Challenges in implementing ICT in career services: Perspectives from Career Development Experts

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Rapid development in information and communication technology (ICT) has changed society fundamentally over the past two decades (e.g., Hoonakker, 2014; ITU, 2017). This technological transformation has given people unprecedented access to diverse information and has fostered inexpensive and instantaneous communication worldwide. As technological advances change how individuals explore and acquire information about occupational, educational, training and employment opportunities, there is an acknowledged need to align new technologies more closely with career services and associated professional practices (e.g., Bimrose, Barnes, & Atwell, 2010; Kettunen, 2017, Sampson & Osborn, 2014). The growing consensus around the increasingly essential role of ICT in the career service sector is evidenced in a number of policy documents, case studies and reviews (e.g., Cedefop, 2011; Eurobarometer, 2014; European Council, 2004, 2008; OECD, 2004a, 2004b). There is substantial global interest in facilitating the availability and effective use of ICTs and to improving the implementation of ICT in career services. The aim of this study is to explore the perceived challenges in the implementation of ICT in career services among international career development experts.

According to Watts (1996), three factors have fuelled decision-makers' growing interest in the use of ICT in career development: the potential improvements in cost effectiveness, increased effectiveness of the guidance process, and user expectations that guidance services will harness such technologies. In particular, social media has become an increasingly important way of extending career services (e.g., Hooley, Hutchinson, & Watts, 2010; Kettunen, 2017; Osborn, Dikel, & Sampson, 2011), and the use of innovative and flexible modes of service delivery such as self-access and self-help can make access to these services cheaper and more feasible (e.g.,

Cedefop, 2008; ELGPN, 2010). These new methods of accessing career services also address user needs and expectations. However, robust evidence of the efficacy of ICT-based career services remains limited (e.g., Barnes, La Gro, & Watts, 2010; Howieson & Semple, 2013).

Despite growing interest in the use of ICT in career development, not all countries currently benefit from these advances. In this regard, Hooley, Hutchinson, and Watts (2010) noted that while the digital divide has lessened, some countries remain limited in their capacity to take advantage of these developments in delivering career services. Bimrose and Barnes (2010) identified the lack of a robust and up-to-date ICT infrastructure as perhaps the most serious impediment to wider implementation of integrated ICT services. Bimrose et al. (2011, 2015) have also highlighted a further digital divide in terms of ICT skills. Digital media literacy is considered a prerequisite for effective participation in technologically advanced societies, in which rapid change in information and communications services has become the norm (O'Neill, 2010). Despite equal access to technologies and networks, a participatory gap may therefore exist (Jenkins, 2006), as even regular users of the Internet may lack the skills to participate fully in the labour market, education system or eGovernment (Hooley, Shepheard, & Dodd, 2015).

An extensive body of literature has investigated the increasingly important role of ICT in career services (e.g., Bimrose, Hughes, & Barnes, 2011; Harris-Bowlsbey, 2013; Kettunen, 2017; Sampson, 2008; Watts, 1996) and the ways it can be used to deliver services (e.g., Harris-Bowlsbey & Sampson, 2005; Sampson & Osborn, 2014; Watts, 2002). The role of ICT in guidance can be seen in three ways: as a tool, as an alternative and as an agent of change (e.g. Barnes et al., 2010; Watts, 1986, 1996, 2010). In general, career practitioners have used ICT to deliver information, to automate interaction, to provide channels for communication (Watts, 2002; Hooley et al., 2010) and development of networks and relationships (e.g., Kettunen, 2017;

Vigurs, Everitt, &Staunton, 2017). Among the many possibilities for enhanced communication, ICT and social media are also used in collaborative career exploration and co-careering (Kettunen et al., 2015). ICT is also used in career services as a resource, as a medium for communication, and to develop materials (Cogoi, 2005). Most ICT systems can be used for standalone self-service or to mediate other forms of practitioner-assisted career services such as a classroom sessions or one-to-one discussions (Sampson, 2008; Watts, 2008). Other applications of ICT in career services range from simple information files and telephone support to sophisticated computer-assisted systems and social media sites that facilitate interaction among career practitioners and individuals.

There is evidence of significant progress in integrating ICT into career services and related practices, but there is potential for further improvement. A recent study indicates that the extent to which European countries make use of ICT in career services varies widely, from unexploited to strategic (Kettunen, Vuorinen, & Ruusuvirta, 2016). The findings emphasised that the implementation of a strategic approach in the use of ICT in relation to lifelong guidance requires a jointly agreed cross-ministerial strategy for lifelong guidance and a common conceptual framework for service delivery and funding.

The effectiveness of ICT in career services is ultimately constrained by the quality of the process used by an organisation to implement the technology. Problems that commonly undermine effective implementation included poor planning, a lack of practitioner participation in decision making, poor integration of new technologies within service delivery organisations, inadequate staff training, poor evaluation, and staff anxiety and resistance (e.g., Sampson, 2000; Sampson & Norris, 1997). It follows that some form of guide is needed to make the complex process of implementation more comprehensible (Sampson et al., 2003). Sampson (2008)

recommended an eight-step model for implementing career resources and services that apply to ICT applications, such as Internet-based guidance sites and social-media sites. The following eight steps for implementation are recommended: program evaluation, resource and service selection, resource and service integration, staff training for pilot testing, trial use in pilot sites, training for all staff, operation, and evaluation and accountability.

Recent research provides further information about the critical success factors for successful implementation of ICT in career services (Bimrose & Barnes, 2010; Bimrose et al., 2010), including high-quality technical infrastructure and technical support, a systematic approach to change management, workforce development, and client empowerment and engagement. In this regard, Hooley et al. (2010) noted that digital literacy enables individuals to interact confidently with technology-based content and services. Bimrose, Kettunen, and Goddard (2015) argued that successful integration of ICT into career practice depends on three key factors: policy support at both macro and micro levels; workforce development to ensure that career practitioners feel confident and competent in this aspect of their work; and an ICT system design that fits the specific purpose. Additionally, funding must appropriately balance the costs of hardware and software infrastructure with implementation costs (e.g., staff time) (Sampson, 2015).

While there is increasing use of ICT in career services in most countries, the success of adoption and operation varies significantly from country to country. With constant technological developments, improved implementation of ICT in career services becomes increasingly important. In order to achieve this aim, both policy and practice must be informed by a broader understanding of the challenges of ICT implementation.

Aim and Research Questions

The present study examines conceptions of challenges in the implementation of ICT in career services among international career development experts. The aim of the study is to identify and describe the qualitatively different conceptions of the phenomenon. The study was guided by the following research questions: (1) What are career development experts' conceptions of challenges in the implementation of ICT in career services? and (2) What are the critical aspects that differentiate qualitatively varying ways of understanding the phenomenon? The ultimate aim of describing the variation in conceptions is to expand understanding of the critical aspects that may play an important role in further developments and the successful implementation of existing and emerging technologies in career development.

Methods

This study adopted a phenomenographic approach (Åkerlind, 2005b; Marton, 1986; Marton & Booth, 1997; Marton & Pong, 2005), which is a data-driven analytic approach focusing on research participants' experiences, understandings or conceptions of a particular phenomenon at the collective level (Marton & Booth, 1997). Phenomenography is grounded on the premise that there is a limited number of ways of experiencing a particular phenomenon and that these ways are logically related to each other. Previous phenomenographic studies have examined, for example, conceptions of the role of ICT in relation to national guidance policies (Kettunen et al., 2016), leadership and management in guidance and counselling networks (Nykänen, 2011) and career practitioners' conceptions of social media for career services (Kettunen, Vuorinen, & Sampson, 2013).

The primary outcome of a phenomenographic analysis is a structured set of logically related categories describing qualitative variation in ways of experiencing or understanding the

phenomenon in question (Marton, 1986). According to Marton and Booth (1997) such categories of description should meet three quality criteria: each category should describe a distinctly different way of conceiving the phenomenon, a logical relationship between categories should be hierarchically represented, and there should be a limited, parsimonious number of categories that describe variation across the sample. The process used to ensure quality descriptions in this study is described in the data analysis section.

Participants and the Context of the Study

The study participants were designated governmental and non-governmental representatives at the 2015 International Symposium for Career Development and Public Policy (ICCDPP symposium) from 16 countries around the world. This was the seventh such symposium; its goals were to share experiences of creating national strategies for career development and to explore the possibility of building a network for exchanging such experiences on a continuing basis (Watts, Bezanson, & McCarthy, 2014). In general, these international symposia have sought to develop a sustainable mechanism for dialogue between those involved in career guidance practice and career guidance policy development. The respondents were representative of the entire career development community, including policy developers, national authorities, international institutions, managers of career guidance delivery agencies, leaders of national and international associations of guidance practitioners, researchers and trainers of career practitioners. The participants responded to an online survey emailed by the symposium coordination unit to country teams (one response per country) during the spring of 2015. Responses were received from the following 16 country teams: Asia-Pacific, Austria, Canada, Denmark, Estonia, Finland, India, New Zealand, Nigeria, Norway, Qatar, Saudi Arabia, South Korea, Tunisia, the United Kingdom and the United States. This included 52 delegates, 22

of whom were women and 30 of whom were men. Of these, 12 were government employees in ministries of education and employment; 20 were civil servants in the education and labour sectors; and 20 represented national guidance forums, centres or associations. The data collection was a part of the preparation for the ICCDPP symposium on career policies, research and practice, conducted to enrich the discussions at the symposium held in Des Moines, United States, in June 2015.

Data Collection

The survey data were collected using open-ended questions that asked participants to provide written responses at a national level as country teams. Since the primary focus was on capturing the richness of the collective experiences around the world, the open-ended survey method constituted an appropriate means of data collection for this phenomenographic research, not least because the data could be collected in a relatively short period of time. Although this approach provides little or no opportunity for follow-up questions, it has been successfully applied in a number of previous phenomenographic studies (e.g., Kettunen et al., 2016; Loughland, Reid, & Petocz, 2002; Stokes, Magnier, & Weaver, 2011; Tynjälä, 1997).

The survey was emailed to participating county delegations in April 2015. The country teams (one to five people) were asked to provide a country-specific response (maximum 1500 words) to the following three open-ended questions: a) How are technologies currently used to support workforce preparation, placement, and development policies for young people in your country? b) How does the use of technology connect with the existing structure for the provision of career guidance? and c) What are the challenges your country faces in relation to emerging technologies? The length of the answers ranged from half a page to three pages, with the average being two pages. In total, the data amounted to 33 pages of text (A4, single spaced). Kettunen

and Vuorinen (2015) synthesised the country teams' responses on the role of emerging technologies in career development and public policy. The purpose and value of revisiting the data here is the opportunity to gain some deeper insights of career development experts' conceptions of challenges in the implementation of ICT in career services and bringing into view the critical aspects of challenges which may play an important role in further developments and the successful implementation of existing and emerging technologies in career development.

Data Analysis

The data were subjected to phenomenographic analysis (Åkerlind, 2005b; Kettunen & Tynjälä, 2017; Marton & Booth, 1997; Marton & Pong, 2005), following the guidelines and examples provided by Åkerlind (2005a, 2005b), Bowden (2000a), and Bowden and Green (2005, 2010). In the present study, the analytical process involved three phases. The first of these focused on identifying and describing conceptions of the challenges of implementing ICT in career services in general terms. Written responses to an open-ended survey were considered as a whole and repeatedly re-read to obtain and identify the underlying foci and intentions expressed in them. The use of the entire transcript, or of large sections of each transcript, had the purpose of improving accuracy in the interpretation of the answers (Åkerlind, Bowden & Green, 2005). To identify key relationships and distinct characteristics, subsequent readings focused on similarities and differences in the expressed meanings. Gradually, by comparing and contrasting identified similarities and differences, a draft set of descriptive categories for collective meaning was developed, defined, and named.

The second phase of the analysis focused on delineating the logical relationships among the various categories. Themes that ran through and across the data were identified and used to structure logical relationships within and between categories (Åkerlind, 2005a). The objective

was to distinguish one way of seeing a phenomenon from another, more complex one (Åkerlind, 2005a; Marton & Booth, 1997). Throughout this phase, the initial categories of description were further elaborated, fixed and defined, with constant reference to the data and the characteristic features of each category.

To ensure robust analysis, the data were initially analysed by the first author, and a second opinion was then sought from research colleagues. There were several such meetings to discuss and revise the categories and their structures, so ensuring that the interpretations were valid. Research colleagues acted as critical friends, probing the category candidates and their critical aspects and seeking justifications for the particular formulation from within the transcripts. As discussed by Bowden (2000b), this group process made it less likely that the analysis would end prematurely. It also minimised the researcher's subjective perspective and ensured faithfulness to the data when formulating the categories of description. Iterative re-reading and re-drafting were repeated until saturation occurred; that is, until re-reading failed to produce any significant changes in the categories of description (Bowden & Green, 2010). Authors have experience in qualitative research, phenomenography and information and communications technologies in career services.

The final phase of the analysis focused on ensuring that the categories of description fulfilled Marton and Booth's (1997) quality criteria (as described earlier), ensuring that each category described a distinct way of experiencing the phenomenon, that the logical relationships between categories were hierarchically represented, and that the categories were parsimonious and limited in number.

Results

Analysis of the data revealed four distinct categories of description that reflected career development experts' conceptions of challenges in the implementation of information and communication technologies in career services (Table 1). The challenges in the implementation of ICT in career services are conceived as: 1) inadequate access to ICT, 2) inadequate access to information, 3) inadequate skills and competencies and 4) inadequate integration. The differences between the categories appeared along six dimensions of variation that included: *approach to ICT*, *development emphasis*, *rationale*, *level of usage*, *guidelines and strategies for ICT integration*, and *identified system features for improvement*.

Table 1. Career development experts' conceptions of challenges in the implementation of ICT in career services

Each category is described in further detailed below with excerpts from relevant written responses to illustrate key aspects of the categories. It is important to note that this categorization represents collective—rather than individual and country specific—conceptions of challenges in the implementation of ICT in career services.

Description of the Categories

Category 1: The Challenge in the Implementation of ICT in Career Services is Inadequate Access to ICT. In the first category, the challenge in the implementation of ICT in career services is conceived as inadequate access to ICT. In this category, the approach to ICT is *technology focused*, emphasising the need to enhance the development and improvement of *ICT infrastructure*. As it is impossible to capitalise fully on the rapidly expanding opportunities

afforded by ICT without adequate infrastructure, the expressed rationale is to *widen* and extend *access* to ICT.

> "Most schools in [country] still lack infrastructures supporting the utilization of career-related content, such as the Internet and electronic devices."

> "The ICT access and use in [country] is limited to basic voice and low-speed data services."

The identified level of ICT usage is at the *emerging* stage in this category. There is an *acknowledged need* for national guidelines and strategies from which to operate to ensure that citizens have access to career services, including ICT-based services. The identified system-level improvement is reflected in models and levels of *funding*. Respondents referred to the difficulty of securing funding for developing infrastructure and the use of ICT in career development provisions.

> "A pervasive community-reach or a nationwide career guidance programme has not been so far established in the country."

> "Technology costs money, and resources are limited."

> "The high cost of plans, rather than coverage/accessibility, remains the largest impediment to improved access to emerging technologies."

This category represents the narrowest conception emerging from the analysis of written responses. Its defining feature is the development emphasis on securing funding to widen and extend access to ICT by improving infrastructure.

Category 2: The Challenge in the Implementation of ICT in Career Services is Inadequate Access to Information. In the second category, the challenge in the implementation

of ICT in career services is conceived as inadequate access to information and career-related content and materials. The *content focused* approach to ICT emphasises the need for *consistency* of career information and support for traditional career services through institutional websites and additional services from national, provincial, local and institutional providers. The expressed rationale is to improve availability and *access to* relevant, updated local or culture-related, *information* and content, modified to fit the latest ICT technology. Even when the requisite infrastructure is available and individuals are able to access the technology, the cost of adequate bandwidth and relevant content, systems or services remains an important concern in some countries.

> "Career information developed in the past should be modified to fit the latest ICT technologies and career contents should be continuously updated or additionally developed."

> "There is a discrepancy among school districts that are able to afford expensive systems that offer more college planning support and those that struggle to afford a less sophisticated systems."

In this category, the identified level of ICT usage is *applying* it to career services. There is seen to be an *evolving* national effort to develop guidelines and strategies, not only to ensure that citizens have access to career services but that these services (including ICT-based services), respond to individuals' changing needs throughout life. At a system level, the identified need for improvement refers to technological solutions, including modernisation of career *resources and services*.

> "We are only starting to develop a national strategy."

> "While the ICT structure is well developed, the actual range of ICT-based products and services utilised in education, employment and career guidance is limited."

> "The country is under intense pressure to catch up with the increasing demand for technological solutions."

This category extends the previous one, as the career-related information features come to the foreground. A defining feature of this category is the development emphasis on consistent career information, made available through modernised resources and services.

Category 3: The Challenge in the implementation of ICT in Career Services is Inadequate Skills and Competencies. In this third category, the challenge in the implementation of ICT in career services is conceived as inadequate staff skills and competencies. Here *pedagogically focused* approach to ICT emphasises the need for practices and training methods to improve the *digital skills* of citizens and career practitioners. An individual's lack of general computer skills can constrain implementation and everyday use of ICT. The successful integration of existing and emerging technologies in career services depends not only on the available skills or technical facilities, but also on practitioners' willingness to accept the service delivery changes that new technologies may bring. The expressed rationale is to provide quality services *effectively* to clients within a virtual services environment.

> " Targeting older generations with technology-intensive services poses challenges in both product trial and adoption since in [country], older generations do not use technology in their day-to-day life as intensively as the younger generation."

> "Another challenge related to ICTs and the provision of career guidance is the generally tech-averse population of career development practitioners."

> "There is a felt need ... to adequately manage ICT for effective use of emerging technologies in education, employment and career guidance sectors."

In this category, the identified level of ICT usage in career services is the *integration* stage. There is a *sectoral agreement* in relation to ICT integration and online services, but challenges remain around the fragmentation of services and diverse technologies. The identified system-level improvement requirement is *structural cooperation* on information management and data exchange. While the career services sector has access to an ever-increasing number of technology products, the systems cannot always speak to each other, so preventing the exchange of information and data.

> "As a whole, the integration of technology within existing structures and guidance provision is not yet consistent."

> "Current technologies utilised in education and workforce placement and development are of diverse nature, creating situations of incompatible technologies that hinder smooth flow of information exchange among the organisations involved."

> "The most challenging task in use of ICT tools in career guidance and career development, especially for youth, is to find a consistent approach for an integrated ICT services."

This conception is wider than in previous categories, as there is awareness of a greater number of challenging aspects in the implementation of ICT in career services. A defining feature of this category is the development emphasis on improving the digital skills of citizens and career practitioners.

Category 4: The Challenge in the Implementation of ICT in Career Services is Inadequate Integration. In this fourth category, the challenge in the implementation of ICT in career services is conceived as inadequate integration. This approach to ICT is *systemically*

focused, emphasising the need for more formal support mechanisms for *ICT integration* by creating a common conceptual framework for modelling the services. The expressed rationale is is to improve the quality and *efficiency* of career guidance services through more efficient use of ICT resources and data, along with more coherent and on-demand services.

> "There is an overall lack of seamless integration of new technologies with counselling practices."

> "Significant variation exists in the degree of ICT integration. . ."

> "The development requires the integration of technology within services from different providers and the use of technology in merging the services into one coherent entity which is accessible and easy to use."

> "The national Labour Gateway is a nationwide initiative and is expected to substantially improve labor market efficiency through facilitating communication between labor market participants and centralizing labor market data."

In this category, the identified level of ICT usage in career services is the *transformation* stage towards career services that enable delivery as an on-demand service. Among public actors at ministerial or regional level there is a *cross-sectoral agreement* and jointly designed conceptual framework for integrated career services. The identified improvement need at system level is a *commitment to the sustainable development* of ICT in the career service sector,, including the development of plans and statements of cooperation and engagement that spell out joint responsibilities, objectives, agreed contributions or resources and other aspects of the linked but distinct roles of the participating actors. This lack of commitment to sustainable development is also reflected in the absence of reliable monitoring systems and effective assessment of the impact of IT investments.

"The conceptual framework for the new integrated career services is jointly designed by ministries and key national stake holders."

"A challenge is the engagement of different sectors in a jointly agreed strategy in the maintenance and further sustainable development of the services. This includes commitment in long term planning and joint funding mechanisms."

This category represents the most complex conception emerging from the analysis of the written responses, as it encompasses the conceptions in the preceding categories. A defining feature of this category is the development emphasis on the need for commitment to the sustainable development of ICT in career services.

Relationship Between the Categories

The categories of description were delimited from each other and organized hierarchically through dimensions of variation that emerged from the data. Given the hierarchical nature of the categories, some conceptions can be regarded as more complete and more complex than others (Åkerlind, 2005a).

The *approach to ICT* differed across all categories. In Category 1, where the challenge in the implementation of ICT in career services was conceived as inadequate access to ICT, the distinct difference in relation to other categories was the *technology-focused* approach to ICT. In Category 2, there was a shift from technology to a *content-focused* approach where the challenge was conceived as inadequate access to content and materials. There was a viable turning point in Category 3, as the emphasis shifted from technology and content to a *pedagogically focused* approach. In Category 4, where the challenge in the implementation of ICT in career services was conceived as inadequate integration, there was a shift to a *systemically focused* approach.

The *development emphasis* changed across the categories of description. In Category 1,

emphasis was placed on the need to enhance the development and improvement of *ICT infrastructure*, including Internet and mobile network access. In Category 2, the emphasis shifted to developing the consistency of career information by improving information exchange and flow. In Category 3, where the challenge in the implementation of ICT in career services was conceived in terms of inadequate skills and competencies, emphasis was placed on improving the digital skills of citizens and career practitioners. In Category 4 (the most complex category), the development emphasis was placed on cooperation, engagement and commitment among the participating actors to the sustainable development of ICT integration in career services.

Shifts in the underlying rationale for ICT in career services involved transitions from widening access to ICT and information to improving the quality and efficiency of career services. In the least complex categories, the expressed rationale was to widen *access to ICT* (Category 1) and *access to career information* (Category 2). There was a visible turning point in Category 3, where the challenge was conceived as inadequate skills and competencies, marking a change in the underlying rationale from widening access to ICT and information to providing more *effective* client services. In Category 4, the key rationale related to the potential to improve the *efficiency* of career services.

Level of ICT usage varied across the categories. In Category 1, where the challenge was conceived as inadequate access to ICT, the *emerging* stage where awareness of possibilities in usage of ICT in career services was identified. In Category 2, where the challenge was conceived as inadequate access to content and material, ICT usage was characterised as *applying* ICT to career services. In Category 3, where the challenge was conceived as inadequate skills and competencies, the level of usage was characterised as *integration* of ICT in existing career practices. In Category 4, the level of ICT usage moved to the *transforming stage*, moving

towards on-demand career service delivery.

In terms of *guidelines and strategies for ICT integration*, the transition across categories was motivated by the acknowledged need for cross-sectoral agreement. In Category 1, emphasised an *acknowledged need* for national guidelines and strategies. In Category 2, this changed to *evolving* effort to develop guidelines and strategies to ensure lifelong career services. A turning point was again seen in Category 3, marked by a shift to the creation of a *sectoral agreement* regarding ICT integration and online services. In Category 4, a further important shift referred to *cross-sectoral agreement* for integrated career services among public actors at ministerial or regional levels.

The *identified system-level improvement need* varied across categories. In Category 1, where the challenge in the implementation of ICT in career services was conceived as inadequate access to ICT, the identified system level improvement need was on *funding and resources*. In Categories 2 and 3, where the challenge was conceived as inadequate access to content and materials (Category 2) and inadequate skills and competencies (Category 3), the identified improvement need at system level shifted to *resources and services* (Category 2) and *structural cooperation* (Category 3). In the most complete category, the identified improvement need moved to those regarding *commitment to sustainable development.*

Discussion

This study identified career development experts' conceptions of challenges in the implementation of ICT in career services in four distinct categories of description ranging from inadequate access to inadequate integration. Six dimensions of variation were identified: approach to ICT, development emphasis, rational for ICT use, level of ICT usage, guidelines and strategies for ICT integration, and identified system features for improvement.

While the findings generally align with earlier studies, there are also some new insights on challenges in the implementation of ICT in career services. The main similarities with earlier studies (e.g., Sampson, 2000) are found in the first three categories, where the perceived challenges in the implementation of ICT in career services included inadequate access to ICT and to content and materials, as well as inadequate skills and competencies. These finding are in good agreement with earlier observations that while the digital divide (in relation to ICT access, investment and knowledge and skills) has narrowed, it has not disappeared (e.g., Bimrose & Barnes, 2010; Hooley et al., 2010). The findings also support Kettunen et al.'s (2015) observation that the extent to which countries exploit the role of ICT in career services varies from unexploited to strategic. This study also echoes Bimrose et al.'s (2010, 2015) account of factors that need to be addressed for successful implementation of ICT in career services, including high-quality technical infrastructure, workforce development and client empowerment and engagement. The present findings also support Sampson's (2002) observation that poor integration of new technologies in service delivery organisations limits the effectiveness of service delivery and assessment of the impact of IT investments.

In Category 4 (the most complex category), there is a discernible shift of focus to development of more integrated and user-centred lifelong guidance systems and ICT integration that would transcend separate sector-based or provider-centred provisions (ELGPN, 2010). The present findings revealed that implementation of such a strategic approach (Kettunen et al., 2016) requires both jointly agreed cross-ministerial strategy for lifelong guidance and a common conceptual framework for service delivery and funding, as well as a formal commitment to the sustainable development of ICT in career services. Even with coherent guidelines and strategies, however, implementation of ICT in career services is seen to be a complex and protracted

process.

To improve implementation of ICT in career development, existing barriers to the implementation of effective internet-based guidance must to be prioritised, addressed and overcome at all career development levels. Implementation is an ongoing process; by better anticipating challenges before they occur, less time is needed to resolve issues that could have been avoided (Sampson et al., 2003). Further enhancement of synergies among actors and stakeholders at national, regional, and local levels is needed to ensure a common vision, leadership support and a strategic path for implementation of ICT-based career development services in national eGovernance strategies Ultimately, more effective implementation is seen to promote better use of higher quality resources and services by citizens.

Several specific strategies for improving ICT implementation effectiveness can be directly linked to the results of this study. For Category 1, where the primary ICT implementation challenge related to inadequate access to ICT, this barrier can be addressed with adequate funding. Given the existing high levels of competition for funding, only projects with demonstrated need and credible plans to meet those needs are likely to receive funding. A systematic implementation process is more likely to result in a credible plan, which in turn is more likely to succeed and therefore more likely to secure funding. Any such plan should encompass (1) program evaluation, linking ICT design and use with evaluation of client needs, (2) integration of new and existing resources and services, (3), staff training, (4) pilot testing, and (5) ongoing evaluation and accountability data (Sampson, 2008). The inclusion of processes for ongoing evaluation in an implementation plan can provide the evidence of efficiency and effectiveness necessary to maintain funding.

For Category 2, the primary ICT implementation challenge related to inadequate

information access can be addressed by funding for ICT bandwidth, information creation, and delivery systems. The same criteria apply here for the development of credible plans as in Category 1. Two aspects of the Sampson's (2008) model are especially relevant in Category 2: the creation and dissemination of information among collaborating partners in career service delivery to exploit synergies and the ongoing refinement of information content and delivery based on program evaluation data.

For Category 3, where the primary challenge related to inadequate ICT competencies, this can be addressed by increased attention to staff training and citizens digital and media literacy. According to Sampson's (2008) the implementation model, effective staff training includes (1) program evaluation to assess client needs and requisite staff competencies to meet those needs, (2) design and pilot testing of staff training resources, and (3) refinement of staff training resources in response to ongoing service delivery evaluation, evolution of ICT, and changes in client needs.

For Category 4, the primary ICT implementation challenge related to inadequate integration of ICT. This barrier can be addressed by increased coordination among collaborating partners in career service delivery. In this regard, Sampson (2008) recommended (1) early involvement of collaborating partners in the design of services and referral networks to avoid fragmentation and duplication of expensive resources and services, (2) participation in shared staff training to improve referrals, and (3) ongoing program evaluation to monitor the effectiveness of integration. It is interesting to note that although the four categories identified here relate to ICT, an adequate response to these implementation issues emphasise human rather than technological solutions.

The ICCDPP symposium and this study were designed with a particular scope. The

delimiting factor for the current study was the symposiums general focus in the design and

delivery of career guidance for young people and adults. This study was not without limitations.

Participation in the country teams was voluntary and data collected at a single time period may

not represent all of the critical aspects from the perspective of the entire career service sector.

The data were collected in 2015 and provide an overview of career development experts'

conceptions of challenges in the implementation of ICT in career services at that time. Given the

rapid changes in ICT, and its purported growing use in career services, further studies on the

current topic are therefore recommended. Another intriguing area of future phenomenographic

research would be to explore the possible developments in the implementation of ICT in career

services among international career development experts.

Conclusion

By exploring the logical relationships between qualitatively different conceptions, this study

provides a way to view the varying challenges in the implementation of ICT in career services

across 16 countries. The hierarchical structure of the categories enables policy-makers and other

stakeholders to deepen their understanding of critical aspects that may play an important role in

further developments and the successful implementation of existing and emerging technologies

in career development. The matrix presented in this article may serve as a catalyst for discussion

on challenges in the implementation of ICT in career services that were previously avoided or

overlooked. In addition, the hierarchical structure of the findings may provide a tool for

evaluating developments regarding the implementation of ICT in career services at both national

and international levels.

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