](#)". *LOEX Quarterly*. 31 (3).

xxxix KineMaster is a video editor for Android smartphones which provides a wide range of video editing functions,

xi Powtoon is Web-based animation software that allows users to create animated presentations

xii Unsplash and Flickr are websites dedicated to sharing photographic images

xiii Canva is a simplified graphic-design tool website, which can be used for both web and print media design and graphics.

xiiii Moovly is a company that provides a cloud-based platform that enables users to create and generate multimedia content: animated videos, video presentations, animated info graphics and any other video content that includes a mix of animation and motion graphics.

xlv Cisco Webex provides video conferencing, online meetings, screen share, and webinars approaches.

xlvi NVivo is a qualitative data analysis computer software package

xlvii Nesta is an innovation foundation based in the UK. The organisation acts through a combination of programmes, investment, policy and research, and the formation of partnerships to promote innovation across a broad range of sectors.